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AN

ILLUSTRATED WEEKLY MAGAZINE,

FOR THE

Architect, Engineer, Archaeologist, Constructor, & Art-Lover,

CONDUCTED BY

GEORGE GODWIN, F.R.S., F.S.A.

*Honorary Member of various Societies; Author of "History in Ruins," "Town Swamps and Social Bridges,"
"Another Blow for Life," &c.*

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"Every man's proper mansion-house, and home, being the theater of his hospitality, the seat of self-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kinde of private princedome, nay, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

"Architecture can want no commendation, where there are noble men, or noble mindes."—SIR HENRY WOTTON.

"Our English word To BUILD is the Anglo-Saxon Býlsan, to confirm, to establish, to make firm and sure and fast, to consolidate, to strengthen; and is applicable to all other things as well as to dwelling-places."—DIVERSIONS OF PURLEY.

"Art shows us man as he can by no other means be made known. Art gives us 'nobler loves and nobler cares,'—furnishing objects by the contemplation of which we are taught and exalted,—and so are ultimately led to seek beauty in its highest form, which is GOODNESS."

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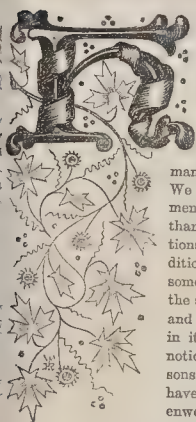
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The Builder.

The Condition of London Question.



BEARTY efforts are being made by many of our contemporaries, and with success, to bring relief to the distressed thousands to be found in our many-sided metropolis. We cannot better commence our new volume than with some observations bearing on the condition of London, and some of the causes of the sickness, destitution, and crime to be found in it. We are glad to notice that several persons who themselves have investigated Clerkenwell, St. Giles's, Golden-lane, Bethnal-green,

and other parts which are extensively occupied by the poor, are making known through various channels the results of their observations. The accounts, as our readers are prepared to expect, are most distressing. Mr. G. W. McCree, in a walk during a few hours in St. Giles's, found the following cases:—An artisan, who with his wife and two children have had typhus fever; his wife is dead; two fingers of the man's hand have been poisoned, and he cannot do any work at present. In another place, an aged woman, deformed, gets her living by needle-work; she earns 4d. a day. A mother and two sons, husband dead, have all had typhus fever; the landlord has taken their bed for rent. A poor man's wife "confined" in a cold cellar. In another place, a widow, and two other children; the boy, his mother's chief support, has lost one eye, and will probably lose the other; could not pay their rent, and had spent two cold nights in the streets. A mother, a Frenchwoman, in a bed on the floor, with her newly-born child beside her; her husband is dead in the hospital, but they dare not tell her; five children are left; her husband was a refugee. In another place, up a dark pair of stairs, in a back room, Mr. McCree found the dead body of a man; he was not in a coffin, although he had been dead for four days; "his ghastly face was exposed to the

view of the children, who were playing near the corpse." Such are the views shown by a short walk in this parish. From other places we have similar tales. From Bethnal-green comes the usual weekly report of death from sheer starvation, pestilent rooms, fever close to ill-drained water-closets, and yards on which the surface water stands, short water supply, and those other evil conditions to which we have so often directed attention. Each year's observations show how much our accounts have been under-stated.

A word or two here as to one of those evil conditions. It is a fact, to which we have before directed attention, that during the raging of the cholera the disease was found more fatal proportionately in the kitchens and in the attics of tenemented dwellings than in the other parts of houses; and the same may be said of several disorders which depend in a great measure on atmospheric derangement for their commencement and encouragement. It is true that it is in the basement and upper parts of houses of this class the greatest extent of poverty and privation is to be found, and this predisposes to disease; but the main cause of the extra sickness in these places is the want of attention to ventilation. In many such cases, indeed, ven-

in the garret is a window, containing five panes of glass, 8 in. wide by 9 in. high: two only of these squares seem to be made to open. During the summer weather the sun beats on the roof, causing a most unwholesome and intolerable heat, and to this is sometimes added the heat of the fire needed for cooking and other operations. When we consider this, as well as the number of people who, in the present transition state of the metropolitan dwellings, are forced to live together, the unsanitary construction of the staircases, and the common practice, even when some amount of ventilation might be afforded, of keeping the windows closed at night, we need not wonder at the unhealthiness of such places. A large part of the vitiated air of the house finds its way into the upper stories. Many of the higher portions of old-fashioned inns, and, indeed, houses of other descriptions, want careful attention as regards the apartments in which the servants usually sleep.

In the metropolis there are numbers of the servants of tradespeople, and of those more opulent, who are removed to their homes or to the fever hospital, stricken with dangerous disease, owing, in many cases, to the bad construction of the apartments in which they sleep.

A reference to the engraving will show, that the floor of the garret is level with the eaves of the roof; and then a part of the narrow end of the angle formed by the roof is partitioned off, which limits the central space. With a little contrivance those upper stories might be rendered more wholesome: there would often, for instance, be no difficulty in opening another small window on the other side of the roof. In Bethnal-green and Spitalfields, many of the upper rooms are better conditioned than are those in most other neighbourhoods; the cause being that they were used by the silk-weavers as work-shops, and large lights were needed on both sides; so that now those places having in many instances been transformed into homes for families, they have not only the advantage of good light, but also, if the tenants think fit, plenty of ventilation. We not long since urged the heads of families to make sanitary inspection of the back part of their houses. Let us now suggest that advantage would result

from occasional visits to the upper regions. In a house situate as is the one of which we engrave a sketch of the roof, in case fire were to break out, what would be the fate of women and children who might be sleeping in the garrets? In such instances the staircases



tilation is not possible. Take, as an example, the specimen which is engraved. In a large well-built house, part of the front of which is used as a shop, and where the rooms are let to different families—the garret as well as other rooms—the only space for light and ventilation

generally become impassable in consequence of the fire and smoke, and the application of the fire-escape to the back part of the premises which the garret window overlooks would be impossible, owing to the peculiar nature of the ground, the high walls, and other impediments. A clause in the Metropolitan Building Act is supposed to regulate the height of inhabitable rooms in the roofs of houses, but it is altogether inoperative. To return, however.

A woman has been found dead in a room at Morterton, so miserable that the jury and coroner were startled and shocked. Such events as these are becoming of almost daily occurrence. The parish refuses to give outdoor relief, and the people will not go into the house; so they die.

Still the London workhouses get filled. Some of our daily contemporaries have given valuable figures in connexion with the pauper population now in the workhouses of the metropolitan districts. It is pleasant in these notices to read accounts of the supply of roast beef and gigantic plum-puddings, on the production of which the masters of workhouses seem especially to pride themselves. In the accounts referred to, we find a report of the population of parishes; the increase as given in the last census return; and a comparison of the price of butcher's meat, bread, &c., between the years 1863 and 1864. From the latter it appears that the cost of the staff of life has been almost stationary, but that the price of butcher's meat has very largely increased.

There is, however, one particular part of this report to which we would direct especial attention, viz., the variations which have taken place in the years 1863 and 1864, in the numbers of persons that have received relief from the different parishes. This is a matter for study, inasmuch as it indicates the direction in which the poor have been driven by their removal from dwellings in certain districts which have been pulled down. There are some omissions in the newspaper report, but of the parishes mentioned ten show a decrease, in some instances very slight, in the number of persons receiving in-door and out-door relief; and eighteen parishes show an increase, in some cases to a very large extent: we give the figures as they are placed in our hand.

In the City of London Union, the total decrease of the poor receiving in-door and out-door relief is 135. In Marylebone, the decrease, compared with last year, is 141; West-London Union, 12; St. James's, Westminster, 53; St. George's, Hanover-square (no account of the numbers of the out-door poor), decrease of in-door poor, 5; St. Mary Abbot's, Kensington, decrease of poor receiving parish relief, 210; in the Strand Union the numbers remain about stationary; St. Leonard's, Shoreditch, the total decrease is 66; St. John's, Hampstead, 3; St. Mary's, Paddington, 26; Brentford Union, 36.

The increase of the poor receiving parish relief is stated to be as follows:—St. Pancras, 153; St. Martin's-in-the-Fields, 19; St. Mary's, Newington, 131; St. Mary Magdalene's, 67; Greenwich Union, 124; Whitechapel Union (in-door poor: no statement of the extent of out-door relief), 5; Stepney Union, 14; St. George the Martyr's, Southwark, 238; St. Mary's, Rotherhithe, 224; St. Margaret and St. John's, Westminster, 82; Hendon Union (in the house), 3; Holborn Union, 22; St. Mary's, Islington, 62; St. Saviour's Union, no return; Mile-end Old Town, 53; St. Mary's, Lambeth, 691; St. James's, Clerkenwell, 100; Edmonton Union, 30; East London Union, 17.

It will thus be seen that there has been an increase of pauperism to the extent of 153 in the year in the parish of St. Pancras; and in the parish of St. George the Martyr, Southwark, 238; while in St. Mary's, Lambeth, the enormous increase of persons receiving parish relief has been 691 in one year. This is a difference so great that the causes of distress and the particular conditions of the poor in this district require investigation.

The enormous increase of the population of London is telling on all our charitable institutions. Notwithstanding the number of hospitals, for example, there is still a cry for more. Such is the pressure at the present moment in some of them, that it is difficult to find a vacant bed, and it is too often the case that the admitted poor are discharged and sent to their unwholesome homes before they have completely recovered or gained sufficient strength. Accommodation is grately wanted for patients who require care after they have been discharged from the general hospitals. Those who are acquainted with the working of

the London hospitals know well how sadly this is needed. Even the pressure of out-door patients on the hospitals is enormous; and those who have not visited them could not fail to be surprised at the crowds of sick who throng the waiting-rooms for several hours each day, except Sundays. Very varied is the appearance of those who form the groups. There are amongst them people both old and young, hard-working artisans, costermongers and idlers, decent honest-looking persons and those who have no characters to lose, decayed tradesmen, struggling to keep up an appearance, smartly-dressed women and many in thin and tattered clothing; others of the applicants look so respectable that it would scarcely be thought they could need the aid of such establishments, and yet to many of these the charity is the most valuable. Indeed, it is to the well-conducted struggling classes that hospital aid is often of the greatest consequence,—to those who could not in fairness claim the attendance of the parish surgeon, and who are unable to pay for the visits and medicine of the private practitioner. When sickness is in the house, the usual charge to the industrious part of the community for visits and medicine is 2s. 6d. a day. This in a week amounts to 17s. 6d.—a sum which it is almost impossible for persons of small means to pay for any length of time. If the rules be strictly carried out, the parish medical relief is granted only to persons whose income is less than 18s. a week, and it is by those who have families, whose earnings are more than the above-mentioned amount, that medical assistance is often much needed. We have met with many instances to show that there is great want in the crowded parts of the metropolis of an extensive system of free medical visitation and the supply of medicine. There is an establishment with these ends in view in Islington, the advantages of which might be greatly extended if its merits were better known. In connexion with this institution, which is situate near the parish church, persons who can obtain letters from subscribers can be attended at home, and have medicine without charge from the dispensary. In such districts as those of East London an institution of this kind would be of immense service. There are many sick persons who are so circumstanced that they cannot avail themselves of the hospitals: some are unable either to pay the cost of cab-hire or to walk to a distance; and there are numerous instances of persons needing skilful medical treatment who would not be admitted as inmates in the general hospitals. In Paris there is a good system of treatment of the sick poor: a paper is delivered to the patient, or his representative, which ensures the regular attendance of the doctor appointed to treat him, and is kept by the bed-side. On this paper the doctor is bound to record the exact time of his visit and the patient's condition, and an inspector from the bureau follows from time to time in his wake to see that due care has been given to the patient. The attendance on the sick poor in Paris at their own houses has been proved to be a great success, and an economy in money; the home patients costing on the average 15s. each, while every hospital-treated patient costs 2l.

Let us look in another direction, and ask for further aid for the thousands of poor children who are being brought up, or brought down, to swell the ranks of the dangerous classes. Thrown into the dirt, and without a guiding friend, they go on from bad to worse, and then society lifts its hands and wonders that there should be so many evil men and women in the world who are positively incorrigible, and go in and out of prison all their lives, as if the occurrence were merely one of the risks of their trade;—and so in fact they do regard it. "Why, Hal," says Falstaff, when reproached by the Prince with purse-taking, "'tis my vocation, Hal; 'tis no sin for a man to labour in his vocation." And so think the outcasts of our streets, the spawn of our slums.

The world does not recognise the connexion of cause and effect. Let us endeavour to illustrate it. We shall be pardoned for those referred to for the sake of the cause we have at heart,—the mighty interests that are at stake.

In the chapel of Buckingham Palace, one Thursday not long ago, amidst royal relatives, our beloved Queen assisting, and all the kingdom sympathising, an infant boy was christened Albert Victor Christian Edward. Love watches over his cot, carefulness hundred-handed protects his life, and develops his powers of mind and body. In due time competent men will conduct him to knowledge; he will be taught

his duty to God, his duty to his neighbour, his duty to himself; and no one doubts that being so taught he will become an honourable, upright, and noble man, acting through life as befits his high position. Accident, strong passions, half teaching, may lead him in the heyday of youth to what calmer and more tutored spirits would know to be irregularities and excesses, but this is the merest chance; and knowing the examples this honoured child will have before his eyes, and the tutelage which awaits him, the whole country is justly confident as to the result.

On the same Thursday, too, Mrs. Henry Smith's son was christened John. Papa had a dinner-party, invested 1,000l. in New Three, through the well-known brokers, Dale, Spigot, and Dale, in Master John's name, to accumulate quietly till he should be old enough to spend it properly; and, moreover, did several generous acts marking at once his comfortable affluence and state of personal delight. In due time John will have a private tutor, perhaps go to Rugby, his mother would like to get him some fresh connexions, will adopt a profession, marry an estimable young lady, and, if not a genius or general benefactor, will most likely discharge his duties as husband, father, and citizen, at all events respectably. If he should not do so, he will be an exception to be pointed at—the one John Smith out of a thousand who, well nurtured, well taught, and well placed, yet went to the bad, and brought the law down upon him.

On that same Thursday evening, in the back two-pair of a house in Lincoln-court, Drury-lane, a well-formed, beautiful little boy was born in public—at any rate in the midst of two families. The mother is a poor dissipated wretch, whose husband had left her four months before, and who will drive the child into the streets to beg, if she do anything, nothing, as soon as it can go alone. If this child (should it happen to live) do not run a career of vice and crime, and be the cause of expense and sorrow to the community, it, too, will be an exception in its class.

To educate is better than to punish. Prevention is better than cure. The neglected children of the streets should be made the property of the State.

THE GENTLEMAN'S HOUSE.*

IN an article on House-Planning, in our last volume, wherein were noticed one book that endeavoured to deal with the general subject, and another that treated of cottages, we adverted to the fact that "houses are productive of good or bad influences in conformity with the manner of their planning;" and went on to remark that there was then need of a perspicuous statement, "both didactically and for after-reference," of the points that ought to be considered in that branch of the process of architects' design. The still wider subject of iconographic distribution, and in its relation with the scenographic, or the production of *delight*, no less than with the attainment of *commodity and firmness*, is still left to the commendation in lectures at the Royal Academy, of it, as a study, and to the exercises resulting in those arrangements of plan, sometimes called academic, wherein the satisfying of material wants, and the conditions of actual sites, are little recognised,—educational methods which may be considered to have their chief representation in the Ecole des Beaux Arts. But something has at length been done towards exposition of the whole subject, and by a book that goes far to supplying the want that we originally referred to.

Mr. Kerr's volume, by the scheme and manner of its treatment, may be said to comprise but one portion of what is architectural design, but one of planning, and the planning of but one division of the class of buildings included under the head of habitations; but the scheme itself is worked out in a manner that may be called nearly exhaustive of principles and of detail for purposes of information and reference, and at the same time suggestive of those lines of further thought and study that belong to the vocation of the individual architect in the particular house upon which he may be engaged. It is a book eminently designed for those who will read thoughtfully,—that class of progressionists,

* "The Gentleman's House; or, How to Plan English Residences, from the Parsonage to the Palace; with Tables of Accommodation and Cost, and a Series of selected Plans. By Robert Kerr, F.R.I.B.A., Architect, Professor of the Arts of Construction in King's College, London." London, John Murray, Albemarle-street, 1864." 8vo.; pp. xxiv & 484; 44 plates & 20 cuts.

always ready to be searchers,—to carry on the "increasing purpose" from, and therefore after the ascertainment of, what there may be already of basis of legitimate precept and recorded fact,—the only readers by whom an author who has expended great pains can be appreciated, and the only public, perhaps, that he should care to address. Thus taken, the book will be found to suggest much in the matter of planning of dwellings below the class of "the gentleman's house," in that of all buildings for habitation, whether of the residents in towns generally, or in suburban and agricultural districts, and in those suited to the condition of the sections of the community generally included under the "lower middle" and "labouring" classes. By the exposition afforded of the requisites of the superior sort of house, also it may conduce to an ultimate great advance in the art of division of the architecture,—in art-architectural, wherewith Mr. Kerr, in his early exertions, occupied himself chiefly.

In this age of hurry, whilst abundance, who ever sets himself to ascertain, and who records, who has been discovered, is a benefactor in his field, and beyond it. He prevents that repetition of working out the same problems, that wastes the time of those who labour, but do not record; waste which, we apprehend, has characterized our profession, when compared with other professions,—that of the civil engineer as one,—and which still distinguishes the pursuit of architecture in this country from the practice of the profession abroad. Whether in France, Germany, or America, there seems to be a constituency of purchasers and readers of books on architecture or building, sufficient to justify publication of such works to a larger extent than in Great Britain. In Paris there are several shops entirely devoted to the publication and sale of books on architecture and engineering; in London there is hard work in maintaining one dépôt of the kind. There have been those acquainted with the publishing trade, who have declared that architects were neither buyers nor students of books. If they are not the latter, they are in error. We marvel that no enterprising person has had his eye upon the ground-floor of the Architectural Union Company's premises in Conduit-street, to establish there a place of sale for English and foreign architectural works, including photographs. The book now before us, we are glad to hear, has had an exceptional sale.

Mr. Kerr carries into effect the purpose of his treatise chiefly by an exposition of the arrangements and details required for the plan of a "Gentleman's House;" but he also enters into the history of the subject, and gives many examples; and he treats of site and cost, and of style as connected with plan. Prefixed to the body of the work is an elaborate "Index," or *Table des Matières*; respecting which we have to say, that had our author published nothing else under the title of his book, he would have deserved well of the profession and the public. The scheme in fact, of the book, constitutes much of its merit, or adds thereto. The actual arrangement in parts, divisions, sections, and short chapters, has helped to swell out the volume considerably; but it certainly assists the comprehension of the ordinary reader and the professional student. Not only the architect, but one who has had occasion to consider his own occupation of a house or a room, that is to say every one, may find in the work much that he is perfectly familiar with; and this circumstance perhaps gives an impression of diffuseness or repetition; but we should not have been disposed to omit much of what the author has set down. Indeed he has made some omissions. In particular, he does not make sufficiently clear to a non-professional reader, that planning, as of a "gentleman's house" or other building, includes much more than this book could teach. As to staircases, flues and smoke-conduction, drainage, and some other items, we might have desired a more pointed allusion to the minute attention which they require, to prevent the notion of a single plan drawing being sufficient, or without sections, to show what the architect had to design. Staircase-planning, the subject of distinct works by other authors, must be considered as quite inadequately treated; though we note, with approval, the remarks on the inconvenience of winders. The value of the book would have been enhanced by reference to works on the separate subjects, as on stables. Where the author does name in the text, an authority, as Parker, he should have quoted the title of the book at length. The authorities for the plans given, are quoted. Mr. Kerr has added to many of these plans,

"suggestions" of his own, as on the original occupation of many of the rooms. More precise reference than he gives in some of the cases, however, would be needed, seeing that what he characterizes as a defect, might turn out to be different, were there the complete illustration of the building. Even in the case of Somerleyton, a badly-arranged house, where the windows of the drawing-room open into the conservatory, the one plan does not suffice for our seeing that there are no other windows: we dare say, the case is as bad as the author puts it; and he cannot be far wrong in saying that the room "could not possibly be wholesome;" but there might be windows in the upper part of the room above the level of the conservatory-roof, and there might even be arrangements for admission of fresh air in the lower part of the room. We have so often had to say to committees that one drawing of a set, as a plan, is but like one of the parts of speech in a sentence, that we must not allow any present possible inference to the contrary; particularly as we do not gather that our author has described in all cases, with advantage of actual observation of the buildings. Amongst the omissions is that, in some of the plans, of an indication of the points of the compass, given clearly enough in others, and important for all, seeing that aspect has occupied much of Mr. Kerr's attention. But when we have said that reference to plates, in the body of a work, should give their pages, and directions to binder be added, we have mentioned all the omissions that here call for notice.

The matter of the volume is divided into six parts, which are headed,—*"A Sketch of the History and Development of Domestic Plans in England," "Exposition of Plan as now practised," "Notes on Site and the Grounds," "Notes on Architectural Style," "Notes on Accommodation and Cost," and "Critical Notes on the Plates."* The last part, "or Appendix," is connected with both the historical and expository portions of the book; though of the forty-four plates, the first twenty-two are given more especially for the history of plan. They include, in chronological order, Castleton Castle, and the White Tower, London, each of the eleventh century; Castle Acre Priory, twelfth century, and Castle Rising Castle, of about the same date; Charney Bassett Grange, thirteenth century; Kenilworth Castle, fourteenth; Wolterton Manor House, and Oxburgh Hall, fifteenth; Hengrave Hall, and Hatfield House, sixteenth; Inigo Jones's Ambresbury, and Stoke Park, seventeenth; Marlborough House, Blenheim, and Holkham Hall, commencement of the eighteenth; and Longleat, of the sixteenth century, as modified by Sir J. Wyattville in 1809, and Toddington, 1819; whilst to these are added, in seven plates, four expositions of contrast in later planning between what the author regards as Classic or Palladian, and what he considers Mediæval. In five plates, to the sketches, to one plan, or as many different styles, all now having, or having recently, had favour shown them.

The first part of the volume is merely divided into chapters, chiefly of the centuries from the eleventh to the nineteenth inclusive. But the second part, or "Exposition of Plan as now practised," gives a classification into "the Family Apartments," "State Rooms, &c.," "the Domestic Offices," and "the Stabling and Farm Offices, &c." The first division of these four is sub-divided into sections, as "General Considerations," "the Day Rooms," "the Sleeping Rooms," "the Children's Rooms," "the Supplementaries," and "the Thoroughfares;" and the third division similarly into sections, which include "General Considerations," "the Kitchen Offices," "the Upper Servants' Offices," "the Lower Servants' Offices," "the Laundry Offices," "the Bakery and Brewery Offices," "Cellars, Storage, and Outhouses," "the Servants' Private Rooms," and "Thoroughfares, Supplementaries, and General Arrangement." The part which gives the "Notes on Site and the Grounds" is divided into sections headed "the Choice of Locality," "the Choice of Site," and "the Arrangement of the Grounds and Adjuncts." But each of the other parts, and the sections of the divisions of the parts which we have named, are divided into many chapters. In some of these, guiding principles are discussed; and in others, the requisites of the separate rooms are described. The plans are drawn to one scale.

Although the question of style of decorative architecture has one part of the volume devoted to it, that branch of the extended subject of "the

gentleman's house" does not make any large portion of the whole. The discussion of two opposite systems of plan, the Mediæval and the Classic, as the author designates them, however, is frequently entered upon; and there may be those who would find fault with Mr. Kerr for the surrender of a preference that has been ascribed to him. Indeed he has, we think, allowed it to appear that he has a greater preference for the Mediæval arrangements than he feels. The truth is that there was a regular progression from the commencement of the period embraced by his historic sketch, down to the seventeenth century, in the arrangements for convenience and the several objects of good planning, and that in the latter period plans were adopted rather with a view to the production of decorative features, imitated from those of architecture on the Italian soil, than to that of convenience and to the English climate. The question is, how far regularity of the Classic plan, with the symmetry of corresponding halves, which looks well on paper, may not be made to serve directly convenience; and indeed how far some concession even, though a slight one, of convenience to effect, would not be defensible. There is a decorative treatment which can serve convenience. It is evident that the symmetrical arrangement assists persons in finding and remembering routes from point to point; and the advantage of this seems to be recognised by our author. There remains, however, the fact that the progression which had continued up to the time of the Tudor and Elizabethan buildings, and had at last supplied corridors as passage-way,—instead of continuing to make use of rooms, or of the open air,—was stopped by the foreign importation, to be resumed only in this present century; so that the preference is that which an architect should have for what is matter of the use of a building. Buildings on the one system may be made decoratively good; certainly those sacrificing convenience cannot belong to good architecture. Mr. Kerr gives the plan of Marlborough House as an illustration of the system wherein convenience was sacrificed to symmetry, and suggests an amusing inquiry as to the route that would have to be taken by the dinner in passing from the kitchen to the place where it might be eaten. He says,—

"Now the Kitchen is on the ground-level. The Dining-room is on the ground-level also. But to carry the dinner across the Entrance Court and in at the front door (see the plan) would never do. To carry it round by the garden and in at the saloon-door would never do. We might contrive a third route, thus:—along the colonnade, in at the library window (or sash-door rather), and so through the rooms and main thoroughfares; but this, although the best that could really be accomplished on the ground-level, is still a jest. The actual route was this: first down-stairs to the basement; secondly, through the basement Corridors (probably dark as Palladian basement Corridors generally were); thirdly, up-stairs along the wall of the Dining-room, and so to the Dining-room; and, fourthly, so on to the Dining-room in a manner (which, even if the three stairs might be preferred) still as awkward as the rest. And why all this inconvenience? Merely, it would seem, because the idea fixed itself on the architect's mind that the Kitchen would make a good wing. That the Kitchen must form an obtrusive and pre-emptive sham two-story house, with a sham reflection opposite, was no matter; that its windows must look out upon the Entrance Court, and that it must actually have a door opening into the Court (under a sham loggia), were acceptable conditions; that the unhappy footmen, for a hundred years or more, must stumble downstairs and upstairs, and through infinite tortuosities besides, with their soup-tureens and barons of beef, was not to be helped; let the kitchen be a wing, and it was a wing. Such was Palladian plan."

As an example of block-plan, he thinks Marlborough House exquisitely good, and that the artistic hand of Wren it is which is therein seen; but he says, such merit or "paper-deep beauty" may prove to be itself a fault.

The making convenience secondary to symmetry, or to an idea of effect, led to faults in other plans which Mr. Kerr gives. The Mansion House would have afforded him an excellent illustration. There, there was originally a central open-court, as there is still above the ground-floor; and the way to the Egyptian Hall was across this court, with exposure to the weather, or through the state-rooms at the sides. Mr. Kerr however speaks favourably of some modern plans, which seem to be imitative of Mediæval arrangements rather than designed to meet convenience. One of these has an "irregularity of the thoroughfare lines" which we cannot consider with him as "especially interesting and ingenious" and reproduces the arrangement on plan of the Mediæval hall, in a manner in which there is more of mere imitation than of the art and planning which the author desiderates.

In his opening chapter of the book, Mr. Kerr observes that each nation possesses its own pecu-

liar model of plan; and the villa of Italy, the *château* of France, and the country-seat of England differ from each other just as their owners differ in habits of life. The entire recognition of this fact might perhaps have led him to give a higher place than he has to French plan, of which he has one example. The "test of progress in domestic buildings throughout Europe," he says, is greatly "involved in the question how far any particular nation has set aside the academical Palladian manner in favour of something more properly its own." The development of the English system is the course of advancement "from the Hall of the Saxon Thane to the Mansion of the modern gentleman."

The Saxon house of what Mr. Kerr calls "average degree" was mainly, a single large apartment, the Hall, which became the great feature in houses throughout the Mediæval period. As a covered inclosure, it was the opposite of the Roman atrium. The one room served for dwelling, cooking and eating, and sleeping in, for lord and lady, guests, serfs, and hounds. There was, however, under the same roof, another place called a *Cellar*, used for storage of provisions and beer; and this may have formed a basement-story; and there was an apartment in the dwellings of the better class, known as the *Chamber*, entered probably by an outer door. In royal abodes, there would be rather more accommodation, which would include a kitchen, a detached building. After the Norman conquest there were two descriptions of building, the house of the Hall and Chamber, for the husbandman; and the "gentleman's house," which was the castle.

In the twelfth century, the author finds a certain progression evidenced in a monastic building, Castle Acre Priory. There were manor-houses which were occupied occasionally by the great land-owners, who generally dwelt in castles, but were obliged themselves to consume the produce of their estates. The monasteries had their granges. The ordinary houses of the country were of the same description. A manor-house of the day appears to have contained a hall; a chamber, or private room, called *solar*; a kitchen; a larder; a *severy*, or buttery and pantry; and the "*cellar*" for stores. The "*cellar*" and hall seem to have been on the ground level; but the former was only half the height of the latter, and had the *solar* over it. The "*cellar*" and *solar* were at one end of the hall,—the entrance to the hall being at the other: both were entered from the outside. The larder and *severy* were placed in an attached building at the entrance-end of the hall, where was also a passage to the kitchen, which was removed to a little distance to avoid risk of fire. A porch to the entrance, and a back-door to a court-yard in which were the stables and out-buildings, were amongst the other features of the plan. The king's houses possessed a chapel, which was used for business as well as worship. Generally they seem to have had but one "chamber." But, the twelfth century manor-houses included or shadowed forth some of the leading features of plan of the best-known buildings of the succeeding periods.

In the thirteenth century, in the reign of Henry III. numerous licences for the fortification of manor-houses were given; and this fact is taken to show that even the owners of castles were beginning to prefer the other sort of habitation. The group of the hall, chamber or *solar*, kitchen, *severy*, larder, and "*cellar*," with perhaps a chapel, was added to or altered thus. The *severy*, or general service-room, was amplified and divided into the "buttery" or butler's store with wine and beer cellars, and the pantry, or bread, butter, and cheese store, and the chandlery. A distinct room called the *wardrobe* seems to have been substituted for the use of chests. Other chambers were added to the principal one, though the hall was the general dormitory. Screens are spoken of as in the royal chamber, and placed between the door and the bed, thus leading the way to the future introduction of separate bed-rooms.

As the manor-house came to be more and more preferred to the gloomy and inconvenient donjon-keep of the castle, as a residence, the keep was even left to decay; and a complete manor-house was erected in the inner bailey, the wall of which formed one side of the buildings. In the time of Edward I. we have the well-known castles that are called after him. The plan, or the old Norman keep amplified into a citadel, or a court fortified by a wall and towers, and surrounded by an outer line of circumvallation, or several lines. The central enclosure was

then occupied by a complete manor-house. In the houses of this thirteenth century, thoroughfares through rooms, even through the private chamber of the sovereign, were common. Fire-places were few in number, and the hall was still warmed by a fire in the centre.

In the fourteenth century, a step is considered to have been made towards securing domestic privacy, although the chamber had been added previously. The provision made was that of a "priest's chamber," which Mr. Kerr describes as "the first properly private apartment in an Englishman's house,"—the chamber of the lord even, at the commencement of the century, being "but a species of Family Parlour and bedroom, withdrawn from the turmoil of the 'great house-place,' and the Lady's Chamber 'generally a luxury to come.'" But offices were added, and arrangement was improved. The hall was now perfected. The chapel was placed near the dais. It was sometimes of two stories. The chamber, parlour, or *solar*, became the withdrawing-room; inside-stairs generally were substituted for the external; and rooms were set apart as bed-chambers, though not to the exclusion of use of the sitting-rooms also for sleeping in. Our author however concludes that "the art of convenient disposition" of apartments was "not keeping pace with the increase of accommodation," but adds that that "we could readily believe in any case." The difficulty of planning must necessarily increase with the number of apartments for separate purposes, and with the extension at the same time of the total area. Mr. Kerr gives the plan of Kenilworth, as illustrative of the fourteenth century additions, on the model of the manor-house, to the inner bailey of a Norman keep.

In the following period, important effects upon domestic plan, from the events which make the fifteenth century remarkable, and from the improved social condition of England, are noticeable. The hall, having much of its original purpose lost, was reduced, whilst existing features were retained; but the bay-window was added. The plan of Wolterton Manor House is a good example of this period. A gate-house, originally flanked by out-buildings, leads to a fore-court space to the main range of buildings, of which last the central feature is the porch to the hall. In the plan of Oxurgh Hall, the several apartments are grouped together surrounding a square court,—the entrance gateway, and the hall with its porch, being in the same relative positions as in the former case. In neither of these examples are there continuous corridors: in the latter case, there are a large number of external doors towards the court; and in both plans, internal doors of communication between rooms are substituted for corridors.

But, for the sixteenth century, the plan of Hengrave Hall would seem to supply the needed features, or unless its corridors be additions. They surround the square court; the main entrance and the hall being still in the same relative positions as before, but the latter not having any porch. In the case of Oxurgh, there had been a carriage-throughfare through the gateway, and crossing the quadrangle, to the porch of the hall; but in that of Hengrave, the quadrangle is only an area for light, the hall being reached by the corridors. The offices form a separate wing, attached at one corner to the general quadrangular group of the domestic apartments which surround the court. In the time of Elizabeth the hall either disappeared, or an inferior sort of hall was provided for the servants. The provision of a separate dining-room for the family, the increased importance of the Withdrawing Room, and the number of the Bed-rooms, are some of the items by which progress is marked; and in Hengrave Hall there are 120 separate apartments catalogued, including all that would be required at the present day. Mr. Kerr says:—

"Hitherto the multiplication of apartments had proceeded, besides the requisite doors of intercommunication between rooms, first an increased number of external doors, and secondly the addition of internal passages (although not many of these), narrow, defectively lighted, and tortuous. Now, however, although such doors and passages still remained in general use, yet in the better class of houses it was only in inferior parts; and the chief thoroughfares were made in the novel form of Corridors. 'That peculiar feature of Elizabethan plan, the Gallery,' was also introduced, some examples being not only important in respect of size, but almost magnificent in design. The staircase also became much amplified and elaborated."

The plan of Hatfield House is given as perhaps the most characteristic of the final Elizabethan manner. The plan is perfectly symmetrical.

The most distinctive feature is the gallery which extends along the line of the recessed front, for more than the whole length between the wings, and supplies the place of an entrance-hall; though the entrance directly into the middle of a side of the gallery, involves some waste of effect.

In the seventeenth century, the revived Classic style of architecture was brought into England by Inigo Jones; and, says Mr. Kerr, there appears to be "no reason to believe that any other than Jones introduced Italian plan." He continues:—

"Nothing could be more decidedly a revolution than the change which now took place in the arrangement of an English Gentleman's House. In a word, the old English model was made obsolete, and a new Mansion, to be in the fashion, must be an Italian Villa, copied out of Palladio's book, reason or none. Under the Mediæval system, including the practice of the Tudor period, we see a large variety of apartments gradually grouped together, without much regularity of disposition; the chief Dwelling-rooms and the Offices forming the ground-story (as in Hengrave, rather), and the sleeping-rooms, with some others exceptionally, constituting one floor above, or in occasional instances two. The new mode, on the contrary, as a rule, elevated the house upon a complete Basement, composed of the whole of the Offices, the Principal floor constituting the Family Dwelling-rooms, and one story above accommodating the Bed-chambers. In the matter of usefulness of design, the utmost endeavours of the Tudor time had been limited to an elaborated Porch at the Hall-entrance; a resuscitation in the Hall itself, in the form of some metretrophic ornament, of a little of that dignity which in all besides it had lost; and a corresponding magnificence, quaint rather than imposing, in the new Galleries and Staircases, which had been copied, perhaps, from the French, from the French, and the old Tudor Hall was entirely surrendered; upon quite another principle there was formed a central Saloon (a modification of the open Cortile of the large Palazzo), and the old Elizabethan Porch, reaching in height to the roof of the building, lightly thrown above, and surrounded by the apartment generally; instead of the comparatively trifling Elizabethan Porch, there was a majestic Portico of columns, with a broad ascent of steps; other entrances from the various quarters were disposed with little regard to economy of space, but with a constant study of imposing symmetrical effect; and, whether the design was on a large scale or a small, there was no longer any toleration of irregularity or picturesque irregularity of arrangement, but the whole building must be modelled into an imposing repetition, beside which the old Elizabethan mansion was in a manner dwarfed, while at the same time it must be confessed, that beside the Elizabethan mansion the new Villa too often might have been charged with seeming more like some temple of the gods than the home of an English family."

Comparing the plans of Stoke Park, and Ambresbury with those previously considered, no contrast could be more complete.

"The change is not one of details or of parts, but of radical elements. Hall and Chamber, Parlour and Drawing Room, and Gallery are all gone; and in their place there are to be the great Saloon of Italy, the Portico and Colonnade; these for display; and for dwelling-rooms a series of symmetrical compartments into which the bulk of the house is divided at haphazard, to be appropriated at discretion." "In short, we may almost say that the sense of grandeur was the first consideration, and the properties of convenience and comfort decidedly the second."

In the eighteenth century, the same system was continued. If the offices were not on the basement, there was some form of cellars as an under-story; and a pair, or even two pairs, of wings were attached to the main building, to accommodate the offices. The great central apartment, the Saloon of early Palladianism, became in name at least the hall, the "saloon" being a compartment immediately in the rear, the centre of a suite of drawing-rooms, but having a garden-door and a portico. The communications were defective; and thoroughfares again came into use. In some of the requisites of plan, compactness perhaps excepted, there had been no progress, whilst in certain respects there had been even retrogression. But there was much done towards the completion and organization, says Mr. Kerr, of "that catalogue of rooms which constitute a modern Gentleman's House;" and of course he does not omit to recognize the "pictorial magnificence" of Blenheim, and the "dignity" of Holkham, arising from the plan,—adding even that "so much is the rule throughout the whole period, that it is questionable whether in this respect the best works of the eighteenth century have ever been equalled in the nineteenth."

To the produce of this nineteenth century we shall next give attention.

INDUSTRIAL EXHIBITION AT THE POTTERIES.—We are very glad to hear it is proposed that an exhibition of the produce of the workmen in the district shall be held. Arrangements have been as far made that it is considered probable that the exhibition will be held in the month of April. Individuals will thus be enabled to show what they can do.

TOWN SEWAGE AS GUANO.

IN considering the sewage question people have, perhaps, not attached sufficient importance to the enormous consumption of guano and artificial manures generally, as an indication of the form in which it would be most useful. The secret of this successful sale and large use lies, in one word, in the portability of the article. Guano and most artificial manures are dry powders, easy to pack in bags, easily conveyed from place to place, and easily laid upon the land. Indeed, the last-mentioned process is performed with as little labour as the sowing of seed broadcast. A man takes as much as he can carry in an apron before him, and, stepping out with long strides, scatters it in handfuls as he paces up and down the land. While it is yet time, we may open the question as to the practicability and advisability of manufacturing town sewage into similar dry, powdery, guano-like compositions.

Phospho-Peruvian guano sells for 111. per ton. Its competitor, phospho-ammoniacal guano, sells for 91. 10s. per ton. The component parts of these manures are identical, the difference in the value being determined by the respective quantities of those parts; the Peruvian guano containing more than double the quantity of organic matter held in the latter. Next on the list stands bone meal in esteem: this is sold at 81. 10s. per ton; half-inch, or dust and drill bone, realizing 10s. per ton less. Superphosphate of lime, in which the insoluble phosphate is guaranteed to be pure raw bone, fetches 71. per ton; dissolved bones and superphosphate of bones, 71. 10s. and 61. 10s. respectively. Concentrated acid costs 101. per ton. These prices place figures before the eye which render it difficult to believe but that the converting of sewage into a portable commodity would be a profitable proceeding.

Happily it is no longer a question whether we shall waste our sewage or not. That is settled. All that is now required of us is to insure its most economical and remunerative management. We do not refer particularly to the London sewage, because this exceptionally enormous quantity may call for, and pay for, special treatment. Nevertheless, the remarks we are about to make are equally applicable to the metropolitan sewage as to any other. Of the places where utilisation has been attempted, Coventry has approached the nearest to a manufacturing process. At Croydon, Carlisle, Edinburgh, and Rugby, the irriguous portions of the sewage are dealt with; but here the fluid parts are suffered to discharge themselves into the river, and the solid residue is regarded as the valuable part of the matter. This is, as we have elsewhere stated, mixed with all the scavenage of the town, till it assumes the character of a thick pulp, when it is shovelled into the carts of the purchasers. And here the Coventry people stop. The objection to the present stage or development of this plan is the sloppy weight of the commodity and its unsuitability for conveyance.

It would be well to inquire, of what are the manures composed that at present monopolise the market? Phospho-Peruvian guano and ammoniacal guano contain unequal proportions of water, organic matter, soluble phosphates, insoluble phosphates, sulphate of lime, alkaline salts, sulphuric acid, and sand. Dissolved bones contain, according to Professor Penny's analysis, precisely the same component parts as these, only in different proportions, the sulphate of lime predominating. Superphosphate of lime, recommended by Liebig to be added to all sewage before use, contains less organic matter and more sulphate of lime than either of the manures mentioned. We should not shut our eyes to the fact that town sewage is rich in organic matter, the very large quantity of which held in guano is the cause of its extra value.

After centuries of waste of sewage, we cannot expect to grasp the right mode of dealing with it without a wrong guess or two at first. We must look at the subject from every point of view, and keep the fact that we have by no means arrived at a perfect system always before our eyes. The irriguous processes limit the use of the sewage to the lands in the neighbourhood of the town in which it is accumulated; and as round there must be waste in this plan. In the mode adopted at Coventry, the watery particles are drained off, and avowedly disposed of by discharge into a river; here, although it is contended that this fluid is useless, must be more waste. There should be none whatever. The golden axiom, "waste not, want not," applies

to sewage as well as to everything else. If rendered portable, the sphere of its usefulness would be so much extended that the supply could not exceed the demand. That anything capable of increasing the yield of field crops should be thrown to the dogs, or to the fishes, is as extravagant a proceeding as throwing bread into a pig-tub. Not only some, but all of the sewage should be turned to good account; with precisely the same frugality as that which directs the good housewife to require that not a crust of bread should be wasted. And whether we can ensure this economical utilization without its intermediate manufacture into cakes or coarse powder, is a matter for consideration. Dealers in manures regard the full consumption of town sewage on lands as a hopeless business till it is rendered portable, and so vendible.

It will be observed that all the manures now engrossing the markets contain sand, or insoluble silicious matter, as it is somewhat grandiloquently called. Sewage would require a similar arenacon stamens, or ingredient, calculated to solidify it. Although we do not compass to dictate details, we may suggest that it is in some such sufficient manner as that with which some of the difficulties attending the formation of the Metropolitan Main Drainage were grappled, that the present design should be undertaken. When a large quantity of gravel was required for concrete, the contractor purchased several acres of ground close by, and there and then dug out the requisite in question: in another place he ran out a pier for the landing of lime; and laid down several railways for the conveyance of his materials. The consolidation of sewage would call for similar ready, comprehensive, wholesale measures. Steam-power and the regular organization of a manufactory should be brought to bear.

Dublin and Birmingham are on the eve of an installation of improved economy in the disposal of their sewage. Would it not be a wise investment to spend a few pounds in experiments before a final, and, perhaps, second-rate, step be taken? If a private firm possessed a raw material that appeared likely to yield a remunerative profit by the application of a manufacturing process, we question whether there would be two opinions as to the advisableness of a test. And, again, if guano, or dissolved bones, or superphosphate of lime, were only applicable to certain contracted areas of land within the radii of a certain number of hose, we doubt whether there would be the large sale there is now for both.

The greatest difficulty there would be to contend against would be the ceaseless, cataract-like flow of the sewage. Taking one hint from a successful experiment, and another from a failure, we might combat this. It has been found that sewage collected in tanks for irrigation leaves a deposit of a thick pulp-like consistency, which every now and then has to be removed. In one case—mentioned in our survey of towns—this pulp is wastefully carted away or thrown into the river, so as to leave the tank free for the more watery portions. In another instance, also detailed in our survey, when one tank is full the flow of sewage is diverted to another, and the contents permitted to harden. Thus, we are assured, that whether it is wanted or not, there is a tendency on the part of sewage to consolidate itself. We might assist this tendency. Perhaps if the stream, instead of falling into a brick or stone tank, precipitated itself into a bed of highly-absorbent matter, we should gain the desired end. If we suggested lime as an absorbent, we would, of course, be reminded of the failure at Leicester. There are, however, other absorbents which might be mixed with this, such as sand, saw-dust, loam, &c. Arrived, by these additions, at the consistency of guano, the same process that pulverizes the one could be applied to the other.

In reply to those who advocate the use of sewage in a "slop" state, we admit that as a manure, it is at certain times of the year as useful in that form as in any other; but as an article of sale it is so confined to a limited locality that it is comparatively valueless. It would certainly not pay to convey trucks of slosh by rail. Converted, however, by additions and by processes, into a dry powder or concentrated essence, the cost of carriage would be trifling; and the expense of conveyance removed, the most inaccessible outlying lands can be benefited, as well as those lying along the line of communication.

There is, and always must be, an enormous market for manures. The owner of the smallest bit of back garden, or allotment, as well as the

farmer who tills his hundreds of acres, knows that the land is no good to him without manure. It must be had. The small gardener or working man, with an allotment, turns to the pig as the fertilizer of his soil now that the new town sewerage conveys all the sewage into the river; and, accordingly, knocks up a pigsty as close to his back door as he can find room for it, thus creating a new sanitary evil. This he contends is the cheapest manure he can get, because he can feed the pig nearly for nothing upon the garden produce, and then sell it after it is fat; so he takes no account of the sickening smells emitted in the boiling of the garden and table refuse that forms the pig's diet, nor of those emanating from the sty. Now, if the town sewage were rendered concentrated and portable, either in a cake or powder, much of the pig-keeping nuisance would be done away with, and one source of disease and discomfort removed. It is, however, in its great bearing as a national question of economy that we now look at the question. It appears not unlikely that if we are to get the full value of our sewage we must pulverize it.

This mode of dealing with the sewage would by no means interfere with works already laid down. For, alluding, now, to that of London, it would be difficult to get a less objectionable place for the establishment of a vast manufactory than the dreary unpopulated place near Barking, where the sewers discharge their contents. Or, treating only of country-town, or city refuse, the present outlets all indicate the sites suitable for future manufactories.

The vast consumption of guano and artificial manures points distinctly to the fact that portability is a matter of the first consequence. Their component parts tally in kind, though not in quantities, with those of sewage; for what is there that is not to be found in sewage, even into bones and dyes? And then, again, the earth's stock of guano cannot last for ever, albeit it has been accumulating for thousands of years; consequently, the price will have a tendency to rise instead of fall. It behoves us, therefore, to manufacture an article that will answer the same purpose. How to do it at a cost that will make it pay and produce no injury is the question.

"BLOCK-SINKING," OR, BRICK-AND-MORTAR REMINISCENCES IN THE EAST.

DURING a roving tour in Northern India, some years ago, undertaken for the combined purpose of seeing a little more of the world, and escaping the much-dreaded rigours of an English winter, I happened to visit, on my way to the "Hills," that Paradise of Anglo-Indians, a somewhat dull but profoundly philosophical little station far away in the north-west (shame on me for forgetting the name of it!), and thus became acquainted with the particulars of some very important engineering works going on in the immediate neighbourhood. Though but in an embryonic stage of existence when I saw them, these brick-and-mortar performances were so different from anything of the kind I had seen before in my wanderings about the world, and the circumstances connected with them so particularly interesting, that I shall endeavour to give the reader—not already over-primed on the subject, it is hoped—a brief account of what I saw on that occasion; and again on another one some years afterwards, when on a flying visit to the Western Presidency, that steaming, suffocating, odoriferous haven-of-bless for "land reclamation companies (limited)," and money-making Passes, unlimited.

The noble art of block-sinking is brought into play, it seems, for constructing the foundations of buildings, under circumstances which, in other and more civilized parts of the universe, would necessitate a recourse to pile-driving, or some wonderful mechanical arrangement involving the use of steam-power, and which, as far as the latter are concerned, would be wholly unsuited to such an out-of-the-way part of the world as that secluded name-forgotten abode of the brick-and-mortar art so especially was in those days of yore. Complicated machinery of any sort would be sure to go wrong in the hands of the unsophisticated Hindoo, and then every thing would be at a stand-still for want of the necessary means to repair damages. So, for matters to go on smoothly and uninterruptedly in that part of the country, simplicity, I was easily convinced, must clearly be the order of the day. As an instance of native genius for misunderstanding the use of common things

beyond their ken, it may be mentioned that a friend of mine had indulged in the luxury of very ordinary brass locks for his bungalow-doors; and sure enough every one of them became quite useless before long; and, in many cases, the handles wrenched off in trying to do what any one of our own blessed infants acquires a knowledge of as soon as it is old enough to reach the much-coveted object.

The works that came under my observation, and on which swarms of natives were working away as busy as bees—though such instinctive industry is by no means a remarkable attribute of that interesting people—were the foundations of a gigantic aqueduct, compared with which all other conduits of water, ancient and modern, were very not to be mentioned in the same breath; in short, nothing like it on the planet. Operations were being carried on in the bed of a river of some considerable width, as dry as the table I am writing at for several consecutive months in the year; and during the rainy season the scene occasionally of such very heavy torrents, that it was difficult for uninitiated man to conceive by what scientific means anything could be constructed to withstand their violence; especially when it is known that the integrity of the river bed, consisting of sand and water of unknown depth, can be only permanently secured by the most consummate skill and good management; failing which, it would be scooped out here, there, and everywhere, and every blessed thing along with it.

The difficulty of laying in the foundations of a work 20 ft. deep by any other process than the one to hand can be easily understood, from the fact of the perennial spring water lying so near the surface that it was utterly impracticable digging down more than 5 ft. or 6 ft. in the usual way, and that by no means an easy matter. It is true that the means employed for overcoming a difficulty of this nature are extremely simple, and, after all, but an improvement on the plan that has been in use by the natives of India from time immemorial; but it is on this very account they are so well worthy of notice, as not only being admirably adapted to the comprehension of the Asiatic and the undeveloped resources of his charming but very tepid part of the globe, but also as being so desirable of introduction elsewhere.

It may be stated, in a few words, that the native method of obtaining foundations for their bridges and such-like, is sinking a number of brick cylinders—or “wells,” as they are generally called, I believe—which are afterwards filled in with earth or concrete, domed over, connected together, and built upon as they best may. In the work that I am presuming to scribble about, the choice was said to be between pile-driving and “blocks,” the relative merits of which, and the reasons of preferring the latter to the former, though duly impressed upon my bewildered mind at the time, is really much too serious and recondit a matter to take in hand just at this moment—much to the reader's satisfaction, no doubt.

The advantages of rectangular blocks over circular wells, to build upon, are far too manifest, one would think, to need any special discussion on that head, substantiality and their adaptation to the form of superstructure being not the least important of them; and yet these wells have since been extensively used on some important works now in progress in another part of the country, which will be noticed hereafter. In regard to the system adopted on this occasion, the style of procedure appeared to be as follows. After divers official feasts had been performed with level and theodolite, to fix with mathematical accuracy the position of piers and abutments, operations were commenced by clearing away as much of the sand as the walls below would admit of, and this appeared to be about 2 ft. or so below the surface of the river bed, a damp, uncomfortable-looking place being now exposed to view. The next part of the business was to lay down enormously-massive timber frames, consisting of roughly-squared trunks of common jungle trees, firmly fitted and bolted together, all arranged in apple-pie order for the walls of the blocks which were to be built upon them.

To make the matter sufficiently intelligible, and speak in round numbers—though very near the mark—we will assume the foundations for one of the piers to be 200 ft. long, 20 ft. wide, and 20 ft. deep; this would consist of nine cubes of 20 ft., placed up first of all to a height of 12 ft. The walls of each block are so constructed as to form four cavities, or “wells,” as they are called,

6 ft. square, for the convenience of getting out the sand, as will be seen further on. Common trestle windlasses are next placed on the top of the blocks, one over each well, and strong wooden troughs laid in a slanting position against the walls, to perform the twofold office of an inclined plane for the workpeople to go up and down upon, and a slide for the sand that is to be scooped up from the bowels of the earth.

Coincident with the later operations is the very important one of digging away the sand as deep as can be managed from a distance of 20 ft. or 30 ft., parallel to the lines of blocks; for the sand not so excavated, be it known, would, in the course of undersinking (as the operation is called) find its way into the wells, which, for obvious reasons, would be a much more troublesome and expensive way of getting rid of it than by digging after the usual manner of mortals. Each of the windlasses is provided with a large ponderous iron spade, scoop, or whatever the correct interpretation may be of the tool called, in Oriental parlance, a “jham,” and to manipulate which a pole is used, varying in length as necessity requires, from 12 ft. to 24 ft. or so.

Sinking operations are commenced by inserting the end of the aforesaid long handle into the nozzle of the “jham” as it hangs dangling from the windlass; the men then let go the latter, and the whole affair, pole and all (not including the windlass, of course), is allowed to fall to the bottom as fast as it can go, and woe betide the incautious Hindoo who gets in the way of the handles, which spin round with a force enough to pulverize even a much thicker cranium than his. The long-handled apparatus is now worked vigorously to and fro, with a downward pressure, in order to get a good hold of the bottom; after which the pole is disengaged from the jham, and rest is taken against the inside of the well, preparatory to being hoisted up, hand over hand, for another good dig.

It may be remarked that this very effective iron implement, though dropping down as a matter of course vertically, is by a delightfully simple self-acting contrivance, drawn up horizontally, and when fairly loaded, may be considered to hold about 2 cubic feet of sand. On this reaching the surface, after the customary hauling, shouting, and frantic attitudinizing, so essential to the success of any combined muscular efforts on the part of Indian workmen, it is tumbled out of the jham, shovelled into the trough, and carried away,—not in wheelbarrows exactly, but, after the fashion of the East, in baskets, on the shaved and thickly covered heads of her Majesty's faithful and loyal black lieges. Speaking of wheelbarrows, reminds me of having seen or heard it mentioned, that on occasion of their being introduced for the first time on some work in that country of solar influence and “sola topes,” these simple-minded people, after filling them with earth, proceeded to put the whole affair bodily on to their heads—basket fashion. Oh, ye navvies of England, think of that!

It has been remarked that the sand is cleared away to some distance all round the lines of blocks, and this is a territory carefully preserved from sandy encroachments of any sort, for reasons already stated. As the work proceeds, the sides of the cutting subside with serious intentions of sloping towards the blocks; but this can be prevented by taking a hint from the premonitory cracks as they appear now and then. The cavity occupied by the sinking block is called the “crater,” but the term to my limited sense or hearing was vastly more suggestive of Vesuvius than anything so decidedly aquatic as block-sinking; but this may be considered hyper-criticism, perhaps, by the learned in such matters.

Something often goes wrong down in the lower regions of the well: either the rope breaks in one of those frantic efforts above spoken of, or, what is worse, a piece of drift-wood, of unknown antiquity, gets athwart the timber underneath. This was evidently a fruitful source of tribulation to every one concerned, always excepting of course the insolent operatives, who instantly assume the sitting attitude of our alleged quadrumanous primogenitures, and are soon oblivious to everything that belongs to the transcendent delights of the beloved “hubble-bubble.” At this critical juncture in block-sinking operations, a primitive-looking functionary,—if not *in parvis naturalibus* exactly, at all events something alarmingly near it,—steps forward to the rescue.

This amphibious specimen of the order Vertebrate, yolep'd the diver, though a more com-

monly useful member of the well-sinking community at one time, when improved jhams were not, than he was at the time I first beheld the sight of his countenance, is nevertheless a very indispensable personage in cases of accident,—in fact, he seems to have been wisely and specially created to get well-sinkers out of their scrapes, and that, too, without the aid of Siebe's or any other wonderful patent diving-apparatus.

It struck an outsider like myself very forcibly that no self-denying, cylindrical-tiled, swallow-tailed Feringhee would wish to change places with this “man and a brother,” on a cold windy morning, as he stands on the edge of the well preparing to slip down the rope on his watery errand; or again, when reappearing from the deep, after a wonderfully long time it appears, dripping, shivering, and the very picture of misery, to warm himself by the few embers always kept at hand for these resuscitating purposes.

The blocks above described take from twelve to sixteen days sinking the first 12 ft., after which, the remaining 8 ft. are built up, and the under-sinking recommenced as before. This last is a much more tedious operation than the first, for several reasons, and occupies from twenty to thirty days. Blocks are always found difficult to start again after a long rest, from being so tenaciously gripped by the sand which has settled about them in the interim; herein, though, consists the secret of their future immovability and perfection as a means of support for any weight that may be put upon them. The jham-poles, moreover, become of unwieldy length; much of the sand, too, gets washed off—and has to be hauled up again, of course,—in its ascent through the ever-increasing depth of water; add to this the friction against the sides of the monster when deeply submerged.

Blocks are often capricious in their movements, and, from some unexplained cause or other best known to themselves, will stick hopelessly, even unto being abandoned sometimes after months of patient and unremunerative toil, as may be gleaned from the ancient chronicles of block-sinkers. Various outwitting expedients are resorted to for loosing blocks, as weight is an element of the subsequent importance in helping them down to their subterranean destination: in fact, but for the inconvenience in various ways of sinking blocks 20 ft. high, and their provoking tendency in so doing to get out of the perpendicular—especially in their first or tottering stage—they should on this account be built up first of all to their full height, and thus derive the benefit of their whole weight.

The foregoing remarks have been confined to blocks with four wells in them, and which are comparatively easy to sink, as by an intelligent use of the windlasses they can be kept straight: but there were a number of disorderly, narrow two-well blocks which seemed to resist in a most pertinacious and obstreperous manner all attempts to get them down: some of these gurdy fellows were as much as 4 ft. and even 5 ft. out of the perpendicular, as ascertained from actual measurement: the fellows manning the crazy-looking craft were obliged to hold on by the main-brace. Most of these blocks were fitted up with the outwitting apparatus above mentioned, and heavily loaded with sand, one side or the other, in the vain hope, alas! of restoring them to their lost equilibrium, the sand only holding them up. To follow up the metaphor with a simile, the grotesque appearance, from a distance, of these leaning towers, with their strange-looking appendages, reminded one of ships with studding-sails set rolling about in a heavy sea. I prefer this, at least, to the “drunken man” simile which was current at that epoch.

Another essential element of success in block-sinking, I found to be the prevailing idea, is uninterrupted progress day and night. Some of the ill effects caused by stopping work to build up the last 8 ft. have already been noticed, and they must be proportionally less, no doubt, when sinking operations are suspended at the end of the day, and not resumed until the following morning, especially when a Sunday intervenes. Any cessation of work then must cause a loss of time in re-starting the block, which, when once on the move should, as far as its own interests are concerned, have no repose, nocturnal or Sabbatical, until finally disposed of. Night sinking is dearer, of course, than day sinking, for the simple and universally-believed reason, that Blackey never works properly unless he is well looked after; and a dark night, with the darkness rendered more visible by torchlight, is not very favourable, it

must be admitted, for exercising the vigilance of the watchful eye. If night sinking economise time, to what extent, if any, it is peculiarly profitable deponent sayeth not, because no one could enlighten him.

It has been observed that these under-sinking operations are necessarily restricted to the dry season of the year, and, as enterprising people are generally ambitious of doing more than they can well get through within a given time, the latter commodity is therefore very precious with our block-sinkers, and their brick-and-mortar pets are always on the move long before they are sufficiently hardened for the trials in store for them: the consequence is that, as the four walls cannot all be operated upon exactly alike, an unequal strain is thus brought to bear upon the timbers underneath, and the walls are given to splitting in divers directions. On looking aghast at these cracks of ominous import, I was assured, with unparalled equanimity, that they would all close up again as the blocks went down, and that the cracks were really only formidable in a superterrestrial point of view. It need only be said, then, that the results fully justified this disregard of any such trifles as would drive a house-builder to commit suicide on the spot. If a block *did* come to grief, however, when far down, its *disjecta membra*, I opined, would be an insuperable obstacle to sinking a new one in its place.

To the practical mind, "hoop-iron" bond had of course suggested itself as an antidote for this disorder, and had been used in considerable quantities, it appears, but was afterwards discontinued on the important discovery being made that blocks *did* always fulfil their destiny somehow, no matter how much cracked; under which happy circumstances it was quite immaterial whether they had hoop-iron in them or not, and that using it, therefore, would be a sheer waste of the sinews of war. Thus another proof had to be recorded that there are many more wondrous things in the world to be noted than were ever dreamt of in this poor traveller's philosophy.

When the blocks have been sunk to their full depth of 20 ft., the wells are filled in with sand (there was certainly no necessity for using anything else that I could see, all things considered, but which there is no use enumerating here), then strongly arched over inside by means of the notches—cacophonously styled "skew-backs"—left for this purpose with such exquisite forethought when building the last 8 ft. of the block. The spaces between the blocks are also filled in with brickwork, and presto! the whole foundation is then complete, and approximates to what is so neatly delineated on the plan. But why not exactly? Simply because it is invariably found that the blocks when sinking have shifted more or less from the positions originally assigned them, though, generally speaking—with the four-well blocks—to no very embarrassing extent. With the narrow nautical-looking affair, though, whenever they *did* get a chance of going down properly, they turned about to every point of the compass, utterly uncontrollable members, in fact, of the block fraternity.

To an individual who, situate like myself, had never seen anything of the kind before, several long rows of these sinking blocks, with the crowds of people working on them, present a very curious spectacle, even in daytime; but at night, by torch-light, the scene is indescribably odd and picturesque; the effect being so much enhanced as it is by the whole of the *tableau* being reflected from the still surface of the lake in which the blocks have become gradually and totally isolated. A distant view of these nocturnal well-sinkers, with all their paraphernalia of office, working away "by the light of the moon," when there is one, and always with torches, whether there is or not, might be likened, for want of something better, to swarms of belligerent black ants illuminated in their conflict by an army-works corps of fire-flies. Something better and more appropriate than the above may suggest itself, perhaps, to the more fervid imagination of the reader.

Speaking of scenic effect, though, let me pay a passing tribute to the enchanting view from the place where all these interesting works were going on. About ten or twelve miles off were the low rugged outlined hills of the Siwalik range, so full of geological interest; these were backed by the "hills,"—*par excellence*,—and on a fine day could be seen some forty miles off, dotted about on their summits between

6,000 ft. and 7,000 ft. above sea-level, the comfortable domiciles of that very celestial retreat already spoken of, and happy indeed the man who can fit thither from all the turmoil and abominations of life in the plains. The finest features in the landscape, though, are the magnificent peaks of the "Snowy Range," standing out in such bold relief against their background of blue sky,—altogether, in fact, as pretty a picture as can well be seen, and highly refreshing to the poor wretches with "liver" and blue-devils who can't get there.

The end of the working season, *i.e.*, a little before the middle of June, in the beds of rivers, is characterised by all the hurry-scurry usual in mundane affairs when preparing for any great event, and when something or other will always be left to the last. All the "*res impedimenta*" of brick-and-mortar life are now cleared away from the scene of action, and everything supposed to be in readiness for the burst of the rains, and one of those terrific-looking floods or "raos," as they are called in the vernacular, which so scared the poor writer once when he was caught in one of them, and with not a moment to lose in reaching *terra firma*: a decided case of *saave qui perit* it is on such occasions, let me tell you. On the river bed being deserted in favour of its legitimate owner, nothing but the tops of the submerged blocks, and the huge mounds of sand excavated to make room for them, remain to show how much has been made of irrevocable opportunities.

These mounds are fortunately but perishable relics of human industry, and their soft masses soon yield to the first rush of mighty waters, leaving the surface of the river bed afterwards as if nothing had happened to disturb the serenity of its repose.

To convey some idea of the importance of the work for which all these 298 blocks were required, and which, if put one on the top of another, would make a column above 9 furlongs high, it is necessary to state that they were intended to carry the piers and abutments of a work comprising fifteen tunnels, each 192 ft. long, and through which the rainfall on 216 square miles of country was to flow by fits and starts,—if not for all eternity, at all events, long past the anticipated advent of that mythical New Zealand celebrity who is to come some fine day and sketch the perishable remains of our fine brick-and-mortar metropolis! Over this row of tunnels, 24 ft. above the river bed, was to be a noble channel for conveying the body of water 170 ft. wide, and, when necessary, 10 ft. deep, destined to feed the canal and its branches, aggregating, when all finished, no less than 850 miles in length!

Now, considering the incalculable value of water in a country like India, the utter dependence of the people on the periodical rains, and the terrific famines that result occasionally from a total failure of that uncertain supply, it is impossible to over-estimate the boon that will be—and, as one of those awful events has already proved, has been—conferred on the country by distributing over one million acres and a half this magnificent supply of water, which has been running to waste in the sacred but much polluted stream of the Ganges ever since—when shall I say?—India rose from the sea,—if geologists have no objection.

On being informed of the bewildering fact that 122 millions of bricks (not the small English ones either) were required for building this wonderful structure, it instantly became necessary to cudgel my brains to pack all this material into some intelligible shape before being able to comprehend how much could be done with it. Put end on end, these bricks would reach 23,106 miles, which is not far short of three times and a half the circumference of the moon. Or if an idea less lunatic than this be preferred, the material could be represented by a brick-and-mortar pyramid, 400 ft. square at the base, and 280 ft. high. Compared bulk for bulk, with some of the first-class works in England in these days, this aqueduct would make very nearly seven Britannia Bridges, barring the tubes of course,—a little above five Tweed Viaducts, and something over twelve Newcastle High-level Bridges.

The whole of the work was calculated to cost 300,000*l.*, and to give some idea of the difference between the cost of brick and mortar in England and in India, calculated at the Newcastle rates, the bill for this little job would have run up to something about two millions sterling. Since the mutiny, however, what with the introduction of railways on all sides of India, and the

unpleasant consequences attending the universal greed for cotton, prosperity has made such giant strides throughout the land, that cheapness, even in the item of brick and mortar, is no longer the order of the day. The changes that have been brought about by the above causes are more remarkably exhibited in the case of all the common necessities of life, which in many parts of India have more than quadrupled in cost, much to the disgust of my poor exiled friends on fixed incomes; at least so, from "Over the sea, over the sea," that's what my "little bird whispers to me."

But I have not done with those everlasting blocks yet, though such a long digression as the above may possibly have encouraged such an idea.

Regarding the comparative merits of rectangular blocks and cylindrical walls, to which an allusion was made in a foregoing paragraph, I may mention that the latter have been used in the foundations of the East-Indian Railway Bridge across the river Jumna, at Allahabad, and were constructed under very different circumstances from the foundation blocks of the "Solani aqueduct." Ah! that's the name of my old friend.

Whilst the bed of the Solani, as it has been seen, is dry during the working season, and thus affords every facility for building operations, the river Jumna on the other hand, at the site of the bridge which was selected on account of the river being so shallow thereabouts, has, it appears, an average depth of 15 ft. in it at low water.

Here, then, was a formidable obstacle to contend with, and it was cleverly overcome by forming artificial islands on which to lay the iron curbs (not timber frames in this case), of the ten cylinders, 13½ ft. diameter required for each pier. These wells are sunk 43 ft. below low-water level, and consequently at an average depth of 28 ft. below the bed of the river. This is 8 ft. deeper than the foundations of the Solani aqueduct, and certainly not more than sufficient, considering, as I understand it, their totally unprotected condition, and the enormous body of water that will impinge upon the piers during high floods.

The heaviest floods in the Solani are provided for by piers 12½ ft. high to springing of arch; whilst the rise of the Jumna in ordinary floods is no less than 45 ft., and, on more occasions than one, as much as 51½ ft. During the last débacle of this sort, in 1861, the sand supporting the cylinders got washed away, and four of them toppled over on to their sides. Great must have been the fall thereof! and it is very certain that all the king's horses, and all the king's men, will never put those Humpty-Dumpties on their legs again.

It has been stated somewhere in this paper that extraordinary care had been taken to protect the foundations of the Solani Aqueduct from the action of the current during floods. This was accomplished by building a solid flooring 3 ft. thick over the whole of the waterway between the two abutments: and a precious long tough job it must have been, besides no end of cunning devices on a very extensive scale on the up and down stream sides of the work. By these measures, then, the whole of the foundations are hermetically sealed, as it were; and it may safely be predicted, I think, that the stability of the structure is positively beyond all reach of danger.

Although the body of water that passes down the Solani during floods is, beyond all comparison, less than what it is in the Jumna, still it must be remembered how the current is affected by the obstacles presented to its progress in the shape of fourteen piers, each 216 ft. long, 10 ft. thick, and only 50 ft. apart. Hence the necessity, no doubt, for the wise precaution in making the foundations of this work so impregnable to attack.

Now, in the case of the Jumna Bridge, there are fourteen piers 205 ft. apart, and, as nearly as I can ascertain, 74 ft. long, and 25 ft. thick. There is no flooring, of course, as in the case of the Solani aqueduct, and, like that work, the foundations are sunk in sand of unknown depth. The foundations of the piers are thus isolated, as far as the bed of the river is concerned; and their future safety must depend upon the depth (28 ft.) to which the cylinders composing them have been sunk proving sufficient; or, in other words, upon the river being good enough not to scoop out the sand below that depth in any of its uncontrollable vagaries. The piers of this noble bridge have an abundance

of elbow-room, it is true; and experience has doubtless settled the important fact long ere this, that the stability of their respective tenements is not dangerously affected in any way, even by a flood above 66 ft. deep, going at the easy pace of 9 miles an hour.

It used to be a favourite remark at one time, that on the annihilation of British power in the East,—and in the general order of things, such must be the case some day, I suppose; to wit, when our friend, the New Zealander, will be taking a trip to India, to sketch all the fine ruins there,—the only trace left behind him by the enterprising Anglo-Saxon would be his empty beer-bottles. To these vitreous remains of fallen grandeur might be added, perhaps, the melancholy fragments of a “grand trunk road.” The construction of the Ganges Canal was decidedly the first thing accomplished towards removing this standing reproach from a power, in whose dominions, to use another favourite expression, the sun never sets. All honour, then, to the man who originated the idea and boldly carried it out. Since then the railroads, with their magnificent and unrivalled viaducts, are in a fair way of impressing the land with some indelible marks of British pluck and enterprise.

I can honestly recommend my travelling countrymen who have “done” the Continent, just to take a passage in a Peninsular and Oriental steamer, and “do” Bombay (I’ll warrant they can get the compliment returned), and delight their eyes with a sight of the Bhore Ghat incline, on the Great Indian Peninsula Railway; for this alone would the trip repay him, to say nothing of the renowned antiquarian wonders of Ellora and Ajanta, the former only forty, and the latter but twenty miles distant from that line of railway. Why, that incomparable old fort at Dowlatabad, close to Ellora, and such a pretty road to it, with its labyrinthine tunnels, and matchless scarp of 150 ft. (it looks double this when close to it), all out cut of the hard trap rock, its picturesque ramifications of old fortified walls, and the lovely view from the breezy summits,—surely these sights alone are worth going all the distance to see.

But, for a few parting words about the Bhore Ghat Incline, if only to tempt the reader to go and judge for himself. I have the most pleasing recollection of going over this astonishing work shortly before it was opened, in company with the intelligent contractor, Mr. C. We took our seats on a trolley early one fine morning, at Kandalla, the station situate on the summit of the incline. “But, before going on any further,” Mr. Scribbler, pray say what is a trolley?” Well, the simplest looking form of conveyance in the world—nothing, in fact, but an unprotected platform on four wheels, as I saw it; and the novel sensation, let me tell you, of being whisked along at some fearful pace, with but imperfect confidence in the means of checking it, down this inclined plane, by the mere force of gravity, through pitch-dark tunnels, along giddy precipices, and over unfathomable-looking abysses, was as nearly like going to perdition in a dogcart as anything I can possibly imagine.

The incline traverses a hilly region composed of the toughest basalt: so the difficulty of boring the twenty-five tunnels through it, aggregating some 4,000 running yards, may be easily imagined. The road altogether is 1½ miles long, rising in this short distance a height of 1,832 ft. The steepest gradient is 1 in 37, and the whole work occupied a period of seven years and a half, costing at the rate of 68,750l. per mile.

One of the cleverest engineering devices yet seen in railway work is the “reversing station,” as it is called, where the position of the train in regard to the engine is reversed, i.e., the head of it becoming the tail.

The wildness of the scenery on this road is something charming to behold. There are several commanding peaks about Kandalla, and one of them would be very appropriately surmounted with a colossal statue of the eminent engineer, Mr. J. J. Berkley, whose decease not long before the completion of his magnificent work was a source of such deep regret to every one connected with it.

Hoping that all the foregoing prosaic details of my wanderings from “far away in the north-west” to the Bhore Ghat Incline have not been found too overpowering, I shall now reward the reader’s patience by subscribing myself, in the language of my little bird “over the sea,” your very obedient servant,

RAJ MISTRI.

THE MASTER BUILDERS AND THE OPERATIVES OF THE MIDLAND COUNTIES.

The feeling against the proposed “Discharge Note” increases: further meetings have been held in Birmingham, Manchester, Malvern, Nottingham, and London, the object of those in the last place being to raise money for the support of the men on strike in the country. At Nottingham, the meeting resolved,—

“That we, the members of the various branches of the building trades in Nottingham in general meeting assembled, pledge ourselves to oppose by all lawful means the discharge note, better known as the ticket-of-leave system, now attempted to be forced upon us by the Master Builders’ Association.

As the carpenters and joiners of Birmingham have been the first to take action in opposition to the discharge note and no doubt before long the whole of the various branches of the building trades will be drawn up in battle array against the proposed system; we therefore pledge ourselves and call upon all who are employed in the building trade to organise themselves and assist by contributions those who are or may be on strike until the withdrawal by the Association of the discharge-note.”

Besides the statement from the secretary of “The General Builders’ Association,” and the communications from two builders, printed in our last, we have received several angry letters, from master builders in the Midland Counties, reprimanding us for not advocating the acceptance of the “Discharge Note” by the men, and, calling upon us (one with a childish threat), immediately to retract the opinion we had expressed. On the other hand, two very respectable members of the Builders’ Association, of course in a quite different tone, inform us that they see they are asking for a power they ought not to have; and moreover one they are not likely to get,—at any rate, without a long and costly struggle; and have determined on not striving for it with their men.

We have been sneered at in St. Martin’s Hall, and yelled at in Smithfield, when, in times gone by, we had expressed opinions adverse to unwise and unjust steps taken by the operatives; and our course was as much affected by those thoughtless demonstrations as it will be by the master builders’ letters now,—that is, not at all. We can fully appreciate and lament the injury inflicted on the masters by acts of the kind, and the poverty and demoralization often resulting to the men themselves; but we cannot think that the “Discharge Note” will prove the remedy. The Resolution of the masters’ sets forth that the determination to require the production of the “Discharge Note” from a workman before taking him on is come to with a view to counteract “the evils resulting, both to masters and operatives, from unjustifiable strikes and combinations.” It is to be effective, however, in the case of all strikes, and all strikes and combinations are not unjustifiable, as the masters of course admit by themselves combining, as they have a perfect right to do. Combination is the secret of the day: men combine that they may enjoy a fine house in Pall-mall, instead of uncomfortable lodgings; we combine to insure; we combine in companies “limited” to trade; the lawyers combine in Chancery-lane, the architects in Conduit-street, and the trades in every town. Men in all positions “strike,” too, if the terms of employment cease to be satisfactory. What the great combination, Society, has to do is to see that these minor combinations are not turned to evil account, and, by the dissemination of knowledge, to prevent unnecessary and injurious strikes. All strikes and combinations, then, are not unjustifiable, but, *quoad* the “Discharge Note,” would be considered so. The more we think of the matter, the more thoroughly do we feel convinced that the operatives will never accept the proposed note; and we earnestly exhort the Builders’ Association to withdraw it at once, before bad feeling be engendered and money wasted. We agree with their secretary in hoping sincerely that some means may be adopted, arbitration or otherwise, to adjust

* The following, as we understand, is the present form of the resolution come to by the “General Builders’ Association.”—

“That with a view to counteract the evils resulting both to masters and operatives from unjustifiable strikes and combinations, the following plan be adopted:—That on and after the 1st day of January, 1865, every member of this Association shall, upon paying off any operative, deliver him a discharge-note (in form to be supplied by the committee), which shall state the man’s name, and that the Association pledges himself not to take into his employ any operative who (having previously worked for a member of this Association) does not first produce and deliver to his proposer, employer, his former discharge-note, or, in case of its loss, the name and residence of his previous employer, for reference.”

differences between capital and labour, and prevent the occurrence of strikes, with their fearful accompaniments of poverty, demoralization, and not seldom death.

OBSTRUCTION OF LIGHT AND AIR.

A CASE was tried lately in the Court of Common Pleas, Westminster, before Chief Justice Erie, a report of which may be useful to some of our readers. It was an action for the obstruction of an ancient window in a room built out at the back of the house No. 9, George-street, Hanover-square. The house belongs to Mr. Dodson (the plaintiff), who is one of the members of Parliament for the county of Sussex. This room and window had existed upwards of fifty years. It had been used as a library by Sheridan, who had written his plays in it. Dr. Pearson had lectured in it on medical subjects more than twenty years ago. Artists had used it for a studio; and for the last sixteen years it has been used by Miss Pace as a workroom for the young ladies in her millinery establishment. The window looked north, across the back yards of the adjoining houses in George-street, with little or no interruption so far as Maddox-street, and the light admitted through it was sworn to have been extremely good, and to have enabled Miss Pace to carry on her business, to match ribbands, and to work to a late hour. But in the course of this year the defendant (Mr. Cowland), who occupies No. 10, George-street, and whose back yard is immediately north of the window, put up a new building covering the whole of his back yard, except a space of the length of the window in dispute, and about 6 ft. wide, which was left unoccupied. The walls of his building were of such a height as to leave unobstructed the light coming to the window at an angle of 45 degrees to the horizon.

On the part of the plaintiff, Mr. Penfold and others gave evidence that light was obstructed, as did the tenant and some of her workpeople, to the effect that colours could not now be matched in the room as was formerly the case.

Mr. C. Barry, for the defendant, deposed that the new building was placed at such a distance (6 ft.) as to allow the light to the bottom of the window at an angle of 43°, and expressed his opinion that amongst the profession generally the admission of light at an angle of 45° was considered to suffice to prevent opposition. Mr. H. Currey and others concurred in this evidence. Stress was laid on the fact that, to allow of the erection of the new building, trees which had formerly obstructed the light, had been cut down, so that the room, it was asserted, was as light as ever.

The jury found a verdict for the plaintiff. The mode of obviating the evil has now to be settled, perhaps with fresh litigation.

It is desirable that it should be clearly understood (what the result of this trial confirms), that in law the 45° theory has no weight. The real question always is with the jury, has sufficient light been obstructed to make the room less valuable than it was before for a purpose to which it has been applied for twenty years? In the case of a special adaptation to a purpose for any shorter period, damages cannot be recovered for a deprivation of light which would reduce the room to its previous condition as to light. To put a case: if a room, used for twenty years for ordinary purposes, be appropriated for part of this time, because of its unusually good light, say to some artistic purpose, an obstruction which unfitted it for this purpose could not be prevented; but if it injuriously affected the room for its other purpose, the judge would have to direct a verdict for its abatement. The condition of the law in respect of light and air is not satisfactory, but improvement is not easy. It has been contended, that persons wishing to raise buildings or cover their own land, should have power to do so by compensating in money to an extent to be settled by a proper tribunal for any injury done to neighbour’s rights; but it may be fairly asked in reply, Why should the adjoining owner be forced to sell that which he wishes to retain? Why should a rich and powerful man be permitted to buy up and override his perhaps poorer and weaker neighbour?

MEMORIAL SCULPTURE.—A marble bust of the late Duke of Richmond has been placed in the Assembly-room, at the County Hall, Lewes, under the personal superintendence of the sculptor, Mr. F. McDowell.

THE MANUFACTURE OF PERFUMES.

HORTICULTURAL SOCIETY.

AMONGST the popular lectures which have been lately delivered in the Conservatory, Mr. Septimus Piesse has given one on "Perfumes and the Methods of obtaining the Odours." The lecturer pointed out that, contrary to general belief, nearly all the perfumes derived from flowers are not made by distillation, but by the processes of *enfleurage*, or inflooding, and by maceration or infusion. The odours of flowers do not, as a general rule, exist in them as a store or in a gland, but they are developed as an exhalation. While the flower breathes, it yields fragrance; but kill the flower, and fragrance ceases. It has not been ascertained when the discovery was made of condensing, as it were, the breath of the flower during life: what we know now is, that if a living flower be placed near to butter, grease, animal fat, or oil, these bodies absorb the odour given off by the blossom, and in turn themselves become fragrant. If we spread fresh unsalted butter upon the inside of two dessert-plates, and then fill one of the plates with gathered fragrant blossoms of clematis, covering them over with the second greased plate, we shall find that after twenty-four hours the grease has become fragrant. The blossoms, though separated from the parent stem, do not die for some time, but live and exhale odour, which is absorbed by the fat. To remove the odour from the fat, the fat must be scraped off the plate and put into alcohol: the odour then leaves the grease and enters into the spirit, which thus becomes "scent," and the grease again becomes odourless.

The flower farmers of the Var follow precisely this method on a very large scale, making but a little practical variation, with the following flowers—rose, orange, acacia, violet, jasmine, tuberose, and jonquil.

The commercial importance of this branch of perfumes may be indicated by the quantity of flowers annually grown in the district of Cannes. Flower harvest: orange blossoms, 1,475,000 lb.; roses, 530,000 lb.; jasmine, 100,000 lb.; violets, 75,000 lb.; acacia, 45,000 lb.; geraniums, 30,000 lb.; tuberose, 24,000 lb.; jonquil, 5,000 lb. The quantity produced at Nice has not been ascertained; with violets and orange there are more, but with cassie less than here stated.

The market season for orange-flowers at Nice lasts for more than a month, as an average, and during that time there are sold about fifteen to eighteen tons of flowers daily! and a ton of flowers will yield more than a kilogramme of otto (say forty ounces), worth 20*l.* sterling; and the residuary water, highly saturated with odour, is worth another 10*l.* note.

A surface of land, equalling an acre of planting, yields a hundred and eighty to two hundred pounds weight of flowers, valued as an average at two francs the pound. Violets may always be looked upon as an extra crop, growing as they do under the orange and lemon trees. The kind grown is the double Parma. About twenty-five tons weight of violet-blossoms are produced annually at Nice.

In France, the commerce in perfumes has risen to the annual value of 3,000,000*l.* sterling.

THE EMPLOYMENT OF YOUNG CHILDREN IN DANGEROUS MANUFACTORIES.

A sad case, which clearly shows the necessity for interference with the manner in which the health and lives of children are risked, has just been brought under the public notice. The facts, as they were laid before the coroner's jury, are briefly as follow:—At a match manufactory in Stratford New Town, an explosion took place which destroyed the life of a boy twelve years of age, blew out the windows, and did other damage to the premises. Philip Debora, a German, who was the manager of the match manufactory, said Vesuvian lights were being made with a compound of gum, phosphorus, nitre, chloride of potash, Venetian red, and plaster of Paris. [A potent chemical brewing to be allowed to be made in an inhabited neighbourhood!] Witness had to dip the wood for the Vesuvians into it. He gave the stick to the boy, and said to him, "You stir him von leetle bit." He turned round to go into the factory, and before he got two steps the whole affair blew up; the stuff struck him on the back; the windows were blown in; and on looking he saw deceased lying on the ground all in a blaze. In Germany, he said, boys were not employed to stir

the composition or turn the frame; but it was usual to employ them in England. Old men are employed in some manufactories; but he supposed that children were cheaper, and "competition is keen." This was the main evidence.

It transpired that the superintendent of the laboratory was a military gentleman. We should have thought that a chemical superintendent would have been the most fit for this office. It is to be feared, however, that neither the one nor the other will prevent the employment of very young children in this description of work until fresh powers of interference are given. In this case alone there are fifteen children employed, deceased having been the oldest.

There is one thing, however, which can now be done, after a grace of twenty years which has been allowed for the removal of dangerous trades from populous neighbourhoods: they can now be legally removed; and this is necessary for the public protection.

In the present case of death, the jury, after recording the especial cause, said they considered that the manufacturer was open to censure for entrusting such combustible materials to children of so young an age, and they recommended that in future chloride of potash should be melted with water, and so rendered non-explosive before being mixed with the other ingredients of the composition.

So far the jury have done their duty; but no practical consequences worth naming will result from this verdict. No doubt the parents of the deceased child are poor people, and comparatively helpless. Many, however, think that if a few cases of this description were brought for consideration into the courts of law, damages would be awarded which might be the means of partially stopping this wrong and careless waste of human life.

THE SCOTTISH MEMORIAL OF THE PRINCE CONSORT.

THE designs sent in are now open for inspection in the National Gallery at Edinburgh.

No. 22. Design by Mr. Robert Matheson, is for a bronze equestrian statue of the Prince in front of the new General Post-office, on a pedestal of two stages; one enriched by bas-reliefs, and the other by allegorical figures.

No. 23, by Mr. J. Noel Paton, takes the form of "a memorial cross." The first stage of the structure is a platform of large dimensions and composed of six steps. From the base rises a square central shaft for the support of a statue of the Prince, and at the angles of this shaft are pillars with floriated capitals.

No. 49 is a temple, by Mr. J. T. Rothead, architect, and Mr. J. Steel, sculptor, Glasgow. The design is elaborate, and consists of numerous parts.

No. 7, by Messrs. William Slater and R. Herbert Carpenter, London, is an ornamented Gothic cross of three open stages. The lower compartment of the structure is occupied by a statue of the Prince.

Nos. 9 and 10, by Mr. D. Milne Holme, of Milne Graden, Berwickshire, are granite obelisks, and are illustrated by numerous drawings and two models. The obelisks are proposed to be 170 ft. in height, and in the base a chamber is formed to contain a statue of the Prince.

No. 21, bearing the motto, "The memory of the just is blessed," is a square tower, rising to a height of 380 ft., and resembling in outline the clock-tower of Westminster.

Nos. 24 and 25, designs, and model No. 53, illustrate design, accompanied by a model, by Mr. W. Calder Marshall. Mr. W. Calder Marshall has chosen as its main feature a Venetian monument by a statue of the prince, with a foliated capital, and a base illustrated by allegorical figures in two stages, the first series being seated on projected pedestals, and the second,—like the first, four in number,—standing around the shaft. The lower series appears to represent those arts, and the upper those virtues, which may be held to be peculiarly associated with the career of the illustrious personage whose effigy surmounts the column.

In No. 34, Mr. David Bryce proposes to commemorate the Prince by the erection of a great tower, or keep, on the Castle Rock, to be called the Albert Keep. It is proposed that in its interior should be a hall, specially appropriated to a statue of the Prince, so that the building might, in all time coming, be associated with his memory.

Mr. John Steel sends three designs, one a drawing (No. 38) for a pedestrian statue, and two rough models, or rather sketches, in plaster, for equestrian statues. In the drawing, the Prince is represented as contemplating a globe, which he holds in his hand, with reference to his project of an International Exhibition, the pedestal being ornamented with allegorical figures of Manufacture, Art, Science, and Religion.

No. 39, a design by Mr. David Rhind, is for a memorial column. The base is made ornate with bas-relief and sculpture; the capital breaks into Gothic pinnacles; the whole being surmounted with a statue.

Mr. Cousin's design and that of Mr. Joseph Durham, we have already described.

ART-WORKMEN AND THE SOCIETY OF ARTS.

Last Monday evening, the art-workmanship competitors met the council and other members of the Society of Arts, and talked over the terms of the present competition, with the view of learning if they were satisfactory. The general inference to be drawn from the conversation was, that little alteration was desirable. No adjudication has yet been made. The council have invited the same three gentlemen who acted last year as judges, to serve again in that capacity,—Mr. John Webb, Mr. M. D. Wyatt, and Mr. R. Redgrave. The exhibition of the works sent in continues open. Amongst the wood-carvers, Mr. Gerard Robinson occupies a prominent place from the variety he exhibits. "Hope for the Future," a child's head, by Mr. Wallis, is a charming work. "Cain preparing his Sacrifice" (91), James Griffiths, is well intended. A pair of carved frames, G. Ball, and a fruit panel, W. Taylor, show skill. Mr. Baylis's ink-stand will not escape notice. Mr. G. Lock exhibits a double festoon of flowers (90), excellently carved in parts. The carvings in marble are very indifferent. Of the three stone brackets we prefer No. 8, by Leon. The *reposse* work in metal, by Septimus Beresford (15) and H. R. Batchelor, is very creditable. There is an excellent piece of chased ornament in bronze by H. J. Hatfield, and a good engraving on silver by Gilles Mackenzie (34). The wall mosaics give hope, and we may say the same thing of the specimens of gem engraving, an art sadly neglected in this country.

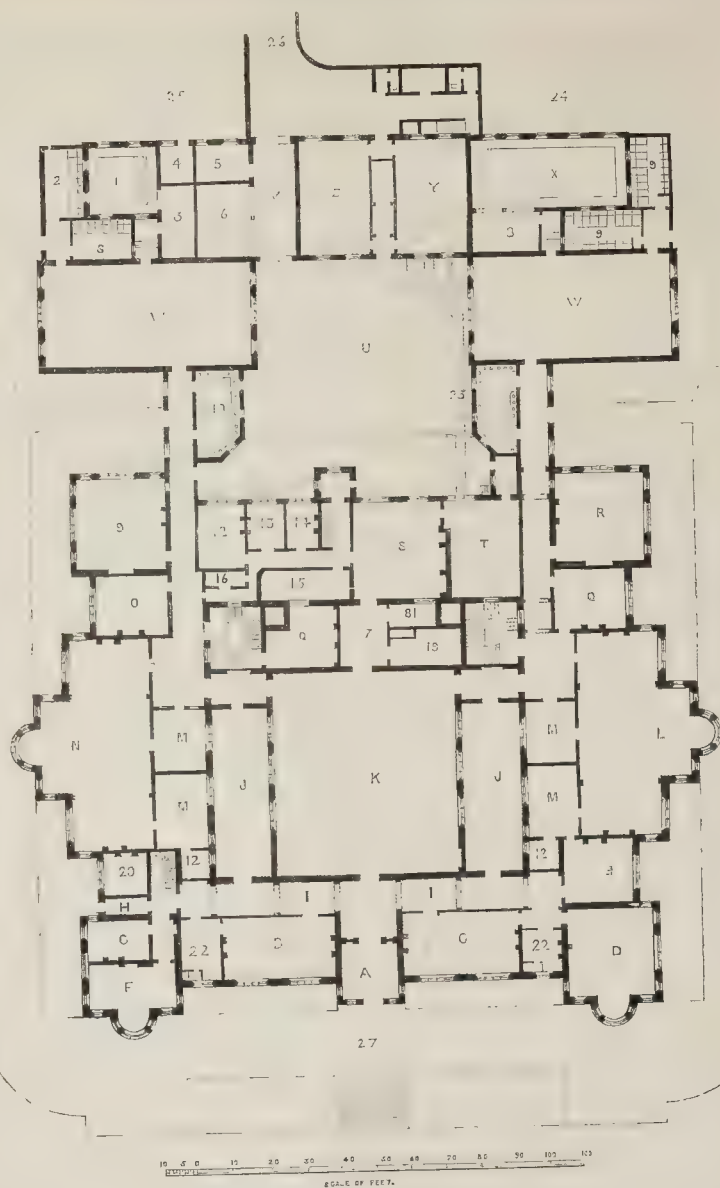
THE CROSSLEY ORPHAN HOME AND SCHOOL, SKIRCOAT MOOR, HALIFAX.

THE Yorkshire town of Halifax has been peculiarly favoured of late years by substantial proofs of the benevolence and wealth of its "merchant princes," as well as by the public spirit of its leading men. The recently-erected town hall and the stately piles of commercial buildings and public institutions in the principal streets are proofs of the latter; whilst the ecclesiastical edifices at Haley Hill and "the square"—the almshouses, the public park, the model dwellings for the industrial classes, and other works (the majority already illustrated in our pages), are proofs of the former; and to these a remarkable addition has just been made in the erection of the Orphanage shown by our illustrations.

The building was commenced several years ago, by Mr. John Crossley, and was intended for purely educational purposes; but shortly afterwards the scheme was abandoned and the works were stopped. In 1861, the firm of Messrs. John Crossley & Sons (consisting of Mr. John Crossley, Mr. Joseph Crossley, and Sir Francis Crossley, bart.), determined to complete the structure, and adapt it to the purposes of an orphan institution. They entrusted the work to Messrs. Paull & Ayliffe, of Manchester. Active operations were resumed three years ago, and have just been brought to a successful conclusion.

The exterior of the building was carried up to the first-floor before the suspension took place. The architects of the Orphanage had therefore to make the best of existing arrangements, and to adapt the exterior treatment to the portions already erected. Internally, little except the enclosure walls of the main structure was retained. The buildings in the rear are wholly additional, and the space now occupied by the dining-hall, &c. was completely cleared and re-arranged.

The whole of the masons' and joiners' works,



THE CROSSLEY ORPHANAGE, HALIFAX.—Ground Plan.

and nearly all the works connected with other trades, have been executed by "day-work," under the superintendence of the architects and the clerk of works, and the entire building is spoken of as a good specimen of materials and workmanship in every department.

Accommodation is provided for 450 children, viz., 200 boys, 200 girls, and 50 infants. The cost may be stated in round numbers to be 50,000*l.*, exclusive of land. The clerk of works was Mr. Gregory Gill.

The building stands on the crown of Skircoat Moor, about a mile from the town, and in the same vicinity as the residences of Mr. John Crossley and Mr. Joseph Crossley.

- A. Vestibule.*
 B. Waiting-room.
 C. Museum.
 D. Committee-room.
 E. Junior Master's Room.
 F. Master's Drawing-room.
 G. Master's Dining-room.
 H. Entrance to Master's House.
 I. Corridor.
 J. Open Area.
 K. Dining-hall.
 L. Boys' School-room.
 M. Class-room.
 N. Girls' School-room.
 O. Matron's.
 P. Infants' Day-room.
 Q. Cloak-room.
 R. Boys' Workroom.
 S. Kitchen.

REFERENCES TO PLAN.

- T. Scullery.
 U. Open Court.
 V. Covered Way.
 W. Play-room.
 X. Swimming-bath.
 Y. Laundry.
 Z. Washhouse.
 1. Girls' Bath.
 2. Girls' Convenience.
 3. Dressing-stage.
 4. Tool-house.
 5. Stable.
 6. Carriage-shed.
 7. Drying-closet.
 8. Dressing-stage.
 9. Boys' Conveniences.
 10. 11. Lavatories.
 12. Servants' Hall.
 13. Cook's Room.
 14. Steward's Office.
 15. Kitchen Dry-stores.
 16. Dirty-linen Closet (shoot from Dormitories).
 17. Serving-room.
 18. Bread-room.
 19. Crockery-store and Wash-up.
 20. School Mistresses' Room.
 21. School-stores Closet.
 22. Retiring-rooms.
 23. Underground Passage from Boiler-room to Basement Heating Apparatus.
 24. Girls' Playground.
 25. Boys' Playground.
 26. Back road for Carls, &c.
 27. Terrace.

* The columns at entrance have been accidentally omitted in plan.

THE CROSSLEY ORPHAN HOME AND SCHOOL, HALIFAX, YORKSHIRE.—MRS. PAUL & AYLFER, ARCHITECTS.



THE LONDON AND GENERAL WATER-PURIFYING COMPANY.

EVERY one knows that under present arrangements, in proportion as our towns become properly drained, the pollution of our rivers is increased. Such is the magnitude of this evil with respect to the Thames, that notwithstanding the enormous outlay made of late years in providing filter-basins to purify the water taken from the Thames by the Metropolitan Water Companies, the water delivered is little if any purer now than it was in 1851. It holds in suspension both mineral and organic, as well as other impurities, which must remain to be separated by domestic filtering. The cistern-filter of Mr. F. H. Danchell, which is well spoken of, has recently become the property of a company, under the presidency of Viscount Ingestre, a nobleman who has largely interested and successfully exerted himself in the promotion of sanitary reform. The operation of Danchell's cistern-filter is both mechanical and chemical: there is a large bulk of animal charcoal used for purifying the water; and, by the means of disengaging mechanical impurities by ascension, whereby they are, for the most part, separated without entering the filtering matter at all, the filter it may be expected will remain in good working order for a great length of time, whilst the charcoal is easily renewed when necessary. By this means the Danchell filter is free from the common objection to ordinary filters, which, being easily clogged, require to be frequently cleaned; and being self-acting, it is moreover rendered independent of the attention of domestic servants, who, it is well known, will evade, if they can, the tedious operation of filling into the filter all the water to be purified. Again, the water is purified just at the moment it is wanted, so that impurity that follows upon stagnation is entirely obviated.

WELLS.*

THE art of well-sinking is common to all countries, and was probably one of the earliest artificial means adopted to furnish a supply of water. From the earliest periods of history the records of both sacred and secular writ go to prove that the art was pursued alike by the savage who roamed the desert and the citizen who inhabited the town; yet it should be here observed that there is a marked difference between the mere hole the savage may scratch in the sand, and the highly-finished wells of some Eastern cities. So ancient are wells that Ewbank observes they must have been of antediluvian origin; and that such useful work remain long after the destruction of those more splendid edifices that have been erected more for the glory than the usefulness of mankind. The buried cities of Nineveh, Herculaneum, and Pompeii, abound in wells of excellent construction, containing good water, and which at the present day supply the inhabitants living in those localities. It is probable that the first wells were shallow holes excavated in the loose soil in moist places, such as are found at the present day to be executed by uncultivated or uncivilised nations or tribes. After the discovery of the metals, which is supposed to have taken place in the seventh generation, as Ewbank observes, rock and indurated strata no longer offered an impediment to the well-sinker, and, consequently, wells were sunk to greater depth in such strata. As the art of well-sinking developed itself at an extremely early period, and long anterior to the commencement of history, no very great advance has been made in it; indeed, the mode usually adopted at the present day when sinking wells to great depth in loose strata, by first forming a curb on which the ordinary steining is placed, and which settles down as the work of excavation is carried on within, and thereby preventing the loose soil falling into the well, was practised ages ago in sinking wells in the East; and from them we have copied the mode in more modern times. Wells of excellent construction abound in Hindostan, China, Japan, Tartary, Egypt, and elsewhere. When the British took possession of Hindostan, the number of wells in use in that country was estimated at 50,000. Many of the ancient wells were of great depth. The wells of Cabul are from 300 ft. to 850 ft. deep, and many of them are but 3 ft. in diameter. The famous well at Tyre is said to be 630 fathoms in

depth. Jacob's well, at Samaria, is 105 ft. deep and 9 ft. diameter. The well Zem-Zem, at Mecca, is 210 ft. deep, and that of Joseph, at Cairo, 300 ft. deep. This well of Joseph is a fine example of the skill and boldness of design of the well-sinker. Although called after Joseph by the Arabs, it is by no means of so ancient a date as the name would imply; for the well was probably sunk about 700 or 800 years ago, but by whom is a disputed point; some attributing it to a vizier of the name of Joseph, others to Saladin, the intrepid defender of his country, whose name was Yusef (Joseph). The well consists of two shafts, one above the other, but not in the same vertical line. The upper shaft is an oblong excavation, 24 ft. by 18 ft., and 165 ft. deep, descending into a large and capacious chamber, in the floor of which is constructed a basin or reservoir for containing water that is raised from the lower shaft. In this chamber a lower shaft is sunk, which is an excavation 15 ft. by 9 ft., and 130 ft. deep. Round the upper shaft a spiral passage, 6 ft. 4 in. wide and 7 ft. 2 in. high, is cut, separated from the well by a partition wall of the solid rock, only 6 in. in thickness, through which loop-holes are pierced for lighting the passage. This passage is made use of by parties who draw water, and also for the descent of mules or other animals that are employed in the large chamber below, to give motion to a system of chain-pots by which the water is raised from the lower shaft and poured into the basin in the chamber. There is also a spiral passage round the lower shaft, but it is not inclosed from the well, as in the case of the passage round the upper shaft. The water of this well is procured from a bed of gravel, after penetrating the strata to the depth before mentioned. Wells are common in Greece, and in the olden times of its classic glory were the places of public resort: just as in modern times men congregate at their clubs and such like places, so did the sage Athenians meet together at their wells, and at them orators declaimed, and the music and dance lent their charm to make them places of pleasure and amusement.

The Romans had a clear knowledge of the art of well-sinking; and wells executed by this people are found in every country they once possessed. Many of the successes of their arms were due to their knowledge in this branch of engineering, as when every other source of water failed or was cut away by their enemies, they had recourse to well-sinking to obtain their supply. It was the knowledge of well-sinking that enabled Cesar to retain Alexandria when all the water of the cisterns had been spoiled by the Egyptians. The same knowledge enabled Pompey to procure a supply of water when holding a position of great advantage against Mithridates, who had abandoned it for want of water. Imperial Rome (prior to the time of Appius Claudius) was supplied with water principally from wells.

The water procured from wells is rain that has descended by the minute interstices of the earth's crust, and is stored in the numberless interstitial spaces of porous strata.

Wells may be classified under two heads, viz.—*Ordinary Wells*, or those sunk into permeable or water-bearing strata; and *Artesian Wells*, or those sunk or more generally bored through impermeable strata until a water-bearing stratum is tapped, when the water is forced upwards by virtue of the hydrostatic pressure due to the superior level at which the meteoric water was received.

Ordinary Wells may be again classed under the respective heads of *Shallow* and *Deep Wells*. The water from both classes is procured under precisely the same circumstances, but differs often very materially in quality and quantity.

Shallow Wells include ordinary domestic wells sunk a few feet into the permeable strata of the earth's crust, and, owing to their shallowness generally, only catch the adjacent percolating water; consequently cannot be depended upon to give a large supply; and, inasmuch as they are generally contaminated with the contents of sewers and cesspools when sunk in the superficial deposits under cities and towns, which are honeycombed with such offensive receptacles, or tunnelled with imperfect and leaking sewers, their waters are not to be recommended for general use.

Deep Wells sunk into permeable and water-bearing strata derive supply from a more remote and extensive drainage area brought into action by the depth given to the wells, and the quantity yielded by them is limited by the friction of the water in passing through the interstitial

space and the molecular attraction of the strata for retaining the water, which practically limits the area draining into the well.

Artesian Wells have ages ago been in use, and the antiquity of boring wells of this class is so great that the precise period of their introduction is unknown. They are common to Syria and Egypt. China abounds with them, many being upwards of 1,800 ft. deep and but 6 in. in diameter. They are common in Italy and France; and in the province of Artois, of the latter country, they are so abundant that one may be found at nearly every door; and it is from this province that the art of sinking or boring such wells came into this country, and they are named by us after that place. Artesian wells are artificial springs, and the same remarks that apply to deep-seated springs will apply to Artesian wells.

The quantity of water yielded by wells cannot be absolutely computed, as it is dependent upon so many varying circumstances; but in considering this part of the question we must have regard to the area of drainage, the nature of the stratum, its dip, strike, faults, absorbent properties, and the nature of the underlying and overlying strata, the rain-fall, and the depth of the well itself.

The theory of the probable quantity of water yielded by wells is called the cone theory, i.e., the drainage area contributing to the supply of a well is represented by an inverted cone, the apex of which is at the bottom of the well; so that if the strata were perfectly uniform, and the flow through it equable, the quantity yielded by wells sunk to various depths would be represented by the area of the different cones; but inasmuch as perfectly uniform strata of any great extent are rarely met with in nature, it is impossible to lay down any but general laws in studying the probable yield of water by wells.

Physical Properties of the Strata.—The yield of water from a well depends upon the nature of the strata: thus, if the strata be of a close texture, having but few and small interstitial spaces, the drainage area will be limited by the friction of the water in flowing through them, and by their capillary attraction; consequently, in strata of this character, the area contributing to the supply of a well will be represented by an inverted cone of acute irregularity; while, on the other hand, if the strata have large and numerous interstitial spaces, they will yield water rapidly, and the area contributing to supply such well becomes practically infinite. And just in proportion as strata approach one or other of the descriptions of the strata mentioned (all other things being equal), so will the supply of water capable of being procured from wells sunk into them vary. The construction of a well will also influence the flow of water; as, for instance, when a well is sunk into dense but permeable strata, containing much water, naturally yielding it slowly, owing to the fineness of the interstices; by special arrangement an increased supply could be procured. These arrangements consist generally of long tunnels or headings, driven or extending horizontally, sometimes to great distances of the shaft. They have the double advantage of not only offering a greater surface to allow of the escape of water into the well, but they also act as reservoirs for storing it, which is a great advantage in all cases, but more especially when the water is required at intervals, and not continuously. The nature, character, and position of the water-bearing strata, from which wells derive their supplies, must be carefully considered by every person who desires success to crown his labours in practising the art of well-sinking. It has been already shown, under the head of Absorption, that the quantity of water sinking deep into the ground is influenced by many circumstances, and is not alone dependent upon the character of the strata; yet it is quite obvious to the most casual observer, that the nature of the strata has the most important bearing upon the quantity and quality of water yielded by wells: thus, chalk, from its absorbent nature, has been found by observation on the steep chalk-hills around London to absorb a rainfall of two inches per hour; the red sandstone formation, under suitable circumstances, also absorbs rainfall very rapidly; while the more impervious strata absorb it but slowly. The dip or strike of the strata will also have an important bearing upon the amount of water yielded by a well, as it may occur that the natural inclination of the strata may be unfavourable to the yield of any great quantity of water in a particular locality.

Faults have a material influence upon the flow of water in the subterranean passages of the

* From paper by Mr. Baldwin Latham, upon "The Supply of Water to Towns," read at "Society of Engineers."

earth, and, consequently, have much to do with the amount of water capable of being yielded by wells. The level of the water in the same strata, when disjoined by a fault, is no longer the same, but may vary considerably; and it may also often happen that a well may turn out to be a failure owing to the near proximity of a fault cutting off and diminishing the drainage area. The careful study of the strata should always form an important point in considering the desirability of well-sinking, and the want of such study often entails failures which we ascribe to faults; but the probability is that, with further insight and clearer knowledge, many of these failures, which are rather the fault of the engineer than any fault in nature, would not arise. Water flowing in the bowels of the earth follows the same laws as water flowing on the surface of the earth, except when modified by some disturbing cause. The line of saturation, or the level at which water may be procured, varies in different strata, and is affected by various causes: thus, the effect of continuous pumping in a district is to lower the water-level of such district. Generally the water-level in strata has an inclination in the direction of its flow: thus it has been established by the Rev. Mr. Clutterbuck and others that the inclination of the line of saturation in the chalk in the north of London is 13 ft. per mile. In other places it varies according to circumstances: thus, it is not improbable that the flow of some intermittent springs is due to the elevation in the line of saturation, as in the Bourne at Croydon, which breaks out occasionally after very heavy and continuous rains. As a rule, it will be found that in those districts in which the flow of water from springs and the flow of rivers is equable, or neither subject to excessive floods nor droughts, but is always discharging a quantity very near the mean flow, so will it be found that wells sunk into the particular strata from which these rivers or springs derive their principal supplies will yield the largest quantity of water.

COST OF THE GOVERNMENT AIDS TO EDUCATION.

SIR DAVID BREWSTER, the principal of the University of Edinburgh, in a recent address, complains of the smallness of the sum which is yearly granted by the Government in aid of the Scottish universities. Amongst other matters bearing upon this subject, Sir David remarks, that the sums granted for Protestant middle-class education in Ireland was, during the last year—Queen's College, 21,000l.; Queen's Colleges, 6,600l.; Queen's University, 3,608l.; Belfast Theological Institution, 2,700l.—in all, 33,908l. The learned principal says, "this magnificent sum is for the education of far fewer than 1,000 students; while all the universities of Scotland receive only the pauper allowance of some 10,000l. for the education of 3,500 students." Respecting this, "A Scotchman in London," in writing to a contemporary, remarks, that the 10,000l. a year, which is so little thought of, is equal to a capital of 300,000l. in Consols; but the above sum is additional to former grants, and last year the payments in connexion with the Scottish universities (including a special grant of 2,362l. for Aberdeen) were 22,267l.: this is about 6l. 10s. or in three years, 19l. 10s.; paid by the State in assisting each student in the Scottish universities. In Ireland the bounty granted by Parliament for each student is about 34l. a year, or 102l. in three years, the usual time for young men to remain in these colleges. We do not complain of these grants, and have only referred to them for the purpose of contrasting the extent of the Government aid afforded to the education of the poor and working classes in Great Britain. The sum granted for the common schools last year was 704,002l., and the "Scotchman in London" remarks, that in a tolerably well educated country there is, or ought to be, one-sixth of the population at school. Supposing this to be the case, the Government allowance to each scholar amounts, on the average, to only about 3s. 6d. a year; or, supposing the average attendance to be three years, the total sum paid to each child will be 10s. 6d.

In Ireland, the common schools received a Parliamentary grant of 906,821l. One-sixth of the population of Ireland would be 950,000, representing the children who were, or who ought to be, at school; and this sum divided amongst them would average about 6s. 6d. a year for each, or 19s. 6d. in three years—about

twice as much as the sum allowed for common school education in England and Scotland.

In connexion with the common schools, a payment is now made according to Mr. Lowe's plan,—not a certain sum for each scholar, but at the rate of 8s. for each child who passes a creditable examination in reading, writing, and arithmetic; and it appears that in Roman Catholic schools 21 per cent. of the children examined failed to pass their examination in reading (and consequently the school lost the offered 8s. on account of each child that so failed); 23 per cent. failed to pass their examination in writing; and 33 per cent. failed to pass their examination in arithmetic,—the average of the three branches being 25½ per cent. In Church of England schools 13 per cent. of the children examined failed to pass their examination in reading; 15 per cent. failed in writing; and 24 per cent. in arithmetic,—the average of the three branches being 17½ per cent. of failures.

In the British and Foreign Society's schools, where the education is more of a secular description,—taking the Wesleyan, Presbyterian, and other Protestant Dissenters' schools together, the results are as follow:—The failures in reading were only 10 per cent.; in writing, 12 per cent.; and in arithmetic, 19 per cent.—the average of the three branches being 13½ per cent. We thus find in Roman Catholic schools there are 25½ per cent. of failures; in Church of England schools, 17½ ditto; and in the British and Foreign Society's schools, 13½ ditto. The above figures show a marked difference, and confirm an opinion we have before expressed, that in the National schools it is necessary to direct attention more exclusively than is done at present, to the simple teaching of reading, writing, and arithmetic.

AN ILLUSTRIOUS FOREIGN VISITOR.

A VISITOR, well known and highly appreciated in many of the waters abroad, has, by the means of the Acclimatisation Society, been introduced into our own. This is a remarkable event, for it is said that there has been no new fish useful for food added to those which before existed in England since the time the carp was brought here more than 200 years ago. The present stranger is the *Silurus glanis*, specimens of which have been brought alive to the station of the Society at Twickenham by the exertions of Sir Stephen Lakeman and Mr. Lowe, from a distance of nearly 2,000 miles. In all, fourteen of these young fishes were brought from Kapochein, in Wallachia, where Sir Stephen Lakeman has an estate. The Argh river, which flows past here, abounds in these and other valuable fish, which are found more or less throughout central Europe and in Scandinavia; in the Danube and many of its tributaries the number is abundant; and in those wide waters the *Silurus glanis* is said to reach the enormous weight of 300lb. Its appearance is not pleasant, the large flattened head having a capacious mouth, which is capable of seizing the largest kind of prey; so that if this fish be successfully propagated in our streams and lakes, the pike, the water-wolf of the British waters, will meet with more than its match. The habits of the *Silurus glanis* are said to be most ferocious, and its growth, provided there be a sufficient supply of food, very rapid. The body is less elongated than the eel, and there are, stretching from the head, long tapering barbels; the eyes are frog-like, and there are many other points of general resemblance to the frog.

The new fish is like the eel in its habits, being a wallowing fish, fond of burrowing in the mud, and hiding amongst the rotten roots of trees. There are dark charges made against some of the largest specimens of the *Silurus glanis*, in the stomachs of which it is reported that portions of human bodies have been found. However, this is probably an exaggeration. There can, however, be no doubt of the extraordinary appetite and fierceness of this fish. In the floods which cover the neighbourhood of the Danube, the *Silurus* finds a plentiful prey in the multitude of frogs which pass into the river; but at other times, fish, small animals, worms, indeed anything which comes near, afford a supply of food; and there may be fear that, notwithstanding the valuable qualities of the *Silurus* as a means of supply to our tables, it may more than balance its value in this way by the immense destruction of fish which is needed for its support.

It is said that the *Silurus*, when the prey is plentiful, will attain over 66 lb. in four years;

and Englishmen who have tasted it report that in flavour it is superior to the salmon. An eminent authority remarks that this is the only foreign fish which it would be worth while to introduce into this country; and thinks that, into several of our lakes, particularly those in peat soil, this fish might be usefully placed. To increase the quantity and variety of the food of a nation is an indisputable advantage; and the greatest praise is due to the Acclimatisation Society for their earnest labours in this way.*

We may note that there is a sea-fish which somewhat resembles the cod; and the pike is making way as an article of food in the London market: the flavour is excellent, either when boiled, fried, or baked.

COMPETITION FOR GOVERNMENT BUILDINGS AT NELSON, NEW ZEALAND.

THE Government authorities advertised for designs for a Government House, a Supreme Court-House, and a Custom-House, with post-office combined. The cost of the first was to be 23,000l., and each of the others 20,000l. A premium of 200l. was to be given for the best design of each of the three buildings, and a second premium of 100l. for the second best design. So far the terms of the competition were unobjectionable. The architects, however, were required to send in carefully prepared estimates with the several trades stated separately, including all fittings, the drawings being all made to one-eighth scale, comprising plans, elevations, and sections, perspective views from two points of view being desirable, and models also admissible;—the premiated designs to become the property of the commissioners;—the architect of each of the best designs not necessarily to be employed to carry out the work;—and no premium to be paid until the building contracts were taken; and not claimable at all, if the building tender exceeded 15 per cent. above the architect's estimate. Notwithstanding these terms, and that an experienced architect pointed out the unreasonableness and absurdity of them in the *Nelson Examiner*, "an immense number of designs were sent in,"—from would-be architects at least; all the designs, of course, being obviously defective, and not in accordance with the conditions. Two, however, were selected, one of which it is estimated will cost 10,000l. above the stated amount, and the other 8,000l. The design selected for the first premium and for execution, is said to be in the style of a baronial residence of castellated Gothic. This building is estimated to cost 33,000l.; but even according to the commissioners "it may be feared that the cost will greatly exceed this amount." The second design is that of a Tudor Gothic mansion.

NEW THEATRE, BRADFORD, YORKSHIRE.

THE new theatre in Bradford was opened on the 26th ult., under the management of Mr. J. B. Buckstone, of the Haymarket, and Mr. Wilde. It has been built by a limited liability company. The building is 60 yards long, and 20 yards wide; and at the front is set back some distance from the line of road, so as to give greater facility for ingress and egress. This space will be covered with an ornamental portico or verandah, forming a desirable shelter in case of wet or inclement weather. In consequence of the inclination of the ground, the architects have been able to arrange the levels of the floor in a convenient manner. Parties visiting the boxes, obtain admission to them without the necessity of ascending a flight of steps. The boxes are entered from corridors, and are furnished with chairs, of ebonyed wood, covered with crimson Utrecht velvet. There are also two private boxes on each side of the stage. The seats of the pit are comfortable, every alternate seat having a back. The gallery is approached by a stone staircase. There is also a second one, of the same size, as an extra means of egress. All the interior doors are arranged to open outwards. The proscenium is 26 ft. wide, by 27 ft. high. At the rear of the stage are suites of dressing-rooms, green-room, property-room, &c. Externally the building is somewhat plain in appearance. Internally, the fronts of the boxes and galleries (three tiers), are decorated with a wide diaper enrichment, each tier of a different design. The

* There is an account and a good engraving of the new fish in a recent number of Cassell's Family Paper.

proscenium is supported by clustered twisted columns, on each side, having a guilloché enrichment between. The top is of an elliptical form of arch, decorated; over this are the Royal Arms and scroll enrichments. They are enclosed in a broken circular pediment, gilded and decorated. From the centre of the ceiling hangs a chandelier, the work of Messrs. Osler, of Birmingham. The stage is constructed by Mr. James Neill, of Bradford, from plans furnished by Mr. J. G. Hilton, of London, and its erection has been carried out under the superintendence of Mr. Oliver Wales, of the Haymarket Theatre. The accommodation is as follows:—Pit, 600; dress boxes, 200; upper boxes, 250; gallery, 750; total, 1,800. The architects of the building are Messrs. Andrews, Son, & Pepper, of Bradford. The execution of the works has been entrusted to local tradesmen. The clerk of the works was Mr. Benjamin Roberts. The opening night was a success.

ROCKWORK.

Bar rockwork is oftener seen than good. Making some observations on the formation of such work, the *Edinburgh Courant* says:—There are two leading objects to be kept in view in the construction of artificial rockwork. One is an imitation of the surface, broken and disturbed, and intermingled with Alpine vegetation; the other an imitation of the natural stratification of some particular section of rock geologically arranged. The rockwork which most usually occurs in park scenery (we do not here refer to it as entering into combination with other objects in flower gardens), is by the sides of the approach where cuttings have to be made through rocky strata. Than this nothing is more simply accomplished, as all that is required is to bare the natural rock so as to bring into view pieces of its most perfect formation, to cover the spaces between with turf or creeping plants, and with a few stunted bushes of birch, or such other tree as is indigenous to the spot. Care must be taken that no tool-marks be left visible on the rock, and that all traces of art be obliterated, leaving the whole as if it had been a natural opening through which the road has been taken. Lay bare prominent pieces of natural rock here and there in dingles and banks near which walks or drives pass, so as to bring them into contrast with the vegetation that surrounds them, and plant with creeping plants bare and harsh lines that may have been formed by quarrying, landslips, &c. Artificial rockwork may be sometimes employed to hide objects not wished to be seen, and where the space is not sufficiently broad to admit of this being effected by planting.

THE LONDON DRESSMAKING COMPANY (LIMITED).

THE agitation of the question as to overworking, overcrowding, ill-health, and mortality amongst the poor dressmaking girls at the West-end of the metropolis has resulted in the formation of a reformatory or model company under highly influential auspices. The patrons of the association are Lord Shaftesbury and the Bishops of London and Oxford, and among the patronesses are many of the leading ladies of the Ladies' Sanitary Association. The capital of the company will be 20,000*l.*, in 2,000 ten-pound shares. They have already taken offices at 19, Langham-place, and are negotiating for the purchase of a first-rate West-end dressmaking business to begin with, although there are already nearly 200 shareholders on their list. If we have any misgiving as to the result, it is not that the undertaking will be pecuniarily a profitable one. The dividends, however, are restricted to 8 per cent. per annum, and the surplus profits are to be devoted to the improvement of the condition of the poor workwomen. The hours of work are to be restricted to ten, or from 8 a.m. to 8 p.m., with two hours intervals for meals. Great exertions are still, we understand, being made to increase the list of shareholders, although the intention is only to begin on a small scale; but have the company the power even now to begin on a small scale, with 200 shareholders, patrons, customers, in short, and a first-rate dressmaking business already established to begin with? We should think they would be overwhelmed with orders even at the very outset. This, in truth, is virtually a great West-end co-operative establishment, and it certainly sets out with the brightest of prospects and possibilities

as regards material success and the amelioration of the condition of the poor needlewoman. The company have no desire to act competitively or antagonistically against the present order of dressmaking establishments, but rather to induce them to adopt those improvements as to accommodation, hours of labour, and general good treatment, of their workwomen, which it will be the aim of the company to set before them as a model.

ART-UNION OF LONDON.

CLAUDE DUVAL is the title of the print provided by the council for the subscribers of this Society for the current year, and it is incontestably one of the most interesting as well as one of the most ably engraved of the numerous fine plates produced under the auspices of this corporation. The scene depicted is one that was of no unrequited occurrence in the days of our second Charles. Claude Duval, the dissipated foreign valet of a nobleman, took to the road, and, in the course of his campaign against the goods and chattels of the travelling community, he, on one occasion stopped a carriage which yielded booty to the amount of 400*l.* Touched, however, by the beauty of the fair mistress of the party, and with that humorous caprice, which often swayed gentlemen of his profession, the bandit contented himself with 100*l.* out of the 400*l.*, on the condition that the lady should dance a corante with him on the heath. This is the moment selected by Mr. Frith for the subject of his picture. The forced gaiety of the lady, contending with the mortal fear which she cannot conceal, combined with the graceful action which bespeaks high culture,—the open-mouthed amusement of the men who evidently enjoy the joke,—and the suppressed indignation of the old man who sits bound on the ground, are all admirably given, while the negro escaping on the right-hand side, unnoticed by the gang, through their interest in the progress of the dance and the contents of the caskets, suggests the possibility of a rescue; and the gibbet in the far distance, with a Hogarthian touch, foreshadows the probable exit of some of the performers in the scene. Mr. Stocke has executed his portion of the work with great success. The laying in of the lines and their bold continuous sweep, are worthy of some of our old masters in this style, and the texture of the lady's satin dress and the robber's coat is very skillfully rendered. There is no doubt that this print must secure a very large number of subscribers anxious to possess it.

The council announce, amongst other novelties, a bust of the Prince of Wales, to pair with the one of the Princess given last year. If the likeness be as good as that of her Royal Highness, it will be a success.

We have seen a silver vase in repoussé work, executed by Mr. Barkentin, on which are given two scenes from the story of Cupid and Psyche: two nymphs very gracefully poised from the handles, and the whole thing is of good design, and a creditable specimen of an art at present much neglected. The Art-Union has bought the model and copyright, and a number of the vases reproduced by electro-deposit will be given as prizes in the next distribution.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 23rd ult.), at the House, in Conduit-street. The chair was taken by the president, Mr. J. H. Christian.

The following gentlemen were elected members of the Association:—Mr. Deining, 4, Haringford-road, Barnsbury; Mr. Somers Clarke, 20, Spring-gardens; Mr. John Eastly Goodchild, jun., 8, Regent-street; Mr. Walter Evill, 27, Elgin-crescent, Notting-hill; Mr. Walter Lonsdale, 1, Horbury-crescent, Notting-hill; Mr. G. Fredk. Payne, 63, Great Queen-street, Lincoln's-inn-fields; Mr. E. J. Maddock, 9, Conduit-street; and Mr. A. Hopkins, 10, Gray's-inn-place, Gray's-inn.

The Chairman said, a letter had been received from the Science and Art Department, South Kensington, transmitting, for the information of the Association, a minute recently passed by the Lords of the Committee of Council on Education on the subject of architectural decorations. Their Lordships expressed a hope, that as the subject was one of interest, not only to the public,

but especially to architects, the Department might be favoured with any suggestions which it might be in the power of the Association to afford for the promotion of the object in view. The letter in question was dated the 19th inst., and was signed by Mr. Henry Cole. The chairman added, that as some portions of the minute appeared to be extremely valuable, the better course might be to refer it to the committee.

In reply to a question,

The Chairman said, he was of opinion that the Architectural Museum should not be permanently located in so distant a place as South Kensington.

Mr. G. H. Birch then (in the absence of Mr. Bayn) read the prize essay, written by the latter gentleman, "On Iron as applied to Architecture."

On the 6th of January Mr. Lacy W. Ridge will read a paper "On Boxgrove Church, Sussex."

BUILDING NOTES AND QUERIES.

TILING.

In the early times of periodical literature, a column of the *Tattler* or the *Spectator* was devoted to correspondence, and contained questions and answers; sometimes, no doubt, genuine and authentic, but often merely covering editorial opinions under a pseudonymous signature. Correspondence of this nature may still be traced in the columns of certain sporting papers and of journals that deal almost exclusively with some isolated department of public news. With the increase in the number of readers, and the augmented circulation and daily issue of the newspapers of a later period, correspondence entered on another phase. Too voluminous to be printed, even in abstract, the letters daily received supplied to the conductors of the daily journals a convenient method of testing public opinion; and when, here and there, a letter of more than ordinary interest was laid before the public, it generally might be taken to represent a large unpublished mass of more or less unreadable correspondence on the same subject.

Instances have indeed occurred where, whether from a misconception of the real value of miscellaneous correspondence, or from a wish to secure subscribers by the hope that an easy means of appearing before the public in the envied garb of print was offered by the paper which sought their support, a disproportionate space of a public journal has been allotted to the reception of letters, as to which no principle of selection appeared to have been applied. But even apart from the intolerable inanity of these miscellaneous pages, the correspondence of the literary and scientific journals themselves is too apt to be made the medium of private opinion, or even of acrid dispute. The object appears too often to be the exaltation or the vindication of the writer, rather than the attainment of truth; and many otherwise able letters, whether bearing known literary signatures, or subscribed by simple initials, are obnoxious to this reproach.

In our own journal, in which, offering a wide medium of correspondence, the above-named inconveniences seldom arise, much information has been in this way elicited: and if, enlarging the system, the many practical and scientific readers of the *Builder* will devote a few minutes of their time to the asking and answering questions of the nature of "Building Notes and Queries," the result can hardly fail to add to the interest of the journal.

As an instance of one of the practical questions on which the collection of sound information may be of good service in many quarters, let us instance the subject of tile roofing. In one of those religious edifices that have sprung up in great numbers in the suburban districts within the last few years, there is one which was completed in the last spring, and the roof of which already shows signs that it will but ill resist the impending winter. Of course, in all such cases the right, and usually the cheapest, course to adopt, is to place the case unservably in the hands of some professional man—the original architect if accessible, or, in his absence, some respectable substitute. In the case in question, however, whether from a view to economy or otherwise, the persons interested in the management of the building sought the advice of the builder.

It should be mentioned that the roof was covered by flat tiles laid in mortar, and that on confining a small quantity of water by a clay edging on the top of one of these tiles, the water rather

* This will be found in the *Builder*, p. 903, ante.

rapidly percolated, and dropped from the underside. This seemed to account for the damp ceiling of the building, by laying the blame on the use of porous tiles; but the person who conducted this experiment was of opinion that it was too severe, and that any tiles would behave in the same manner.

Then there arises query the first,—what amount of impermeability may be fairly expected from roofing-tiles, and what is a fair test of this impermeability?

Then, query 2.—Is a plain tile the best, or one of the best, for roofing purposes? or is a necking, or slight projection on the upper part of the tile, an improvement with regard to the manner in which it will discharge its proper function of turning water?

The person whose advice was taken on the subject declared that the reason that the roof was damp was, that the tiles had been laid in mortar; he therefore recommended that the tiles should be removed from the roof,—that the mortar should be scraped from the under surface of each tile, and that the tiles, thus cleaned, should be relaid in hay.

Then there arises query No. 3.—Has mortar ever been known to render roofs wet; and, if so, why?

Query 4.—Is the practice of bedding roof-tiles in hay modern, and found to answer?

It would be easy to argue that, while any irregular use of mortar which would prevent natural drainage, would promote damp; the removal of a fair bed of mortar from the under surface of a square of tiles would only be the removal of so much material that offered at all events some resistance to weather. And it might be urged that the bedding of hay, not laid regularly like thatch, but merely crammed under the tiles as it is crammed into the rack of a stable, would only aid in conducting the external moisture to the upper side of the ceiling. Lastly, it may be said, wait and see how the hay-packed roof stands the winter.

But the object of these lines is neither to express nor to solicit opinion of a theoretical kind, but to furnish an example of that sort of question the clear statement of and the practical replies to which will not only much interest the readers of the *Builder*, but give valuable information to professional men, and tend to prevent much useless waste of money.

The practical lesson to be drawn from the experience of the present instance shall be a future contribution to the note and query department of the *Builder*.

ENTRANCES TO PUBLIC BUILDINGS.

FRIGHTFUL ACCIDENT AT DUNDEE.

ANOTHER proof of the necessity for some inspection of the modes of ingress and egress to and from buildings where meetings of the public take place, has just occurred at Dundee. A press of people were standing at the entrance of a concert-hall, below the United Presbyterian Church, in Bell-street, Constitution-road, waiting the opening of the gate, which was on a level, not with the concert-room, but with the church-floor above, so that it opened directly on a descending staircase, down which, so soon as the gate was opened, the people were pushed and fell, one on the top of another, till they formed a mass below, from which self-extraction was impossible, and out of sixty or seventy persons so placed, nineteen were taken out, in about three-quarters of an hour, dead, and many others more or less seriously injured. One of these has since died. The flight consisted of fifteen steps, and was 7 ft. wide. The space at the foot of the stairs where the mass of people, chiefly youths of twelve to eighteen years of age, lay, is only about 7 ft. by 9 ft.

There are two accounts given of the precise manner in which the accident took place. One is, that those forced in on a sudden opening of the gate were able to keep upright until near the bottom, when one or two lost footing, and having fallen, those behind rolled over them; while the other is, that a mass of persons were hurled from the top of the stairs to the bottom by the sudden impetus which they had received. The whole affair, however, was so instantaneous that no reliable account can be given of the manner in which the disaster occurred. When the advertised hour had, it appeared, arrived, the man in charge opened one-half only of the gate, but the pressure of the crowd from without was so great that the man was overpowered, and the

other half of the gate was then burst open. The entrance is evidently a trap of a most dangerous description.

There are places of amusement in London where as dire a disaster may occur any evening.

QUESTION UNDER THE BUILDING ACT.

MR. EDWARD COCK, builder, No. 94, Wardour-street, appeared before Mr. Knox, at Marlborough-street police-court, to answer a summons taken out by Mr. Robert Kerr, district surveyor of St. James's, for an alleged violation of the Building Act, in erecting two buildings in the stoneyard of the workhouse, for vagrant wards (being dwelling-houses) having their walls formed of combustible materials; and also in erecting these buildings so as to prevent them from being lighted and ventilated in the mode prescribed by the Act, by communication with the open air; or otherwise for refusing to obey the requirements of the district surveyor, who, considering these wards as public buildings, had required the same to be constructed with incombustible walls and in direct communication with the open air.

Mr. Kerr gave evidence to the effect, that the stoneyard in question was a space about 90 ft. long and about 60 ft. wide, entirely covered, at a height of about 13 ft., by the public baths overhead, and receiving light and air from the ends; that the two new wards, being about 40 ft. long, were built of timber-work and boarding, about the middle of this covered area, one on each side, removed altogether from the open air, and devoid of windows; that he considered the timber walls to be dangerous as regarded fire, and the deficiency of ventilation to be also dangerous to health; and he explained that if these new wards were considered by the Court to be not public buildings, he required the application of the ordinary provisions of the Act; or otherwise, if they were considered to be public buildings, or works done in a previously-existing public building, that his demands were still the same under the provision for his special authority over public buildings, subject to an appeal to the Metropolitan Board of Works. The danger from fire he considered to be serious, looking at the character of the intended occupants; and the risk of injury to health he thought was especially to be regarded, because of the site being an old graveyard, and there being no proper circulation under the superimposed building.

Mr. Pearce, barrister, instructed by Mr. Buzard, the clerk of the Board of Guardians, said, the question was one of great importance, not only to that but to other parishes, inasmuch as it had reference to an Act lately passed, the Houseless Poor Act; and should the decision be unfavourable, it would tend very materially to obstruct the beneficent intentions of the Legislature. In compliance with the provisions of the Houseless Poor Act, the parish authorities had erected two buildings in the stoneyard, at the back of and adjoining their workhouse, for the reception of casual vagrants. The cost of the buildings was 300l., and they had been approved of by the Poor-law Board under their certificate, which certificate was necessary in order to enable the parish to get from the Metropolitan Board of Works the amount of the outlay as soon as it should have been incurred. He put in a plan of the wards bearing the general preliminary approval of the Poor-law Board, and the final approval was expected daily. Now he contended that the buildings did not come within the Building Act at all, having been erected in conformity with the provisions of a later Act, to meet a temporary emergency. He contended, that the later Act would override the earlier Act, and leave the responsibility of the buildings with the Poor Law Board alone, and not with the district surveyor; that the new wards were not public buildings; and that they were not buildings at all, directly or indirectly, but temporary enclosures in an old building. He would also remark, that if the parish were obliged to pull down the buildings, or to make such alterations as to prevent them from being used for the purposes intended, the object of the Houseless Poor Act would be defeated, and the casual poor would sustain much hardship.

No evidence was called for the defence, and the district surveyor made no reply.

Mr. Knox deferred deciding till next day, that he might inspect the place. His decision was ultimately given thus:—He had come to the opinion from personal examination, that the new

wards were but interior apartments partitioned off. He could not agree that the Building Act was in any degree set aside by the Houseless Poor Act; he read both Acts together without difficulty; moreover, he was of opinion that the new wards were public buildings in the sense of the Building Act; and he held that the Building Act had full authority over them but for the circumstance that they were situate within the covered building which constituted the stoneyard. If built in the open air he should have considered them in every way subject to the rules of the Building Act, but as they were formed by merely erecting partitions in what was previously in fact a room, he must dismiss the summons. The district surveyor, if dissatisfied, knew what course to pursue; but as that officer had relieved himself of all responsibility by his application to that court, this, he supposed, was all that he desired.

Mr. Kerr intimated to the clerk of the Board of Guardians, that it would be necessary for him to report the case to his superiors, the Metropolitan Board of Works, and that he would leave it entirely in their hands.

ARCHITECTURAL COMPETITORS.

SIR,—An inquirer's queries on this subject may be fairly met by the question,—Is it customary for architects to bind themselves by the conditions imposed on them? I think not. Nor is it right that they should do so. Nine times out of ten a building committee have very little of the business they have undertaken. An architect, an originator and director by profession, should not as such, work out what he conceives to be most suitable as a man of business, endeavour to gain the commission. If he choose to lay three designs (gratis) before the judges, they will, if wise men, certainly avail themselves thereof. The question of scale and some others should be settled by the profession; and I believe, that with proper regulation, detail drawings will not be called for. At present they are supposed to show the author's competence.

I suggest that a code of competition rules be prepared and circulated amongst the members of the profession, to regulate, mainly, the number of competitors; scale; who shall be the judges; how many competitors shall be remunerated; the scale of remuneration; and if stated requirements can be held as absolute conditions.

First, as to number of competitors, and their remuneration. It is but fair that if a building committee desire an unlimited number of designs, we should impose a condition that a certain percentage of the competitors should be remunerated, since the outlay by our members is largely increased. The scale for the drawings should be a small one, to economise labour as far as possible. The judges should consist of three architects, three architects and two members of the building committee. A list of architects willing to undertake this really arduous duty should be at the Institute, and its members should serve in rotation. The instructions should be issued by them.

By thus securing competent judges, many of the present difficulties would vanish, and the profession would be taking steps to save its members from the disappointment caused by local chicanery, and by a want of compliance with conditions which are perhaps illogical or ridiculous.

AT GENTS FARE.

MONAGHAN AND CAVAN LUNATIC ASYLUM.

SIR,—Many of your readers will remember that architects were invited more than a year ago, to submit designs for the above, and that a large number were sent in from English and Scotch, as well as Irish architects, in which it was said at the time that much ability was displayed. Those who engr, &c. in the contest will remember that a selection was made, chiefly on the ground of economy, of a design which the author estimated could be executed for 25,000l., or at the rate of about 80s. per patient, the number to be accommodated being 300.

The tenders for this design have only just been received, and I am informed that the lowest eligible tender reaches the sum of 35,000l., exclusive of a number of indispensable items which will probably bring the amount to 40,000l.

It is clear from the above that those architects who sent lowest estimates with their designs, were placed at a great and unfair disadvantage by the low, and as now appears, deceptive estimate sent with the selected design; and it appears to me that the committee are bound in honour to re-consider their decision.

ONE OF THE COMPETITORS.

THE SIR TATTON SYKES COMPETITION.

SIR,—It is more than three months since the designs for the above memorial were sent in, and not a word has been heard about the decision of the committee.

It is quite time the unsuccessful designs should be returned, and the names of the "successful competitors" made known.

A COMPETITOR.

ORNAMENTING IRON AND STEEL.—Mr. Christian Weintraud, jun., of Offenbach, Hesse Darmstadt, has patented an invention, which consists in ornamenting, by drawing, or otherwise marking, on the surface of steel or wrought-iron, which must be first polished or bright, or "matted," any desired spots, pattern, or device, with boracic acid. The metal is then fired, and according to different temperatures so will the effects differ.

METROPOLITAN BOARD OF WORKS.

THE RIDLEY TENDER.

At the last weekly meeting of the Board the correspondence to Mr. Ridley was read by Mr. Bazalgette, after which Mr. Doulton moved that the letters be printed and referred, with the rest of the correspondence, to the Main Drainage Committee. He was sure, he said, that when the letter of Mr. Bazalgette and the confirmatory letter of Mr. Gregory were placed before the public they would be prepared to say that they entirely exonerated the Board from the charge of acting in opposition to the interests of the ratepayers of the metropolis. He was certain it would be felt that the chairman had acted with prudence and judgment, and that the engineer's character was entirely vindicated.

Mr. Legge seconded the motion. He hoped the correspondence would go to the public, and do justice, not only to the engineer, but to Mr. Ridley and the Messrs. Waring. It would prove that Mr. Ridley at the time of sending in the tender was a man capable of carrying out the contract, and quite willing to do so. The inquiry was not as to his private character, but as to his capability to carry out the contract. It regarded the man's credit. It showed that, if he had taken his employer's money, when Providence placed him in a position to repay it, he came forward voluntarily to do so. The sum was 100*l*. He calculated that the interest would double it, and he said, "Here are 200*l*. to make ample amends for any wrong I have done you." The public would come to a just conclusion at the end, and would judge whether Mr. Ridley was or was not capable at the time of carrying out the contract.

Mr. Lowman Taylor thought that on that day the engineer was simply to be asked for information, and that they would not go into any discussion. They were not prepared for it, because they had not till now the papers in their hands, and justice could not be done to either party. It was difficult to determine the question between the two parties, and they should not go into it that day. The information contained in the report of the engineer appeared to be rather incomplete, and there might be a complaint that something was withheld because there were blanks in it.

The Engineer, in reply to the question respecting the blanks, said the information was given to him in confidence, and, therefore, the blanks were in the report.

After a few words from Mr. Tite and Mr. Freeman, the motion was agreed to.

PROVINCIAL NEWS.

Eye (Suffolk).—An extensive flax manufactory has been erected in the outskirts of the town, on the Hoxne-road, to replace old works which were burnt in May last. The walls are of clay-jumps, faced with brick. The bricklayers' work was done by Mr. Ramplin, of Eye, and the carpenters' work by Mr. Gooderick, from Sir E. C. Kerrison's estate. All the bricks and the wood were supplied from the estate, and the work generally was superintended and carried out by Sir Edward's own people. Messrs. Chase hire the building from Sir E. Kerrison. In the internal arrangements rooms have been provided in which the workpeople can get their meals, separate accommodation being given to the men and boys, and to the women and girls. At present only the female meal-room is completed, and the males will therefore use the foreman's house, which stands within the enclosure of the works. The total cost of the building and machinery has been from 7,000*l*. to 8,000*l*.

Woodbridge (Suffolk).—The railway company have erected a grain warehouse here, 130 ft. long by 50 ft. wide, capable of holding 3,000 combs of grain. The building is of red and white bricks, and was erected by Messrs. Perry & Judson, of Stratford, contractors, the brick-work being done by Messrs. Cullingford & Forsdike, of Woodbridge. It is lighted by ten fanlights on one side, and four roof-lights, and fitted up with gas-burners.

Bristol.—The subject of new assize courts has been much discussed in this city. Among the proposed schemes is one by a corporate official, who proposes using a site on the Grove, Queen-square, and building handsome courts. Plans are in preparation, and they will shortly be laid before the council.

Bath.—The foundation-stone of the new bank premises at the top of Milsom-street, for the National Provincial Bank of England, has been

laid. The building, when completed, will be similar in style to the centre houses in Milsom-street. The elevation in this street will comprise four stories. The attic will be terminated with open stone balustrading and vases. The main cornice will be supported by four Corinthian three-quarter fluted columns, resting on a rusticated basement. There will be two entrances, one in the centre of the elevation facing York-buildings, and the other in the rounded corner between the two streets. The York-buildings elevation will be similar to that in Milsom-street, the only difference being that the main cornice will be broken by a large pediment supported by six Corinthian columns, the tympanum of which will be carved with the Bath arms and a group of emblematic figures. The attic will be similar to that in the Milsom-street elevation. The banking-office will be large, and lighted by three windows, looking into York-buildings, and by a circular dome lantern supported by four polished marble pillars, in Caen stone, of the Ionic order. The ceiling will be decorated by Messrs. Green & King, of London. All the fittings will be of oak, enriched by mouldings and carvings. In the basement there will be a strong room, under the banking-office, fitted up with lift and all modern appliances. The building will be fireproof, iron joists and girders being used throughout. The design is by Messrs. Wilson & Willcox.

Middlesborough-on-Tees.—Mr. H. W. F. Bolckow, a member of the firm of Bolckow & Vaughan, ironmasters, has intimated his intention of making a gift to the inhabitants of 100 acres of land, in a convenient position, which is to be completely laid out as a public park, at the sole expense of the donor. There are now 25,000 inhabitants in Middlesborough, and they labour in many factories, mills, furnaces, and other works of the great iron industry, where, thirty years ago, a solitary farm-house stood,—the rise of the town has been so rapid.

FROM SCOTLAND.

Greenock.—The old west church has been restored and re-opened. The work of restoration has been executed from designs by Mr. James Salmon, of Glasgow, by the following tradesmen:—Mr. P. Grant, mason; Mr. J. Black, joiner; Mr. G. Burns, slater; Messrs. Brownlie, Buchanan, & Co., plumbers; Messrs. Finlay & Weir, gasfitters; Messrs. Johnstone & Lochhead, painters; Messrs. R. Blair & Son, upholsterers; Mr. J. Chalmers, smith; Mr. J. McDougall, master of works. The edifice has a new tower and spire, but the building generally was not found to be so dilapidated as to require re-erection. Stained glass windows have been executed for it by Messrs. Ballantyne & Son, of Edinburgh. The subject represented in the large north window, is the "Adoration of the Magi." That of the large south window is "Jesus calling his first Disciples." In the dexter side of the twin-light north window, is a representation of "Jesus teaching Mary," and in the sinister light he is "Blessing little Children." The church is lighted in the evenings by two gaseliers, and brackets under the galleries. The warming is by a Gill stove.

GAS.

THE report of the directors of "The Pará Gas Company (limited)," has been issued. From this report it appears that the contractors, Messrs. Peto & Aird, have nearly completed the works at Pará, in Brazil, and that the city has for some time been lighted with gas. Messrs. Peto & Aird have been paid 81,547*l*. for the works, and the expenses of the engineer, Mr. Thomas Ramball, amount to 3,666*l*. The capital of the company was 100,000*l*, and they have still a balance of 4,226*l*. at their banker's. The income of the company from the supply of gas to the Government and the city is not yet available; and the directors only recommend a dividend of 5 per cent. per annum for the last half-year. The streets, churches, and private dwellings are all being lighted up with gas. The affair promises very well.—The city of Alexandria has been lighted by gas, the works having been erected by a French company. The lamplighter is nightly followed in his rounds by a crowd of wondering Arabs, who insist that the marvellous blaze following the touch of his torch must be provoked by the will of a genie, or "djinn," as Mr. Lane would have us spell the familiar word of the Arabian nights.

Heretofore a municipal regulation required everybody going abroad after nightfall to carry his own lantern, but this is no longer necessary.—The directors of the Sheppy Gas Consumers' Company have resolved to reduce the price of their gas from 5*s*. to 4*s*. 6*d*., and the directors of the Hythe and Sandgate Gas and Coke Company have also announced their intention of making a further reduction of one shilling per 1,000 ft. The price will then be 6*s*. 6*d*., and the allowance of discount at the rate of 6*d*. per 1,000 ft. on prompt payment will further lessen the sum to 6*s*.

RAILWAY MATTERS.

THE forty-seven railway schemes which will next session be submitted to Parliament in reference to London are said to represent no fewer than 151 separate lines and branches, with a total length of 349 miles. Of these, twenty-three relate to the south side of London. The longest on the list is the London, Bucks, and East Gloucestershire, 59 miles 6 furlongs.

We understand, says the *Railway News*, that the appointment of a select committee of the House of Commons will be moved for immediately after the assembling of Parliament, for the purpose of inquiring into the whole question of railway management, and for considering whether any and what steps are necessary with a view to their being made more conducive to the interests of the public. It is further stated that the proposal will not be opposed by Government.

The traffic receipts of railways in the United Kingdom amounted for the week ending the 17th December, on 11,732 miles, to 607,586*l*.; and for the corresponding week of last year, on 11,395 miles, to 583,826*l*., showing an increase of 337 miles, and of 23,760*l*. in the receipts.

The wear and tear of wooden sleepers have led several of the railway companies in France and other Continental States to adopt iron ones. Of all the processes yet adopted for arresting the decay of wooden sleepers, not one has been found to succeed. They expect a great saving both of time and capital by the use of metallic sleepers.

The French commission for examining different questions relative to the service of railways has just issued its report. Among the improvements suggested is that of a more convenient disposal of the interior of the carriages. The American long carriage, with a communication from end to end, is preferred, with saloon, reading and smoking compartments, water-closet, &c.

The Rome correspondent of the *Morning Post* mentions a rumour that Mr. Pope Hennessy, M.P., has obtained from the Papal Government the concession of the recently-projected railway from Rome to Tivoli.

General McClellan has been appointed chief engineer of a railroad in New Jersey, upon a salary of 15,000 dollars per annum, the sum which he would have received had he been elected to the Presidency;—at least, so we are told.

CHURCH-BUILDING NEWS.

Camberwell.—The chief stone of a new church, dedicated to St. Andrew, has been laid here, in the Derwent-road, on a site given by Mr. Thomas Cook. The edifice will consist of nave, north aisle, transept, and chancel, with organ chamber on the north, and vestry on the south side. The tower, with spire, is at the north-west corner, and communicates with a cloister porch, the whole width of the west front, and with a porch entrance at the south side of the nave. The space between the tower and north aisle, will be occupied by a side porch, containing a staircase to the west gallery across the nave. Externally the building will be constructed of Kentish rag walling, in drop courses, with Bath stone dressings and red Mansfield bands, with the exception of the spire, which will be of slate in bands. The roofs will be covered with red and brindled Staffordshire tiles. The interior will be lined with bricks, with bands and arches of white and yellow brick, the walls being finished in stucco. The extreme exterior dimensions will be 130 ft. 3 in. from east to west, and 65 ft. from north to south. The height to apex of nave gable will be 56 ft., and of spire 140 ft. to top of vane. The accommodation will be for about 900, and the cost will be 5,300*l*., inclusive of chancel fittings and font. The architects are Messrs. Keeling & Tyrie, of London.

Rusthall.—St. Paul's Church, Rusthall, has been re-opened after enlargement. The sittings, which were before 366 in number, are now increased to 620, of which half are free, the best seats in the church being set apart for the working classes. The original church was erected in 1850, from the designs of Mr. Stevens, of Derby. The architects have effected the enlargement by the addition of a north aisle, a prolongation of the north transept, and the erection of a north porch at the extreme east bay of the new aisle. The extreme internal width of the body of the church from south to north is now 48 ft., and the length 77 ft. The new aisle is connected with the nave by a pointed arcade of five openings, the easternmost being less than the other on account of the required abutment of the central tower. Each pier is a cluster of four shafts of dark serpentine marble, with caps and bases of Caen stone. The west gable is perforated by a three-light transition window, and exactly opposite thereto the side of the transept has a double-light opening, of a similar character. The additional requirements of light have been met by doubling the lancet on three of the side windows, which have central marble shaft supports. The transept has a new roof, with diagonal ribs forming a groin over the large arch and each window. The covering is of round-ended New-castle tiles. Several painted glass windows have been added. The heating-apparatus by hot water has been extended throughout the new work, by Mr. William Catt, of Tunbridge Wells. The works have been carried out by Messrs. G. Mansfield & Son, of London; Mr. G. Moat acting as clerk of the works. The architects were Messrs. Stevens & Robinson.

Stratford (Essex).—The new church of St. Paul, in the new town, has been consecrated by the Bishop of London. The site, which was given by the Great Eastern Railway Company, is in the Maryland-road. It contains space also for schools and parsonage. The church will accommodate over eleven hundred adults on the ground-floor, and it has a west gallery for children. The walls are of brick, with Bath stone dressings, and arches of black and red bricks. The roofs, except that of the chancel, are ceiled to the underside of the rafters, and are covered externally with blue and pink Bangor slating, excepting the turret, which is covered with green Westmoreland slates, with lead roofs. The nave roof has terra-metallic shark's tooth cresting tiles, and the chancel roof a wrought-iron ornamental ridge railing, about 2 ft. high, supplied, together with the iron terminals to the gables, by Messrs. Peard & Jackson. The nave and chancel aisle arches are of yellow, red, and blue brick, with stone keys and springers, and are supported by cast-iron columns, with polychromatic decorations in oil. The arches to the windows throughout are in coloured brickwork, and the interior is otherwise finished in stucco. The carving is of natural foliage, emblematic in character. It is the work of Mr. Williamson. The plan consists of nave and chancel of equal width and height, and north and south aisles, also chancel aisles in three gables. The roof over the chancel (which is semi-octagonal), is boarded diagonally to the underside of the rafters. There is at present no tower or spire, though they are provided for in the design separate from the main building. The extreme external dimensions are 139 ft. 6 in. from east to west, and 60 ft. 6 in. from north to south, and 45 ft. in height to apex of nave gable. The actual cost has been a little short of 4,000l. Mr. E. B. Keeling was the architect.

Bury St. Edmund's.—A new church, erected from the designs of Mr. H. F. Bacon, of London, architect, formerly of this town, has been consecrated at Whitwood Mere, near Castleford, by the Archbishop of York. The church is built upon a site given by Mr. T. P. Bland, of Kippax, and the Queen contributed 20l. towards its erection. Its architecture is in the Early English style, and it contains sittings for 320 persons, including accommodation for 96 children. The cost up to the present time has been rather more than 1,000l. The tower has only been carried a sufficient height to form a porch. It will be raised higher, and surmounted with a spire, when sufficient funds for the purpose have been obtained. The church is built of stone got in the neighbourhood, but the walls are lined with brick.

Yardley Gobion.—A new church has been consecrated at Yardley Gobion, a hamlet on the Northampton and Stony Stratford road. The Duke of Grafton has defrayed the entire cost. The church is a parallelogram 60 ft. by 28 ft.,

with a chancel 22 ft. by 16 ft., and a small vestry or robing-room, and is capable of seating about 150 adults. The style is Geometrical, but the tracery of the windows varies in design. The edifice is built of the native stone, left rough on the face, with Bath stone dressings. Over the windows are relieving arches of stone alternating in colour; an admixture carried out exteriorly by the introduction of coloured stone shafts to the porch and priest's doorway, and stone lintels over windows of porch, &c. There is a porch on the north side next the street, and a bell campanile, or turret, at the west end of the nave, on the wall dividing it from the chancel. The interior is simple and plain. The nave and chancel have open roofs of yellow deal, with collar beams and curved ribs resting on stone corbels. The walls of the interior are stuccoed, the colour relieved by arches over the windows in red brick. The chancel arch is a recessed one of brick, red, black, and white, resting upon short pillars, with carved caps and corbels of Bath stone; the pillars are of red Duston stone. The "recessed" is of Bath stone and red brick, all flush, but panelled. The seats are of yellow deal, stained and varnished, as are also the pulpit and prayer-desk. The floors of the passages in the nave are of red and black tiles, and that of the chancel red, black, and buff. The church is heated upon the plan of Mr. Fitter, of Woolston, near Coventry, and that part of the work has been executed by him. The whole of the roof timbers are exposed to view, and are stained and varnished. The whole cost of the church has been about 1,750l. The architects, from whose design, and under whose immediate superintendence the building has been erected, were Messrs. Law & Sons, of Northampton. Mr. Bailey, of Stony Stratford, was the builder. The carving has been executed by Mr. White, of Northampton, the artist employed at the new town-hall.

Belvoir (Leicestershire).—The tower of the old Gothic church at the village of Belvoir has given way. It has been shored up with beams, pending more durable repairs. The services of Mr. Scott have been retained to insure the proper execution of the work, which, we understand, will cost about 1,400l. Mr. Wilson, of Grantham, builder, will carry out Mr. Scott's plans.

Coventry.—The late Mrs. Hill Morgan, of Cheltenham, we understand, has bequeathed the sum of 10,000l. for the erection of a new church at Coventry.

Thursford (Norfolk).—We are requested to state that Mr. T. Gidney, of East Dereham, supplied the warming-apparatus to Thursford Church.

DISSENTING CHURCH-BUILDING NEWS.

Liverpool.—A new Presbyterian Church is to be erected for Everton, at a cost of about 4,500l., if the funds can be raised by subscription for the purpose.

Salisbury-by-the-Sea.—The foundation stone of a New Wesleyan Chapel has been laid here, on a site at the corner of Emerald-street, facing Milton-street. The design was prepared by Mr. Peachey, of Darlington. It represents a structure of the Early English style, estimated to cost about 1,000l., and calculated to seat comfortably 300 on the ground floor; and provision is made for the erection of galleries, when needed, to seat 200 more. Tenders for the building have been let as follows:—Brickwork, &c., Mr. W. T. Spencer, of Salisbury; joiner, &c., Mr. John Wallace, of Broton; plumber, Messrs. Russell & Sons, of Darlington; slater, Mr. R. Preston, of Sunderland.

Shields.—The new United Methodist Free Church, Queen-street, South Shields, has been opened for divine worship. The new church occupies the site of the former chapel and vestries, which were pulled down to erect the present more commodious edifice. The new church is in the Italian style of architecture, and is built of stone. The size of the edifice on the ground-floor is 58 ft. 6 in. by 46 ft. 9 in., clear of the walls. Behind the pulpit are three vestries, under one of which is the hot-water apparatus for heating the chapel. In the gallery, the church is 47 ft. 3 in. by 68 ft.; and from floor to ceiling the building is in height 32 ft. 6 in. The gallery is supported on cast metal Corinthian columns. The ceiling is flat, with an enriched cornice. In the centre of the ceiling is a sun-light, containing thirty-four burners. The pews are without doors, and are grained. The building contains accommodation for 800 persons, and

the cost of it is about 2,200l. The architect of the building was Mr. John Tillman, Sunderland; mason, Mr. J. Hirst, Sunderland; plasterer, Mr. J. Charlton, Newcastle; carpenters and joiners, Messrs. Surtees & Forrest, North Shields; slater, Mr. W. Wylie, South Shields; plumbers, &c., Messrs. Glahm & Co., Sunderland; painter, &c., Mr. J. Scott, Newcastle. The decoration has been done, under Mr. Scott, by Mr. Thomson, of North Shields.

STAINED GLASS.

Norwich Cathedral.—The nave of this cathedral has recently had a memorial stained glass window inserted. It is the easternmost of two windows, of precisely similar design, situate on the south side of the nave, in what is called Bishop Nykke or Nyx's chantry, a side chapel formed by two bays, and separated from the centre aisle by an altar tomb. The glass tells one continuous story, representing the history of the "Good Centurion," as related by St. Luke (vii. 1 to 10), and St. Matthew (viii. 6 to 10). Commencing with the upper portion of the eastern light, there are—1. "Jesus entered into Capernaum;" and below, in the same compartment,—2. "A certain Centurion's servant was sick;" 3. "He sent unto Jesus the elders of the Jews;" 4. "And they besought Him instantly;" 5. "Then Jesus went with them;" 6. "The Centurion sent saying, Lord, trouble not Thyself!" 7. "I am not worthy that Thou shouldst come under my roof;" 8. "For I am a man under authority;" 9. "I have not found so great faith, no not in Israel;" 10. "And his servant was healed in the selfsame hour." By this arrangement and order the narrative is preserved in sequence. Natural forms, the oak and the vines, have been used in the details of the diaper in the spaces between the groups. The artists were Messrs. A. and W. H. O'Connor, of London. The window has been erected by Mr. R. J. H. Harvey, of Crown Point, to the memory of his father, Sir Robert Harvey.

Upperting Church.—A stained-glass memorial window has lately been put up in this church, to the memory of five infant children of Mr. Jas. Charlesworth, of Holmfirth. It is perpendicular in style, and consists of two compartments, with tracery. The subjects, Christ Blessing little Children, and the Presentation in the Temple, occupying the main openings, are inclosed within foliated canopies. This window was also from the establishment of Messrs. R. B. Edmundson & Son.

Sowerby Bridge Church.—This church has lately been enriched by the addition of a series of stained-glass windows. The three principal ones, which are placed in the chancel, are memorial windows, and consist each of one large opening. The subjects are the Nativity, Crucifixion, and Ascension, and are inclosed within borders and foliated canopies. Erected on the south side of the nave are four three-light windows, the centre light of each having a full-size figure of one of the Evangelists, inclosed within a canopy and border. The side lights of each of these four windows are in grisaille. The first window (St. Matthew) is also a memorial window. In the baptistery is another window of three lights, similar in size and character to the above. The centre light contains the Baptism of our Saviour, under a canopy. The whole of the above series were executed by Messrs. Edmundson & Son, of Manchester, who are also engaged to decorate the chancel.

Bolton Church, Cumberland.—A stained glass window has been recently erected to the memory of the late Rev. John Sherwan, curate of this church. It comprises two lights, and is in the Decorated style. The subjects are, "The Presentation in the Temple," with text, "Mine eyes have seen thy salvation," and the "Raising of Lazarus," with text, "Lazarus, arise, and come forth." These are inclosed within borders, and surmounted by foliated canopies. This window has been executed by Messrs. R. B. Edmundson & Son, of Manchester.

St. Ann's, Highgate Rise.—This church has been lately enriched by another stained glass window, the gift of Mrs. Ryder, and erected as a memorial of her late husband. The window consists of two openings, each containing a separate subject. In one the subject is "Naaman coming to Elisha to be healed of his Leprosy," with the text from the Old Testament, "Behold now I know there is no God but in Israel." In the other the subject is, "Our Lord healing the Impotent Man at the Well of Bethesda," accom-

panied with the text, "Arise, take up thy bed, and walk." Both are surmounted by foliated decorated canopies, and inclosed within a border in character. The arms of the deceased have been emblazoned in the quatrefoil at the head of the window, and a memorial brass at the base bears the inscription. The window was from the establishment of Messrs. R. B. Edmundson & Son, of Manchester.

Glasgow Cathedral.—The minor windows in the cathedral, not included in the grand series now completed, are quickly being filled. Six windows have just been erected in the clerestory of the cathedral, five of them triplets and one lancet. Four of these windows are in the transept, two are in the choir. The subjects are, Zechariah and Elizabeth, Simeon and Anna. The choir lancet is the gift of Mrs. Ramsay and Miss Davidson, in memory of the late Professor Davidson, of the University, and father of those ladies. The subject is Martha. All are from Munich.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Greenhithe.—A new church has been opened at Greenhithe. The church is of small dimensions (the interior being about 50 ft. by 22 ft.), and accommodates about 200 persons.

Newton-le-Willows.—A new church at Newton-le-Willows, dedicated to St. Mary and St. John, has been consecrated by the bishop of the diocese. The new church, which has been erected by Mr. J. Middlehurst, of St. Helen's, from the designs of Mr. Gilbert Blount, of London, is in the Gothic style, and when finished the cost will be about 4,000l.

Runcorn.—The first stone of a new Roman Catholic Church at Widnes, near Runcorn, to be dedicated to St. Mary of the Assumption, has been laid. The building, which is to be erected in Frysedale-street, will be set back several feet from the parapet, and the north side will run parallel with the road. It will present an elevation of about 108 ft. in length, and the nave will be divided by buttresses into seven compartments or bays, each having two single-light windows, with arched heads. In the first bay will be the great doorway of the church. The west end will come within a few feet of adjoining cottages. It will have lofty single windows in the ends of the aisle, and three single-light windows in the nave. Above will be corbelled out a belfry of stone, with high leaded roof, to be surmounted by two crosses, which will be 80 ft. above ground. The chancel at the east end will have a semi-octagonal end, with two windows on each face, placed high up, so as not to interfere with the effect of the altar. The interior will be divided by pillars and arches, nearly 30 ft. high, into nave and aisles of six bays. The north aisle will terminate in a side chapel, with a tracery wheel-window at the end. In the south aisle two confessionals will be built out, each of three compartments. Under the windows of the aisles will be panelled recesses for sculptured representations of the Passion. The aisle-roofs are to be open, and the timbers exposed. They are to be supported by arched principals, resting on the capitals of the pillars and corbels on the outer side. The roof of the nave is to be carried by seven arched principals, resting on stone corbels. The timbers will be exposed to view nearly the full height of the roof. The clear height from floor to ceiling will be 48 ft., and to the ridge of the roof, 56 ft. The chancel roof will be a continuation of the nave roof, but divided into panels by moulded ribs. At the west end of the church is to be an organ-gallery the width of the nave, and 14 ft. long. It will be carried by an arch in one span. The interior dimensions of the church will be as follow:—Nave, 26 ft. wide, 83 ft. long, and 36 ft. high to the spring of the roof; aisles, 11 ft. 6 in. wide, 83 ft. long, and 25 ft. to the spring of the roof; chancel, 26 ft. wide by 19 ft. deep. The total length of the church will be 103 ft., and breadth 49 ft. It is calculated to seat about 500 persons. The exterior is to be brick, with dressings of Appleton stone sparingly used, and relieved by bands of blue brick. The general effect of the church will be very plain, owing to the small amount to which the architect was restricted. The cost of the entire church will not exceed 3,100l., though, at present, it is to be feared that, owing to want of funds, the chancel will have to be left to a future time. Mr. E. W. Pugin is the architect; and Mr. Middlehurst, of

St. Helen's, is the builder. The building will be completed in about nine months.

Durham.—The "solemn opening of the church of our Lady of Mercy and St. Godrie of Finchale," has taken place here. The church is situate in Framwellgate. The site was purchased about seven years ago of Miss Williams, for 1,800l. A large brick mansion—at one time the principal hotel in Durham—has been fitted up as a convent, and occupied, during the last three or four years, by a community of Sisters of Mercy. Up to the time when the foundation stone of the new church was laid, 3,000l. had been raised towards the erection. The plans were provided by Mr. Pugin. The style is Decorated Gothic. The building consists of a nave and north aisle, 120 ft. in length, and 38 ft. in breadth. The east end terminates in a hexagonal apse. On the south side there is a chapel for the Sisters of Mercy, and a large vestry. A covered cloister connects the church with the convent.

THEATRICAL.

English Opera House, Covent Garden.—We have no hesitation in calling *Cinderella* the best pantomime of the season. The story is compact; the Paynes, especially Mr. F. Payne, are imitable; the appliances magnificent; and the scenery, by Mr. T. Grieve and his assistants, includes three admirable works in different departments—"The Butterfly Hunt," a landscape; the Vestibule leading to the Ball-room, as an architectural interior; and the transformation scene, titled the "Flight of the Hours." For grace, elegance in the forms and movements, and harmony of colour, this scenic and mechanical composition has never been surpassed, and the veteran artist, the Nestor of scene-painters, is justly called forward every evening to receive the thanks of the audience for the delight afforded them. Donato's performances show a victory over nature of the most remarkable kind; and the *pas* of three legs, which immediately follows him, is a lucky thought, well carried out. In half a dozen more words, the pantomime here is a great success.

Her Majesty's Theatre.—The want in Mr. Harrison's pantomime ("The Lion and the Unicorn") is a want felt in most of the pantomimes and burlesques this season,—the want of real fun. The dancing is pretty, the scenery is gay, the transformation scene, indeed, very elaborate. The "Eidos Aides," as they choose to call an optical illusion introduced, is effective. "And what," says Juvenius, "is Eidos Aides?" *Eidos* is a noun from the root *eidō*, to see (Latin, *video*); and means that which is seen,—the form, shape, figure, &c.: *aidōs* is from the same root, with the *a* privative, and means the reverse of the former; viz., unseen, without bodily form, and immaterial. In fact, the advertisement explains itself. The visible invisible being a very good translation, and all they want to convey.

RECENT PATENTS CONNECTED WITH BUILDING.*

FIRE-PLACES.—E. B. Wilson. Dated 16th January, 1864.—The patentee closes the bottom grate, and introduces between the front bars and the back of the fire-place a diaphragm, extending upwards to meet the upper part of the front of the stove, so as to divide the fire-place into a front or combustion chamber, and a back chamber or flue. When a fire is lighted in front of the diaphragm, the gaseous products of combustion are caused, by the chimney draught, to pass through holes or open space into the flue behind the diaphragm, fluted hollows in the front of the diaphragm forming channels for their passage.

LIME-KILNS.—H. Robinson. Dated 18th August, 1864.—The patentee claims, first, the application of heat to lime-kilns for the purpose of burning limestone by means of a fire or fires placed outside and around the kilns, and having access to the limestone by means of apertures in the walls of the kiln in connexion with the flues of such fire or fires. Secondly, the use of steam jets either behind the fire and within the flue, or within the chimney or stack, whether detached from or a part of the kiln, though he does not claim the use of steam jets for aiding the draught of an ordinary fire or fires, but simply its application to lime-kilns where the flames and the heat

require to pass through a compact mass of limestone. Thirdly, the application of a steam jet for the cooling of the grate bars of lime-kilns. And, lastly, the combined arrangement of air drifts or galleries, external fires (that is to say, fires that are placed without the kilns), and the steam jets before named, substantially as described for the purpose of burning lime; and also the use of double doors in the front of the discharge-hole, all as described.

CONSTRUCTING SEA AND RIVER EMBANKMENT WALLS, PIERS, AND OTHER STRUCTURES WHOLLY OR PARTLY IMMERSED IN WATER.—B. P. Stockton J^r J. S. Scott. Dated 3rd March, 1864.—The patentees propose to form a foundation platform of iron, stone, timber, or other suitable materials, supported upon and securely fastened down to cylinders or piles, or other suitable supports, and made sufficiently strong and water-tight to admit of the superstructure being erected thereon, and resisting the upward pressure of the water. A tank dam is to be attached to this platform, of which the platform itself forms the water-tight bottom. By this arrangement a secure and dry chamber is obtained, within which the structure can be erected. As each section or length of the structure is completed, the sides and ends forming the tank dam may be removed, leaving the structure supported by the foundation platform. In cases where the platform might be liable to oxidation or rapid decay, or required to be removed, "relieving" or "groined" arching, or concrete, or stone blocks, may be used in the lower part of the structure, which would form a sufficient foundation or support, bearing directly on the cylinders or piles, in the event of the platform being entirely destroyed or removed.

Books Received.

Specimens of Early French Architecture, selected chiefly from the Churches of the Ile de France. By ROBERT J. JOHNSON, M.E.B.A. Published by the Author, 15, New Bridge-street, Newcastle-upon-Tyne.

CONSIDERING that a dozen or so copies of this work, now completed, alone remain unsold, it may be useful to some of our readers to bring once more to their notice this, to Mr. Johnson, very satisfactory fact. During the progress of the work we have at various times mentioned it with great commendation,—commendation fully justified up to its close. In its completed form it consists of 100 plates, geometrical and perspective; measured, sketched, and lithographed by the author, and which illustrate some of the best examples of the earlier Painted architecture of France.

Mr. Johnson has great mastery over the pencil, and we have good reason to believe in his accuracy, after comparing some of his plates with our own sketches from the same subjects, made years ago. We cordially congratulate him on the successful completion of his undertaking.

The Old City, and its Highways and Byways. By ALEPH. London: W. H. Collingridge, City Press. 1865.

THIS is a much better book than "London Scenes and London People," by the same author, and if that has met with "an unexampled success," as stated, this should certainly not do less. The writer has trusted more to himself, to his own recollections and experiences, and the result is a very readable and interesting volume about persons and places in the Old City. A sad mistake is made at starting by giving opposite the title-page an engraving of Wren's scheme for rebuilding London after the fire, never carried out, as a "plan of London in the time of Wren!" However, this has nothing to do with the merit of the book itself. The illustrations are well engraved by Mr. Sheeres.

VARIORUM.

"Bacon's Railway and Commercial Map of the British Isles" (Paternoster-row), is certainly the best for the money we remember to have seen. It forms one of the "Popular Series" based on the Ordnance surveys, newly engraved on steel in the good style, and contains all improvements to the present date. It is remarkably clear and satisfactory. Mr. Stanford has issued a new Map of proposed railways and miscellaneous improvements for session 1865; also the sanctioned lines of railways in operation

* Selected from the *Engineer's* List.

within London and ten miles round. An enlargement is given of the proposed lines in the eastern part of the Metropolis, which includes a pretty piece of involvement in the neighbourhood of New-cross and Deptford. The map will be found useful.—“Transactions of the Institution of Civil Engineers of Ireland, 27th session, 1861-2, vol. vii., parts 1 and 2 (Dublin: Falconer, 1862 and 1864). Among the various papers here given, are a Description of the Cramlin Viaduct, by Mr. A. McDonnell; on the Action of Sea Water on Lime Mortar, by Mr. B. B. Stoney; Description of the Madras Railway, by Mr. T. H. Going; and various others of a more or less useful description. The letter-press is illustrated by engravings.—“A Dictionary of Chemistry and Allied Branches of Science.” Parts 21, 22, and 23. (Longman & Co.) The word Menthol concludes the last of these parts, the chief subjects in which are Light, Limestone, Liquids, Madder, Magnesium, Magnetism, Manganese, and Manure. The last is a very elaborate paper, in which Liebig's views are severely handled.—“The Popular Science Review,” edited by Henry Lawson, M.D. (Hardwicke, Piccadilly.) This popular review, of which every one speaks well, contains, as usual, a variety of specially interesting papers. The first is by Mr. R. Hunt, F.R.S., on the Source of Heat in the Sun, with engravings of the total eclipse of the sun, and of solar spots, one on a large scale and showing the curious willow-leaf phenomena. Another of the papers is by Dr. B. W. Richardson, on waves of heat and waves of death, in which the author treats of the influence of cold in increasing human mortality after middle life. In alluding to sanitary matters, Dr. Richardson (incidentally, merely, it is true) says,—“In regard to spreading diseases we hear now almost exclusively of one cause,—drains and the smell thereof,” and he makes no allusion whatever to overcrowding, want of ventilation, close bed-rooms, and other causes of the spread of fevers, which sanitary pioneers assuredly now press on the public attention at least fully as much as drains and their foul emanations,—if not more so, and for this simple reason that they have already fully established a public opinion in favour of thorough drainage as a preventive of fevers of the typhoid class, and are now more particularly dunning warning into the public ears as to such evils as that of foul air from close bed-rooms by night, from overcrowding and uncleanness, and from want of ventilation generally, as in workshops, &c., these being all causes of the spread especially of typhus fever, and of at least the aggravation, if not of the origination, of many other causes of illness and of death.

Miscellaneous.

WORKMEN'S HALL AND EXHIBITION, STRATFORD. For the purpose of erecting a workmen's hall for meetings and social converse, a sum of 600*l.* has been raised; and for its increase a workmen's industrial exhibition has been opened in the National School-rooms, Station-street, Stratford. The number of articles exhibited is 431.

FOREIGN ART FOR DUBLIN INTERNATIONAL EXHIBITION.—We find that from Brussels the list of demands already numbers 110 applicants in the Industrial Department, and 117 artists. Forty of the best artists of Düsseldorf have given their adhesion, and a large number of the Scandinavian painters, headed by M. Adolph Tidemand. Munich will furnish cartoons of the most celebrated artists, and all the leading painters will contribute, including Kaubach, Schwind, Piloty, Froitz, and Schraudolph.

SURVEYING AND PHOTOGRAPHY.—At the Academy of Sciences, Paris, in the *séance* of the 12th ult., General Morin presented, on the part of M. Lannestad, professor of the Polytechnic School, a new and perfectly successful application of photography to topographical and other surveys. In this instance, the plan was one of Grenoble and the environs, to a scale of $\frac{1}{25000}$, extending over 20 square kilometres, obtained by two photographic lenses of 50 and 25 centimètres focal distance. With these, in 60 hours, at distances varying from 1,500 to 4,500 metres, 29 views were taken from 18 stations. These views were transported to Paris, and studied and reduced in the office, a plan having been laid down as perfectly as could have been done by the ancient mode, after several weeks' or perhaps months' labour on the ground.

SOUTH KENSINGTON MUSEUM.—During Christmas week the visitors numbered 35,984.

LIVERPOOL ARCHITECTURAL SOCIETY.—The weekly meeting was held on Wednesday, December 28th, Mr. Joseph Boulton presiding. A communication was read from the secretary to the Committee of Council on Education, asking for suggestions as to what additional examples of architectural decoration, as well of British as of foreign origin, it is desirable should be obtained to complete the collection in the South Kensington Museum. The paper of the evening was read by Mr. W. H. Picton, on “Architectural Reminiscences of Florence.”

UNIVERSAL EXHIBITION IN PORTUGAL.—A letter from Oporto in the *Messenger* says:—“The Crystal Palace, in which the International Exhibition is to take place, and the opening of which is definitively fixed for the 21st of August, 1865, is situate on a vast eminence called the Torre da Marca. By the side of the Torre da Marca is a quinta or country-house delightfully situate. The Crystal Palace Company has purchased a part of the park attached to the villa, and its fine shady walks will afford a pleasing recreation to the visitors of the Exhibition.”

PRACTICAL SURVEYORSHIPS.—The Slough local government Board advertise that they are in want of a practical surveyor and inspector of nuisances for the Slough district, salary 50*l.* a year; and the Henley local government Board give notice that they are in want of a similar officer at a similar salary. “An Architect's Clerk,” who writes us on the subject in a somewhat jocular vein, suggests that either office might prove an eligible one to some meritorious messenger or errand-boy. Doubtless the advertising boards know precisely what sort of men they want.

SHEFFIELD SCHOOL OF SCIENCE.—We are glad to learn, says the *Sheffield Independent*, that the School of Practical Science is not actually dead. The attendance of the “paying” pupils at the lectures at the Collegiate School has been so small that the project has proved a failure, as was very generally anticipated at the time when so important a public movement was started by being grafted on to a private speculation. The committee appointed at the town meeting have recently decided to take steps to carry out the plan of evening classes at some suitable place in the centre of the town. If this be done we have little doubt that an institution so valuable to the town will be well supported.

WORKING MEN'S INDUSTRIAL EXHIBITION AND BAZAAR AT BATH.—A sort of preliminary exhibition has been opened at Weymouth House. It is not pretended that it represents in anything like a complete and fitting manner the skill and industry of the industrial classes of Bath. The organizers are the Working Men's Hospital Fund Committee, and they have endeavoured to copy the example set by the London Industrial Exhibitions from two motives,—a desire to encourage, as they express it in their rules, “inventive skill, excellence of workmanship, and the workmen's social improvement,” and a wish to help the funds of the United Hospital. There are some 150 exhibitors, and 250 articles exhibited, but many of the latter are not the production of those who send them.

TELEGRAPHIC.—The French Council of State is about to introduce a new system of telegraphy into operation through France. Hitherto only two sorts of apparatus have been in general use, viz., the needle and the alphabetic index instruments. The new one, invented, by Caselli, is to be autographic, so as to produce the telegram in the handwriting of the sender. The tariff is therefore regulated, not according to the number of words, but after the size of the sheet employed, and is to be as follows:—30 square centimètres (4.65 square inches) pay 6 francs, and so on in proportion, the sizes being 30, 60, 90, and 120. On these sheets of paper the public will be allowed to figure any correspondence, trade-mark, or drawing,—anything except secret writing. It was stated that this system would probably be in operation on the 1st of January. —A miniature telegraph office, designed as a present to the Emperor of Russia, has been constructed by a citizen of New York. It consists of a complete telegraphic apparatus, capable of transmitting messages between Boston and New York, all embraced within the compass of a morocco case, 8 in. in length, 6 in. in width, and 3½ in. in depth.

MANUFACTURE OF PORTLAND CEMENT.—The prospectus of a proposed Cement Company just now issued says, with reference to works near Great Yarmouth, “The total cost of manufacture, including wear and tear of plant, is 17*s.* 6d. per ton. The wholesale price on board vessels at the works is 30*s.* per ton, giving a profit of 12*s.* 6d. per ton.” The extent of the exportation of cement from the United Kingdom may be estimated from the statement that,—in the year 1862 (up to which time the returns have been made) the quantity of cement exported from the United Kingdom, in British and foreign vessels, amounted to 80,632 tons, value 202,050*l.*

THE BRIGHTON WORKHOUSE QUESTION.—The Poor-Law Board, on being informed by the Brighton Guardians of their reference of this question back to the vestry, and of the vestry's refusal to carry out the design, drew the attention of the Brighton Board to the fact that the vestry are not legally empowered to decide upon the extent of the workhouse accommodation which is necessary; and they urged the guardians to carry out the plans already sanctioned by the Board. Thereupon the Brighton guardians held a meeting, and they have resolved, *nem. con.*, to accept the tender of Mr. Jabez Reynolds, Brighton, for the execution of the whole of the works, for 30,500*l.*

POISONED WITH BAD WATER.—During the short space of one week, Mr. Freeman, the proprietor of this journal, has been robbed by death of three of his children, aged respectively six, four, and three years of age. This event is more harrowing from the cause to which it must be assigned. Not quite three months since, Mr. Freeman moved into a new abode at Twickenham. The system of drainage has proved to be so defective, that in one pint of water, pumped from the well by which the house is supplied, the analysts of the Royal College of Chemistry, in Oxford-street, found enough decomposed organic matter to account for the catastrophe. Mr. Freeman's children, in short, have been literally poisoned. Other members of the family are still suffering from this dreadful state of things; and it is greatly to be feared that the full weight of this calamity has not yet been realised. —*Christian Times.*

STONE-LIFTING BY FUNGI.—At Rickmansworth, Herts, according to a correspondent of the *Clerkenwell News*, the stone floor of a tap-room and kitchen was lifted from its bed, and on the stones being removed some hundreds of mushrooms of various sizes and species were discovered, varying from 3 in. diameter to 1 ft., they being variously — *Agaricus campestris*, *Agaricus Geopii*, and the *Orades*, or Fairy-ring Mushroom. A still more remarkable instance was seen in the pig-sty at the rear of the premises. There were discovered under the stones several large specimens of the *Agaricus Geopii*, some of which were of the enormous weight of 16 lb. 2 oz., 14 lb. 7 oz., and 9 lb. 3 oz. The *Agaricus Geopii* has been known, according to Dr. Badham's work, to weigh 14 lb., but here this was exceeded by two pounds.

DISCOVERIES IN CONNEXION WITH PEAT MOSS. We hear from Stornoway, says a Glasgow paper, that a product likely to prove invaluable has been successfully extracted from peat moss by Mr. H. Counter, manager of the extensive works erected by Sir James Matheson, bart., M.P., for the utilisation of the peat on his estate at Lewa, by converting it into oils and paraffine. Mr. Counter was struck with the apparent lubricating property of a preparation made by him of the tar distilled from the peat. By way of experiment he resolved to test its powers on the axles of his own gig, which was driven from 16 to 18 miles daily for above three months, and on examination, at the end of that period, it was found to answer beyond his most sanguine expectations, the axles and bushes being in capital working order, and containing enough of the material to last as long again. He immediately took the precaution of protecting it by a patent, and it is now used on railways, and consequently well adapted for all descriptions of vehicles such as carts, waggons, carriages, &c., being equal to any other grease in the market, and infinitely cheaper. Subsequently Mr. Counter discovered that the product of the distillation of peat possessed qualities of still greater value, having found, as we are informed, by an actual experiment, that it acts as an excellent preventive of the fouling of ships' bottoms. This discovery has also been covered by a patent.

The Builder.

VOL. XXIII.—No. 1145.



Continental Activity.

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UCH activity in Building and Artistic matters is obvious abroad, and has been so for some time, as our readers must have observed. Notices of fresh works and doings have reached us from various quarters, and we will throw some of them together here, to

give the feature prominence. Let us look first to

Italy.—The municipal authorities at Florence are at this moment very active in taking the preliminary steps for a considerable enlargement of what may, for the present, be considered the Italian capital. These steps seem to be the result of well-digested plans based upon the opinions of numerous local architects and engineers, whom the authorities have been neither too wise nor too proud to consult. In the direction of Fiesole both San Domenico and Badia will become part of the city. A further extension in this direction would not be practicable, as the valley north of the Ponte Alla Badia becomes so narrow, as barely to allow of the passage of the Mugnone, which often, particularly in the winter, comes rushing down with great violence between the Lastra and the heights of Fiesole; whilst the hills themselves are too steep for convenient thoroughfare. Towards the south, the extension will include the Villa Poggio Imperiale, which is now reached by the beautiful *allée* of cypresses leading from the Porta Romana. The old walls and fortifications will be laid out in walks and gardens, after the manner of Vienna and other continental cities; the streets leading to the Pitti Place, the Via dei Martelli towards the Riccardi Palace; and, lastly, the Bridge alla Carraja, are all in process of being considerably widened. For those who know or have known Florence well, we may quote from the *Nazione* a list, showing how it is proposed to utilize existing buildings for Government offices, Chamber of Deputies, the Hall of the Five Hundred; offices of the Deputies, Palazzo Vecchio; Senate, Hall of the Dugenti; Foreign Affairs, Palazzo Vecchio; Public Education, Riccardi Palace; War, the Bishop's College beyond the Arno, with additions in present garden; Finance, Casino di Medici; Home Office, the buildings known as the Santa Caterina Barracks; Public Works, Institute of the Santa Annunziata; Admiralty, Barbeti Monastery; Justice, Palazzo Ceperello; Agriculture and Commerce, Poggio Imperiale; Public Debt, Santa Croce Convent; State Council, a palace now in course of completion; Committees of Artillery and Engineers, Monastery of Santo Spirito; Post, Monastery of San Firenze; the Royal Carabinieri, Military College of Borgo on the Pinti.—Leghorn has just received a new Protestant church, built by the Congregatione Olandese-Alemanna. It is Gothic in style, and

will accommodate 400 sitters. The "Congregation" is an old one, being originally composed of German and Swiss merchants, who, in the year 1607, obtained a kind of charter of rights from Ferdinand of Medici, then Grand Duke of Tuscany. For the first few years one chapel in the Church della Madonna was placed at their disposal; but this joint possession did not last long, and they built a small chapel, which, however, has long been too small for the increasing congregation. The Gustavus-Adolphus Society, and the Princess Marianne of the Netherlands, were the chief helpers in this new work, which cost 150,000 francs.—The City of Milan is about to erect a monument to Meyerbeer by public subscription. The amount collected at present is about 3,000 lire.—The Church of San Tommaso, at Almenna, is about to be restored by the authorities of Bergamo.

From Vienna, news comes that about a fortnight ago the last stone of a new and very large hospital, to be called the "Rudolf Stiftung," was laid by the Emperor in presence of the Empress, several grand-dukes, and a large assembly of the Austrian aristocracy. It is one of the largest institutions of the kind in this city, and presents three very imposing fronts. All modern appliances, sanitary and economical, have been introduced, and the arrangements for ventilating, heating, and lighting are said to be very perfect.—Two days later the Emperor was present at the ceremony of laying the last stone of the new buildings erected by the Horticultural Society of Vienna, which was first constituted in the year 1832. The first exhibition of flowers and fruit in Vienna took place in 1827. We learn this from the speech which the president of the Society made on the occasion.—The committee appointed to select a design for a Haydn monument, from a number which were submitted to them, have chosen that by Mr. Vincenz Pilz. The composer is represented seated, and in the act of composing. On three sides of the pedestal bas-reliefs are introduced, representing Creation, Symphony, and Harmony. The fourth side will bear an inscription. The geni of the Four Seasons appear at the corners of the pedestal, riding on swans, which emit water into a basin below. The judges were Professors Von Führich and Rahl; and Mr. Hansen, architect. The Society of Arts of this city have adopted the designs of Mr. August Weber for a new academy, which it proposes to erect. The buildings, which are on a large scale, will be commenced immediately.—The Imperial commission for exploring and restoring buildings of historical interest throughout the empire, have just ordered the restoration of the Castle of Meran, in the Tyrol. This was the cradle of the lords of Meran, and their territory fell to Austria when the last of the line, Margaret Mautasch, married an Austrian prince.

In Munich, the committee entrusted with the execution of a national monument to the late king, have decided on erecting it in the Maximilian Strasse, and invite public competition for designs. It is, however, limited to Bavarian artists only.—A very fine wooden pulpit has just been finished here under the direction of Mr. Marggraf, architect, for a chapel at Würzburg. It is 45 ft. high, including a pinnacled sounding-board, and is very elaborately carved with tracery, foliage, texts, and figures in niches.

From Hamburg, we learn that the magnificent church of St. Michael, built in the middle of the last century, and considered the *chef-d'œuvre* of the architect, Sonnin, has now been furnished with gas, the want of which has long been severely felt, as, from the immense size of the erection, it was found totally impracticable to light up the church in an adequate manner with candles or lamps. To cover the expense, a subscription was set on foot among the

parishioners, to which, singularly enough, the poorer and middle classes subscribed with much greater liberality than the rich. But all the exertions of the indefatigable members of the committee voluntarily formed for collecting subscriptions were unavailing, and it was found that the contributions were not nearly sufficient to meet the expenses, which amounted to 9,000 marks. Notwithstanding this drawback, the committee resolved to proceed with the work, and it was successfully accomplished on their own responsibility. When finished, it was resolved to get up an oratorio in the church for the purpose of defraying the deficiency; and Miss Titieni, the eminent vocal *artiste*, who happened to be giving a set of operatic performances at the Hamburg Theatre, with her usual benevolence, volunteered to sing the principal part. The oratorio selected for the purpose was Handel's "Messiah," a great favourite with the Hamburg public, and it proved such a perfect success, that the sum wanted was more than covered. As the church in question is of a very peculiar construction, being built without side aisles, the difficulty of lighting it adequately was greater than usual, and it required much larger jets of gas to make the centre of the church light enough for reading. This is, however, satisfactorily done by 214 burners, which consume each from 5 to 7 cubic feet of gas per hour, according to their situation.

Getting now to France: some interesting discoveries have been recently made at Autun, where the remains of an ancient Gallic town have been found, at no great depth from the surface. It was the Bibracte of Cæsar's time, and was known in the last days of imperial Rome as Augustodunum: hence, doubtless, the present name, Autun. Amongst the localities and objects discovered are, parts of the old citadel, the foundations of about seventy houses—some round in plan, some square,—hollow brick walls, stone doors, ovens, pottery, amphore, nails, &c. The remains of a theatre, having a diameter of more than 150 ft., have also been opened up.—Bayard, "*sans peur et sans reproche*," is to have a monument on the ruins of his ancestral castle, near Grenoble. The emperor has forwarded a subscription of 1,000 francs to the committee.

In Paris, at the Buttes Chaumont, considerable works are being carried on for the construction of a new park, and two new boulevards partly bounding it, the total area of the whole being about 850 acres. The gypsum quarries of the Buttes Chaumont have been worked from time immemorial, and on a larger scale within these last few years, the greater portion of the produce being sent to America. It is a work of no ordinary difficulty to convert into a well-laid-out park a tract of land consisting of enormous elevations and depressions, presenting sudden differences of level, in some places as much as 70 ft. or 100 ft. But this is not the only difficulty: the nature of the soil, which consists of a few inches of vegetable mould immediately covering extensive beds of indurated marl, then beds of plastic clay, and the gypsum underneath, is another. The difficulty of making earthworks with plastic clay in bad weather; and the rapidity with which the marl decrepitates under the influence of the air, have rendered it impossible to make use of the ordinary means used in earthworks in Paris, such as the cart, wheelbarrow, &c.; so that the work is being done all by temporary rails and waggons. There are from 250 to 300 waggons now at work, 50 horses, and two locomotives. The latter are exclusively employed on the new boulevards, one of which has to traverse a knoll 270 yards long and 56 ft. at its highest point, over the roadway. This has been attacked by a heading driven through it, at the level of the boulevard, and into which the waggons are sent to be filled from enormous funnel-shaped holes overhead. There are in these works more than

ten cuttings opened, employing 600 men. In order to utilize as far as possible the rough character of the ground in embellishing the park, a great cavity left by one of the plaster quarries is to be converted into a lake, with an island towering to a height of 164 ft. above it. This island is to be joined to the park by an ornamental suspension-bridge, and is to be surrounded by a piece of architecture representing the temple of the Sybil at Tivoli. It certainly promises well.

On the Montignon and Limoges Railway, lately opened, one of the principal structures worthy of note is the viaduct of La Cruse, 190 ft. high, and 371 yards long, in six spans of 164 ft. It is of iron, the superstructure being of lattice-work, similar to that of the Kehl Bridge over the Rhine, and resting on piers of wrought and cast iron open framework, supported on masonry bases. The originality of this construction consists in the piers having been raised by means of the girder itself. The whole beam, when completely put together at the side of the valley, was, as in the case of the Kehl Bridge, pushed over in one piece, not, however, on to the piers, but into space. When it arrived at the site of the first pier, the several tiers of the metal framework were dropped one by one from this cantilever upon the masonry foundations, and bolted together. This pier being terminated, the girder was advanced over to the site of the next, and so on till the beam reached the opposite side of the valley. The viaduct is expected to be completely finished in a few days. The whole of the work, this being the first iron viaduct in France, will cost under 1,500,000*fr.* (60,000*l.*), including iron, timber, and masonry. This is at the rate of about 4,424*fr.* per lineal metre, or 161*l.* 15*s.* per yard run. The Fribourg Bridge, similarly constructed, cost 6,000*fr.* per metre, or 219*l.* 9*s.* per yard. The ironwork of the Creuse viaduct was constructed at Grenelle, in Paris, by the united companies of Parent, Shacken, & Co., and Cail & Co.—The town of Saintes (Charente inf.) proposes to raise a statue to Bernard Palissy, and a commission has been formed of the most celebrated local men of letters and artists, to carry out this patriotic and artistic design.

And so we might long go on noting evidences of activity abroad; but here for the present we stop for want of space.

SOMETHING ABOUT A HOD OF MORTAR.*

MORTAR, designated calcareous cement, or some such name, has been used for building purposes, by all civilised people, in all countries, during all ages. The palaces of Assyria, and those temples and pyramids along the Nile, of world-wide celebrity, which were raised long before the ages of historic certainty, and seem likely to reach the latest eras of mortal existence, are constructed with calcareous cement, as far as relates to bedding and jointing the stones.

Notwithstanding all these considerations, I venture to offer some remarks and experiments bearing upon this useful and valuable substance, for this reason,—that, as mortar is a very important material for forming a solid construction, it will bear describing in a variety of ways, in order that it may be well understood and make a lasting impression on the minds of the junior members of the profession. It is quite out of the question to suppose that an architect can be a sufficient judge of the quality of the numerous materials used in the construction of a large and elaborate edifice, especially if he should be so fortunate as to practise in the north, east, west, south, or midland counties of the British Isles, where the mineral substances of each neighbourhood may vary considerably, according to the geological formations of the district.

The same specification of mortar for a London building might be unsuitable, perhaps almost impracticable, in a remote locality.

The water of Tunbridge Wells is highly charged with iron. In Hertfordshire it contains a solution of chalk; at Harrogate, sulphuretted hydrogen may be unmistakably smelt at all the springs; and salts are abundant in the waters of Epsom and Cheltenham. I believe none of

these substances remain neutral when in contact with lime. They either improve or deteriorate the mortar, perhaps more than at first might be imagined, notwithstanding the high authority of Siseouton, who has stated that he could not discover any difference in the strength of mortar, whether it were made with sea or fresh water.*

Before attempting to improve a defective foundation by introducing a bed of concrete or cement of any kind, it may be as well to investigate the necessity for improvement—why one foundation should be considered solid, substantial, and satisfactory; another soft, yielding, and unfit to be trusted with a lofty ponderous erection. All mineral substances may be said to remain in their natural situations during very long periods, without undergoing any important change. They are always sufficiently moist, while undisturbed in the ground, to be beyond the influence of shrinkage by drying. Clay, in its natural state as we find it in the earth, is always, to a certain extent, laminated. If the strata are tolerably level, it forms a pretty good foundation; but if inclined to the horizon—that is to say, if the beds are much out of the level,—there is a tendency, especially during a wet season, for the beds, with their weight of buildings, to slide downwards, and thus cause disturbances in the superstructure. Compact earthy sediment, sand, gravel, chalk, and rocks of all kinds, almost invariably, have been originally formed at the bottom of the sea, or in the estuary of some large river, and afterwards left as dry land: the component parts of such terraqueous formations have been compressed into a tolerably solid state, under the influence of water and great superincumbent pressure. As a general rule, such undisturbed foundations are sufficiently solid and compact to bear any weight likely to be placed thereon by the skill and industry of the architect, engineer, or builder.†

All organic substances, whether of animal or vegetable produce, certainly undergo a somewhat rapid change when exposed to the atmospheric influences of air and moisture. During this fermentation and decomposition a very large proportion of the soil is converted into gases, and gradually disappears in an æthereal state, leaving only a fraction of the original mass in a solid earthy condition, more or less, sooner or later, according to the amount of organic matter in the ground. While this decaying process is going on, however hard and compact the soil may be, it will certainly shrink into a smaller compass. For these reasons, we all agree that garden mould, and surface soil generally, must be removed before a building is commenced.

All attempts at improvement in human affairs must be based on natural laws. The mixture of lime and sand, to form a cement, is one of the combinations, amongst the prodigious number of nature's works, which we are in some degree enabled to understand and to imitate successfully. Every hard substance which we meet with in this world may be considered as a cement, because it presents evidence of having previously been in a fluid or soft state. Modern chemistry recognises nothing unchangeably solid, liquid, or æthereal. The hardest materials of which the colossal statues, obelisks, and fragments of Egyptian grandeur were executed several thousand years since, were at one time undoubtedly in a liquid or molten state; the same remarks will apply to the materials of the Parthenon at Athens, the Roman Colosseum, and the stone of St. Paul's Cathedral. Each separate material with which all these edifices are erected is unquestionably natural cement of a very durable quality, which the chemist or geologist can manage to analyse, and in some cases to understand; but with our present knowledge the most learned philosophers are not able to imitate, nor to compose, even approximately, a cement possessing similar qualities of hardness and durability.

Time is an important element in nature's operations. What is deficient in power is made up in time; and effects are produced during myriads of ages, by powers far too weak to give satisfactory results by any experiments which might be extended over perhaps half a century. In nature these changes proceed by slow degrees, and an apparently insignificant cause will produce a surprising effect if continued without

interruption during periods of immense but unknown duration. Generally, in our hands, experiments are distinguished by suddenness of action; in nature, chemical power is distributed over a long period of time, and the process of change is scarcely to be observed. By art we concentrate chemical force, and expend it in producing a change which occupies but a few hours or days at most. Many of the more striking phenomena of nature are still mysterious to us, and principally because we cannot, or do not, take the element of time into our calculation. There is a prevalent impression on the minds of many persons, that the mortar used by our ancestors was far better than that which is used by modern builders: this, I am disposed to consider, is a great mistake; such lime and sand, mixed in due proportion, as is now generally used by respectable builders, will in due time become as hard and adhesive as any to be found in the edifices of former times; but time acts a most important part in the consolidation, and good calcareous cement will gradually increase in hardness, rapidly at first, but slower and slower, without interruption, as the centuries roll on, until it has attained a degree of induration equal to many varieties of real stone.

The various productions of nature offer evident proofs of her industry in all ages; changes have been going on, from the remotest antiquity to the present time, on every substance that comes within our observation. All the actual combinations of matter have had a former existence in some other state; nothing is to be found in nature but what is likely to change its present condition; the most solid and compact bodies have not such a degree of impenetrability and so close a union of the parts which compose them, as to be exempted from ultimate dissolution; they possess the materials of which they are composed only for a limited time, during which some powerful agent effects their decomposition and sets the elementary particles at liberty, once more to form other equally perfect combinations. In some bodies these changes are not so frequent and remarkable as in others, though equally certain at a more distant period. They seem to have their ages of maturity and decline the same as animals and vegetables, but whether this condition remain for only ten years or during ten thousand, is only a question of relative duration.

In thus alluding to cements generally, whether in a natural state, as rocks and stones, or produced artificially by man, they are all formed or governed by unerring physical laws. We may observe extraordinary influences, from the first appearance of force; in the adhesion of two atoms each solitary molecule is invested with peculiar properties and regulated by very surprising forces, which belong to the same class of substances; and although busy meddling man may interfere or create a disturbance amongst a few grains of sand, he has no power to alter or change their natural condition. Each atom is involved in its own atmosphere of properties or powers, which it obstinately retains. Considerable diversity is exhibited according to circumstances, but through all things the most perfect order and harmony are manifested. We may study the grand in what at first sight appears the simple, and learn in the mysteries of a particle of dust the divine truths which science has to relate of a planet.

The smallest grains of earthy or mineral matter, whatever may be their form or condition, are ever under the operations of certain physical forces. One of the most important is called cohesion, or the attraction of aggregation, which is a power employed by nature in holding the particles of matter together; operating only on surfaces, or within distances too minute for the mathematician to measure or describe. Then we have caloric or heat, as a repellant force, in opposition to cohesion; so that each grain of matter, as well as the entire mass, is in a state of disturbance: from the centre to the surface all is in an active condition: a sort of mutation prevails with every created thing, and science clearly shows that influences are constantly in action which prevent the possibility of absolute repose. This law of nature exists amongst objects of microscopic dimensions, the same in principle as it is with those mighty spheres which the telescope reveals to us in the stellar universe,—that is, perpetual motion and alteration.

In the British Isles and a large portion of Europe, calcareous rocks are very unequally distributed; in Ireland and Scotland they are rather scantily supplied, although there may be

* "Eddystone Lighthouse," p. 105.

† Dry sand alone will take in a large quantity of water, without any increase of bulk; or, rather, with a remarkable decrease of bulk. It seems that wetting or lubricating the grains facilitates their sliding on each other, to fill the vacant spaces.

* Amongst the unfinished papers left by the late Mr. C. H. Smith is the following, which was intended to be read, with illustrations and experiments, at one of the popular institutions in the metropolis.

more than sufficient to supply the wants of animal and vegetable existences; but in England, limestone is superabundant, either as chalk, oolite, dolomite, or lias, especially in the south-eastern parts, extending towards the north-west as far as the counties situate between Yorkshire and Dorsetshire. The purest and most compact limestone may be defined as a transparent, colourless, solid substance; although it is generally quite opaque, of many different colours, various degrees of hardness, and not unfrequently adorned with an infinite variety of patterns: yet, notwithstanding they differ so much in appearance, the very materials that nature has applied to form such apparently opposite creations are almost identical; the whitest chalk and the blackest marble, the softest stones and the hardest spars, together with shells of the most beautiful colours and shapes, are all formed of very nearly the same elements, scarcely differing except in the manner in which they are developed, by containing a minute portion of colouring matter, or in the nature and extent of their duration when exposed to the weather.

Pure lime, or such as we usually obtain fresh from the lime-burner's kiln, is certainly never found in that condition in nature; it is invariably chemically combined with some other substance, generally with an acid, and most frequently with carbonic acid, forming chalk, Portland, Bath, and many other building stones; also most of the ornamental marbles. At every quarry, where limestone is obtained for building purposes, the greater portion of refuse material is regarded only as worthless rubbish. At the Isle of Portland, from whence all the Portland stone is procured for the principal buildings in London, there are at least 50,000 tons of excellent limestone chippings annually thrown into the sea, or buried in an old quarry, not being worth the trouble of carrying to a distance to convert into lime; whereas it would be valuable in Holland, and all those low countries where they have neither chalk nor any other calcareous earth. I am not prepared to say from whence the Netherlands now obtain lime, but formerly their practice was to drag the shallow parts of the sea with nets, drawn by horses, for fish-shells, which they burnt for lime. In many islands of the southern hemisphere, the natives collect fragments of madrepores and other species of coral for the same purpose.

Notwithstanding these various substances differ so much in outward appearance, they all produce equally good lime, if sufficient care be taken in the calcination and preparation of them. Lias, and some others, may contain clay or iron in small quantities, which, when burnt, may improve the quality of cement for certain works. If a very soft stone be used for lime, such, for example, as common white chalk, it is liable to this disadvantage, that the cores or centres of the largest pieces, which probably have been only superficially burnt, remain of the same colour and in the same chalky condition after a certain amount of calcination as that which is burnt, and are thereby not taken notice of; and being equally soft, are easily broken into powder and mixed with the other ingredients,—consequently a weak and perishable mortar is produced. Whereas, if hard limestone such as lias, Portland stone, or black marble be used, the parts which are not sufficiently burnt or converted into lime, will still remain as hard lumps of the same black or brown colour, and must be rejected as “core,” because they cannot be mixed with the well-burnt material: hence a far superior and more durable cement will be the result. So different may be the proportional quantities and chemical properties of apparently similar substances, that no rule or results, however definite, or however successful in one locality, can safely be trusted to in another. The precise mode of burning or manufacturing a newly discovered limestone for cement, must depend upon circumstances, experiments, and practice.

Although the before-named limestones may be considered to produce equally good lime in consequence of their containing very little foreign matter, there are many others which are not so well adapted to the use of the builder, or, more probably, not used because they cost a trifle more in preparation, as they take a longer time and a greater quantity of fuel in burning. Magnesian limestone is sometimes rather reddish, but usually is of a pale yellowish brown, and, without attentive inspection, may be mistaken for a fine-grained variety of sandstone. On analysis, however, it proves to be a compound of carbonate of lime and carbonate of

magnesia, the relative proportions of which, though subject to considerable variation, may be stated at about three-fifths carbonate of lime and two-fifths carbonate of magnesia. If a piece of this stone be put into cold dilute nitric or hydrochloric acid, it will dissolve very slowly, with hardly any effervescence, although, in hot acid, the effervescence will be as vigorous as with common limestone. When burnt to lime it retains its causticity much longer than common lime does, and therefore no doubt modifies, to a certain degree, the properties of the mortar, into the composition of which it enters, although its precise action has hitherto been very little investigated. Those limestones which contain in their composition a certain proportion of iron and clay seem to be superior, in their consolidation and cementing properties when burnt into lime, to such as are purely calcareous. The iron and clay, when calcined, give the cement the property of becoming solid under water, and, therefore the cement is peculiarly valuable in subaqueous constructions. The gray chalk, which is obtained from the neighbourhood of Dorking, Merstham, and Halling, is of this description. It contains various proportions of ferruginous clay, from 6 or 8 up to 25 per cent., and after burning has a pale brownish yellow colour.

The most valuable variety of limestone for mortar, and especially for water cements, is the blue lias, which is generally of a dove colour when fresh broken; by long exposure to weather, it becomes brown on the surface. The lias formation is one of the most remarkable of the English strata: it passes obliquely through the entire country, from the sea-coast at Whitby to the cliffs at Lyme Regis, in Dorsetshire; there are also detached patches in the counties of Monmouth and Glamorgan. The quarries of Watchet, Aberthaw, and Barrow were celebrated for their excellent blue lias limestone long before it had been ascertained by experiment, and from geological surveys, that they produce similar substances on different parts of the same formation. By analysis, the blue lias of Watchet and Aberthaw contains about 11 or 12 per cent. of iron and clay; that of the Barrow about 14 or 15, or, according to Smeaton, 21·3 per cent. of the same ingredients. The lias limestone used by the London builders is brought from Lyme Regis.

Although lime and some hard granulated substance, such as sand, are the most important ingredients in all this class of cements, it seems to have been long and generally known to architects and builders, that if a certain quantity of oxide of iron and burnt clay be added, a vast improvement will be obtained in the cementing and hardening qualities of the mortar. Vitruvius and Pliny allude to the powder of Puteoli (*Pulvis puteolanus*), now known as puzzolana, a substance of a porous, rusty-coloured, half-concreted matter, a sort of natural brickdust, thrown out of Vesuvius during its eruptions; or, at any rate, it is clay, altered in some measure by volcanic agency, which, when reduced to powder and mixed with lime and sand, or with common mortar, has the property not only of attaining much greater induration by atmospheric influences, but also the valuable quality of hardening under water. This material seems to have been in great repute with architects and engineers during all ages, down to the present time; for I am informed that puzzolana, brought from the neighbourhood of Vesuvius, is now being used in the Government works at Portland; notwithstanding the same elements are found in the blue lias stone of Lyme Regis, which is within a few miles of that enormous work, the Portland Breakwater, now in progress. I have very carefully examined, analysed, and experimented upon these different substances, and cannot discover any elements or qualities in the volcanic product differing in an appreciable degree from ordinary brick-dust, or the argillaceous or ferruginous part of the blue lias formation. During the Anglian age, when chemistry and geology were neither known nor thought of, and in a country with, probably only a trace of blue lias limestone, there would be great credit due to those architects or builders who discovered the improvement which puzzolana gave to their calcareous cements; but in our country, where, in numerous places, nature has furnished us with the same elements, mixed in the most suitable proportions, almost ready for use, I cannot comprehend why architects and engineers, in the middle of the nineteenth century, should send two or three thousand miles for that material which may be obtained,

in every respect equally good and fit for their purpose, in many cases, within the very neighbourhood of the works they are about to undertake. If the practice of using puzzolana has nothing to recommend it more favourable than prejudice in favour of a material long in use, it must be important that the subject should be fully investigated, and forthwith made known to the profession.

Various opinions have long been entertained by chemists and others respecting the effect of sand and lime upon each other in the formation of calcareous cement. If the subject has ever been investigated, I am not aware that it has been made known to the public. The general impression is, that the slaked lime and sand in contact have a chemical affinity for each other; that the lime decomposes the surface of the sand, and the atoms or molecules interpenetrate each other, forming a sort of silicate of lime. This is an extremely ingenious theory, which has never been proved. The most powerful microscopic examination will display nothing in favour of such a hypothesis. In the year 1843 I commenced an experiment to determine whether any, and to what extent, chemical action proceeds between the lime and sand in ordinary mortar. For this purpose I selected from a heap of gravel a common flinty pebble of about 2 in. superficial area, such as when ground or broken into small fragments, would be considered as ordinary sand. I had it rubbed down to a flat surface, and polished as brilliantly as possible. The piece of flint was then ready for the lime, and to perform its part as a grain of sand. In procuring the lime for my experiment, it was important to be sure that it was of a fresh, pure, and genuine quality. I had long previously ascertained by experiments that the most perfect lime, or that which contains scarcely a trace of iron, clay, or other foreign matter, is to be obtained from the best kind of black marble, wherein the colour is merely carbonaceous matter, and is readily driven off in a gaseous state, during calcination. I was my own lime-burner, and from a fragment of the blackest marble obtained pure lime of the most inconceivable whiteness, which I slaked with water in the usual manner before it was quite cold, and made it into a paste sufficiently solid to be spread with a knife about the twentieth of an inch thick, on the polished surface of the flint. But, in order to observe more conspicuously the amount of change, if any, on the flint, I spread the lime only on one half of the polished part, leaving the other half wholly independent of the experiment. In this state I placed it on a projection of the wall of an open shed, where it lay protected from rain and snow, but freely exposed to all the usual atmospheric influences of damp and dry, summer and winter, during eleven years.

In March, 1854, at one of the Friday evening meetings of the Royal Institutions, in Albemarle-street, a small portion of the lime was scraped off, and no alteration whatever could be observed on the polished surface of the flint. At one of the meetings of the Institute of British Architects a few years since, a little more of the lime was removed, presenting the gloss as brilliant as ever; and now, after twenty years that this experiment has been tested, upon clearing off the remaining fragment of lime, there does not appear to be the slightest deterioration of polish: in fact, it would be impossible for the most scrutinizing eye to determine with certainty what part of the flint had been subjected to the influence of the lime.

In the construction of a wall, whether of brick or rough stone, it should be clearly understood that there is an important distinction between mere drying and the ultimate process of induration. The mortar may become sufficiently set, dry, and solid, in a few days or weeks, to enable the wall to bear a very considerable weight and pressure; but it does not acquire the maximum degree of hardness till after the lapse of many years, and even of centuries. The process of slaking quick-lime by throwing water upon it, causes a sudden chemical change, combining the two, thereby forming hydrate of lime.*

* Mix a certain quantity of water,—say a pound weight, with a pound of dry plaster of Paris; in less than an hour the mixture will have become a solid mass, although extremely damp. If this be gradually and thoroughly dried before a fire, or in a moderate oven, until all the surplus water is evaporated, it will be found to weigh considerably more than the plaster did before it was wetted, or mixed with the water. This extra weight arises from the water being converted into one of its solid states, and is then called a “hydrate.” The same process takes place in slaking lime; after which, the substance should be more correctly termed “hydrate of lime.” For example, sprinkle $\frac{1}{2}$ of a pound

After the hydrating is performed, the chief utility of all the water that is applied in mixing the mortar was to make the mortar in a state fit to be most conveniently applied to the building by the bricklayer. The water is also unquestionably useful in making the mortar, when dry, very porous, and thereby rendering it more susceptible of induration by atmospheric influences through the entire mass, and not merely on the surface.

One of the causes of the durability of old buildings, especially the ruins of abbeys and monasteries in the south-eastern counties, where chalk and flints abound, may be attributed to the long period during which the mortar has been exposed to the hardening influence exercised upon it by four, five, or six centuries. It is far beyond my attainments to explain the mode of process by which nature employs in the induration of mortar. A chemist can tell to a certainty that mortar which has been used only a few weeks or months in a building, contains a large proportion of hydrate and a very small amount of carbonate in its composition; whereas, we now find the proportions are reversed in the mortar of old buildings; the greater their age the less hydrate and the more abundant is the carbonic acid, which is the material source of hardening. We know, by investigation and experiment, that such change has taken place, but we are rather ignorant of the time and ceremony which occur between two atoms while they are changing places; and science does not encourage the faintest idea that hydrate may ultimately, by some unknown process, be converted into or form a component part of the carbonate.*

ENGRAVING AND OTHER REPRODUCTIVE ART PROCESSES.

To the antiquity of the art of engraving it is not my intention to do more than allude; it is abundantly evident that it was known to the Egyptians, and used long prior to the Christian period. The art was probably one which grew out of the necessity of attaching some distinguishing mark to individual works, or from the custom of recording the history of the early ages by cutting them in stone, many examples of which have been preserved to us. Soft bodies were also impressed with the makers' marks, as in the case of ancient bricks and other plastic bodies; and thus, what was in the first instance an isolated mark, led to and became a reproductive art. From a sculptured or monumental art a refined art grew up, of which, and the perfection to which it attained at an extremely early date, the engraved gems and seals preserved in our museums give ample evidence. Engraving on metal was early employed as a means of ornamenting articles of dress; and the coins preserved to us show how the skill of the die-sinker and engraver in metal became the basis of another reproductive art. Engraved metal plates have been found in the coffins of mummies, and are preserved in the British Museum. In India, engraving on plates of copper appears to have been practised long prior to the Christian period. It was there customary to ratify grants of land by deeds of transfer actually engraved on copper, and a copy of one of such relics, with an English translation, is given by Mr. Wilkins, in the 1st vol. of the "Asiatic Researches," page 123,—an early proof of the commercial use of engraving. To trace the history of engraving on stone and metal to the period when the art of printing was discovered, would only be to repeat an oft-told tale, and tend to prove that the one object which all appear to have had in view has been to facilitate the means of reproducing, at a cheaper rate and by a more ready means, copies of the works of the artist and engraver. It has appeared to me that the present is not an inopportune time for reviewing some of the changes which have been either introduced, or proposed for introduction, during the last half-century, and which have

placed us in our present position with reference to the art of engraving, or its substitutes, for illustrative commercial art purposes. With a view, however, of making what I have to say more clear, it is necessary that I should state what were the peculiarities of the art processes in common use prior to the beginning of the present century. The earliest specimens of prints from engravings were those obtained from wood blocks on which the design was cut in relief, but the art of engraving on wood, though greatly improved, continued in an extremely imperfect state till within the last half-century. The perfection to which the art had attained in the year 1803, is printed a specimen showing the great progress which the art had made at that date; and at page 13 of the Preface, we find the following:—"It has been frequently asserted that the art of engraving on wood is not, at the present day, equal to what has been done by some of the ancient masters, but when the emblematical performance of young Austin, in this line, prefixed to the present list of premiums, is considered as the work of so young an artist, it may probably appear that it cannot be excelled by many artists in Europe of a similar age, and the reward assigned is likely to excite his emulation to progressive improvements in that art." The reward given was the silver medal and ten guineas—and the block was for many years used by the Society as a specimen of the art, and was printed at the head of the secretary's letter announcing the election of new members. The art was, however, carried to considerable perfection by Bewick, who applied it in the illustration of his "Natural History of Beasts and Birds," and the commercial condition of wood engraving may be seen by a reference to that work. The earliest specimen of a print from a wood block is one known as the St. Christopher, and dated 1423.

The earliest use of engraved metal plates in England probably dates from the time of the Conquest; but Mr. Strutt states that he has not seen any with a date prior to 1284. They were then used as monumental brasses or tablets, and were executed with the graver, and are assumed to have been produced by ecclesiastics. The same principle which was applicable to the production of monumental brasses, viz. the relief of a portion of the surface of a metal plate by cutting it away, according to any desired design, by means of the graver, was applied by goldsmiths in the production of Niello work. The earliest known print from a metal plate, is one which can be seen at the Imperial Library, Paris; it is attributed to Tomaso Finiguerra, the Florentine goldsmith, and bears date 1452; and the earliest known book illustrated in this way bears date 1478, and was printed at Rome. The next step in the improvement of the art of engraving is said to have taken place at the beginning of the sixteenth century, and is attributed to Albert Dürer, to whom is ascribed the invention of the art of etching, or drawing with a metal point or tracer, upon a metal plate, the surface of which was protected from the corrosive action of acid, by means of which the etching or drawing was permanently engraved in the metal plate. The process of etching afforded an opportunity of exercising any required amount of freedom of hand in the production of foliage or landscape, and soon led to a combination of the two processes, and was the means by which engraved copper-plates were usually produced at the beginning of the present century. This process is known as line engraving; it is a slow, tedious, and costly means of copying works of art; its peculiarity is, that it affords facility for giving a large amount of drawing and minuteness of detail, at the same time that it admits of the greatest possible gradation of light and shadow, and the most perfect artistic effect. The process of etching was largely used by Rembrandt. The most perfect works executed in the early days of this art are, however, to be found in the portraits and historical subjects, for the reproduction of which it was especially suited, though in later times it was largely and most effectively employed in the copying of architectural, monumental, and landscape art. Copper-plate engravings were printed in England, in "Vesalius's Anatomy" as early as 1545; but the English school of engraving cannot be said to have existed till about the middle of the eighteenth century, at which period efforts were made to advance the interests of artists in this country. It was during the reign of George III. that the

Royal Academy was established; and as art advanced, so with its advancement grew up the use by our artists of the etching-point and the graver in a more refined and skilful manner. But the mere reproduction of copies of pictures from engraved plates printed in black inks, did not long continue to satisfy the public, and efforts were soon made to print in colours from the engraved plates; but no thoroughly satisfactory results were obtained from line engravings in this direction, and recourse was had to the next process, to which I shall call attention.

Line engravings were executed (as before stated) by cutting away the surface of the copper-plate by means of the graver, which, for this purpose was made concave in its length, and varied from a square to a thin V-shape in its width; thus enabling either a narrow or a broad line to be cut; while by a slight variation of pressure, or by depressing the hand of the operator, the point of the graver was gradually driven along the metal, or freed from the plate altogether.

Chalk or stippled engraving, the next process to which I have to refer, was, on the contrary, executed by means of a graver of an arched or convex form, and when applied to the surface of the copper-plate could not relieve itself from the surface of the metal, the whole tendency, wherever pressure was applied being to thrust itself deeper and deeper into the metal, leaving a punctured dot, varying in breadth or delicacy according as the graver itself was more or less square or V-shaped on its face. This mode of puncturing the face of a metal-plate was known as "chalk engraving," from the clusters of dots being so arranged as to imitate the granulated effect of lines drawn upon cartridge paper with Italian chalk. This process was especially suited to portraiture, owing to the softness of its gradations from light to shadow, and the production of landscape effects, though admirably suited for copying the delicate effects of light and shadow, and giving precision of drawing, either to portraits or groups of statuary.

The *Mezzo-tinto* is a method of engraving the discovery of which is attributed to Prince Rupert; but on this I would refer to a letter by Dr. Diamond, which was communicated by him to the Society of Antiquaries in 1838, and to which is appended a catalogue of the earliest known works in mezzotinto. The catalogue will be found in vol. xvii., pages 405 to 409, of the "Archæologia." I have before me, through the kindness of Dr. Diamond, a copy of a letter addressed by L. de Siegen to his Highness the Landgrave of Hesse-Cassel, and which I believe has never before been printed in this country, and appears to substantiate his claim to be recognised as the inventor of the mezzotinto art.

Dr. Diamond says in his letter:—

"In the last session I had the honour of laying before the Society of Antiquaries several remarkable specimens of early mezzotinto engravings, which have proved beyond doubt that the generally received opinion as to Prince Rupert being the inventor of that style of engraving is erroneous. From the examples then exhibited, it appears that the person to whom the merit of the invention is due is Louis von Siegen (or L. de Siegen), a Lieutenant-colonel in the service of the Landgrave of Hesse-Cassel. The works of this amateur artist are of considerable rarity; and it is not improbable that they were merely distributed among his friends and patrons. Baron Heineken, in his 'Idée Générale d'une Collection complète d'Estampes,' printed at Leipzig, in 1771, says decidedly that Siegen was the inventor of mezzotinto engraving, and observes that the first specimen which appeared was the portrait of the Princess Amelia, Landgravine of Hesse; he adds, that Prince Rupert learnt the art from Siegen, and that eventually it became public."

"Huber, the compiler of Winckler's Catalogue, tells us that Theodore Caspar de Fürstenberg, a Capitular Canon of Mayence, was an engraver in mezzotinto; that his works are contemporary with those of Siegen; and expresses a doubt as to which was the disciple of the other; adding, if Fürstenberg learnt the art of Siegen, he excelled his master. But there is no evidence whatever to warrant this doubt; on the contrary, the portrait of the Queen of Bohemia, which he exhibited in February last, bears the date of 1613, while the earliest known specimen of Fürstenberg is dated 1666. It is only necessary to add that Rupert's earliest effort in mezzotinto through etchings of this Prince are earlier, and one is known inscribed Rup. Pr. 1637) is of the year 1688."

The mezzotinto is a process altogether distinct from those previously mentioned, and was effected in the first place by puncturing or tearing up a uniform burr over the entire face of a copper plate, from which, if a print were taken, an impression in density of colour would be obtained equal to that required in the darkest parts of the picture to be copied. Upon this ground the subject to be engraved was traced, and by scraping and burnishing away the burr or dotted lines impressed in the face of the plate, either in part or wholly, the necessary gradations of light and shadow were obtained. This process, although affording facilities for

of water upon 11 pound of quick-lime; the lime will swell, become hot, and crumble into fine powder; when cold, it will be quite dry, and increased in weight about half a pound; the missing quarter of a pound of water having passed off as steam. Thus 2 pounds of slaked lime have been produced from 11 pound of quick-lime. Quick-lime has two powerful and distinct affinities; first for water, and afterward for carbonic acid. On exposure, it absorbs moisture from the atmosphere, and is thus slaked into hydrate. If this be mixed with a larger quantity of water to about the consistency of cream, it will be in a state fit for whitewashing or lime-whitening; and, when dry, after a day or two, it will no longer be hydrate of lime, but decidedly chalk, or carbonate of lime as it originally existed in its natural state.

* To be continued.

covering large surfaces, did not admit of being applied on a small scale, so as to give detail of drawing or delicacy of outline, and was in the main inapplicable to the production of foliage, and when first practised was grey in colour and flat in effect. At a later period, with the view of facilitating the operations of the engraver, an instrument called a roulet was invented, and was used for the purpose of impressing a series of dots into the metal.

The first person who applied the mezzotint process on steel was Mr. T. Lupton, who, in 1822, submitted a specimen of his work to the Society of Arts, and stated that in order to obtain the necessary ground on the steel plate he had been obliged to lay his ways in eighty or ninety directions, whereas in preparing or breaking up the surface of a copper plate from twenty-four to forty ways were all that were required. The use of steel necessitated a much stronger hand and an increased number of ways in laying the ground, but the advantage of steel over copper was that from eight to ten times the number of prints could be taken.

Aqua tinta, a process of engraving which was extensively used at the beginning of the present century, but which is now rarely employed, was executed by a process of the following description:—The surface of the plate of metal to be engraved was equally covered with a finely-powdered resin. The plate was then warmed, to attach the grains to the surface of the metal. A tracing of the design to be engraved was laid upon the resin, and the surface of the plate, after the whites had been stopped out, was submitted to the corroding action of acid, which, acting between the grains of resin, produced a grain in the face of the metal plate. The light parts of the design were next stopped out, when the acid corrosion had been carried far enough. The darker parts of the design were again submitted to the action of acid, and this process was repeated till all the gradations from light to shadows, required by the design, were produced in the metal. A slight amount of burnishing and scraping of the plate so bitten in was then resorted to, to blend the several parts of the picture, and to heighten the lights where necessary. This process was carried to great perfection by Mr. Sandry, about 1799. Such were the various processes in general use at the beginning of the present century, the whole being originally executed in copper. A growing demand for book illustrations, and a necessity for producing the engraving in a more durable metal, and one that would consequently yield a greater number of impressions, led to the introduction of the next process.

Steel Engraving.—The invention of steel engraving is due to Mr. Perkins, who first introduced the art in America; his object being to increase the facility, cheapen the cost, and produce absolute identity in the manufacture of bank-notes. In order to effect this, he etched or engraved a steel plate, or, more properly, a block of soft steel, by the ordinary process of line engraving. The plate, or block, was then hardened. A cylinder of very soft steel, of from 2 in. to 3 in. in diameter, was then rolled backwards and forwards under pressure on the surface of the steel plate, until an impression from the engraving was obtained in alto-relievo on the face of the cylinder. The cylinder so obtained was in its turn case-hardened; and by rolling the hardened die over the surface of a flat plate of copper or soft steel, an exact copy of the original engraved plate, with all its sharpness, was secured. This process being repeated, any desired number of plates could be obtained from the die. As the object first sought was the production of bank-notes, and the cost of elaborate designs was great, a machine was invented in America by Mr. Asa Spencer, which was called a geometric lathe, and this was employed in the production of geometrical figures in combination with line engravings, as borders and ornaments on the face and back of notes. Mr. Perkins brought his invention to this country, where it was introduced and known as the "sederographic" process for multiplying copies of engravings. Soon after his arrival in this country he was joined in working his process by Mr. Heath; and they state, in 1821, "we cannot yet say how long a well-hardened steel plate will last, having never printed more than 500,000 impressions from the same plate. It should, however, be observed that this plate consisted principally of writing, or work quite as strong. It may also be observed that the impressions are yet good." The first steel-plate engraved in this country is attributed to Mr. Raimbach, who

was soon afterwards followed by the chairman of the Fine Arts Committee of the Society of Arts, Mr. Charles Warren. Engraving on steel, beyond necessitating a change in the nature of the acids used, and a better and more perfect graver, involved but little alteration in the process of engraving itself. Steel-plates admitted of an increased commercial product, in the form of prints; but they also demanded more time in their execution, and, as a consequence, a higher rate of remuneration for their production; and thence arose a class of men whose works as artists gave fashion to the art of engraving and book illustration; and out of their labours came such works as "The Forget-me-not," "The Keepsake," "The Book of Beauties," &c., &c., coupled with which works are the names of the Findons, Charles Heath, Rolls, Lacy, the Le Kouzes, Goodall, Willmore, Doo, and others, a school of engravers which has now entirely passed away. With the extended use of steel, however, came a proportionately heavy charge for printing, which, where large numbers were required, it was desirable to reduce as far as possible. This charge was not material as affecting high-priced works; but I have said that it gave rise to a fashion in book illustration, and a readier and cheaper means of illustration was demanded. We accordingly find that "Hone's Every-day Book," and "The Penny Magazine," which were popular works, and amongst the earliest examples of cheap literature, were illustrated with wood-engravings, which, being produced in relief, and capable of being printed with the type, saved the ordinary extra charge due to printing from steel plates. But, however artistic and effective wood-blocks were, they lacked the refinement of the steel engraving.

Concurrently with this spread of art in England, came the opening of the American, and the creation of an Australian market for English literature; and the adoption of a German discovery, which has done more to revolutionise art in this country than any other previously introduced, viz., the invention of lithography by Alois Senefelder, who, about 1795, while in search for a cheap means of printing the pieces which as a dramatist he produced, by an accident discovered that, by writing on a slab of Kelheim stone with ink prepared with wax, soap, and lamp-black, and then biting in the stone with *aqua-fortis*, a surface in relief could be obtained, from which prints could be taken in the same way as from wood-engraving. This discovery led to the art of lithography as now practised. To the growth of the lithographic art I shall return hereafter; but for the present I would merely say that its introduction and the great cost, as well as the time involved in printing from steel or copper plates, led to numerous attempts to cheapen the cost of engraved plates, and also to multiply the plates when produced. The process introduced by Mr. Perkins was inapplicable to a large surface, both on account of cost and the difficulty and risk of injury in applying it. But machinery had been applied in the form of the geometric lathe, and a desire was created to possess a machine of a simpler character which might be employed to produce skies and backgrounds to portraits, without involving the skilled, and in many cases monotonous, labour of etching. This want was soon supplied by Mr. Lowry, who was speedily followed by Mr. Porter, Mr. Taylor, Mr. Storker, and others. By the first-named a machine was invented for ruling either straight or waved lines, which, when used separately, produced flat or graduated tints, and when used in combination produced the effect now so generally seen on the face of bankers' cheques.

The result of these machine processes, coupled with the introduction of lithography, was to create serious competitors with the aquatint and mezzotint processes; which may be said to have been swept away by the great advance which lithography has made, and to the consideration of which we will now return. I have stated that Senefelder discovered, about the year 1795, the principle upon which lithography is based, but it was not till 1819 that much progress was made in the art; but at that date, owing to the fostering care of Baron Aretin, in Munich; Count Lasterie, in Paris; and Mr. Rudolph Ackerman, in London, an account of the art of lithography, showing its then state, appeared. The establishment of the art of lithography in England is, however, due to Mr. Hullmandel, who not only drew upon stone with crayons and printed from them in black ink, but soon carried out the process by drawing on two or

three stones, and printed from them with ink of a neutral tint; he also drew on several stones, and printed from them in colours. Mr. Hullmandel introduced the process known as litho-tint, the drawing being made upon the stone with a brush and liquid ink, and he also applied the process of stamp drawing. The facilities which drawing with the crayon, the stump, and the brush, afforded for the production readily, and at a moderate cost, of a surface from which to print, soon gained for the art a large amount of public support, and enlisted the sympathies of the late Mr. Mulready, Mr. J. D. Harding, Mr. Louis Haghe, Mr. James Ward, Mr. J. Lane, and other Royal Academicians and artists, who applied themselves to the production of sketches on stone. There was, however, in the early attempts at lithography, a crudeness of effect and a want of gradation from light to shadow. To overcome this, Mr. Hullmandel made a material between ink and chalk, which, being applied to the hard edges, carried the full tints by gradation into the high lights. The effect thus obtained advanced the art in the estimation of artists, as it increased the facility for producing artistic effects, which was greatly helped by the use of tinted paper and printing in neutral tints from several stones. Printing in colours was practised by Senefelder, but his early specimens give but a faint idea of the richness and beauty of the productions of Mr. Owen Jones, who applied himself to develop the powers of lithography, and who not only drew upon stone, but also printed in gold and colours the entire of his work illustrative of the Palace of the Alhambra. In addition to drawing on stone and printing in flat colours, Mr. Jones introduced a method of printing from graduated tints drawn in ink only upon the stone, graduating his tints by stippling upon polished stones with a fine camel-hair pencil.

Litho-tinto is a method of drawing, in which washes of ink are applied to the surface of the stone; but it is not largely in use, though many artists have employed the process in the reproduction of their own sketches. The process of stump drawing, by Mr. Hullmandel, afforded great facilities for the production of even and graduated tints over the stone, and soon became a process in general use. The cost and inconvenient weight of the lithographic stone led to a desire to find a substitute, and for a large amount of commercial work, drawing on zinc has been found to answer, and is now extensively in use. This fact leads me now to refer to the commercial, rather than the artistic use of lithography.*

S. T. DAVENPORT.

POST-OFFICE STATISTICS.

THE tenth annual report of the Postmaster General (for 1863) has been issued. It differs from previous reports; reviewing progress during the last ten years, as well as during 1863. It also shows, on the whole, that the correspondence of the country has risen from about 70,000,000 of letters in 1839,—the year before the penny-post system was introduced,—to upwards of 640,000,000 in 1863.

The total number of letters delivered, in 1854, throughout the three kingdoms, at 4,847,983 inhabited houses, to 27,967,565 persons, was 443,649,301, or at the rate of 15 to each person. The total number delivered in 1863, at 5,212,723 inhabited houses, to 29,335,318 persons, was 642,324,618, or at the rate of 22 to each person. Thus the increase in 1863 over 1851 was 198,675,317 letters, delivered to 1,367,753 persons, at 391,740 inhabited houses, or at the rate of 7 to each person. The increase in England and Wales alone was from 358,300,696 letters, to 529,325,455, or 171,024,759, delivered at 421,739 inhabited houses (or at an increase of houses from 3,440,442 to 3,862,181) to 1,921,482 persons (or to an increase of persons from 18,711,016 to 20,632,498); being an average increase of 7 letters to each person (or from 19 to 26). The increase in London alone was from 103,000,000 letters to 161,000,000, or 58,000,000, delivered at 62,838 inhabited houses (or an increase of houses from 382,949 to 445,787), to 484,982 persons (or to an increase of persons from 2,831,950 to 3,316,932); being an average increase of 12 letters to each person (or from 36 to 48). The increase in Scotland alone was from 44,114,009 letters to 61,401,678, or 17,287,669, delivered at 20,701 inhabited houses (or at an increase of houses from 377,208 to 397,909), to 155,329

* To be continued.

persons (or to an increase of persons from 2,940,516 to 3,095,845); being an average increase of 5 letters to each person (or from 15 to 20). The increase in Ireland alone was from 41,234,596 letters to 51,597,455, or 10,362,859, delivered at 47,700 inhabited houses (or at a decrease of inhabited houses from 1,030,333 to 982,633), to 709,058 persons (or to a decrease of persons from 6,316,093 to 5,606,975); being an average increase of 2 letters to each person (or from 7 to 9).

The foreign and colonial letters coming into the United Kingdom for delivery are about one-fifth of the whole number of letters delivered; and the letters despatched to foreign countries and colonies are nearly equal in number to those which are received. The most remarkable increase is in the case of France. In 1854, before the reduction of postage thither, the correspondence amounted only to 3,000,000 letters; in 1857 it was 4,200,000; and in 1863 it had reached 6,373,000.

It is believed that 15 per cent. of the total number of letters posted in London contained printed enclosures, mostly advertisements. During 1863 an account was taken in London of 3,957,000 letters, which were obviously circulars, and of which 3,485,000 could be assigned to various trades and societies in the proportions shown in an accompanying table. The number of letters recorded as circulars, however, is much below the actual number of them posted in London, as circulars which are posted in small quantities escaped notice. Of the number above recorded, 1,690,052 were from drapers; and in 1859, 400,000 circulars with regard to the projected Handel Festival were despatched in one day to the Post-office, in two vans, which they filled.

The tables show that there has been a marked proportionate increase of facilities for posting letters within a convenient distance from the homes or places of business of the writers. This great extension of accommodation has been effected mainly by the introduction of pillar and wall letter-boxes, which first came into use in 1855, and now form nearly one-third of the whole number of receptacles for letters. Throughout the country these receptacles have been increased at the rate of 52 per cent. since 1854, while the number of inhabited houses has only increased at the rate of 8 per cent. In 1854 the London district had only one receptacle for letters to every 813 houses, but in 1863 it had one to every 420 houses. Perhaps the chief if not the only objection to the pillar and wall receptacles (unless letters be occasionally longer in these than in the post-offices before delivery), is that the public are not sufficiently warned not to put back packets into them, as these are often tediously detained, and sometimes are altogether lost.

There are one or two other points in connexion with the Post-office regulations to which we may here refer, as being worthy of the attention of the authorities as well as of the public, who ought to be more fully informed as to them either by means of advertisement in the most widely-circulated newspapers, or by sending to the journals, in both town and country, paragraphs, which, in nine cases out of ten, the editors of newspapers, in their wish to do good, would gladly insert. But even if they were needful, for the right publication of the most important of the Post-office regulations, that advertising should be resorted to, extra expense should not be a consideration; for the Post-office should rather be considered as a public convenience than as a source of revenue. Sir Rowland Hill's system is amongst the wonders of the age, but the very thankfulness which we feel for it causes a wish to make all the arrangements as complete as possible.

One of the matters to which we would desire to draw attention presses hardly upon the industrious and poorer classes. We refer to the passing of coin in letters through the Post-office. It is well known that this practice has been the cause of dishonesty amongst the letter-sorters and carriers; and it is most desirable that the practice, now that a Post-office order can be obtained for 3d. for any sum less than 2*l*., should be put an end to. The difficulty, however, is, that in consequence of the want of a more extended publicity, there are thousands of those very persons upon whom the rule presses very hardly who know nothing about it. It has been usual for poor people to send to friends at a distance very small sums of money: sometimes these remittances, which are most valuable in time of need to

those to whom they are addressed, consist of 1*s*., 1*s*. 6*d*., or even less, and those who know the condition of these people are aware that the receipt of even a very small sum is sometimes a matter of life or death. Now the regulation of the Post-office is, that if any coin can be felt to be enclosed in a letter it is registered at the Post-office. The charge for registering such a letter is 4*d*.; but in consequence of the person posting the letter containing money not having paid this sum, 8*d*., or double the amount, is charged to the person receiving it. In many ways this regulation presses severely, and on those, too (the receivers of the money), who are not blameable in any way. In many cases, the person to whom a letter of this kind is sent has not 8*d*. to pay for it; often there is no right address of the sender forwarded; and there can be no doubt that a large amount, consisting of small sums, is thus added to the profits of the Post-office. We could mention many instances that have come to our own notice of the way in which this regulation works. A mother, whose little girl was in an hospital, sent her 6*d*. in a letter: the porter of the establishment paid 3*d*. for it; so that the child, instead of receiving any money, was left 2*d*. in debt! A woman on the brink of starvation had a shilling sent to her by a friend. With the greatest difficulty she managed to raise the 8*d*. requisite; and after this was paid of course her shilling was reduced to 4*d*. We could give many other instances, but these will suffice to show our meaning.

We do not complain of the attempt which has been made to stop the transmission of coin through the post-office; but the way in which the present regulation works should be more extensively made known. It is not those who send bank-notes and other valuables, to a large amount, who feel the pinch; but the poorer people, to whom every 8*d*. is of serious account; and these should be instructed that a post-office order can be got for 3*d*. But then people say, why pay this for the transmission of a small sum? Why not 2*d*. for 1*s*., and 1*d*. for 5*s*? A letter containing coin can be registered for 4*d*., or a very small amount may with perhaps less risk be sent in postage-stamps, which may, if necessary, be exchanged at the post-offices at a charge of 3*d*. for 10*s*. worth.

Nor has the registration system served to diminish the evil of pilfering which it was mainly established to prevent. True, "the number of registered letters has risen from 1,457,000 in 1860, to 1,965,000 in 1863; and the number of applications for missing letters containing coin has fallen from about 6,000 to about 2,000 per annum;" but, "on the other hand, the good effect of these measures has to a great extent been neutralized by the growth of the practice of transmitting postage-stamps through the post; the applications for missing letters containing postage-stamps having risen precisely in the proportion in which the applications for missing letters containing coin have fallen."

As regards the transmission of little matters through the post to our soldiers and sailors who are serving their country at foreign stations, there seems to be the same want of information as that to which we have alluded. Many who have sons and dear friends in India and other distant lands send little articles in the shape of keepsakes; and the rule is that for any letter or package under the weight of half-an-ounce sent to India or any of the English colonies, the postage is 1*d*.; but if a fraction over this weight, the charge is one shilling! And if in ignorance any one post a letter without the payment of this sum, and it gets to its destination, double the charge of the postage is made. A case has been mentioned to us of a woman who has a brother on board H.M.'s ship *Zebra*, which is stationed on the west coast of Africa, engaged in the prevention of the slave trade. She sent several letters inclosing little articles. The postage was paid for at the rate which would be charged, in proportion to the weight, for sending to any part of Great Britain; but, after the lapse of a long time, it was found that they did not get into the sailor's hands at all: and, on inquiry, it was found that they were detained at Sierra Leone, in consequence of the postage not being sufficient. Such matters require to be seen about; and many think that in the present management, since the retirement of Sir Rowland Hill, the authorities of the Post-office are drawing the reins rather too tightly; and, in their anxiety to increase the revenue, are not showing the same kindly disposition that was formerly shown to serve the public.

The number of money-order offices in the

three kingdoms has been increased from 1,872 to 3,005 since 1854; the amount issued from 10,462,411*l*. to 16,493,793*l*. The increase for England alone has been from 1,221 to 2,150 offices, and from 8,557,136*l*. to 14,087,883*l*. in issues. For Scotland the increase has been from 278 to 352 offices, and from 814,461*l*. to 1,305,371*l*. in issues. For Ireland it has been from 371 to 503 offices, and from 690,809*l*. to 1,100,039*l*. in issues. The increase in London has been from 96 to 373 offices, and from 1,798,955*l*. to 3,181,874*l*. in money-orders issued.

The Post-office savings-banks returns show that on the 31st March, 1864, there were in the three kingdoms 3,024 banks, 372,955 depositors, and 4,097,492*l*. due to them. The total number of depositors in the old savings-banks prior to the establishment of the Post-office banks was 1,609,103; and the increase in the number of savings-bank depositors since the establishment of the Post-office banks has been 278,407. In Scotland there were on the 31st of March last 354 post-office banks, 18,653 depositors, and 19,921*l*. due to them. In Ireland there were 510 banks, 14,639 depositors, and 160,756*l*. due to them. The number of banks in London was 374, the number of depositors 117,955, and the money due to them 1,143,371*l*. The number of savings-bank depositors in London previously to the establishment of the Post-office banks was 332,798, and the increase since has been 89,874.

The report congratulates the country on the fact that "by the establishment of Post-office savings-banks the Legislature has effected not a mere transfer of depositors from one establishment to another, but a real and considerable increase in the total number of saving persons throughout the kingdom." In the London districts there is one depositor (taking the depositors in old banks and those in Post-office banks together) for every seven persons; and in the 106 postal districts of England and Wales, which are specified in the tables, there is one for every thirteen persons. In the rest of England and Wales, one for every fifteen persons; in Scotland, one for every seventeen persons; and in Ireland, one for every sixty-eight persons.

The effective force of officials connected with the Post-office throughout the country in 1854 was 21,574; and in 1863 it was 25,492. The total cost of the service was 2,312,681*l*. in 1854, and 2,956,486*l*. in 1863. To meet this the gross revenue in 1854 was 2,619,786*l*., and in 1863 3,730,073*l*. Thus the net revenue in 1854 was 389,181*l*., and in 1863 it was 1,042,969*l*., remaining, of course, after deduction of the total cost of the service.

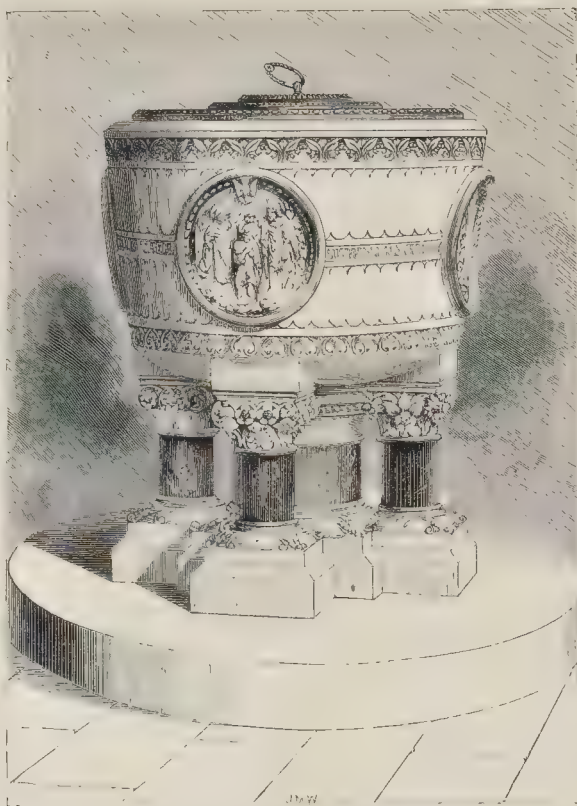
France, we may here remark before concluding, is to be divided into six postal districts, the centres of direction being Arras, Alençon, Toulouse, Poitiers, Lyon, and Nancy.

COMPETITIONS.

Metropolitan, Bath and Pooleby Market.—Though two premiums were offered for the first and second best designs, viz., 300*l*. and 200*l*., only seven sets of drawings have been sent in, and three of these are incomplete works. This result is due to the supposed intention of the Corporation not to employ the author of the selected design to carry it into execution. The designs are marked as follows:—No. 1. "A Key." Estimated cost, 100,000*l*. No. 2. "For the use of the Citizen, and the Decoration of the City." 150,000*l*. No. 3. "Citizen Stationer." 122,000*l*. No. 4. "Semper Paratus." 75,000*l*. No. 5. "Invicta." 90,000*l*. No. 6. "Fortuna Seguat." No estimate. No. 7. "Spero." 20,100*l*.

Hospital, Wimbeldon.—The governors of St. George's Hospital, desiring designs for the hospital about to be built at Wimbeldon in connexion with their institution, invited plans in competition from Mr. Hakewell, Mr. Mee, Mr. T. H. Wyatt, and Mr. M. D. Wyatt. The design by the last-named architect was selected, and will be carried out by the Messrs. Wyatt conjointly.

Bath Forum House.—Under this title a hotel and bathing establishment are to be erected in Bath. Designs being sought for, twelve were sent in by nine architects. From these four have been selected for further consideration, all the work of architects resident in Bath. The architects whose designs are selected are,—Mr. C. E. Davis, city architect; Messrs. Giles, Hicks, & Isaacs, Mr. C. J. Phipps, and Messrs. Jas. Wilson & Wilcox. The instructions with which each competitor was furnished, before preparing his plans, specify that the form of the building shall be



NEW FONT FOR BOMBAY CATHEDRAL.

plans have since been carried out under the direction of his son-in-law, Professor Smirke, R.A., who will doubtless now act elsewhere in a similar capacity.

The laying out of the new cemetery at Jesmond, Newcastle, afforded Mr. Dobson scope for the display of his ability both as an architect and a landscape gardener, and the result is well worthy the attention of the student as an excellent example. The versatility of Mr. Dobson's talent in turning his hand to work of any kind deserves to be mentioned. The timber frame-work used as staiths for shipping coals on the Tyne, showed that Mr. Dobson was master of carpentry; the graving-dock designed for Messrs. Smith, at St. Peter's ship-yard, proved him an engineer; and the warehouses built at the docks at Sunderland and Jarrow showed that the most massive construction came as easily to his hand as the Gothic church or luxurious mansion. The Central Railway-station of the North-eastern Company at Newcastle is perhaps Mr. Dobson's most important work; and though the work as actually executed falls far short of the original design, it is still a fine and imposing structure, and shows the skill with which the architect met and overcame the difficulties of the situation, and the foresight with which he made arrangements for accommodating the additional business which he clearly knew was likely to result from the development of the railway system.

The construction of the High-level Bridge and the passage of the Newcastle and Berwick

Railway through Newcastle, involved an immense destruction of house-property; and here Mr. Dobson's services were called into requisition, in the settlement of compensation to the owners of the property destroyed. His knowledge of its value, and the implicit confidence placed by the owners and occupiers in his honesty and impartiality, enabled Mr. Dobson, in conjunction with the late Mr. Robert Wallace, the town-surveyor of Newcastle, to adjust all the claims for compensation, without carrying (with one exception) any of the claims into a court of law. In these respects, no less than in respect to his skill in architecture, the death of Mr. Dobson will leave a blank not easily supplied; for in the settlement of all kinds of disputes within a very wide range from Newcastle, the sound judgment and dispassionate temperament of Mr. Dobson were successful in extinguishing litigation. When Mr. Grainger was changing the entire aspect of the town, by the erection of the streets and public buildings which have shed a lustre upon his name, Mr. Grainger never failed to award to Mr. Dobson his obligations for the advice and valuable suggestions that gentleman gave him whenever he was consulted.

One of the earliest of Mr. Dobson's miscellaneous works was the Royal Jubilee School, Newcastle. In 1819 he planned, for Colonel Birch, additions to the fortifications of Tyne-mouth Castle, which have been lately supplemented by a fosse, also, it is said, designed by a civil engineer. Mr. Dobson was also employed by the Government on extensions or alterations

of the Custom-houses at Glasgow, Newcastle and Liverpool. The Royal Arcade, Newcastle was from his designs. He prepared plans and sections for the Newcastle and North Shields Railway. Of hydraulic works, Mr. Dobson executed several. He designed St. Peter's Dock, near Newcastle, for Messrs. T. & W. Smith; a dock for Mr. Robson, at North Shields; and Seaham Harbour, for the Marquis of Londonderry. In connexion with ornamental park-like grounds, ornamental water was a necessity, and the lake at Bolam, the seat of Lord Doxies, in Northumberland, was his principal work in this department. Mr. Dobson also executed for Mr. George Hudson, baths, streets, terraces, and the general arrangement of the new town at Whitby, and designed for other proprietors the baths and terrace at Roker, near Sunderland.

Many of the mansions designed or altered by Mr. Dobson are of large size, and would be worthy of an extended notice. The design for the Central Station at Newcastle procured the honour of a medal at the Exhibition of Paris, in 1855; but this appears to have been the only public recognition his services ever received. He was the first president of the Northern Society of Architects.

We have here given but a meagre sketch of a most industrious, prolific, and valuable life; but we must not close it without bearing witness to Mr. Dobson's upright conduct as a man; his generous and kindly nature. The profession has lost a very eminent member, and Newcastle a distinguished and most respected citizen.



LAMP AND VENTILATING SHAFT ERECTED OVER THE SUBWAY, SOUTHWARK STREET, LONDON.

EXECUTED BY MESSRS. WALTER MACFARLANE & CO., UNDER THE DIRECTION OF MR. BAZALGETTE.

THE LATE MR. EBENEZER TROTMAN,
ARCHITECT.

MR. TROTMAN died, we regret to say, at his residence in Park Village East, Regent's Park, on New Year's Day. He was in his 66th year. His name was probably better known a dozen years ago, young as he was comparatively, than it is now. Mr. Trotman was the son of a Baptist minister at Walsbury, and was a nephew of Sir John East-
pope. He was educated at the Mill Hill Grammar School, and was subsequently articled to Mr. William Wallen, a well-known surveyor, in Little Moorfields. Soon after he left him he entered the office of Mr. Tite, first as a junior clerk, but finally Mr. Trotman became his principal assistant, and had much to do with his large business, being greatly employed by him, and representing him in very extensive works in Edinburgh and Perth in connexion with various railways, as well as in London. His health failing him, he gave up his position with Mr. Tite, and was succeeded by the late Mr. Charles Portman. Mr. Trotman was an excellent draughtsman, and had obtained a great mastery in the details of Gothic architecture, which he exhibited in a paper read by him at the Institute about thirteen years ago, wherein he showed the results of his curious researches in hundreds of our country churches. He wrote, amongst other contributions, an article on Tudor architecture in "London's Encyclopedia," which attracted much notice at that comparatively early period.

His health was feeble, and before he left Mr. Tite he showed symptoms of the disease which finally terminated his life, viz., softening of the brain. He was in every sense a gentleman.

NEW FONT FOR BOMBAY CATHEDRAL.

WE have much pleasure, on the present occasion, in placing before our readers a faithful representation of a new font, that now is on its way towards a baptistery which awaits it in the Cathedral of Bombay. The font is a gift, a thank-offering from an English gentleman, a resident in Bombay, who for many years has devoted himself, with energy and gratifying success, to the promotion of various important public works for the improvement of that great city. To the senior chaplain of the cathedral, the Rev. W. B. Fletcher, was intrusted the duty of seeing that the wishes of the donor of the font should be carried into effect. Acting upon the advice of a common friend, Mr. Fletcher placed himself in communication with a brother clergyman at home, an experienced student of ecclesiastical architecture, with a request that he would send out to Bombay a design for the required font. His design having been received with cordial approval by the Bishop of Bombay, Mr. Fletcher, and the cathedral architect, as well as by the donor, the Rev. Charles Boutell was requested to commission a sculptor to execute the font under his own superintendence in London. Mr. James Forsyth received this commission, and he has produced this new font for Bombay Cathedral in a very satisfactory manner.

The cathedral of Bombay is an edifice built in conformity with what we know as Norman architecture, the new font, accordingly is designed with a view to harmonize with the Norman Cathedral of Bombay. This font, which is of full cathedral proportions, is formed from a single block of Caen stone, the cluster of five dwarf shafts which support the bowl being of Serpentine and Devonshire marble. These shafts rest upon a basement also of Caen stone, and in its turn, this basement is supported by a plinth with steps executed in basalt. The basalt portions of the work have been produced in Bombay, from drawings sent out for that purpose.

The bowl of the font is banded midway with two passages—the letters being carved in relief—"Suffer little Children to come unto me," and "Go and baptize all Nations." In connexion with these texts are four circular medallions, severally containing groups representing "The Baptism of Our Lord" and that of the Ethiopian prince, with the sacred monogram "I.H.S." and the date "1864." Below the font is encircled with lotus-leaves, emblems of purity; and above, a wreath formed from another spray, the lily of the valley, is typical at once of the purity and of baptismal innocence. The capitals of the four smaller shafts exhibit—sculptured with much freedom and vigour—the sig-

nificant union of the flowers of the Indian lotus with the roses of England. Above the font is finished with a plain chamfer; and the present cover, which is of oak, with a brass central ring, is of a simple character.

We have a view of the cathedral, as about to be recast, in progress, and shall publish it shortly.

LAMP STANDARD AND VENTILATING
SHAFT, SOUTHWARK STREET, LONDON.

THE lamp-standard and ventilating-shaft represented by our engraving has been recently erected over the subway, Southwark-street, London. It is executed in cast-iron, for the Metropolitan Board of Works, by Messrs. Walter Macfarlane & Co., of the Seracen Foundry, Glasgow, and Bedford-street, Strand, London; and was done under the direction of Mr. Bazalgette, engineer to the Board.

This work shows, in a very marked degree, the improvement that is taking place in the cast-iron productions of our country, to which improvement in the ornamental branch of the trade the firm of Messrs. Walter Macfarlane & Co. have largely contributed. In the Exhibition of 1862 their works (to which we at the time drew attention) were sufficiently excellent to gain for them a prize-medal, their castings being characterized by the jury as "admirable, sharp, clean, and full of character." The work before us combines strikingly these qualities. The erection consists of a red sandstone base, about 5 ft. high, surmounted by ventilating shaft, lamps, &c., in cast-iron, about 27 ft. high, the whole forming a handsome central feature to the street crossing.

We must compliment Mr. Bazalgette, and all the parties concerned in this work. The cost of the lamp, without the stonework, will be about 255l.

THE SANITARY CLAUSES OF
THE METROPOLITAN BUILDING ACT.

ON many occasions we have pointed out the failure of the sanitary clauses, few in number, of the present Metropolitan Building Act, and that, too, without any reflection on the District Surveyors. The following observations in the last report of the medical officer of health for the Whitechapel district (Mr. John Liddle), relate to the same subject:—

"The most important defect in the present Building Act is that which relates to the requirement of providing an open space of at least 100 square feet at the rear or sides of those houses in which all the rooms cannot be lighted and ventilated from the street or alley adjoining. But as nothing is said about the arrangement of such open space, it may consist of a slip of ground, being only 1 ft. in width and 100 ft. in length; or it may be of any other shape, if only the 100 square feet, required by the Act, has been provided. Not a word is said in the Act respecting the necessity of there being a window opening into this space. The Act is also silent upon the size of the windows in any of the rooms in a house, and of the height of the rooms, except those in the basement and attic, when these rooms are let as separate tenements. Every room, used as a sleeping-room, should be at least 8 ft. in height.

To show how the spirit of this Act has been evaded in this district; I may, in addition to the instance in Osborn-place above-mentioned, bring to your recollection the fact, that in 1861 four new houses were erected in Bear's Head-yard, upon a space of ground, on which only two houses should have been allowed. One of these houses, No. 2, has a narrow passage by the side of it, in addition to the open space forming the court in front, so that all the rooms in this house are said to be lighted and ventilated, and therefore an open space at the rear is not required. The yard at the rear of this house is apparently common to it and to No. 1, but as No. 2 does not, according to the Act of Parliament, require an open space in the rear, the yard, which is exactly 100 square feet, is said to belong exclusively to No. 1. As it was found to be impossible, by any contrivance, to give to the house No. 3, which was intended to contain two rooms on a floor, a space of 100 square feet at the rear, the builder was compelled to make only one room on a floor, whereby all the rooms could then be said to be lighted and ventilated

in front, consequently it was not necessary to provide any space at the rear of this house. The yard, therefore, which ought to be common to it and the next house, is said to belong exclusively to No. 4.

Again, in Queen's-place, Whitechapel, two dwelling-houses, of six rooms in each, have been erected, with a space at the rear of only 50 ft. to each. It was obvious, in this case, that the buildings were not in accordance with the requirements of the Building Act, and on complaint being made of the want of sufficient space at the rear of these houses, the owner caused a door-way to be made in the party-wall, between these houses. This arrangement was said to be legally sufficient to convert these two houses into a single house, whereby the entire space at the rear, which is 100 square feet, is all that the Act requires.*

Upon the same principle, half a dozen or more houses may be converted into a single house, while the open space in the rear for lighting and ventilating the back rooms may not exceed 1 ft. in width, provided that the building extends 100 ft.

The following case will further show how the provisions of the Building Act have been evaded. The landlord of some old houses in a court in Spitalfields thought it expedient to rebuild and enlarge them; but instead of pulling them down at once, as he ought to have done, he first took down the front walls only, and rebuilt them. He then took down the back walls, and rebuilt them, and replaced it with a new one. By these proceedings he evaded the requirements of the Act relating to the structural arrangements of new houses; besides which, he was enabled to build two small rooms, 6 ft. only in height, at the back of each house, without his being under the necessity of complying with the twenty-ninth clause of the Act, which relates to the providing of an open space of 100 square feet for the purposes of lighting and ventilation.

The width of all courts in which houses are to be built should be regulated by Act of Parliament. It appears, that in old courts, in which, perhaps, a warehouse, stable, or shed, has existed for a few years, the owner may erect upon the sites of these buildings dwelling-houses, and may let them out in tenements, without any regard being had to the width of the court, because it is said to be an old court, and no power is given to any authority to limit the height of the houses built thereon; but in a new court, a bye-law of the Metropolitan Board provides, that an open space of 20 ft. shall exist between the houses on each side of it.

The present Building Act does not require a parapet-wall to be made. The want of such a protection to the public may be productive of danger to life. A tile, slate, or a quantity of frozen snow may fall from the roof and injure persons in the public streets. Neither is there any provision made to afford safety to the public in enabling them to make a speedy exit from places of public entertainment in case of an alarm of fire.

The law relating to the building of houses appears to be in this anomalous state, viz:—That houses can be built without suitable provision being made for the proper ventilation and height of the rooms; but after such houses are completed and let out in tenements, then, by virtue of another Act, the local authority may institute proceedings before a magistrate to prevent the occupation of any room which, in the opinion of the medical officer, is unfitted for the health of the occupants. It surely would be much better to prevent houses being built, unless every arrangement suitable for preserving the health of the occupants be first made, than to allow houses to be completed, and then to prevent the landlord from letting them.

At the present time large sums of money are being expended by some philanthropists, in erecting improved dwellings for the labouring classes, in the hope that such dwellings will not only directly benefit the occupants themselves, but will contribute indirectly to the general welfare of the whole community; but, unless the provisions of a new Building Act forbid the extension of buildings in unsuitable localities, and at the same time enact that all the rooms in dwelling-houses shall be sufficiently lighted and ventilated, the labour, time, and property of such kind-hearted persons will be, to a certain extent, thrown away."

* We must conclude that the two houses were in the same occupation, or the arrangement would be illegal.—Ed

ART-WORK IN THE FUTURE.

SIR,—I must call attention to some remarks made by you at a recent meeting of the Society of Arts on the subject of "Art Industry," as it is to be greatly feared that without it they will not accomplish the good which you doubtless intended they should do. To my mind they seem to be most important and pregnant of consequences.

The first is, "that it is a most lamentable fact, that notwithstanding what has already been done, the great body of building artisans of the present day are inferior in skill to the same class of artisans of seventy years ago." It is, as I think, simply impossible to say more than this. It condemns modern art as the production of the workman, and, as well as this, all our present means of art-instruction, as attempting to influence the art results of the age in which we live. Now, the first questions are,—is this true? and can it be proved, that our workmen are inferior to their fellows of seventy years back?

I do not think it possible for any one to look attentively at any object left us from the days of which you speak, "seventy years since," without acknowledging at once that the art-skill of that time found its way to material; and was not, as it now so unfortunately is, wholly expended on paper; and in efforts at representing objects on a flat surface, and in mere drawing. Almost any of the objects left us, as articles of furniture, chimney-piece ornaments, glass, plaster-work, wood carving, and others, will show this; and, what is more, any attempt now-a-days to get them imitated by our present race of workmen is impossible. Why is this? At that time there did not exist a single drawing-school of any kind to which the workman could go; all were under the baneful system of the old drawing masters, simply to be described by saying that the mode of work was not to imitate any natural thing whatever,—its virtue was the touch of the drawing-master. Without any kind of art-instruction, therefore, what was the secret of the success achieved? It was, as I conceive this: that the executive workmen were looked to as the sole means, individually, of producing the art result whatever it was. Any object of that date will evidence the fact that but one workman was employed on it. The object was commenced and completed, i.e., its artistic portion as a picture, by one art-workman. And that the object itself was the sole subject of interest; and, what is more than all, and is in reality the key to a new system of art-action, it was designed in material. It was all the very reverse of the present method. The art-action is now wholly expended on paper, and the object itself left to be manufactured,—no one looking at it or caring about it until it is too late to alter or amend,—until it is finished and ready for its destination. I consider, therefore, your remark to be capable of absolute and ocular demonstration; and if so, that it demands an entire change in our present complicated and costly system of art-instruction, whether supported by public money or the result of private efforts. It is, if you are right, both false and useless.

To those to whom this subject is new, a great deal of explanation and detail would doubtless be required to convince them of the necessity of organic change in the whole modern system of art-production, and this cannot be done within small compass. I can only hint at the means of change, and indicate, as you have done, its true direction. But as an additional proof of the correctness of your view, I need but repeat your other remark, in which I entirely concur,—that the withholding the promised prizes for the wood-carvings, by the Architectural Museum committee, did not meet with your concurrence. How unfair this! We are all now, to a man, engaged in the indication on paper of what is to be, and in afterwards knocking the object together anyhow by the modern system of manufacture, wherein one man is appointed to undo what his predecessor in the work has already done. In cabinet painting only do we ever see what the artistic power of the time can do; and now we are beginning a great change—we are asking for the signature of our common and unlettered and untaught workmen. They give us their handwriting, rough and ignorant as it is, and it is simply and rudely thrown aside as worthless rubbish! I have been many years at this work, and I protest against this injustice and this unkind rudeness. I have no hesitation whatever in saying, that some parts of the panels exhibited, especially in the details of the foliage, and even in some signs of animal life

shown, Ghiberti himself need not have been ashamed of. Such work, as a whole, is now, as I take it, beyond the power of our Academician sculptors; they would only succeed in bits here and there; they could not rival the past: how much less a workman with every modern art, influence, and help flying away clear past him, and missing, as it does, both him and everything else capable of affording a practical art result? More might be said. I agree with your dictum.

You say, further on, that lectures are good things in their way, but not enough,—*"there must be actual practice in the studio and workshop."* It is in this short sentence that I think the workmen themselves will in the future have good cause to thank you for showing them the way; but they must demand it, and perhaps plead for it. It is in the workshop and the studio, and, I would add, in our great public collections, that the workman must seek for help, and must practise the fine art of his trade. The whole of the present paper system of art-work must be abandoned before any material will consent to show what nature it is of, and how the art power in humanity can impress itself, and become visible either to the artist-workman's own eye or to other men's. It is pitiable to think of the cost to the public of our museums, and the little good they are doing, or can do, as things now are. In place of the dull and stupid school-room and the worthless reams of paper and cardboard wasted in them, the artists and workmen of to-day must be encouraged to seek instruction and help in the museums and in the midst of their collections of fine-art handwriting. And each artist and workman must be led to express himself in his own individual way in material inspired by the works about him. This but once commenced, we shall soon see the value of the vital exponent of it; and, perhaps, in time look down on those who now as art capitalists are so unrighteously using this art faculty at second-hand and without acknowledgment, and reaping from the toil of others both wealth and fame—wealth from the work of their hands, and fame from the work of their brains. It is only public ignorance that permits this, or can perpetuate it for another hour.

I must, therefore, again repeat that I think your remarks at the Society's meeting were most valuable, and that they should be acted on and enforced; and it is to help in this that I have ventured to trouble you with this letter.

C. BRUCE ALLEN.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

The following abstract of the treasurer's accounts with the Architectural Institute of Scotland, for the year ending 31st of October, 1864, is given in the report just published:—

CHARGE.

I. Balance in account with British Linen Company's Bank at close of last account	£100 19 8
II. Annual subscriptions for 1863-64, received	88 4 0
III. Arrears of former year's subscriptions received	3 3 0
IV. Interest on account with British Linen Company to 15th April last	3 6 10
V. Special fund for endowing a Chair of Architecture, conveyed in British Linen Company's Bank, dated 31st October, 1863	£11 11 8
Interest thereon to Oct. 31, 1864	0 15 8
VI. Miscellaneous receipts	20 9 11
Balance due to Treasurer at Oct. 31, 1864	12 6 0
	£233 4 11

DISCHARGE.

I. Balance due to treasurer at close of last account	£17 1 1
II. Rent, taxes, &c. paid for rooms	16 10 0
III. Expense of prizes	15 9 0
IV. Expense of lithographs of Roslin Chapel	49 8 0
V. Accounts paid for printing, advertising, &c.	
1. Printing	£21 0 0
2. Advertising	0 6 0
3. Books, stationery, &c.	0 16 6
VI. Miscellaneous general expenses: including expenses connected with meetings, insurance, secretary and treasurer's outlays, postages, carriages, and expenses of collections	23 3 0
VII. Amount in deposit receipt of British Linen Company, on account of fund for endowing a Chair of Architecture, dated 31st October, 1864	32 2 5
VIII. Balance in British Linen Company's Bank at 31st October, 1864	20 9 11
	59 1 6
	£233 4 11

Mr. Miller having resigned the office of honorary secretary, Mr. John Fleming Rodger has undertaken the duties.

A general meeting of the Institute was to be held on the 12th inst., "To consider the question of a site for the Scottish Memorial to his late Royal Highness the Prince Consort; and, if need be, to memorialize the Royal Committee of Advice on the subject."

THE BIRMINGHAM ARCHITECTURAL SOCIETY.

On the 4th, the members of this Society commenced the business of the year by a dinner. The chair was occupied by Mr. Thomson Plevins, President of the Society, and there were also present Messrs. A. B. Phipson (vice-president), J. H. Chamberlain (hon. secretary), J. R. Botham (treasurer), J. J. Bateman, J. G. Bland, J. A. Chaslin, J. C. Croft, B. Corser, W. Harris, E. Holmes, W. Martin, T. Naden, G. J. Newey, F. B. Osborn, E. J. Payne, H. Yeoville Thomson; and J. T. Bruce and Allen E. Everitt, honorary members.

The President, when proposing the toast "The Birmingham Architectural Society," read an address, in which he named Mr. Botham as the founder of the society.

"For the information of those who, like myself, did not belong to the Society in the early years of its existence, it is perhaps well for me to notice that it was started in 1851, and when I tell you that immediately upon its foundation twenty-one gentlemen became members, and that at this period the number of architects practising in Birmingham was only about twenty-six, you will agree with me that it was started under most favourable auspices, and that many thanks are due to Mr. Botham, and those who worked with him. When the Society was formed it had in its ranks a majority of the profession, and its conclusions, therefore, fairly represented the views of the architects of the town. But since then its position in this respect seems to have altered, and now, although knowing that I must amongst us some of the most respectable members of the profession, yet, seeing so many as worthy not in our Society, I cannot flatter myself that the meetings of our little unexceptionable body have so much influence as they should have, either with the profession generally or the public."

One good result which I hope for, in connexion with the extension of this Society, is an understanding amongst the respectable members of the profession, as to the uniformity of percentage for certain work, and a conviction in the minds of the public that it is not even to their interest to pay less. The profession to which we have the honour to belong is certainly deserving of more consideration than the public sometimes accord to us; for I do not hesitate to say that many of our members would far rather sacrifice their own interests than those of their employers: but this high state and honourable feeling have only been cultivated, and can only be perfected by the public generally treating architects as they deserve to be treated—with consideration and confidence; as men having a reputation at stake and an independent position to maintain."

The toast was duly acknowledged by Messrs. Chamberlain, Bateman, and other gentlemen. The various speakers strongly urged the importance of reviving the Society, widening its basis, and including amongst its members the leading architects of the district as well as of the town.

SOME OF THE CAUSES OF LONDON FIRES.

A CAREFUL inquiry into the causes of those conflagrations which in both the day and the night are constantly alarming some part of the metropolis, would discover curious results, and would show that with carefulness and better management a large percentage of those calamities might be avoided. We will now, however, just glance at a few of the chief means by which property of enormous value is annually consumed, and not a few lives are lost, in the capital alone. In warehouses there is the risk of spontaneous combustion, in consequence of the careless packing of goods; the storing of highly inflammable and other matters in places of such huge dimensions that when a fire once gets held the separation walls are found insufficient, and, in spite of the exertions of the firemen, destruction spreads from one range of warehouses to the others, until the whole range of premises is destroyed. This has been shown in a remarkable manner in the great fires at Alderman Humphrey's wharf, London Bridge, and the more recent conflagration at Dock-head. The writer has often heard the late lamented Mr. Braidwood express his opinion very strongly respecting the danger of large interiors for the storing of goods; and the truth of his opinions in this respect has been borne out on several occasions, especially on that when his valuable life was lost. The leakage and explosion of gas are also a prolific cause of London fires. Many accidents of this kind have occurred in drapers', milliners', and other shops of this description; and it is not likely to be known how many mysterious fires are to be attributed to the spontaneous and

accidental lighting of lucifer matches. In the autumn, in over-heated workshops,—on by the falling of a lucifer match, or a box of them, from a mantel-piece, or by children playing with them, and other causes,—many accidents occur. We remember a case of fire which was attributed to the firing of lucifers by means of the concentration of the sun's rays through one of the old-fashioned bulb-eyed window panes of glass. If we could get a correct estimate of the value of the property which has been thus destroyed, it would show surprising figures. Chimneys and flues are a source of mischief, especially where care is not taken in the cleansing of them. Fire-works and lucifer-match manufactories, which should not now be allowed to remain in the metropolis, add to the chapter of accidents; it does the drawing of turpentine, camphine, &c. such-like articles, at night-time or in the day, in dark cellars, &c., where candle-light is used. Nine out of ten of those fires might be prevented by the use of proper lanterns. In the London oil-shops gunpowder, even for the blowing up of copper-holes, is not sold after the gas is lighted: some such provision would be useful in connexion with the sale of other dangerous articles. Servants, children, and others often carelessly place lighted candles in cupboards or under shelves, and, forgetting where they have put them, the woodwork takes fire. Drying clothes in front of the fires of tenemented dwellings is a cause of damage; as is the carelessness in enacting about shavings, the smoking of lighting of tobacco-pipes, the use of candles about lanterns in stables and the stores of corn-chandlers, &c., &c. We have known two or three fires to have occurred in consequence of placing hot ashes in the dust-heaps adjoining premises. Crinolines have added to the number of fires, and been the means of the loss of life and property. The cause of many such fires which occur about rent-day, or where the premises are well insured, will for the most part remain amongst the mysteries of London. It would be well if the stacking of immense quantities of wood in populous neighbourhoods were prevented. Some of the largest of the London fires have occurred from this cause. In connexion with this matter much remains to be done in the arrangements needful for the public safety.

SANITARY MATTERS.

Stamford.—Scarlet fever is very prevalent in Stamford at the present time, chiefly on the south side of the river. In one house in Water-street, one day last week, three of a family named Ingram lay dead, and two others were in a dangerous state. The village of Winghamham is also suffering severely from fever. **London.**—The town council have unanimously resolved—"That a committee of three, together with the corporation surveyor, be formed for the purpose of obtaining all necessary information which has for its object the improved drainage of the city; and for this purpose the committee authorised to go and inspect works in other places where the drainage has been improved, to ascertain the expense which has been incurred in forming them, and carrying them out, and report to this council on the subject; and that the following persons form the committee:—The Mayor, Alderman Foster, and Mr. Doughty." **West Ormesby.**—For eight months or so past this parish has been scourged with diphtheria, during the hot weather fourteen deaths occurred from this cause among 800 inhabitants. Since then there have been many cases, though fortunately not fatal. Now, however, this disease, in a most malignant form, has reappeared in the parish part of the parish called Wapping. **Bury.**—Malignant fever is reported to be very prevalent at Bury at present. Two or three persons in a house have, in some instances, been carried off by it. One of the measures taken by the authorities was to send the bellman round the town, directing the people, among other things, to keep their children in the house at night, as a precautionary step. The precise reason for this is not stated.

Worcester.—The number of registered deaths in this city, during 1863, including those in the public institutions, amounted to 1,060, being at the rate of 29.54 per thousand of the population, and 4 deaths in 34. The average number of deaths in annum, for the last twelve years, has been 1,665.16, being at the rate of 20.28 per thousand, the average rate of England being

22.14 per thousand. The enormous excess (9.26 per thousand) of the death-rate of 1863 over the average annual death-rate is attributable to the epidemic of scarlet fever, which raged with great severity during the year, and caused the deaths of 192 persons. The deaths of children under five years of age amounted to 51.13 per cent. of the mortality at all ages. For the last five years the average annual mortality had been at the rate of 37.89 per cent.

THE UTILIZATION OF SEWAGE.

The Local Board of Health at Tamworth have awarded to Mr. J. S. Benest the first premium for his plan for works to utilize the sewage of that town. The plan is as follows:—The whole town is drained into one culvert, deep enough to intercept all the smaller sewers. This culvert is carried beyond the town to a point sufficiently distant to cause no nuisance to house occupiers. It there discharges into one or other of two reservoirs, or tanks, one of which fills while the other is being deposited and emptied. When deposition has taken place,—and it does so very rapidly,—the liquid will be conveyed away by pipes, and spread over the adjacent meadows. The thick deposit which remains in the tank will speedily become so hard that it may be carted away as ordinary farm-yard manure.

The Bill which is about to be brought in by Lord Robert Montagu will probably contain the following permissive powers:—

1. It will extend to England, Ireland, and Wales, and will give increased facilities to towns for the utilisation of sewage and its application to land.
2. Power to acquire land by means of loans raised by mortgage of the rates.
3. Power to carry sewers and other ducts under and across roads, railways, and private lands.
4. Power to sell sewage to companies and others.
5. Power to advance capital, or to grant mortgages on rates to companies or persons contracting for sewage.
6. Powers to take forehears and waste lands for reclamation.
7. Powers to the Crown, &c., to grant leases of land.
8. Pro-cumptions on reasonable terms secured to local husbandmen.
9. Power to take up Government loans.
10. Power to enable local authorities to combine for joint outfall and other purposes.

The Bill will also probably contain the following prohibitory clauses, chiefly with reference to the purification and conservation of streams and rivers:—

1. Water-shed Boards to be appointed for the conservation of rivers.
2. The constitution and representation of local jurisdictions, &c., to be locally determined.
3. The Water-shed Boards to make by-laws to bind Boards of Health and other local authorities.
4. Power to remove obstructions from rivers and outfalls.

SEWAGE AS MANURE.

Sir.—I observe the paper on sewage in a solid form in the *Builder*, I pointed out a year ago that it might be, and was (on a large scale), put into a solid form for carriage when collected; and also, how it might be collected fit for the purpose.

This you thought a return to the "night-stool system" of France. It is indeed no such thing. The intercepting vessel may be outside the house; it may be in the drain beneath the ground. And I believe yet, when the bubble of making use of liquid sewage has been blown big enough to burst, that the best way of securing and using the solid matter in its best state will come to receive the notice it deserves.

I still say, that for all public buildings the new system now practised in several towns of France, Italy, and Belgium, is quite and easily applicable.

Private houses are another consideration, more difficult, doubtless. **JAS. EDMONSTON.**
* * We are sorry to differ from our correspondent; but our objection to the system of retention advocated remains in full force.

"PLEASANT APARTMENTS."

Sir.—My attention has just been called to a paragraph in the *Builder*, headed "Pleasant Apartments in Paddington," which contains a very entertaining description of an underground dwelling in North-street. The writer concludes by suggesting the expediency of a sanitary inspection. In order that this state of things may be brought under the notice of the proper person, I beg to state that North-street is not in Paddington, but in Marylebone. **J. BRADSHAW SANDERSON, M.D., F.R.C.P.,**
Officer of Health for Paddington.

THE CHIEF CLERKSHIP IN THE CITY ARCHITECT'S OFFICE.—The candidates for the office of principal clerk in the architect's department, Guildhall, so far as we have heard, are these:—Mr. T. Baker, who has been an assistant in the office for some years; Mr. C. Baily, of Gracechurch-street; and Mr. C. L. Eastlake, of Upper Berkeley-street West.

OUR HIGHEST SPIRES.

ST. JOHN'S, BURY ST. EDMUNDS.

As Mr. Denison, in his interesting statistics respecting our cathedrals and largest parish churches, has named among the "highest spires" two which are less than 160 ft. high, perhaps you will allow me to claim a place in the list for the spire of St. John's Church, Bury St. Edmunds, the height of which is 160 ft. to the top of the stone cap, or finial. (It has no weather-cock.)

The construction of this spire renders it especially worthy of mention, as, with the exception of the finial and stone ribs at the angles, it is entirely built of Suffolk white brick, together with its eight pinnacles and flying buttresses. The same material has been used throughout the church, even to the deeply-moulded ribs of the arches and capitals of the pillars, the style being Early Pointed. In giving 160 ft. as the height of the spire, I follow an account of the building published at the time of its consecration (October 21, 1841). In the architect's plan it was 165 ft. **C. J. GREGGE.**

LINCOLN CATHEDRAL.

On several occasions comments have been made in our columns on the mode in which the works have been carried on about Lincoln Cathedral. In reply to these and other floating objections, apparently, a semi-official statement has been made in the local papers. It says the works at the west front of the Cathedral are to be cautiously proceeded with under the advice of the same architect, Mr. Buckler, of Oxford, who has been employed for many years by the Dean and Chapter, and who has sanctioned and directed what has hitherto been done. Mr. Buckler had been desired carefully to inspect the whole, and he declares himself fully prepared to justify what has been done. What is now being done is to collect the remains of the old columns removed so long ago, and copy them in the minutest details in Lincoln stone (the original material), in order to replace the columns of Yorkshire grit; and at the same time to put in fresh pieces in those parts of the Norman doorways which are absolutely perishing from age, these parts being also copied by the masons employed. This done, the question was whether the new joints thus necessary to be inserted, unless the whole were to become a ruin, should remain a piece of patchwork, or whether the "scum" of age should be carefully removed from the old work that remains. Mr. Buckler affirms that it is a peculiarity of the Lincoln colicite, unknown to architects who have not employed it, to become coated with a hard surface which preserves it, and that all that is done at Lincoln is to remove the black sooty matter by which this surface is overlaid. This is done by first wetting the stone with water from a brush, and then taking off the black with a small tool, without either mallet or hammer, leaving the tool marks of the old Norman workmen. Not even this process, it is said, has been or will be applied to the Norman carvings.

FEVER CASES.

In the last report of the Registrar-General, ninety deaths from typhus fever in the week, are recorded in the metropolis; eleven of these in the Greenwich district, which contains Deptford and Woolwich; and "eighteen deaths from typhus were recorded in Islington West," in which sub-district the London Fever Hospital is situated. But for the knowledge that this useful and extensive hospital was situate in West Islington, the number of deaths would be startling, and reflect discredit upon the sanitary state of this district. It is, however, not always that in the Registrar's report reference is made to the Fever Hospital as a means of increasing the death-rate from fever in this locality; and many persons even in Islington either do not know, or else forget, that the hospital to which the most serious fever cases are brought from all parts of the metropolis is in their neighbourhood. We have before referred to this, and suggested that in order to arrive at a truthful record of the deaths from zymotic diseases, which will show the sanitary condition of districts, that the deaths which occur from fever in such hospitals as this should be accredited to those parishes from which the cases are taken. Some time since we made inquiry, and found that the cases treated in this hospital were

brought from all parts of the metropolis, some of them from long distances; and a reference to the books of the hospital which record the names, places of residence, and other particulars of the patients treated there, would be a useful indication to spots which require sanitary improvement.

We read of eleven deaths from typhus in the Greenwich district, and, it would perhaps be found on inquiry that some of the eighteen persons who died from typhus in the hospital were brought from the same locality. Whether this may be so or not in the present instance, it is clear that West Islington should not be charged with the cases brought from elsewhere. We say this, although well aware of the extensive operations of the Registrar-General's office; and that it must cause a considerable amount of extra labour to introduce new divisions in the death registers. But, in a matter of this kind, we should not spare labour or even extra expenditure.

HOW WE MANAGE OUR ROADWAYS.

For months Long Acre was passed through with difficulty by reason of the new sewers that were being tunneled for and built. At last, however, the heaps of earth and elevated windlass here and there disappeared, and drivers thought it all right again. So it was for a few weeks; when down came fresh invaders with enormous iron pipes, and the ground was again broken up, the traffic interfered with, the trade of the shops injured. The pipes have been buried and the men have departed; but will the thoroughfare now remain open, the business of the district go pleasantly on? Not a bit of it. Look at the condition of the roadway: the surface is destroyed; a passage over it is dislocating. An army of paviers must be called into action again to block up the roadway, and by the time they have restored the paving, an underground railway, a pneumatic despatch tube, or some new gas pipes will be ready for laying. And so we manage our roadways!

NEW CEMETERY FOR ASHTON AND DUKINFIELD.

THE Corporation of Ashton-under-Lyne, and the Local Board of Dukinfield, have united in the purchase of about 38 acres of ground, for the formation of a joint cemetery. The land was formerly a park, belonging to "Dukinfield Lodge," and in the days preceding the erection of cotton-mills, was a very delightful locality. It occupies an elevated position above the banks of the river Tame, and the cemetery, when laid out, will be a prominent feature in the surrounding scenery for miles. The works have been entrusted to Messrs. Pannell & Ayliffe, of Manchester, architects, whose designs for the buildings and the laying-out have been formally approved. It is intended to employ distressed operatives on the earthworks, &c., and application has been made for a loan, under the Public Works Act.

The proposed outlay, exclusive of land, is about 17,000l.

THE BUILDING TRADES MOVEMENT.

There is great commotion amongst the operatives as to the "discharge-note," as the Master Builders' Association calls it, or the "ticket-of-leave," as it is called amongst the men. In Birmingham about 800 carpenters are on strike; in Coventry about 400 men, comprising all branches; in Walsall, about 400 of all branches; in Nottingham, about 700 ditto; in Malvern, about 100 ditto; and about 1,000 in other towns of the midland counties. In the meantime several meetings of the masters have taken place, and the subject of the "note" is understood to have occasioned warm and angry discussion. Some influential masters say they think it quite necessary that there should be a masters' association, to aid as a check upon the combinations of the men, but consider the "discharge-note," as proposed by the Birmingham executive of the association, an un-English weapon of warfare, to which they are entirely opposed. In the face of the opposition of the men, and the disapprobation of many of their own members, the Association will do well by at once abandoning the "note."

At Hull the subject of the "note" has been warmly discussed by the men, who have formally

and unanimously protested against it, and resolved to support the men now out in opposition to it in the midland counties.

The carpenters and joiners of the Potteries and Newcastle-under-Lyne have published an address to the members of the Master Builders' Association, in which they declare that they have a desire to prevent the recurrence of unjustifiable strikes and combinations, and, for the sake of peace, request the Association to abandon the "discharge-note" which they have agreed to adopt, and to consent to a conference for the formation of a code of laws for the regulation of the trade.

It seems to be not merely unionists but non-unionists, also, who have resolved in many cases to resist the introduction of the "note," so that the unions are likely to be greatly strengthened by the threatened measure; and what looks no less serious as against the masters, is the fact that the disinterested feeling of the press appears to be everywhere against the "note."

The operative joiners in Nairn, Scotland, have petitioned their employers for a rise of wages. Their present wages for a week of sixty hours is only 16s.; and, as this amount is much below the general average in Scotland, they desire an advance of 2s. per week, and also that a regular pay-day be observed.

At the Warwick Quarter Sessions on Thursday, two brickmakers, named Stone and Gregory, were each sentenced to fourteen years' penal servitude for killing three and stabbing four horses, the property of Messrs. Lewis, brick manufacturers, at Aston. It seems that Messrs. Lewis had determined not to employ any men belonging to the trade union, and the destruction of the horses is supposed to have resulted from this decision.

FROM SCOTLAND.

Edinburgh.—The town council and railway companies meeting there have under consideration a scheme for a grand central station at Waverley Bridge, but nothing definite has yet been decided. The scheme, which seems to have originated with the council, is of a very comprehensive and rather costly character. It embraces the removal of the present Waverley Bridge, its place being supplied by a new bridge—probably of iron.—The statue of Professor Wilson is now ready, and a general meeting of the subscribers was held on Monday last, at the Messrs. Blackwood's, to receive the report of the committee, and to make arrangements as to the inauguration and future preservation of the statue. Dr. Robert Chambers, as secretary, read the report, which stated that the bronze statue was now finished, and the pedestal nearly completed, and that an early day might be named for the inauguration. Several gentlemen present remarked that Mr. Steell had succeeded in producing a striking likeness. It was remitted to the sub-committee to make the necessary preparations for the inauguration, which will probably take place on an early day in February, and on the same day as the inauguration of Mr. Steell's marble statue of Allan Ramsay.

Glasgow.—At the present moment, according to the Citizen, eight churches are in the hands of the builders here, and rapidly approaching completion; and if to these be added the churches opened within the last eighteen months, there is a total of eighteen added within the last two years to the number of churches in Glasgow, and at a cost of nearly 100,000l.

Dundee.—A deputation from the directors of the projected Albert Institute had a meeting with the town council to submit the plans of Mr. G. G. Scott, architect, for their approval. Mr. Baxter stated that it was Mr. Scott's opinion and that of the directors, that the Institute, if erected in the centre of the ground purchased (at a cost of 8,050l.), would prevent the Royal Exchange from being seen from the top of Reform-street. The plan showed the best position for the new building. From Mr. Scott's last communication to the directors, it appeared that his estimate for the great hall and the library together as shown on the plans—that is, for the main portion of the building fronting the west—was 8,400l. for the corridor division—the portion of the building which it is proposed should front the north, consisting of the circular staircases, and the corridor—his estimate is 3,000l. for the committee-room division—that which fronts the south, consisting of a variety of

rooms above and below—his estimate is 3,000l. His estimate for the external staircase is 1,100l. and for the ornamental spire 700l. The total estimate for the work, which includes the expense of piling, is 16,500l. The portion which is to be appropriated for the public library is to be on the ground-floor of the great hall section of the building, and the estimated cost of that will be 4,400l. As there was not at present sufficient money for the completion of the whole design for erecting all the buildings, the long building behind for the picture galleries and museum was abandoned in the meantime. It was proposed to take estimates for the work in sections,—for the great hall, the corridor, the committee-rooms, and other accommodation, and the external staircase. The subscribed funds up to this time amount to 23,260l. The council at a subsequent meeting unanimously approved of the plans, as amended.

Wick.—The new Free Church here, recently opened, is in the Perpendicular style, from a design by Mr. Gray, of Berwick, architect. The front elevation looks into Bridge-street. It is divided into three compartments. In the middle compartment there is a large central window of five lights, with pointed tracery; in the interior it is in great part concealed by the gallery. From the street view, however, this arrangement detracts nothing, as the windows are all filled with corrugated glass, not seen through. On the north or right-hand compartment of the front elevation stand the tower and spire, supported by diagonal buttresses, surmounted by crocketed pinnacles. The spire is angle-ribbed, and terminates in a sculptured finial, surmounted by a gilt copper cross and spear. The entire height of the spire from the foundation is 128 ft. From the position of the building, situate between the walls of adjoining houses, the front and spire are the only parts visible from the main street. The front measures 63 ft., and the length of the building backwards is 90 ft. The front is all built of Burghhead freestone smooth-dressed. Messrs. Dunbar had the contract for the joiner work; the building contract was executed by Mr. Williamson; and the hewn work was done by Messrs. Hood & Henderson. The plumberwork was executed by Mr. Johnstone.

Books Received.

"Hardwicke's Science Gossip: Hardwicke." This fourpenny monthly is intended as a medium of interchange and gossip for students and lovers of nature. The first number only is out. It has an extensive field of subjects, and ought to interest a very numerous class of readers. The "Gossip" in this first issue is zoological, entomological, piscicultural, botanical, geological, microscopical, &c.; and it besides contains little papers on the Viper or Snake (illustrated); on Duckweeds (also illustrated); and on several other subjects, as well as reports of societies, notes and queries, &c.—The *Dublin Builder* has commenced the new year with vigour. The first number contains a lithographed view of Whiteorth, Drogheda; architect, Mr. Barre, of Belfast.—The principal papers in the current *Gentleman's Magazine* relate to ancient monuments. The first is an account of the curious ancient slab which stands on the north side of the churchyard of Kirk Michael, in the Isle of Man, by the Rev. Dr. Dodds.—"The Garden Oracle and Floricultural Year-book, 1865. Edited by Shirley Hibberd, F.R.H.S., author of 'Rustic Adornments for Homes of Taste,' &c. London: Groombridge." The present issue is the seventh of this useful garden book. A leading feature of it is a list of stove and green-house orchids, arranged to exhibit certain kinds in bloom every day throughout the year. This is accompanied with hints to beginners in orchid culture, which seems to be likely to become the next popular mania that will follow in the wake of the aquariums and fern-cases.—"The Land and the Agricultural Population. Arundel Mitchell, *West Sussex Gazette* Office." In 1863 Messrs. Cobden and Bright delivered speeches at Rochdale which the newspapers discussed, from the *Times* downwards. In the questions of entail and primogeniture, and parish settlements, brought forward in these speeches, the *West Sussex Gazette* took part, and the pamphlet under notice is a reprint of the correspondence published in that paper on the subject.—"The Concentration of the Courts and Offices of Law in London." The council of the Association for the Promotion of Social Science conceives this sub-

ject to be one of such great national importance that it resolved to address the members of both branches of the legislature, the municipal corporations of England and Wales, and the chambers of commerce, in connexion with the Association, as well as others, upon it, in the hope of exciting sufficient attention and interest to secure the acceptance, in the ensuing Session of Parliament, of the two bills which the Government have announced their intention of bringing forward for the fourth time. The pamphlet under notice is issued by the Law Amendment Society, in connexion with the Association, and one of the chief purposes in view is to show that the present condition of our courts and offices of law is not to be looked at as a professional grievance, but as a source of serious injury and loss to all suitors, and therefore detrimental to the value of all property; and that the proposed remedy will not add to the public burdens.—“The Brown Book” (Saunders & Otley) has been improved by the adoption of the suggestion we made last year,—the addition of the artistic societies. The Art Union of London should be added to those given, and in the list of benevolent societies the Newspaper Press Fund should appear.

Miscellaneous.

ANOTHER CHURCH DESTROYED BY FIRE.—(Diplon parish church, midway between Great Yarmouth and Lowestoft, was destroyed by fire on Sunday. It was partially insured. There was no loss of life.

THE WEST CHURCH, GREENOCK.—To give credit where credit is due, we would add to our little notice of this church in our last intimation that the carving about the pulpit and elsewhere was executed by Messrs. Roddis & Grassby, now settled in Glasgow.

LIVERPOOL ARCHITECTURAL SOCIETY.—At last week's meeting of council a letter was received from Mr. Charles Herdman, secretary of the Liverpool Architectural and Archaeological Society, applying for the use of the Town-hall for a service in behalf of the funds of the Architects' Benevolent Society. The letter was referred to the finance committee.

THE LIVERPOOL BUILDING SURVEYORSHIP.—The special committee as to the office of building surveyor submitted a recommendation to the council that the salary of the officer to be appointed be 300*l.* per annum, and that Mr. G. H. Rollet be appointed to the office at that salary. Eventually a resolution was unanimously adopted, referring the subject back to the special committee for reconsideration.

RESTORING ENAMELS.—Mr. Hatfield, who is known as a worker in bronze, has been lately applying himself, and with great success, to the restoration of Chinese enamel work. We have seen two or three fine jars previously black, damaged and ugly in consequence, that have come out beautifully under his hands. He appears to work down the whole surface to the true partitions of metal that divide the enamels, grinding the edges of these lines, and filling in with coloured composition where the enamel has been injured.

PROPOSED INDUSTRIAL EXHIBITION IN BRISTOL.—A meeting of delegates of trade and other societies, in Bristol, has been held, to consider the propriety of holding an industrial exhibition in this city. The matter has been taken up with spirit by the working classes, and several influential gentlemen have promised their aid. At the meeting a preliminary committee was appointed, to confer with the sub-committee of the Working Men's Club, and to attend a public meeting, to be held on the 1st of February.

SANITARY CONDITION OF OUR IRON SHIPS.—The *Calcedonia*, iron-clad, has been undocked at Devonport yard, and taken into the basin at Keyham, after having been in dock for several months past, getting her sides pierced for ventilation, and other arrangements made for the discharge of waste water. One cannot help expressing a little surprise that, while in the construction of our navy the minor details relative so much attention, this essential provision should have been overlooked, especially in iron-clad ships. It is said that in some vessels, particularly in passenger ships, the iron beams have been cased over with wood, with very great advantage to the health and comfort of the persons on board.

THE VOLUNTARY EXAMINATION, 1865.—The number of candidates who have sent in their applications for voluntary examination, this session, is three in the Class of Proficiency, and one in the Class of Distinction, which being less than that required by the printed regulations, no examination will take place in January, 1865.

WALTON SURVEYORSHIP.—At the monthly meeting of the Walton Board, the chairman stated that the committee appointed to consider as to the proposed surveyorship had made inquiries, and they had agreed to recommend one of the firm of Reade & Goodison, architects and surveyors, Liverpool. He understood that although they could depend upon the practical services of both those gentlemen, it was only necessary that one of them should be nominally appointed. The recommendation of the committee was approved of, and the name of Mr. G. W. Goodison was entered on the books as surveyor.

MEMORIAL TABLET.—Mr. S. C. Hall, during a lecture he recently delivered in Wexford, suggested to the people of that town that they ought to erect a marble slab in front of the house in Corn-market, where was born the mother of Thomas Moore, the poet. The idea was a good one; but the necessity for any joint action in the matter on the part of the people has been rendered unnecessary by the mayor, Mr. John Greene, J.P., who has put up the slab at his own expense. After stating that Mrs. Moore had been born in the house, the legend on the slab goes on to state that, on the 26th of August, 1835, the poet returned to it “in the zenith of his imperishable fame, to render homage to the memory of his mother, whom he venerated and loved.”

THE LAST-FOUND STATUE, ROME.—Contradictory rumours have been circulated with regard to the colossal statue found in the excavations of the Righetti palace. It is true that the Czar offered 370,000 scudi for the piece, and other high personages followed suite; but it was an error to state that Signor Righetti, obeying a sentiment of patriotism, had offered it at half the above price to the Pope. The truth is that the spirited proprietor, from a feeling of patriotism, would not allow the statue to be sold to a strange country, so he simply and purely presented it to the Pope, who, not to be outdone in generosity, inscribed Signor Righetti on the civil list for an income of 2,500 scudi, representing a capital of 50,000 scudi. The Pope has also presented Signor Righetti with a superb gold snuff-box, and each of his children with a rouleau of 1,000 scudi in gold.

THE LATE MR. BRASH, BUILDER.—Died at his residence, Monkstown, Cork, on New Year's day, Mr. William Needham Brash, builder, aged fifty-four years. The deceased was, for a period of thirty-two years, one of the most eminent builders in the south of Ireland, and was greatly esteemed for the honesty and unflinching integrity of his character. He was a man of great practical knowledge and skill in every department of a business now too often intruded upon by men ignorant of its commonest details. The last works executed by him were the National Banks at Cork and Clonmel, and a large villa residence at Queenstown. On the completion of the first-named edifice, he was presented by the directors with a gift of one hundred sovereigns, as a testimony of their appreciation of the fidelity to which he had discharged his engagements to them. Mr. Brash had just retired from business, having realised a comfortable independence.

A NEW “SEVERN BORE.”—It is proposed, says the *Bristol Times and Mirror*, to tunnel under the bed of the Severn for a distance of three miles; and through this subterranean or rather sub-fluvial gallery to carry a railway, so as to connect the South Wales Union line with the Principality. The promoters and the engineer of the South Wales Union declare it can be effected, and, as the estimated cost, name 750,000*l.* It is argued that the nature of the soil is particularly favourable to the work, being a substratum of marl, with a roofing of red sandstone. It has a rival in another project, namely, a bridge to span the river from Aust to the Chiprow bank, to be two miles in length, and laid with a double line of rails. This structure is to be supported on piers, which, from sunken base to summit, shall be each as high as the London Monument, and with a span between each of 600 ft., the estimated cost being 1,800,000*l.*

THE SHEFFIELD INUNDATION COMMISSION.—An important judgment has been given by the Inundation Commissioners on one branch of the numerous claims for consequential damages. The Court decided that the claim of a tradesman for damages in consequence of the loss of his customers, who had either been drowned or driven from the neighbourhood, could not be sustained. The judgment has, in other points, an important bearing upon the construction of the statute. We may state here a fact which is equally creditable to the claimants and to the company—namely, that out of the total number of upwards of 7,000 claims, no less than 4,707 had been settled up to the 28th ultimo. Of this number, 1,500 have been settled since the previous sitting of the Court.

THE ARCHITECTS OF HALIFAX AND THE CORPORATION BUILDING BY-LAWS.—Recently, a meeting of the architects and land surveyors of Halifax was held on the subject of the new building by-laws of the corporation, and a deputation was then appointed to wait upon the corporation to lay their complaints before the proper authorities. On Wednesday the interview in question took place with the Improvement Committee. Among the architects composing the deputation were Mr. Councillor Nicholson, Mr. Horsfall, Mr. Bull, Mr. Jackson, Mr. J. E. Oates, Mr. Davis, and Mr. Booth. The objections of the architects and land surveyors to the new building by-laws, which were confirmed by the Home Secretary a few weeks ago, are, that a great many plans and copies of plans of intended new buildings and streets must be deposited with the corporation,—more, in fact, than are necessary. Next, the carrying out of the new by-laws will seriously affect the cost of the erection of second and third class dwellings, on account of the greater quantity of land required, and the increased thickness of the walls, &c. Again, an asphalt and privy are to be erected for every cottage, and this, too, they consider unnecessary. Were these by-laws to be carried out, the cost of cottage property would, it is said, be increased at least 25 per cent. The committee promised to further consider the objections advanced.

TESTIMONIAL TO A RAILWAY CONTRACTOR.—A short time since, Mr. M'Henry, the contractor of the Atlantic and Great Western Railway, presented to the city of Philadelphia a battery of artillery of Whitworth guns. The friends of that gentleman in America now return the compliment in the shape of a testimonial, by American artists, which has been exhibited at Messrs. Hunt & Roskell's. According to the *Railway News*, it consists of a dinner, dessert, and tea service, composed of silver, richly chased and gilt; and there is with it a tall column of silver-gilt, round which there winds a spiral and continuous band from the base to the summit, on which this is engraved the section of the 200 miles of the Atlantic and Great Western Railway, which were completed in as many days by Mr. M'Henry. Every cutting, and embankment, and bridge is shown upon a scale of 18 ft. to 200 miles, and there are engraven upon it 30,000 words and figures—some of them so minute as to require a microscope to decipher them. The summit of the column supports an allegorical figure of America. The cost of the testimonial was about 20,000 dollars. American artists, continues our authority, will not be displeased to hear that this eminent firm of English goldsmiths, so far from being actuated by any desire to depreciate the work, candidly declare that it is one of which they would have been proud to have been the producers.

RAILWAY MATTERS.—The line of railway to unite the London and North-Western with the South-Eastern at Charing-Cross is about to be commenced. It will be an underground line, and, indeed, will cross the present underground on the New-road, at Tottenham-court-road, on a still lower level. New streets will be formed in connexion with this line, as we have noticed on previous occasions, opening up the close streets between Oxford-street and the Strand. This will be the third line of connexion between the North and South of London lines, the three Thames bridges of connexion being Blackfriars, Hungerford, and Kensington.—The traffic receipts of railways in the United Kingdom amounted, for the week ending the 24th of December, on 11,732 miles, to 675,291*l.*, and for the corresponding week of last year, on 11,395 miles, to 612,748*l.*, showing an increase of 337 miles, and of 62,543*l.* in the receipts.

THE LADIES' SANITARY ASSOCIATION.—The seventh annual report of this excellent Association states that no less than 90,240 of their popular and useful sanitary and other tracts have this year been distributed amongst the poorer classes, making a total of 703,740;—a moral force which implies a vast extension of really public and popular opinion in favour of ventilation, cleanliness, sobriety, and many other domestic improvements. The lectures got up by the Association also cannot but be of very great importance towards the same desirable ends. The Ladies' Sanitary Association constitute a powerful auxiliary legion in the army of sanitary pioneers. Their benign and subtle influence gains access where no rougher and more masculine power can reach.

ALARMING OCCURRENCE IN A LIVERPOOL THEATRE.—An occurrence, happily unattended with serious consequences, but which shows the necessity of having ample means of egress from places of amusement, took place last week in the Adelphi Theatre, Liverpool. The house was crowded, and an alarm of fire was raised. The greatest excitement immediately took place, and a large number of persons made for the doors. The crushing that ensued was terrific, and several persons were trodden under foot and injured. On order being restored, it was found that the alarm was entirely groundless, and that no fire had taken place.

MONUMENTAL.—Some time ago it was determined to erect at Derby a monument to the late Mr. Alderman Johnson, in recognition of his exertions in promoting improvements in the town. The monument has now been erected on the south-east part of the old cemetery. It is of marble, and is in the form of a Gothic memorial cross, on an hexagonal pedestal, with a moulded base elevated on a step. It stands in the centre of an oblong stone plinth covering the entire grave. The front face of the pedestal contains the inscription. The total height is 13 ft. Mr. Hall, marble cutter, designed and executed the work.

PROGRESS OF BELFAST.—In December, 1860, says the local *News Letter*, the total valuation of the town was 270,930*l.*, and in the following year 730 new buildings were erected, valued at 7,877*l.* In 1862 the new buildings numbered 840, but they were rather of a poorer class on the average, and the total valuation of them was but 7,618*l.* In 1863 no fewer than 1,260 new buildings were erected, the total valuation of which was 10,364*l.* In 1864 the new buildings numbered in all 1,403, or very nearly double the number erected in 1861, and the valuation is also nearly double, being 13,667*l.*

VESTRY REPORT OF PARISH OF CHELSEA.—The eighth report of this vestry, for 1863-4, under the Metropolitan Local Management Act, 1855, has been printed by order of the vestry. It is, as usual, a comparatively voluminous document, occupying, with the appendices, no less than 175 octavo pages. The medical officer's report states that fever, not unfrequently epidemic typhus, continued to prevail more or less throughout the year, though, on the whole, not of a malignant character. It generally seized the majority of the inmates of any house among the lower orders which it entered, and in the worst localities spread to several adjoining houses. The deaths attributed to fever, many of which were not typhus, numbered only 39, against 51 in the previous year. These returns, however, end in March last, and therefore do not include cases which have since occurred. Scarlet fever, measles, and whooping-cough carried off 179 children: the mortality from these causes in the previous year was 131. In all the ordinary forms of disease an increase was observed when the death-rate of the year was compared with that of the preceding one.

HORTICULTURAL EXHIBITION IN AMSTERDAM.—It is announced that a universal horticultural exhibition is to take place at Amsterdam in the middle of April next, when a congress of botanists and horticulturists will probably be held. All horticultural produce will be admitted, as well as all the industrial objects relating thereto. The prizes are to consist of thirty gold medals, of the value of 100 florins,* ninety-two medals of fifty florins, 127 medals in vermeil, eighty-four large and seventy-seven other silver medals, and money prizes to a considerable amount.

* A Holland florin = 2*10* francs = 20*16* pence.

DOING THE RIGHT THING.—I mean to try to show, and believe I can show, that a simple and sure conviction of our having done rightly is not only an attainable, but a necessary seal and sign of our having so done; and that the doing well or rightly, and ill or wrongly, are both conditions of the whole being of each person, coming of a nature in him which affects all things that he may do, from the least to the greatest, according to the noble old phrase for the conquering rightness, of "integrity," "wholeness," or "wholesomeness." So that when we do external things (that are our business) ill, it is a sign that internal, and, in fact, that all things, are ill with us; and when we do external things well, it is a sign that internal, and all things, are well with us. And I believe there are two principal adversities to this wholeness of work, and to all else that issues out of wholeness of inner character, with which we have in these days specially to contend. The first is the variety of Art round us, tempting us to thoughtless imitation; the second our own want of belief in the existence of a rule of right.—*John Ruskin, in the Art-Journal.*

A NEW CAB.—We lately drew attention to the dangerous nature of the "safety cabs" called Hansoms. Since then we have heard of four-wheeled Hansoms, if they can still be so called. Whether the following, extracted from a Liverpool paper, be of this kind we do not know; but the notice shows that the subject is under the consideration of mechanical minds:—"Mr. Gorst, formerly a coachbuilder in Liverpool, has invented a new patent safety-cab, the principle of which is to facilitate the draft by the use of wheels of increased diameter, and to admit of the centre of gravity being lower than in ordinary vehicles. Mr. Jones, car proprietor, of Liverpool, has introduced a Hansom cab built by Mr. Findlater, of Birmingham, on this principle, which seats four persons, and has wheels 5 ft. 7 in. in diameter. The motion is very smooth and easy."

CONTEMPORARY IMPROVEMENTS AT KNARESBOROUGH.—The Rev. James Fawcett, vicar, at a tea meeting in the Town-hall, Knareborough, referred to certain objects which must be brought before the parishioners. He instanced the remodelling and enlargement of the present organ at the parish church as being a necessity, and the complete restoration of the church itself. At Trinity Church, he said, a better approach was much needed. A paper was read on "Bells," by the Rev. H. Fawcett, in which he said that if the peal of bells at the parish church were not quarter-tuned, they would become seriously injured, judging from the deep indentation already made by the clappers in the parts where they strike. It is stated that the six o'clock bell is now half worn through: The value of the present peal, even as ordinary bell-metal, is upwards of 600*l.*

METROPOLITAN BENEFIT SOCIETIES' ASYLUM.—The annual treat to the inmates of this Institution in the Ball's-pond-road, was given on Monday, when they were regaled with a dinner of good old English fare. The chairman, Mr. J. T. Slater, stated the Asylum had provided a home for 165 persons, of whom 34 now remained, and he was glad to say, living very happily. The Society had now 7,145*l.* capital invested in the Public Stocks. In proposing "The Friendly Societies of Great Britain," the secretary said that about 130 of those in the metropolis and neighbourhood subscribed, and he wondered that more did not see to it their interest to give the Institution substantial support, being for the benefit of their members only.

TENDERS.

For alterations and addition to Mr. Bowly's House, High-street, Swindon. Mr. Thomas S. Lansdown, architect:—

Hopkins	£850 0 0
Phillips	548 0 0
Barrett (accepted)	630 0 0

For a new house and offices on the Kilrush estate, near Limerick, for Mr. Thomas Bevington. Mr. William Fogarty, Dublin, architect. Quantities supplied by Mr. E. P. Gribben. Amounts exclusive of plate-glass, chimney-pieces, and ironmongery:—

W. & A. Roberts	£5,500 0 0
Meade	5,195 0 0
Crowe, Brothers	5,000 0 0
Hunter	4,700 0 0
Ryan & Son	4,642 0 0
Scanlan (accepted)	4,340 0 0

For the erection of artist's studio, No. 83, City-road. Mr. Dennison, architect:—

Garrod	£829 0 0
Anley (accepted)	636 0 0

Accepted for the erection of farm buildings at Eudcliffe Hall, Sheffield, for Mr. John Brown. Messrs. Flockton & Abbott, architects. Thirteenth contract:—

Mason's Work.	
Wade	£1,200 0 0
Carpenter's Work.	
Gibson	£390 0 0
Slater's Work.	
Brown & Son	£117 15 0
Plasterer's Work.	
Harrison	£46 9 0
Plumber, Glazier, and Painter's Work.	
Townsend	£110 10 0
Smith's Work.	
Ellis	£143 10 0

Thilham Cemetery.—Contract No. 1.

For erecting and finishing Episcopal chapel, Nonconformist chapel, entrance lodge, boundary wall, and piers. Mr. A. W. Blomfield, architect. Quantities supplied by Mr. J. A. Bunker:—

Kelly	£3,546 0 0
Saunders	3,159 0 0
Chamberlain	3,191 0 0
Turner & Sons	3,071 0 0
Wright	3,020 0 0
Harris	2,341 16 0
Eydman	2,348 0 0
Adamson & Sons	2,700 0 0
Holland & Son	2,700 0 0
Robinson (accepted)	2,668 0 0
Palmer	2,643 0 0

Contract No. 2.

For laying out, draining, and planting. Quantities not supplied:—

Turner & Sons	£599 6 0
Armistead	420 0 0
Rutty	412 15 6
Perry	395 0 0
Leeks	340 6 0
Bull	320 0 0
Clarke	307 10 0
Perrey	285 0 0
Neal	285 0 0
Cole & Co.	280 0 0
Robinson (accepted)	240 0 0

For wrought iron railings and gates. Quantities not supplied:—

Johnson, Brothers	£1,120 0 0
Smith	940 0 0
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Robinson	835 0 0
Selden	700 5 0

For police station at Northfleet, Kent:—

Higgins	£2,138 0 0
Naylor	1,811 0 0
Pell	1,760 0 0
Norris	1,710 0 0
Chambers	1,700 0 0
Blake	1,695 0 0
Stamp	1,680 0 0
Gould	1,084 0 0
Ansecomb (accepted)	1,867 0 0

For the erection of a school-room, &c., Love-lane, Shadwell:—

Thompson	£787 0 0
Hall	684 0 0
Holmes	648 0 0
Stone & Pearce	680 0 0
Nagle	665 0 0
Palmer	610 0 0

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Thompson	£1,200 0 0
Holmes	1,014 0 0
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Nagle	908 0 0
Sawyer	874 0 0
Snewin, Brothers	867 19 6
Manera	848 0 0
Wood	839 0 0
Stannett	834 0 0
Stone & Pearce	823 0 0

TO CORRESPONDENTS.

T. H. H. T. M. R. J. S. A. J. W. D. R. C. S. R. B. & I. H. N. H. W. S. R. B. J. A. B. W. A. J. P. & B. R. H. Y. R. C. C. H. P. A. A. R. S. W. G. H. G. T. P. T. J. S. M. J. L. A. H. H. R. P. K. C. H. D. (send only original matter).—A Notice (such structures of wood are illegal).—W. C. (we have no desire to identify the exact locality of the query. The statement shall be kept in mind).—E. A. (write greatly and depends on circumstances).—W. V. S. B. & G. H. P. W. J. C. Fairplay. J. R. O. A. Tiling (several letters received on this subject).—J. H. (claim shall be inquired into).—T. C. R. D. (inquire (as a rule, yes; but it is not always necessary).—J. R. R.

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The Builder.

VOL. XXIII.—No. 1146.

The Designs for the Meat and Poultry Market, Smithfield.



ON September last, the Corporation of the City of London advertised for designs for the Metropolitan Meat and Poultry Market, proposed to be erected at Smithfield on a plot of ground, measuring 625 ft. by 240 ft., which is intersected by the line of the Metropolitan Railway extension from Farringdon-road. Premiums, one of 300*l.* and one of 200*l.*, were offered to the authors of two designs that might be selected. These premiums were to entitle the City to the copyright, but without any engagement on the part of the Corporation to carry out either of the designs, or to employ either of the authors in the execution of the works. The designs received have been exhibited at Guildhall, during

a fortnight; but it does not seem to have been considered necessary that we should be informed of the fact.

The result to the Corporation, from the expenditure of 500*l.* in premiums, will hardly be the possession of a design that can be carried into execution. Only seven designs were sent in; and of these, two or three afford scarcely a suggestion in any matter of the arrangement or construction, and are indeed not to be considered as matured productions. The remainder of the designs, even, cannot be accepted as supplying a solution of the problem,—not a difficult one, comparatively,—of a meat-market; though amongst them, one design at least has merit decoratively, and in a high degree. We think that the slight response to the offer of premiums must be taken as evidence additional to what we have noted of late, that competitions, at least those which are “unlimited,” are becoming viewed with disfavour, as means of professional success. It is true that, in this case, there was no reason for an architect who might perceive a premium to expect he would derive much further advantage, and that always the chance of benefit beyond a premium has been rated higher than it should be: it is however satisfactory to us to be able to believe that our professional brethren are beginning to see, not the general miscalculation on their own part, and on that of public bodies, promoters of competitions,—the question of which we do not care to argue,—but the necessity for stipulations to secure to themselves some advantage, as for example that which might be derived even by competitors not successful in gaining premiums, through an exhibition, managed as we have often explained, but as we have scarcely yet witnessed.

The seven designs submitted to the Corporation of the City, in answer to the advertisement, have, owing to their small number,—but, to that circumstance alone,—been tolerably well seen by those who could procure cards of admission. Some of the two rooms over the Comptroller's Office, where the designs were hung, is badly lighted; little publicity was given to the exhibition; and the motto-system being adopted, a last

chance of benefit to the majority of competitors was denied them. Credit must be given to those who managed the competition, for having worded the “Instructions” so as to leave scope for suggestions, and also for having printed the competitors' particulars of their designs. The “Instructions,” of necessity, stipulated for attention to certain conditions, chiefly arising from the relative positions or levels of the intended market and the railway. The shops and avenues, and the general structure of the market,—the floor-line to be 3 in. above the paving surrounding the building, or 54.11 above Trinity datum,—will have the railway as a basement; and openings will be left in the flooring of the market, at about a dozen points, already fixed,—and that very irregularly as to the whole area,—for the hoists required for raising the meat from the railway, for the ventilation of the railway, and for stairs for the passenger-traffic connected with the market. The “Instructions” also directed that a central roadway, 50 ft. in width, from north to south, that is on the transverse axis of the ground, covered over, should be preserved. One-sixth of the total area was to be reserved for the poultry-market. The markets and roadway were to be well lighted, and protected from the sun. No part of the main building was to be less in height than 30 ft.; and provision was to be made for flushing, for heating the shops, and for some other requirements. Cement and soft stone were to be avoided.

It is curious that whilst one or two of the competitors refer to the Halles Centrales of Paris, none of them appear to have noted the exact features of those structures, unless for the purpose of a deviation and on the hypothesis that there is a difference, greater than in fact exists, between the climate of London and that of Paris. As to humidity, and clearness of the atmosphere, there is great difference; but as to heat and cold alone, there is none that needs much attention; and the precedent of the Paris markets may be fairly taken without deduction or modification. It so happens that the first-built *pavillon* of the Paris markets, was for the meat-salesmen; and that, there, a structure with solid walls, and considerable decoration in masonry, was found quite unsuitable,—so that it has since been removed. Now, the new *pavillons*, though not all for butchers' meat with poultry, are little more than sheds, connected with wide roadways and avenues that are roofed over at sufficient height to allow of clerestories; but the whole external enclosure of the market, or *pavillon*, is constructed with a large area of louvres or other provision for ventilation. Skylights, and glass generally, are eschewed.

Ventilation and the avoidance of direct sunlight have been regarded as important, by the authors of the best of the designs for the City Meat Market; but ventilation, at least, in each of the designs to which more especially we refer, does not seem to have been adequately provided for. Besides the provision of louvres in the clerestory of an avenue, that of apertures for admission of air through the lower portion of the outer enclosure of the market, should be considered,—and we are not undervaluing space already given in different entrances, some of them wide, closed only with iron gates; whilst the adoption of skylights, or the Crystal Palace system, in some of the designs, may be undesirable, even allowing that direct rays of the sun would not fall on the meat. It has been said that the best arrangement for a market is as little as possible removed from that of stalls in the streets, though there there might be inadequate provision against frost; but we apprehend that the arrangement for a meat-market, should approach rather to that of the old shambles, than to that of the central avenue of Covent Garden Market, which, with or without the addition of skylights, seems to have been the model of more

than one of the designs. There is, however, room for discussion as to some of the principles to be laid down for the arrangement of meat and fish markets,—as for that of many other descriptions of buildings, to the principles of planning of which attention is being given just now, and seemingly for the first time. The salesmen are by no means agreed, unless as to disadvantages of structures such as the building in Warwick-lane, once the old College of Physicians, where there is little or no means for admission of air in the lower portion of the walls. Yet the subject cannot present one title of the difficulty that there is in the planning of an ordinary house. In the Paris markets there is a vast area below-ground for storage, and furnished with transeways. Like storage for the London Meat Market does not seem to be necessary or desirable, the position of the railway being taken into account, and rapid sale being calculated upon. Ventilation would be difficult in a basement. The competitors' plans, and the plan of the ground, are deficient of information on main points of the connexion of the railway and the market. The latter plan just indicates the apertures for hoists, a staircase, and the centre lines of columns of the basement. Generally the designs do not show that the subject has received the amount of study that was required.

The set of drawings, No. 1, marked with a key, includes in fact two alternative designs, the difference being chiefly in the arrangement of the shops, and by the omission, in one design, of certain features in the 50-ft. transverse roadway, and its entrances, which might obstruct to some extent the access and circulation of air. The principal design has a central avenue of 20 ft. wide, on the longitudinal axis of the ground, and connected with the 50-ft. roadway. Parallel with this avenue are two others of 15 ft. These three avenues are lined by the shops, which are arranged in groups of four or six. The groups are separated, and the longitudinal avenues connected, by transverse passages, which however would be apportioned with the shops and kept private. All these passages, public or private, are carried up with clerestories above the level of the roofing of the shops; and their ends form features of effect in the elevations. The entrances to the central transverse roadway have each a great arch beneath a pediment, the lunette-head, or tympanum, of the arch being filled with sculpture. The whole of this central feature is very effectively composed; as indeed are also the features of the wings of the north or south front, and those of the east and west fronts, some of which we have referred to. The character of style resembles the German, or rather the recent French, version of Greco-Italian, of which we have often had occasion to speak as adopted in Paris, more especially for the buildings designed by the architects of the municipality. At the intersection of the 20-ft. avenue with the 50-ft. roadway, a tower in several stages is proposed as the central feature of the building; and the grouping of the whole, as shown in a well-drawn perspective view, is very clever. But the tower is proposed to be carried on sixteen points, or four at each of the four angles, each pier of the sixteen being intended to be 2 ft. 6 in. square on plan, and some of the piers having to carry the ends of girders of 35 ft. span. The girders would support the floor of the chief refreshment-room, intended to be at an upper level here, over the portion of roadway. The clerestories throughout, are proposed to be furnished with louvres,—these to be of glass; and the slopes of the roofs would be glazed. The shops would be generally 30 ft. in height, with a flat roof-covering; but the full height, internally, is given to the shop only in one-half of its area, the other half having an upper-story room. The number of shops required by the “Instructions” was 200 or thereabouts:

spaciousness. In our art the high quality of grandeur is more dependent on actual magnitude than in the case in the sister arts. The architect may even be able to win applause by the forcible effect obtained from mere bulk and extent. Yet still our art has this in common with the sister arts, that whatever praise a building may obtain by reason of its meritorious proportions, or of the grandeur of its general effect, those merits are so greatly increased, and the pleasure derived by the critical eye is so materially enhanced by the discovery of those smaller beauties of design that are revealed only by a close and critical examination of the subordinate parts, that we can never venture to be indifferent to the value of such details.

Now, it would be easy to show to you that such has been the opinion of most men of great artistic genius at all periods. The same niceties that I have been adverting to as forming one of the great charms of Greek sculpture, are equally observable in the *chefs-d'œuvre* of Greek architecture that have survived for our study and instruction. Perhaps it would be difficult to cite a more remarkable instance than the entasis of the shaft of a Greek column. It was found that, owing to some optical illusion, the shaft of a pillar of which the sides are parallel appears to be larger at top than at bottom, and such appears to be the case in the remarkable Egyptian example at Beni Hassan, which has often been referred to as the prototype of the Doric order. To remedy this defect, the Doric architects diminished their shafts upwards of about 1-5th of their bottom diameter. But then, owing to some other optical illusion, it was found that where the sides of the shaft were diminished in straight lines from the bottom to the top, those sides appeared to be slightly concave: this gave rise to the adoption of what is called by Vitruvius the entasis, by which expedient this disagreeable *deceptive vista* was at once obviated. This has always been known, but it has quite recently been found that even this expedient was not sufficient fully to satisfy the excessive refinement of the Greek eye, and that the boundary line of the Doric shaft, in the best examples, was made not merely a convex line, but a part of a true hyperbolic curve, a hyperbola, no doubt, of an extremely small axis minor, but, nevertheless, a hyperbola drawn with exact mathematical accuracy. Many of you are probably well aware that, although this fact had been previously surmised by others, the ascertainment of the truth with precision has been the result of the very careful observations and measurements of Mr. Penrose, made under the auspices of the Dilettante Society. Here is an instance of the extreme delicacy and fastidiousness of Greek taste, and an evidence of the value attached by the Greeks to what probably appears to most of us to be a very trifling matter. We may, however, learn to set a higher value on a rigorous attention to such trifles, when we contemplate the mischievous results of a neglect of them. The later imitators of the Classic style saw this entasis, but, being utterly unable to feel as the Greeks felt, they presumed that all they had to do was to swell the shaft, and so they swelled it, but to such a preposterous extent that, as Evelyn frequently observes, their columns appear to be sick of a tympany.

A similar evidence of nicety of taste is presented to us in the mathematical precision with which the Greek echinus is carved. The artists of that wonderful period were not content with an ordinary and simple curve, which might have satisfied a less sensitive taste, commencing the contour with a straight line and gradually giving to the upper part of it a curvilinear form resembling that of the natural echinus. But the careful measurements of Mr. Penrose prove the curvature of the Athenian echinus to be strictly and exactly hyperbolic, as the Greek sculptor felt that his curve should be.

Now I would call your attention to another instance of the really wonderful delicacy of the Greek eye. Most students who have looked over the pages of the earliest expounder of the laws of architecture,—Vitruvius, will have been sorely perplexed by the instructions given to us by him touching the "*Scamilli impares*" in a Greek order. Much as the question has been vexed, I do not know that any expounder of the text ever has satisfactorily explained or ascertained the exact meaning of those words by the aid of the plumb and level, until Mr. Penrose did so, when engaged on the minutely critical examination of Athenian remains, made by direction of the Dilettante Society. That most careful observer has shown us that the course of masonry

forming the base line on which the columns of a Doric portico were placed, was studiously laid with its upper surface very slightly but appreciably convex; and though Vitruvius, on laying down this rule, does not give us the reason for it, yet there can be no doubt whatever that, like the other minute observances of the Greek masons to which I have adverted, the "*Scamilli impares*" which were the result of this very peculiar mode of construction, were intended to correct an optical illusion similar to that which the entasis of the column shaft was intended to correct;—thus furnishing another illustration of the extreme fastidiousness of these accomplished art-workmen. It is in like manner shown by the measurements of Mr. Penrose that the sciffite of the entablature is executed with a very faint concavity. We can well understand the motive for this. Every one will have observed, that through some visual deception any large surface of flat ceiling appears depressed towards the centre—such an effect on the eye was sure not to have escaped the observation of Greek builders, who adopted this natural mode of correction.

I am tempted to add one other illustration. On a former occasion I pointed out to you a slight, but very delicate instance of that fastidiousness to which I have been adverting, in the faint concavity which was wont to be given sometimes to the facettes of a Doric triglyph. The motive for this concavity may readily be surmised to be a wish to render the drawing of those triglyphs distinctly perceptible, without resorting to too deep or sharp indentations, which might by their shadows have interfered with the effect of the sculptured metopes, and detracted in some degree from the breadth of effect, that quality which is one of the distinctive charms of all Greek art.

Perhaps there is no lesson which those artists inculcate by their example more emphatically than that manifest love of their art for its own sake which constantly led them to take what ordinary minds might have considered superfluous trouble. The same unsparing prodigality of labour which they showed in giving to the unseen back of their pedimental statues as high a finish as the front, and the same scrupulous attention to truth in the anatomical minutiae of their bas-reliefs, however remote from the eye, to which I have already adverted,—that same feeling extended even to the subordinate details crowning cymæ of their cornices, and to the antefixa on the eaves of their roofs,—interesting instances of which we possess in the British Museum.

We will now pass over the Roman period, which was but the dim sunset of art, and hurrying past the still dark shades that followed that period, we will seek illustration in the best period of Mediæval art. We shall there find, that if the more refined æsthetic niceties may be wanting, there yet existed, without doubt, a high appreciation of the value of a careful attention to details.

The mouldings of the thirteenth century are of themselves sufficient evidence of the strong artistic feeling that pervaded our art at that period. While a forcible effect was studiously sought by deep undercuttings, and by a brilliant sharpness of execution, the best Mediæval artists never lost sight of the value of that breadth which had been, as I have said, the peculiar merit of Greek mouldings. Their mouldings were massed together in groups kept forcibly distinct, but deep, undercut hollows, producing powerful lines of shadow.

The custom prevalent in the thirteenth century of banding the shafts of columns is another evidence of nicety of taste. The practice was quite original, and was admirably adapted to obviate what might otherwise have been a meagre effect of the somewhat excessive slenderness of those column shafts.

Another instance of delicate perception, very worthy of observation, is presented to us in the execution of their spires. Although the Greek custom of columns was wholly unknown in the Gothic school, a feeling exactly similar taught them to give an entasis to the spire; so delicate as to be scarcely perceptible, and yet, I believe, never wanting in the best examples.

Time will not permit me to pursue this subject much farther; but the sketch would be unpardonably imperfect were I to omit allusion to the really wonderful attention paid by the able masters of the Renaissance period to the whole subject of architectural detail. I do not mean that in the practice of those masters there was

any excessive resort to ornamental detail. On the contrary, the best artists of the quattro-cento school usually aimed at producing good effects by very simple means, although undoubtedly they showed themselves to be complete masters of ornament when they thought proper to resort to it. The architecture of L. B. Alberti, of G. Romano, of Raffaele, and others of that early and pure school, is marked by consummate sense of beauty of proportion, and of general outlines, but no masters knew better,—I believe I should say none but the Greeks knew so well,—how to enhance that beauty and to enrich those outlines, by details of highest purity and simplest character.

I may, perhaps, be permitted to extend my observations on the susceptibility of good taste in the minor objects of design, by referring to the subject of fictile vases.

When we regard those ancient works in the early purity and youthful freshness of the Greek style, the beauty that pervades those insignificant objects of the potter's art appears to me truly surprising. It would be difficult to illustrate the power of art more forcibly by contrasting the exquisite outlines of that very early Greek earthenware with the pots and pans of this vulgar modern world. There is, perhaps, no greater manual dexterity, no more mechanical skill, shown in one than in the other; there may, indeed, be less exactness of execution in the old than in the new works; but the one has those peculiar qualities which the educated eye at once recognises as the elements of beauty, whilst the other lays claim to no attention, and has no æsthetic merit. Certainly it is a phenomenon that would be very surprising, were not the fact so familiar to us, that during the 2,400 or 2,500 years that have passed since the best of those fictile works were produced, a period which comprehends the whole history of human civilization from the period of primal simplicity down to the vulgarities of the nineteenth century, there has been an unceasing struggle to alter, vary, and improve: after indulgence in every species of rovelty, excess, and caprice, we have never succeeded so nearly in producing forms beautiful in shape and colour as when we have copied the old Greek type. Beautiful things of this nature have been found in Oriental art; beautiful in Mediæval art; beautiful, too, in the age of the Renaissance: but analyse those several beauties, and you will find that those please us most in proportion as they approach the nearest to that wonderful type.

This is not encouraging to modern invention; it is not gratifying to modern vanity; but it is true, and therefore demands our observation. At all events, it should teach us modesty, and stimulate us to respect and to study those examples which our earliest teachers have set before us. Whatever may be the cause, I think the fact is undeniable that, though the arts and sciences are usually regarded as kindred pursuits, and are supposed to be intimately associated, they are in truth widely different in their history and in their destiny. Science has been progressive: step by step men have advanced in the knowledge of the exact sciences as time has advanced. The step of to-day helps us on to the acquirement of a further step to-morrow; and the horizon is thus ever widening as we advance. Quite otherwise seems the destiny of art. The small objects of art to which I have been adverting illustrate this anomalous fact, and so perhaps may be said of almost every other object of design, in the sister arts as well as in architecture. Has Raffaele yet been surpassed? Have the works of Phidias yet been rivalled?

But I must return to the humbler theme of my lecture of to-night. It is not of statues that I have to speak, but rather of the pedestals they stand upon; and indeed of these pedestals I have much to say.

I should be pronouncing a very unmerited condemnation of sculpture were I to say that statues and their pedestals have, in modern times, shared the same fate. One might have expected that the same taste and talent which an artist exercises in the production of a fine statue would distinguish equally the base it stands upon. Can we admit that such has been the case? Have we, during the last 200 years, made great progress in the art of designing pedestals? Has the work at Charing Cross been thrown into the shade by any subsequent work of like nature? Have we gone on, step by step, improving on our ancestors, in form, or in proportion, or in graceful decoration? But I am not about to enter critically into the masonic

efforts of modern pedestal builders. It will be a more agreeable as well as a more profitable task to invite your attention to the pedestals of other times and of other countries. Few exist of classic times; very few of them indeed are standing where they were originally placed. After barbarian violence has thrown down a fine statue, and after time or accident has buried it, its own merits or value may cause it to be disinterred. Not so, however, the masonry on which it stood; and thus we are left in general ignorance as to the exact character and proportions of classic pedestals. We have, fortunately, in the British Museum, a few examples of the highest quality of Greek art, and although the overcrowded state of our galleries there forbid the public exhibition of them, they are well worthy of your careful study. They are, it is true, of but small size, and of very simple design. Indeed, it does not appear to have been the practice of the sculptors of that refined period to place their groups upon pedestals of any pretensions proportions. It would appear as if they desired these pedestals to attract notice as little as possible, so as not to divert attention from the nobler work which was placed upon them. They had usually, perhaps always, a moulded capping and a plinth; but these mouldings are kept the very reverse of forcible in their effect. Even the inscriptions on these pedestals are tenderly treated; the letters are small, regular, and uniform in size, and in form always extremely slender, and always of very moderate intaglio, presenting a singular contrast with the pompous lettering of later days.

Were it not likely to lead me astray from my proper subject, I might suggest that, analogous to this deterioration in the treatment of their inscriptions, is the style of their composition. In the best times of art these incised records are condensed in style, and severe and simple in their mode of expression. It is only in later and degenerate times that we find the lettering bold in size and violent in depth, the lines capriciously varied in their length, and the sentences "exhausting the pomp of woe" in inflated and grandiloquent words.

I would request your attention to the beautiful monument of Colonne, one of the great Venetian Condottieri, of the date of 1495. The statue, by Verocchio, is not my business to advert to; but the pedestal I regard as one of the most ornate, as well as one of the most elegantly-proportioned, pedestals that I can call to mind: it is a noble example of the quattro-cento style, a style of which you have so often heard me express my qualified admiration.*

SOMETHING ABOUT A MORTAR.†

It is a question of little moment to the architect or builder, from whence Nature obtains the materials for her innumerable productions. All agree that exposure to atmosphere is essential to fully develop the requisite properties of mortar; but many high authorities entertain an opinion that the quantity of carbonic acid in the atmosphere is so small, that the hardening of calcareous cements cannot reasonably be attributed to that source. However small that proportional quantity of carbon may be, we know that immense supplies are momentarily and eternally being exhaled from all animals, and generated by combustion of all kinds. The growth of forests and the produce of meadows demonstrate that an inexhaustible quantity of carbon is furnished by the carbonic acid of the atmosphere; also, that an apparently trifling or unimportant cause will produce a wonderful effect if continued, without interruption, during ages. Another requirement for the induration of mortar is the presence of moisture, or a certain amount of dampness, without which the mortar will not become firm, except perhaps during a much longer period; if it be dried rapidly, as in setting a stove or building an oven, it will not easily harden, but will remain a long while friable.

It has been stated that the hardening of mortar arises from the presence of carbon and oxygen formed into carbonic acid, which is absorbed by the lime; but from what source the carbon is obtained, is until this time rather mysterious. Oxygen is abundant in the composition of water and atmosphere; and that quick-lime has an astonishing affinity for it is evinced by the practice of using a little powdered

lime, tied up in muslin, to beat out a minute portion of dust on the surface of polished steel or iron goods, such as fire-irons, fenders, and fronts of stoves of a superior quality, when not in use, to prevent their rusting. A more delicate instance is that of the manufacturers of needles, watch-springs, cutlery, &c., who generally put a small packet of quick-lime in any box or parcel of polished steel goods they may be sending to a distant customer, or with goods which may be put away as not likely to be wanted for some time, as security from rust. The following is very different, yet bearing upon the same principle. When bricklayers leave off work for a ciple. When bricklayers leave off work for a day or two, as from Saturday till Monday, they push their trowel in and out of the moist mortar, so that the bright steel may be smeared all over with a film of mortar, finding this plan an effective remedy against rust. In Wren's "Pentastichon," page 206, there is a passage bearing upon this subject:—"In taking out cramps from stonework at least 400 years old, which were so bedded in mortar that all air was perfectly excluded, the iron appeared as fresh as from the forge."

A genuine fresco painter is well aware how soon a hard film of shiny carbonate of lime forms on the newly-stuccoed surface on which he is to exercise his art. In order that the picture shall be thoroughly or properly frescoed, it is indispensable that the artist should begin to paint the moment the plastering is finished, and that he undertakes no more than he can complete in the time of one day; for on the day after a shiny glaze of pure crystalline carbonate of lime is formed on the surface over the painting. Those who are about buildings in progress must have observed that, if a standing pool of water lay within the influence of a quantity of mortar without being disturbed for a day or two, it will be covered with an exceedingly delicate film of solid transparent carbonate of lime; which, if not removed from the surface of the water, may be gently disturbed in large flat sheets, displaying most brilliant prismatic colours. These are some of the instances of incrustation and hardening which must be produced by the carbonic acid of the atmosphere.

Pure lime alone, or, more correctly, mixed with water, and used in rather considerable masses, acquires only a very slight degree of hardness, and that chiefly on the outside of the bulk; hence, if used in considerable thicknesses, it is almost worthless as a cement for building purposes. The more minutely the lime is spread, the stronger will be the mortar, as an extremely thin pellicle in immediate contact with stone, sand, or other hard and compact substance, adheres with the required firmness, owing to that interesting law of nature known as the attraction of cohesion. I cannot discover that there is anything peculiar in the nature of silicious granulated sand to render it particularly suitable for the composition of mortar, beyond that of its being hard, compact, and free from porosity and absorption; and, above all these qualities, its abundance in almost every locality renders it procurable at so reasonable a price that no other material possessing these estimable qualities can be put in competition with it.

Quick-lime alone will not combine with carbonic acid, however long it may be exposed to its action; nor will mortar or cement ever acquire the hardness which it is capable of attaining, were it not for the water, which first converts the lime into a hydrate, and is then ready to be disturbed, to make way for the carbonic acid. This process may be termed "substitution," or that power which a body possesses, under certain conditions, of turning out one of the elements of a compound, and taking its place. But in order to effect this, the atoms must be in immediate contact with each other, or at immeasurably short distances; and water acts as a sort of "go-between," a vehicle of communication to bring about an intimate molecular contact. On the same principle, lime and sand might be mixed and blended for ever, without showing the least tendency to form a compact solid mass; but by the addition of water, either from the atmosphere or intentionally supplied, they acquire the property of gradually hardening, and in due time forming excellent cement.

If the grains of sand, or rather their surfaces in contact with each other, be sufficiently numerous within a given space, and uniformly dispersed, then the effect of the film of hydrate of lime will be sufficient to unite the grains of sand to each other, and bring the whole mass into active combination, not only with the sand,

but also with the surfaces of the bricks or stones, especially with sandstones. It is impossible, or extremely difficult, to determine the best proportional quantities of lime and sand to make the strongest mortar. A superabundance of either one or the other is equally objectionable: the most advisable mixture in one case may be wholly unsuitable under different conditions; so much depends upon the purity and freshness of the lime, the cleanliness of the sand, the size and varied bulk of its grains. If each separate piece of sand be covered with lime about the thickness of an ordinary coat of paint, I should be disposed to consider such an amount as very near the perfection of quantity.

Smeaton has stated, from his own experiments, that unburnt clay, even in very small quantities, materially interferes with the hardening of mortar, and disposes it to perish in a few years; it is, therefore, obvious that the use of dirty, clayey pit sand should be avoided as much as possible. This remark applies especially to the present time (February, 1863), because large quantities of gravel, obtained from subterranean railways and main drainage works, are now being used in London for concrete and mortar, without any attempt to get rid of the clay, by washing or other means of separation, from the flinty portions; consequently, all buildings constructed with mortar or cement made with such objectionable sand or gravel must be contrary to the intention of the architect, and against the interest of his employer.

The usual practice of making mortar, intended to be of the best quality, is to mix three measures of sand with one of lime; but if the grains of sand were of two or three different sizes, a much greater quantity might be introduced with advantage, as I am inclined to think it would form a firmer cement than if a larger proportion of lime were used. With ordinary river sand, a coarser variety might be added; and then shingle, or moderately-sized broken flint, in grains or pieces about the bulk of usual dinner peas: the component parts would then be one bushel of lime, three bushels of common sand, one of coarse sand, and one of shingle; or collectively, five bushels of silicious matter to one of lime. To make sure that the various sized flinty grains shall take their respective places in the mass, I propose the following mode of preparation: the lime to be slaked as usual with water, if practicable within a day or two after it is removed from the kiln, and reduced to the consistence of cream, to which the fine sand should be first added, and intimately mixed, until every grain has been immersed in the cream of lime; then the coarser sand to be equally well mingled with the previous compound of lime and sand; after which the coarsest sand or shingle to be added, and thoroughly intermingled with the entire mass, which will then be ready for the bricklayer.

Judging from the many technical habits and customs in every trade, known only to the manufacturers and their workmen, it would seem advisable to hear what the operatives themselves have to communicate about the art and mystery of mortar; but, under present circumstances, I fear we should not derive much useful information from the bricklayer or general builder: in fact, these individuals are only required to do as they are told, and to conform strictly to the full intent and meaning of the architect's specification. Consequently, I refer to the writings of the most eminent architects and engineers upon this important chemical or scientific subject; but, instead of finding something like uniformity of general principles, and a little approximation towards the same proportional quantities of the materials which are to compose the mortar, we find the most unaccountable and contradictory directions, and, to all appearance, a vast amount of ignorance, about one of the most valuable matters in the construction of a well-built edifice. The fertile imaginings of one age are considered matter of fact in the next; error steals imperceptibly into practice, and the most conflicting usages are the result. One architect of established reputation has specified that the mortar is to be composed of equal quantities of lime and sand; others of equal celebrity will have two, three, or even four measures of sand to one of lime.

Some architects have no objection to fine gravel full of clay, or muddy sand in all its genuine dirtiness, being used in the composition of mortar, provided that an extra portion of lime be added to the mixture; presuming that, as lime forms the most important and most expensive ingredient of the cement, an extra allow-

* To be continued.

† By the late Mr. C. H. Smith. See p. 22, ante.

ance of that article will compensate for the large amount of deleterious rubbish in the sand. This is unquestionably an error of judgment. A superabundance of either lime or sand, no matter how good it may be, is, under any circumstances, objectionable.

Formerly great importance was attached to the continued manual labour of beating mortar. Vitruvius says, "When the plaster is mixed, cause it to be beaten with wooden staves by a great number of men, and use it after this preparation." Smeaton reckoned it a fair day's work of a labourer to mix and beat up two or three hods of mortar fit for use. At the present time, beating has become obsolete. The pug-mill, or the mill-stones of modern practice, will mix the materials more completely, and do a day's work of a labourer, according to the beating process, in two or three minutes; yet, as if wonders would never cease, we find in the specification of a celebrated bridge builder, that "the mortar shall not be mixed in a pug-mill, but shall in all cases be beaten up to the proper consistency, as practised in former times."

Pliny decidedly states that the older the mortar the better it is for building purposes. The same author informs us that the old Roman laws, which provide for the permanence of buildings, expressly state that "the undertaker to build a house at a certain price shall use no mortar that has not been kept in a covered pit for three years;" and remarks that buildings erected during the operation of such law were not liable to cracks. Compare the above with modern practice. Within my own recollection, Sir Robert Smirke, who had just returned from foreign travel, and was at the time quite a young man, consequently not very deeply versed in practical building, yet being engaged in the rebuilding of Covent-garden Theatre during the year 1808 or 1809, ordered the lime to be brought from the kiln without delay, to be immediately made into mortar, and used "smoking hot" by the bricklayers, greatly to the astonishment of the sapient builders of that time, who arrived at the conclusion that the "young and inexperienced architect had adopted some wild scheme of boiling the lime, instead of baking or burning it," as heretofore in general use. Although I was merely a lad at the time this hot mortar was used, I have the most perfect recollection of seeing it in progress, and hearing the remarks and wonderment of those who felt interested in such matters; consequently, when the opportunity offered of examining that brickwork, after half a century's erection, namely, when the walls were demolished after the fire a few years since, — I was much pleased to find that the mortar was as hard and solid as any reasonable person could either wish or expect it to be.

Many other cases are recorded wherein the lime is to be used as fresh as possible. At the new prison, Tothill Fields, "hot lime" was specified to be used. The Royal Exchange was built with lime thoroughly and freshly burnt, with strict injunctions that it should be kept in an inclosed shed, and no more mortar to be made at one time than was sufficient for each day's consumption.

THE DESIGNS FOR THE SCOTTISH MEMORIAL OF THE PRINCE CONSORT, EDINBURGH.

IN answer to the requisition of the Committee of Advice appointed by her Majesty, sixty designs have been sent in, as already mentioned in the *Builder*, and are now exhibited in the Scottish National Gallery. As is usual in general competitions of this nature, some of the designs are unworthy of notice, and many of them commonplace and indifferent. In the present notice it is proposed to glance at those most worthy of remark, and the order of the catalogue will be followed.

No. 3. J. B. Edinburgh.—A design of considerable merit. It is in its detail of the Italian Renaissance, as seen in the library of St. Mark's, at Venice. It is square in plan; of three stages; proposed height 200 ft. The first stage is of four arched openings, flanked by coupled columns, the spandrels filled in with figures. Under the canopy thus formed stands the statue of the Prince. The second stage is similar to the first, reduced in breadth; and the third is solid, and crowned by a small dome.

* Pliny states that the Greeks had a method of beating or tempering their lime and sand for mortar, in a large mortar with a great wooden pestle.

No. 6. W. L. Moffat, Edinburgh.—A plain Gothic column, girded by a wreath half-way up its height; at the base semicircular projections, showing sculpture. Above the capital are niches filled with figures, from the centre of which rises the statue. This design is somewhat novel in treatment, but dumpy and ungraceful in its proportions.

No. 7. Messrs. Slater & Carpenter, London, exhibit four drawings of a monument of the same character and detail as that projected for Hyde Park, but more resembling in outline the Scott Monument in Edinburgh; and that resemblance is the objection to its erection in that city. The details are carefully worked out, and the general effect decidedly good.

No. 12. J. Anderson Hamilton, Edinburgh.—Four Byzantine arches raised on granite pillars support a dome, ribbed and crocketed, which is crowned by an open lantern. Detached columns to the right and left support winged figures. Mr. Anderson's conception is good, but badly carried out; the parts are ill-adjusted, and want balance and repose.

No. 20. J. Starforth, Edinburgh.—Similar in outline to No. 3, but better in detail. The stages are solid, and the statue is placed in a niche in the lowest. There is a considerable amount of sculpture well distributed. If placed in West Prince-street Gardens, a monument of this description would form a good companion to the Scott Monument.

No. 23. J. Noel Paton, Edinburgh.—Mr. Paton exhibits drawings of great beauty, and the public are apt, on that account, to give more heed to his design than its merits as a composition would perhaps obtain. It is square in plan, and consists of four Italian Gothic canopies, under which are seated gracefully-conceived figures. From the centre of the canopies passes a square shaft, rising to a small height above them, and on its capital stands the effigy of the Prince. On the base are bas-reliefs, composed in a truly artistic style. The great objection to this design is, that the architectural part of it is unmeaning, and that it would be swamped by the sculpture, neither enhancing the value of the other.

No. 25 (with reference to model No. 53). W. Calder Marshall, London.—This is a red granite pillar (similar to Mr. Scott's Crimean Memorial at Westminster), supporting the statue of the Prince. The base is of blue granite, and is flanked by figures at the angles. The general arrangement and proportions are good. If placed on a suitable site, it would be a great acquisition to the adornments of the city.

No. 33. D. Cousin, City Architect, Edinburgh, gives a Corinthian Temple, of which particulars have already appeared in the *Builder*.

No. 34. David Bryce, Edinburgh.—A keep of the Scotch baronial type, to be placed on the Castle rock; the statue in a vaulted chamber in the basement. Admirable in itself, this design appears inappropriate as a monument to a Prince whose life was one of peace.

Nos. 39 & 40. D. Rhind, Edinburgh.—The first, a classical design, too much like a mausoleum, and good as such. The second, a shaft from a Gothic church, with a scroll running spirally from base to cap; above the capital a series of canopies, and the statue at the summit, the base surrounded with sculptured figures and couchant lions.

No. 43. Joseph Mitchell, Westminster.—A copy from Nuremberg, not improved by the artist's additions.

No. 49. Model. J. Rothead and J. Steel, Glasgow.—A very grand classical design, the cost of which would be very greatly beyond the amount at the disposal of the committee.

No. 57. Model. J. B. Philip and R. Edgar, London.—An elegant circular Corinthian structure, similar to what Edinburgh already possesses, although on a larger scale.

No. 58. Model. R. Baldie, Glasgow.—Of the same character as the last.

Besides the designs above referred to, there are several equestrian statues (one of them hoisted atop of a Gothic cloister); numerous obelisks, more or less elegantly proportioned, especially one by Mr. Durham, already noticed; a few St. Eleanor crosses of some merit; and two or three indifferent Gothic towers.

The committee called the attention of intending competitors to several sites, and particularly recommended one on Arthur's Seat. This recommendation excited considerable surprise at the time, as a more unsuitable place for a monument could not have been fixed upon. The chief beauty and charm of the hill consist in

the peculiarity of its outline and the aspect of wild nature which it possesses. Near to the city, it yet appears not to belong to it. The pedestrian may in a few minutes place himself in as wild a solitude as if he were in the heart of the Pentlands: he may scramble through thickets of furze, startling the linnets from their retreats, and sometimes a rabbit may send across the green sward to a place of shelter. Once begin to dot this quiet retreat with monuments, however beautiful, and its charm is gone.

The newspaper press has spoken out strongly against such a piece of vandalism; and the Architectural Institute has been equally emphatic on the subject (as shown on another page); and it may be said that the mass of the public who know or care aught about the matter acquiesce in this decision. If the selected design be one intended for an elevated position, the Calton Hill affords several such; but there are no lack of sites, and good sites, within the city; and any of the others enumerated in the advertisement of the committee would be decidedly superior to the one they express a preference for. It is pleasing to observe that the best designs appear to be intended for one or other of the sites within the city.

DIRECT COMMUNICATION BETWEEN LONDON AND CALCUTTA BY LAND IN A FORTNIGHT!

SIR,—When last I visited the Mont Cenis Tunnel, I sent you an account of the works, with all details; and the article, which you published in a prominent part of your useful and well-known paper, gave the English public the only true account of the progress of that great work ever published in this country. I therefore write to inform you that the works have been steadily continued ever since I last wrote; and when I passed there, a month or so ago, I saw great advance had been made in the interval.

On the Italian side, last year, the average advance has been 5½ ft. per day of twenty-four hours, and on the Savoy side 3½ ft. during the same period. The result is, that about a third of the whole distance to be pierced has already been tunneled, and out of the eight miles which is to be the length of the whole tunnel, more than two miles and a half have already been completed, so that there remain better than five miles and a half yet to be excavated, and lined, and laid, before the trains can pass beneath the Alps; and the late minister of public works, General Menabrea, stated it as his opinion that it would take yet twelve years to finish entirely.

Your readers will remember that I made a calculation which led me to very nearly the same results; and if it is done in anything like that time, it will certainly be the eighth wonder of the world.

While on this subject, I cannot omit to state, for the benefit of general readers, that no part of a railway is so safe as a tunnel, provided it has been properly constructed. Embankments are liable to slip after heavy rains; and even if they remain in good order, to my thinking they will never be safe until it becomes the invariable custom to put a "guard-rail" alongside one of the rails, so as to prevent the flange of the wheel from mounting, especially when the embankment is of any great depth; and this should be made obligatory on embankments of every kind; for in such parts of the line immense danger may and is almost sure to result, if a train should ever get off the line.

Again, in open cuttings, pieces of rock or loose earth often give way, and (especially in wet weather or after rainy seasons, or after periods of heavy frost) detach themselves, and either obstruct the way or cause obstacles to the advance of the trains; or else portions of them may fall upon the carriages or on the rails, and do harm to the passengers and do infinite damage.

In a tunnel, I repeat it, there is less likelihood of accident than on any other part of a railway, *ceteris paribus*; but then proper precautions should be taken, and should be made obligatory by legislative enactment, and one of the principal conditions which should be imposed upon all railway companies should be to have gas lamps constantly lighted in every tunnel, as is the case on the Continent; and in addition to this there should be lamps in every carriage, first, second, and third: without this, danger will always be inevitable. Some persons may urge as an objection, expense; but this should not be listened

to for a moment. Whatever is proved to be requisite to the safety of passengers by railroad, it is as much the interest of directors to provide, as it is the interest of the public to see them provided, and of the Government to enforce them.

Directors, engineers, shareholders, and all who have any interest in upholding the new state of things, should do all that lies in their power to make railway travelling as safe a means of locomotion as possible. They have also the interest to make their property as good as possible,—not by parsimony or by stingy saving, but by providing the public with all accommodation really requisite sincerely and honestly.

Their property will be sadly depreciated if they omit to do so in time, for otherwise perhaps the public and Government would find it incumbent on them to interfere if the responsible administrators went on longer in a careless manner. Their plan should rather be to forestall all improvements, to offer premiums for new and useful inventions, and to make use of them before even popular clamour has made itself heard on the subject.

It is better to have the public too well served than to have to pay large sums as indemnities; and it might find their property hampered or interfered with.

In my next I shall describe how railway property may be enhanced in value, and how it may be made, more than it has hitherto been, a safe and very advantageous investment; but the scope of this article is to draw attention to a subject which I was the first to bring under public notice, namely, direct railway communication with India.

Railways are our own peculiar invention; and although we claim no monopoly, yet still we ought to take advantage of the system to put ourselves in direct and speedy communication with our great Indian Empire. I wrote on this subject to Lord Clarendon many years ago. He brought it under the notice of Lord Palmerston, who transmitted my letter to Sir Charles Wood, who, in his turn, placed the whole matter, with my plans and suggestions, before the local Government of India.

The line of route I then proposed was across France and Austria, Turkey in Europe, and Turkey in Asia, down the Euphrates Valley, and then skirting the Persian Gulf and passing through Persia, thus join this great European-Asian Railway to our own network of Indian rails. This must eventually be carried out, so that it will be as well to keep this grand idea constantly in view.

But as, in order to be practical, we must not aim at too much at once, I proposed temporarily to cross France, taking advantage of her railway leading to Switzerland, and then go on to "Chur," or "Coire," and there passing the "Lukmanier," to get into Italy, make use of the lines of that country, and so arrive at Brindisi, the old Roman port Brindisium, whence a line of steamers should be at once established between that port and the nearest point on the Asiatic route to the Euphrates valley.

This route might be somewhat modified by taking the valley of the Acre, in Savoy, and crossing the "Mont Cenis," either through the tunnel or over the Pass.

Since I made these suggestions, which were favourably received by practical men everywhere, and by the governments interested, a new plan has been suggested by Mr. Fell, which, from experiments he has made, bids fair to be very successful. His plan is to go over mountains instead of travelling through them, and the Emperor's government has authorised him to make experiments on the most difficult part of the "Mont Cenis" road.

To these experiments, which are to be made on French territory, are to be invited representatives of the Italian, Austrian, and Indian governments. I sincerely hope they may be successful, and really believe they will; but, be that as it may, however, we must lose no time in bringing our Indian possessions into connexion with the British Isles by quick and uninterrupted transit.

The glories of the East, the beauties of the Vals of Cashmere, the wealth and the art of India, the vast treasures of an unexplored mine of silver, of gold, of diamonds, and all kinds of precious stones, the produce of extensive tracts of rich and readily cultivated territories and illimitable domains,—all these may be brought within a fortnight's journey of London, the real metropolis of the world, by energy, perseverance, and determination; but the matter is urgent in

the extreme. I have planned the means of raising the capital, and made many of the arrangements for carrying out this grand undertaking, which will be a credit and advantage to our own country, and will form an important epoch in this great world's history. I therefore hope the public will take that interest in it which so important a subject requires.

WM. H. VILLIERS SANAEY, Civil Engineer.

ENGRAVING AND OTHER REPRODUCTIVE ART PROCESSES.*

I HAVE said that the discovery of lithography gave a means of printing from the surface in a manner similar to the process of printing from type or wood blocks; but, owing to the slight relief of the drawing on the stone, and the necessity of wiping with a wet sponge, and gunning the surface of the stone to prevent the absorption into the stone of the grease from the ink, the process is, nevertheless, a tedious one. But this evil is in a measure compensated for by the facility which the lithographic process affords for multiplying copies of a drawing when once made, by the process of transferring an impression taken from the drawing first made to a second portion of the stone; and as this can be repeated to any extent, a number of copies can be printed at one operation—the only limit being the size of the stone, and the nature and size of the design to be printed. The want of an efficient substitute for steel and copper plates, in the form of a surface block from which to print with the type in ordinary type printing-presses, still remains a desideratum, notwithstanding all that lithography has done, and the many attempts which have been made to find one. Casts in relief from engraved copper plates were among the earliest efforts in this direction, but the cost and labour of producing a uniform surface fit for the printing-press has not hitherto led to a commercial success. We now come to a period in the history of engraving at which another new discovery was given to the world, and which has since played an important part in the arts. I refer to the discovery of the process of electrotyping. In the year 1800, Volta, in a communication to the Royal Society, announced his discovery of the Voltaic pile. By its means Nicholson effected the decomposition of water and of several metallic salts. Cruickshank next invented the galvanic battery, to the positive poles of which he attached silver wires.

The other ends of the wires were placed in a glass tub containing a solution of acetate of lead. When the electric current had passed through the solution for some time, metallic lead was found deposited on the negative pole. Brugnatelli observed the transfer of the elements of a decomposed compound from one pole to another. In 1801, Wollaston made the following observation, viz.:—That if a piece of silver, in connexion with a more positive metal, be put into a solution of copper, the silver is coated over with the copper, which copper will stand the operation of burnishing. It was not, however, till after the discovery, by Daniel, of his constant battery, in which copper is continually reduced upon the negative plate, that it was observed that the newly-deposited copper, when stripped off, had upon it a counterpart of every scratch on the plate upon which it was deposited.

In 1837, Mr. Spencer, of Liverpool, discovered that if a portion of the surface of the negative plate was covered with varnish, then no deposit took place upon those parts. He next conceived the idea of applying this process to the arts, by coating a piece of copper with varnish and wax, and of cutting a design through it so as to leave the copper bare, and then to deposit a metal upon these parts, so that on removing the varnish the design would be left in relief; but no account of these experiments was published till September, 1839. In May of that year, it was announced in the *Athenæum* that Professor Jacobi, of St. Petersburg, had discovered a method of converting any line, however fine, if engraved on copper, into a relief by a galvanic process. This announcement was followed by a letter from Mr. C. J. Jordan, which appeared in the *Mechanics' Magazine* in June of the same year; and it is due to Mr. Jordan to state that the suggestions he then made have since been acted upon with considerable success. Mr. Robert Murray next discovered that if the surfaces of plaster casts and similar non-conducting bodies were covered with plumbago or black-

lead, it was no longer necessary to use metallic moulds, which had hitherto proved the great barrier to the progress of the electrotype art. Chemists and artists were not slow in their endeavours to apply this newly-discovered process as a means of multiplying copies of engraved plates, both of copper and steel. In the latter case, an impression was taken from the steel-plate, by covering it with a sheet of tinfoil, and passing it through the printing-press. The result was a print obtained in relief in metal. Upon this a deposit of copper was made of the required thickness, and the required plate from which to print was obtained. In the early experiments the plates were thin, and curled in printing; this defect was, however, soon overcome, and the practice of engraving in copper, where large plates were to be produced, as in the examples issued by the Art-Union of London, was again soon reverted to, thus affording facilities which are now largely availed of, for multiplying copies of costly engravings at the same time that the quality of the works produced can be maintained against wear.*

The next application of the electrotype art to which it is necessary to refer, was that patented by Mr. Edward Palmer, and introduced under the title of "Glyphography, or engraved drawings for printing at the type press after the manner of woodcuts." The process was a compound of drawing and engraving on a plate of copper, the surface of which, having been stained black, was then covered with a thin layer of a white opaque composition. A tracing of the design to be drawn or engraved was made. Needles, of various degrees of breadth and form, were then employed to remove the composition from the surface of the copper, beginning with the greatest breadth of shadow, and gradually working up to the lighter and more delicate parts of the design. When finished, an electro deposit was taken from the drawing so made, and a block in relief was thus obtained, which, being mounted in the same manner as an ordinary stereotype plate, was capable of being worked in with the type, and printed from, in the machine and steam printing-press. This process is not so generally known as its merits and capabilities entitle it to be, and the problem of how to obtain with facility a substitute for the wood block still remains unsolved. Among the numerous other plans proposed for use in the production of engraved plates or blocks, may be mentioned voltatype, electro-tint, daguerreotype, and etching by galvanism.

Etching by galvanism was suggested by Mr. Alfred Smee; it was similar to the ordinary process of etching, but instead of being bitten in by a direct acid action, Mr. Smee suggested that the etched plate should form the positive pole of a battery, and being dipped in a galvanic trough of sulphate of copper through which a current was passed, particles of copper would be given off from the etched lines of the engraving; the plate was to be removed from the bath from time to time, for the purpose of stopping out, and graduating the tints required, as in the usual etching process.

I must now retrace my steps and recall attention to the discovery of Mr. Murray, who, having succeeded in giving a conducting surface to non-metallic bodies by the use of plumbago, placed within the reach of the scientific man a new and as yet unheard-of process of engraving, which is now known as Nature-printing. The first examples of this art were also due to the discovery and use of a substance made known to the world, through the Society of Arts, in 1843—I mean gutta serena. Nature-printing, as it is called, was first introduced to the notice of the public through the Society of Arts, which, in its notes of proceedings for the year 1849, printed a communication from Dr. Ferguson Branson, of Sheffield, in which he stated he had ascertained that by embedding a fern leaf, or any other flat body, in softened gutta serena, and then allowing the gutta serena to cool, upon removing the leaf a perfect mould was obtained, from which mould an engraved copper plate, fit for the printer, could be secured by means of the electrotype process. A plate so obtained, with prints taken from them, accompanied the communication. Nature-printing, however, did not long remain in this normal condition; for in the Exhibition of 1851, in the Austrian department, were exhibited specimens of plants, flowers, &c., printed in colours from copper plates. It had been ascertained that if a rolling pressure was

* See page 24, ante.

* The Art-Union of London soon abandoned the use of electrotyped plates.—En.

employed to imbed the object to be copied, then soft sheet lead could be used; and that process was subsequently introduced into this country, and employed by Mr. Henry Bradbury in the production of his work on "Ferns and Mosses." Nature-printing did not stop here, for in a communication read before the Society of Arts in 1854, by Mr. Aitkin, of Birmingham, we find that, by means of a rolling pressure, objects of various kinds, and of the most delicate description, such as thread-lace, the down of a feather, &c., could be made to engrave themselves in Britannia metal, copper, brass, German silver, or tin plate; and, to use Mr. Aitkin's words, "more wonderful still, on what we are led to believe is the most dense and darkest metal in ordinary use, namely, steel." I must not, however, here enter upon the industrial and manufacturing uses to which electrotype-deposits and nature-prints have been applied, but will direct attention to another process, in which the principle of nature-printing has been proposed to be applied as a substitute for engraving.—I mean the process submitted to the society by Mr. George Wallis, and called by him "Auto-typography." In this process Mr. Wallis substitutes for, or in combination with, a natural object, a drawing made upon a surface of gelatine. This he selects as it has no grain, and is to a great extent non-absorbent. His drawing is made with an ink or fluid, which, when dry, either crystallises or forms a naturally granulated body in relief upon the surface of the gelatine. The drawing, having been carefully prepared, is then passed through a press, in contact with a metal plate, into the surface of which the drawing becomes embedded; and the result is a transcript in copper of the artist's own drawing, from which prints may be worked in the usual manner. Notwithstanding the suggestions above related, I regret to say we are still without the great desideratum, a surface block, or a ready means of obtaining one at a commercially economic rate, by a process which will give to the artist a true translation of his sketch or finished drawing, to the commercial world an economic means of extending a knowledge of art, and of cheapening the cost as well as extending and facilitating the means of book illustrations, and to the public the advantage of a ready means of cultivating economically a knowledge and a love for all that is elevating and beautiful both in nature and art, as well as a means of educating the youth of our country by means of cheaper, more numerous, and better examples than are at present generally attainable. But before I close this communication, which I propose to do by referring to other processes which I think deserve more attention than they have hitherto received, and which I believe to be capable of helping to solve the problem of how to obtain a surface block, I must in justice refer to the photo-galvanographic process of Mr. Paul Pretch, the photo-lithographic process of Colonel James and others, and the process for enlarging and reducing drawings and engravings, patented by Mr. H. G. Collins. The aeriage process is thus described by M. Joubert:—"Mr. Grove made efforts to engrave the image obtained upon the daguerreotype plate, and it is due to Mr. Archer, who was the first to propose the use of collodion as a medium upon which light might be made to impress an image, that I should state that it is to that gentleman's discovery that the world owes its present advanced position in the art of photography. Without the collodion film, Mr. Paul Pretch's galvanographic process of engraving would not have existed, as light could not be transmitted through the daguerreotype plates, and the paper processes of Mr. Fox Talbot and others would have been inadmissible. Mr. Pretch, knowing that gelatine, if treated with bi-chromate of potass and submitted to the action of light, possessed a power of expansion; and availing himself of that fact, used a photographic image taken on collodion as a means of partially intercepting the rays of light, thereby regulating their action upon sensitized gelatine, and as a result he obtained a positive photographic image in relief in gelatine. The image, being allowed to dry, was then coated with blackened, and served as a mould in relief upon which to deposit, and from which he obtained, by electro-deposition, an engraved copper plate of the original collodion photograph, from which plate-prints could be taken, as in ordinary copper-plate printing; and it is right to add, that some of the best specimens of prints from chemically-engraved plates ever seen were so obtained and introduced into commerce. But

the fault which attached to the aquatint and mezzotint processes of engraving, also attached to Mr. Pretch's process,—viz., the surface or grain of the plate was too fine to yield a large number of good impressions, and that is, no doubt, one of the many causes which have impeded its extended use. The aeriage process of M. Joubert, for coining copper plates with an iron surface, was not introduced at the time Mr. Pretch was working his invention. Mr. Pretch succeeded in producing surface-blocks by his photo-galvanographic process. In order to obtain a surface-block, it must be borne in mind that the process, as compared with the intaglio plate, is reversed. In the engraved plate, the impression is printed from the lines cut into the plate; but in the case of all surface-blocks, it is the portions which are not to be printed from which have to be removed by the graver. In like manner, Mr. Pretch used a negative photograph in one case, and a positive in the other, thus reversing his results. Colonel James, of the Hydrographic Department of the Government, has introduced and used a process of photo-lithography, to which I cannot do more than allude. It is similar, in many respects, to the photo-lithographic and zincographic process described by Mr. John Walter Osborne, in the *Photographic Society's Journal*, vol. vii., pages 163 and 213.

Mr. Collins's process for enlarging and diminishing drawings or engravings was chiefly mechanical and lithographic. The plan was as follows:—A print from any engraved plate, wood-block, or lithograph, was taken in the ordinary manner, but in transfer ink, and upon a sheet of vulcanized india-rubber, covered with a composition of equal elasticity, and of a non-porous character. If it were desired to enlarge the design, the india-rubber upon which the impression had been taken was attached to a frame by means of hooks passing through holes made at equal distances round the edges of the india-rubber. Four bars were then passed through the body of the hooks, and the sheet was thus prepared for the extending machine, which consisted of two parts—viz., a table and screws,—the latter being used to stretch the rubber equally to the required dimensions. The impression was then transferred and printed by the ordinary litho- or zincographic processes. If the design was to be reduced, the india-rubber was stretched before the impression was taken upon it, and afterwards allowed to contract to the required dimensions in the regulating machine. Mr. Collins considered that his process would afford a ready means of adapting a design, when once made, to the size and character of the same work when printed in editions of various size of page. Mr. Collins, however, found the lithographic process of printing a great impediment in the way of his progress, and attempted to obtain a surface block by building up the impression transferred to the stone, by depositing a succession of layers of printing ink mixed with suitable dryers; and when such building up of the ink had been carried sufficiently far, a cast in wax or other material was taken, and from the cast so obtained a copper block was secured by electro-deposition. This process was tedious and uncertain in its results, and, like its predecessors, failed to secure the object aimed at. I cannot help expressing an opinion that one great source of failure in the majority of the plans proposed has been, that the authors of them have been too ambitious in the selection of subjects, or almost entirely ignorant of the art of engraving. They have endeavoured to arrive at perfection at once, and have consequently failed. By beginning with art in outline, experience in manipulation would be gradually acquired, and a chiaro-oscuro effect ultimately attained to if desired; and I have little doubt that blocks in outline can be readily produced, either by the electro-magnetic or mechanical process of Mr. Hansen, or the more recently-discovered process of M. Vial.

The last processes to which I have to allude are those recently submitted by M. Dulos to La Société d'Encouragement, Paris, and a full report of which will be found in the *Journal of the Society of Arts*, vol. xi., second series, page 3. The report is accompanied by prints illustrative of the results obtained by the methods which he employs.

My object in writing this paper will have been attained if I have succeeded in showing the relation of the various art-processes to each other. I have endeavoured to point out how each succeeding process has aimed at facilitating the means of producing and giving permanency

to art, and a larger commercial product at a smaller cost to the producer, and consequent advantage to the public. Each process has been applied in the attempt to produce a surface block from which to print. Hitherto, a commercial success has not been attained to, and my hope is that a knowledge of what has been done may cause others to carry on the investigation of this subject to a successful issue.

S. T. DAYENPORT.

NIGHT SCHOOLS.

It is satisfactory to find that the subject of night schools in the metropolis is gaining an increased share of attention. The matter is most important; for on this question depends, to a great extent, the intellectual culture of a very large number of the rising generation. It is unfortunately the case that there are thousands of scholars who yearly leave the National schools at the age of about eleven or twelve years; and, in many cases, so imperfectly is their education grounded, that when the boys get to work they often forget the little they have learnt. There is a great difference of opinion respecting the means by which an effective system of supplementary night schools for such boys is to be carried out.

At a recent meeting in the room of the Society of Arts, there was a long discussion; but it does not seem that any clearly defined or practical plan was suggested. The Rev. Henry White submitted for discussion, the need of night schools specially suited to boys of thirteen to nineteen; and the desirableness of changing the name of "night school" for that of "youths' club" or "institute." He would add, to opportunities for instruction, the means of innocent amusement and pleasant fellowship. He would propose to have a reading-room, supplied with popular magazines and draught-tables; and would desire that the teachers should make themselves the friends of the pupils. He was also in favour of cricketing and boating clubs in the summer months.

While agreeing with Mr. White upon the advantage, when possible, of combining amusement with education, there are certain reasons which cause us to doubt whether a large amount of amusement would not be liable to lead the attention of such scholars from the main point. Mr. White thinks that these schools should be self-supporting. This, too, is a most desirable thing; but we fear that the experience of the past is not such as to show that this can be depended on. For the purpose of rendering the night schools servicable to the class for whom they are so much needed, the weekly payments should not be more than 4d., or, at the most, 6d.—that is, 4d. for boys under fifteen, and 6d. for those over that age. In many districts in the metropolis it would not be easy to get a regular attendance of from 50 to 100 scholars. The revenue, in such instances, would be insufficient for the payment of a good master and two efficient assistants. There would also be the cost of firing and gas-light; or, if distinct buildings are to be provided, as Mr. White hints at, there would be a large additional expense for rent. If, however, the attendance of unpaid assistant-teachers could be depended on, and the National school-rooms were devoted to the use of the night schools, the payment of the boys might be brought to cover the charges, and allow a sum which many of the masters of the National schools would consider worth the trouble of trained superintendence; and without this the night establishments would be of but little service.

Mr. Smith, diocesan inspector of Canterbury, remarked that night schools were on the increase; but added that what was applicable to London was utterly inapplicable to most country places. He had come to a conclusion that there should be an endeavour in the night schools to continue the control and superintendence of the youths after the age of twelve; and that it would be successful in that respect he would undertake to say from his own experience and that of others. The night schools were useful not only as a means of keeping up the attainments acquired in the National schools, but were also a means of re-sifting society, and admitting only those who were deserving into the educated body of the country. He was convinced that many night schools failed from the want of proper teaching.

The Rev. Mr. Suter, Mile-end, gave an account of night schools in his district; and Mr. Curry announced that at a night school in the neighbourhood of Poplar, 300 men attended, who paid their

fees, and were taught arithmetic and reading and writing.

It is very desirable, in connexion with this subject, that the facts connected with the night schools which have been already established, should be known; for the experience will be most valuable to those who are intending to make local experiments in the opening of such schools.

Mr. G. M. Murphy, of 55, Finchley-road, writes to the *Star*, to mention that, for the last seven winters, he has, on two nights in the week, conducted large classes of adults; and this gentleman thinks that, if large classes of men and women are to be educated,—and thousands of them are conscious of their need of teaching,—it can only be done by much less of formality and simpler machinery than is generally thought sufficient for the purpose. The classes referred to by Mr. Murphy are conducted in Hawkstone Hall, Waterloo-road, on Wednesday and Friday evenings at eight o'clock. The teachers are working people. The instruction is free. The men and women are in separate classes, although in the same room. There has been only one case of misconduct calling for expulsion. Class-teaching closes at half-past nine, when an address is given on some interesting subject; or, occasionally, the time is occupied by reading some interesting paper, or in singing. The evening is closed by a short devotional service; but persons who object to attend this service are not obliged to do so. The average attendance last winter was sixty, and the expenses incurred only amounted to 11l. 8s. 6d.,—a very small sum in comparison with the opportunity which is thus afforded of doing a considerable amount of good. Mr. Murphy is of opinion that less advantage would have been derived if the teaching of children,—that is, those of twelve or thirteen years of age,—had been conducted at the same time with those of older age. An opinion founded on the experience of seven years is worthy of the most careful consideration; but it is feared that instruction of a practical kind during only three hours of each week, and that only during the winter months, will be a slow means of providing against the difficulties of a greatly neglected education. Moreover, while acknowledging the need there is for teaching those who are over nineteen years of age, we maintain that there is a far wider field which needs to be skilfully and energetically worked in connexion with lads of from twelve to seventeen or eighteen years of age.

The immense size of the metropolis, the peculiarities of its population, and other causes, make social matters of this kind difficult to work. There are a few excellent night schools in London to which we may hereafter more particularly refer; for such schools are hidden in the multitude of educational and other establishments, and do not meet with the attention which they deserve.

MR. LAYARD ON THE HISTORY OF ART.

At the Lambeth School of Art last week, Mr. Layard, M.P., delivered an address on this subject. True art he defined to consist in a perfect appreciation and combination of form and colour. Some nations had one, some the other; but without a combination of the two no nation had ever been great in art. The arts of a nation depended on the character of a people, and represented its characteristics and peculiar circumstances, and his first illustration was drawn from the dissimilarity of Assyrian and Egyptian art. Egyptian art, in its massive invariable character, corresponded to the character of an exclusive, unchanging caste people, possessing unlimited command of stone materials; while, on the other hand, Assyrian art represented a conquering, ambitious people, given to assimilating the characteristics of the different peoples with whom they came in contact. From these two peoples the Greeks collected the chief features of their arts, and developed out those beautiful forms which were still the admiration of the world. The great specimens of Doric art were all clearly drawn from Egyptian models, and recent discoveries in Assyria had furnished a remarkable fulfilment of Niebuhr's prophecy, that Ionic art would be found, some day or other, to have an Asiatic origin. The decay of art in Greece was contemporaneous with the decay of Greek freedom, as was the case in every other country in which art had flourished. Passing to Italy, Mr. Layard pointed out that Etruscan and Roman art was merely a reproduction

of Greek art, and that architecture was the chief art by which the Romans were distinguished. Nothing gave a greater idea of their power than the magnificent public buildings which they had erected in their colonial cities, and which far exceeded anything this country had ever produced. The first great classic architect of modern Italy was Nicholas Pisano; the first great Christian artist was Giotto; and the basis of Italian art might almost be said to be the church of Assisi, the walls of which Giotto was called upon to ornament with passages from the life of St. Francis. The perfection of Christian art was attained almost by Ghirlandajo, though it could hardly be said ever to have been brought to perfection, owing to the decay of freedom which followed the German and French invasions, and the rise of a false classical taste. Of modern schools, Mr. Layard touched chiefly on the English; and, after criticising severely our shortcomings in architecture as evinced in the National Gallery, the British Museum, and the House of Commons, and in sculpture as shown by our public statues, he drew a hopeful picture of the future which English art and art schools had before them in applying the principles of form and colour to the new materials of iron and glass which had been brought into use, and to the structures, such as the railway stations, the great warehouses, and the Crystal Palace, which the wants of modern civilization and commerce were calling up on every side.

COMPETITIONS.

Bolton Town-hall.—At a meeting of the Town-hall committee on the 10th, accounts were passed amounting to 78l. 15s. 11d., including 16s. to Professor T. L. Donaldson—charge for report on competition plans for Town-hall. It was then resolved that of the six sets of designs selected by Professor Donaldson, the author of the design numbered 24, and bearing the motto "Experientia docet," is entitled to the first premium of 120l. That from the same selection, the author of the designs numbered 26, bearing the motto "Utile dulci," is entitled to the second premium of 80l. That also from the same selection, the author of the designs numbered 3, and bearing the motto "Manchester," is entitled to the third premium of 40l. It was also resolved that the authors of the designs numbered respectively 24 and 26 be jointly engaged as the architects for the erection of the Town-hall, but subject to such conditions as the council may annex to their appointment. Professor Donaldson, it will be remembered, had placed No. 24, No. 3, and No. 26 for the first, second, and third premiums respectively. When the committee took up the report to the town council, the council tried to find on what grounds or in deference to whose superior opinion the committee had advised a departure from the referee's decision, and not being satisfied on this head, very properly refused to ratify the report, and sent it back to the committee for reconsideration. A long and animated discussion took place at the meeting of the town-council on Wednesday. The question was introduced by an influentially-signed memorial, disapproving of the increasing expenditure of the borough; and a resolution was passed that 50,000l. were sufficient for the building complete, including site, cost of erection, and fittings; and this was carried by the chairman's casting-vote. A further amendment, however, was adopted, referring the whole question of site, &c., to the Town-hall committee, to report to a future meeting of the council. The subject of awarding the premiums for the three best sets of designs then came under consideration. The committee, at a meeting on Monday, had passed a resolution, "That inasmuch as, by the instructions, architects, in sending in designs, are requested not to exceed 40,000l. as the cost of the building complete, this committee determines that no premium be awarded to any architect who does not give satisfactory proof to the committee that the building, according to his design, can be erected for a sum not exceeding that amount." This resolution was laid before the council for confirmation; but there being a slight difference between the resolution on the minutes and that actually adopted by the committee, which had only reference to the six architects whose designs had been selected giving satisfactory proof, &c., the minutes were negatived by unanimous consent. The entire question of the premiums is therefore in a state of uncertainty.

The Sir Tatton Sykes Memorial.—We mentioned last week the name of the successful competitor for the design for this memorial. We can now add there were about 150 designs sent in; and that the second premium, 10l. was awarded by the committee to Mr. E. A. Heffer, architect, of Liverpool, for a pair of designs, one being an obelisk, and the other a column; the obelisk having recumbent dogs at the faces of the pedestal, and the column having lions at the angles.

A ROYAL IMITATOR OF JOHN HOWARD.

If we may judge from the following, there is great hope that the Emperor Maximilian will work much good in his Mexican dominions. From an order addressed by the emperor to the director of the Mexican prisons, it appears that the emperor, during the course of a journey into the interior, adopted the praiseworthy course of making use of his own eyes; and, amongst other matters, inspected the condition of the prisons, which at this day appear to be in much the same state as the English prisons were when they were described by John Howard and Oliver Goldsmith, a century or so ago. The emperor desires information of the moral and material state of the prisons, and of the persons detained there; also information respecting the kinds of employment, and the religious and secular education provided, the extent of these establishments, the size of the dormitories with respect to the number of prisoners, and also the state of the ventilation and the cleanliness of those apartments; also whether the prisoners are well fed and clothed. The inspector is to listen with attention to the complaints of the prisoners, and to make all inquiries necessary to ascertain if their grievances are well founded, in order to redress them as speedily as possible; the inspector is also called on to devise the means of immediate remedy, while measures are being taken, to carry out a thoroughly improved system of prison discipline; "and," says the emperor, "as the stay of children in the prisons, with their parents, witnessing examples which are highly corrupt, is most prejudicial to the young, you will take care that they do not remain there under any pretext. You will take care also, that the very young prisoners are, wherever this is possible, in a department separated from the rest, in order to prevent them from being still further corrupted by the contact of individuals who have grown old in crime."

FRANCE.

For the last two years a considerable modification has taken place in the pavement of the Paris boulevards, quays, and other great thoroughfares, by diminishing the width of the macadamized portion, and enlarging the stone roadway on each side. This has been attended with a considerable economy in the maintenance of the streets, the macadamized roadways having cost the towns enormous sums to keep in repair. Perhaps this is mainly owing to the departure from the right principles of a good macadamized road, as it is evident that gravel and sand mixed with water to the consistence of cream is only fit to be swept into the gullies.

It was announced a few days ago that the commission appointed by the Minister of Public Works to consider the improvements in railway traffic had recommended the adoption of the American system of carriages. This was a mistake: a special commission was named to examine in detail the numerous inventions of this class communicated from time to time to the Minister of Public Works. Of these very few, unfortunately, are capable of practical adaptation, and the sub-committee, so far from recommending passenger-carriages with a continuous communication throughout the train, has pronounced against them.

It is very probable that a rectification or straightening of the Paris and Lyons Railway will shortly be carried out, in order to quicken the transit between Paris and Marseilles. When the general group of railways in France was approved of, local and personal interests prevailed to such an extent that the most direct or most economical line was not always followed.

INDUSTRIAL EXHIBITION FOR WAKEFIELD.—Preliminary measures are being taken to hold a working men's industrial exhibition at Wakefield.

HANDEL COMMEMORATIVE WINDOW.

ST. MARY REDCLIFF, BRISTOL.

Some time ago, on the occasion of a musical entertainment in Bristol, commemorative of the first centenary after Handel's death, a number of gentlemen there, including Mr. William Powell, Mr. W. Proctor Baker, Mr. William Proctor, and others, determined on setting up a window in memory of the great composer, in Redcliff Church. Some little delay occurred, but ultimately three artists were invited to submit designs, from which one by Messrs. Clayton & Bell was selected. This has been executed, under the direction of Mr. Godwin, and is now set up at the east end of the north aisle of choir.

The glass is designed in pointed allusion to Handel, by setting forth eight incidents to which he composed music in his "Messiah," thus:—At the base of the window, on the left hand, is illustrated the passage, "Behold, a virgin shall conceive;" above this is treated the passage, "Unto us a child is born." The subjects follow on in the other lights in this order:—"There were shepherds watching;" above this, "He shall feed His flock;" "Behold, and see if there be any sorrow like unto His sorrow;" above this, "Surely he hath borne our griefs;" "He was cut off out of the land of the living;" above this, "Thou didst not leave His soul in Hell." The whole of the openings in the tracery are filled with angels, singing and playing "Alleluia." Groups of angels also take the place of canopies and divisional members in the lower lights, and by these the Handelian spirit of the design is sustained by their musical scrolls being inscribed with the music of the composer's great work as it applied to the incidents above enumerated. At the base of the window is the following inscription:—"In Memory of Handel. Erected 100 years after his death."

The window is one of the most successful works of the artists. Some parts of it, for example, the head of the Saviour (bearing the cross), may fairly be described as beautiful.

DESTRUCTION BY FIRE OF THE THEATRE ROYAL, EDINBURGH.

On Friday in last week, about four p.m., a fire broke out in the Theatre Royal, Edinburgh, at the head of Leith-walk, which, within an incredibly short space of time, destroyed the entire building; and, in the falling of the walls, knocking down the cloister and part of the main building of St. Mary's Roman Catholic Church, and caused the loss of six lives. The disaster has caused a gloom in the city of Edinburgh, deepened by the loss of the well-known and much-respected architect, Mr. George Lorimer, Lord Dean of Guild, who fell in the discharge of his public duty.

The Theatre Royal, formerly the Queen's Theatre (until the name was transferred from the old Theatre Royal, in Shakespeare-square, removed some time ago to clear a site for the new General Post-office, was opened only nine years since. It occupied the site of the Adelphi Theatre, which was destroyed by fire in May, 1855.

The fire originated, it would appear, in the top shifts of the scenery, which were so badly protected that on several occasions they had taken fire, although in the previous instances the men had been able to extinguish the flame promptly by cutting away the drapery. In the present case, the gas-man, who had just been putting on the lights, at a subdued height, to be ready for the illumination of an early evening performance, had succeeded in lighting the second row of top lights, and was lighting the first when the drapery caught fire. The flames spread so rapidly that he was unable to get the border down in time, and rushed along the "flies," or wooden stages upon which the men walk when regulating the scenery, and called to his assistance the head carpenter, an assistant, and the fireman. These men had been adjusting the scenes for the pantomime when the alarm was given, and they at once used every possible means, by cutting down the borders and hacking away the side scenes, to prevent the fire spreading in the "flies." Meanwhile, the flames spread with almost incredible rapidity, and the scenes were in a few minutes in a sheet of flame; the wooden "grooves" and stagings aloft quickly caught the flames, and the fire was speedily reaching to the roof, fed by the draughts which open flames necessarily produce. So rapid was the conflagration that the few men in the house

had barely time to escape, after they saw their attempts to extinguish the flames were hopeless. The fire, at its height, is reported to have been seen from Dunfermline, in Fifeshire, about 15 miles distant.

The flames, evidently stimulated by a great draught, broke fiercely through all the windows to Broughton-street, and raged for some time with great fury. From the state of the walls further danger was apprehended. A part of the south wall had been torn down in the fall of the roof, and the boxes and galleries having given way in a series of loud crashes, the side walls, which were 40 ft. to 50 ft. high, stood unprotected, and showing a great inclination outwards. The north wall particularly, overhanging the cloister of the Catholic chapel, was seen to be in a very threatening condition, and on this side already a sad and fatal occurrence had taken place. A little after five, one of the chimney-stacks of the theatre fell outwards, and smashed in the cupola and a large part of the roof of the cloister chapel. A good many people were in this part of the chapel at the time, as it afforded a point for operating on the north side of the burning building. In the fall of the chimney, two men in the cloister were struck down. An old man, who had for eighteen years been in the fire brigade, was killed on the spot; a young man, a clerk in a painter's establishment, was thrown down with a great stone on his back. He called loudly and piteously for help, which could only be rendered by others at the greatest peril, for the north wall threatened every moment to give way. Several men courageously endeavoured to get him out. One of the most active in the benevolent and heroic labour was the Dean of Guild. He felt confident in his own calculations for his safety. He was repeatedly called to come away; but his reply to one was, that he knew the theatre walls well, and that they would not give way; and to another, who urged him still more earnestly, that he would rescue the man at the peril of his life. The fire-master, Mr. Mitchell, who had been observing the increased deflection of the wall, conjured Mr. Lorimer to yield, and even tried to drag him away. In a second or two the greater half of the north wall fell with a terrific crash. Mr. Lorimer and three others were in the act of escaping when they were overwhelmed in the ruins. A number of gentlemen, who were in the lobbies of the chapel, lost no time in making an effort to get at the buried man; and, under the direction of Mr. Nichol, architect, they, along with a body of labourers who were immediately called in, proceeded to remove the debris, getting into the cloister by a private door leading from a room underneath the chapel. The men wrought with great earnestness, but it was not till ten o'clock next morning that the site of the cloister was finally cleared, and the number of persons killed ascertained to be six, including the two first struck down. The north wall in falling broke through a large portion of the roof of the church, besides destroying some of the parapets and pinnacles.

The Theatre Royal, or Queen's Theatre, was opened in December, 1855. It was built from a design by Mr. Bryce, Edinburgh, and had 1,700 seats, having three tiers of boxes and galleries. The front lines of the different tiers formed a semicircle with an ogee curve outwards, while the stage-boxes within the Corinthian columns of the proscenium curved inwards. The stage was from a design by Messrs. Grieve, Telbin, & Co., and might be opened up from the footlights to the wall to the depth of 58 ft. The breadth of the proscenium was 32 ft.; and as the height from the stage to the roof was 54 ft., scenery could be drawn upwards out of view of the house, or below into the area of 22 ft. below the stage. There were ten dressing-rooms, besides green-room, property-room, store-room, work-shops, &c., and ladies' cloak-room in connexion with the audience department. The theatre had for the last few years been in the hands of Mr. and Mrs. Wyndham. We understand that the loss is for the most part covered by insurance, both on the part of proprietors and manager, but one office at least had declined the insurance some time ago on account of the want of protection of the top-shifts against fire.

The late Mr. Lorimer was justly esteemed for his sound practical talents and high personal character. In November last he was appointed to the office of Dean of Guild, or by ancient courtesy Lord Dean of Guild, with a seat in the Town Council, in which he had previously served for three years as a Common Councillor. In his official capacity he was convener of the Fire-engine Committee,

and was always sent for on the occasion of fire breaking out. Mr. Lorimer, whose life is said to have been largely insured, was in his 54th year. At a meeting of the magistrates, on Saturday, it was unanimously resolved to ask leave for the magistrates and Council to attend the funeral in their official capacity, and the Guildry intended to make the same request.

It is rather remarkable, that of all those killed only one did not belong to the building trades. The list is as follows:—Mr. George Lorimer, Dean of Guild; Mr. John Taylor, builder; Mr. Thomas Henry Leeke, clerk to Mr. Tod, painter; John Clark, mason, and who had served eighteen years in the fire-brigade; Bernard M'Vie, labourer; George Sweeney, gentleman's servant.

The procurator-fiscal was instructed to take out warrant for removal of dangerous walls, and adopt any other measures necessary for the public safety.

CONDITION OF STIRLING, SCOTLAND.

THE provost of Stirling, Mr. John Murrie, writing with reference to our articles on that town, says:—"At a recent meeting of the police commissioners last week, regarding certain improvements in our town, I brought your remarks before the meeting. Whilst I admit a number of them to be correct, and which I desire to carry out as speedily as possible, there are others which are erroneous; but I do not find fault with you, as every much would depend upon the parties from whom the information was obtained. I, as well as a number of the magistrates and commissioners, have been most desirous to introduce the New Police Bill, which would rectify much that you deprecate, but we have twice been thwarted; yet you make us all appear as if we opposed reformation and cleanliness. I sincerely trust your strictures may be the happy means of aiding us to carry on the many improvements required in our town."

It will be a cause of extreme gratification to us should it prove so. It is to such ends alone that our labours are directed; and with a chief magistrate holding such views as those expressed by Mr. Murrie, we may fairly anticipate changes for the better in the ancient and picturesque town of Stirling.

"LAST WINTER IN ROME."

THESE words have a pleasant sound, especially to those who have spent a winter in the wonderful city, serving to recall what most have found a happy time; and Mr. Weld's book, of which they are the title, will be found pleasant too, as well as instructive.* It is not a guide-book; says nothing of the stock antiquities and works of art to be found there; but sets forth in an agreeable and piquant way the condition of Rome during the year, and what was said and done there, with many scholarly and apposite references. The more recent works are mentioned; one of them thus:—

"Whew! what is that vile erection deforming the Piazza di Spagna, which has sprung up since we were last in Rome? We approach a pillar of Cippolino marble, reared in front of the Collegio di Propaganda Fide, and read that it has been erected by Pope Pius IX. in commemoration of the dogma of the Immaculate Conception, established by his Holiness in 1854. Erected too, it might be added, to testify the low state to which art had fallen in Rome. The Cippolino shaft, fine in itself, is entirely spoiled by clumsy bronze tracery, which, in the form of lattice-work, costs a considerable portion of its base. Turning away vexed and disquieted, we pass at the foot of the steps leading to the Church of the Trinita di Monte, observe that the quaint old boat-shaped fountain is sadly in need of repair, and that the broad steps leading to the church are no longer the resort of artists' models."

Of the investigations by Father Mullooly, at San Clemente, of which we have spoken at some length on various occasions, an interesting account is given. The great marble wealth of Rome struck our author as it does most persons, especially on visiting the museum in the Collegio della Sapienza. In this institution, placed in glass cases, are no less than 607 specimens of various marbles and alabasters used by the ancient Romans. It is, indeed, only by examining these that you truly realise the magnificence of that people in their buildings.† Many

* "Last Winter in Rome." By C. R. Weld. London: Longman, Green, & Co. 1865.

† This collection was made and arranged by the professor Sanguinetti, a gentleman of great scientific acquirements, and professor of mineralogy in the college. Many English families who have benefited by Professor Sanguinetti's instruction in Rome as an Italian master, will learn with regret that he fell a victim to fever in the spring of last year.



CAMPAÑILE OF THE CHURCH OF SS. GIOVANNI E PAOLO, ROME.

varieties are so beautiful that they seem like precious stones; and so indeed they are, for we know that the Romans incurred enormous expense in quarrying and conveying them from distant parts of Africa. Among the most beautiful marbles are Verde Rannocchia, Breccia Verde di Settebasi, Rossastra, Pavonazzetto, Africano Principe, Africano Rose, Giallo antico (che ha sofferto l'azione del fuoco), Lavagna Antica di giallo, Basalto di bronzo, Breccia a seme santo; and of the thirty-one varieties of alabasters, Corallino, Fiorito a pecorella, Occhi, Rosa, Giallo, Verdognolo, Sardonico, and Chiaro may be especially cited for their curious markings and exquisite hues. Looking at this unique collection, you can well understand how, ruined as Rome has been by earthquakes, conflagrations, and the effects of time, there are still thousands of marble columns in her churches and palaces, and who shall say how many underground? Good yielding veins of fragmentary marbles run parallel to the Apennine and Latin ways. Near the aqueducts you are also likely to find several varieties; for these "camels of the Campagna," as they have been called, rough in their exterior when far from the city, were often clothed in marble when near Rome, that they might be in keeping with the architectural grandeur of that city. Perhaps, however, the richest quarry lately opened is that around the recently discovered Villa Livia. Mr. Weld advises marble hunters to be provided with a sponge and a

bottle of water, in order to wash the surface of the marble fragments, for often a piece that coated with dirt seems worthless, turns out on being cleaned to be rare and beautiful; and, on the other hand, what appears rich hued may be only stained by vegetable matter.

The works of Michelangelo impressed him greatly:—

"It is only in Rome that you become really aware of the greatness of Michelangelo. Desirous of studying and understanding the works of that great master, I devoted several days to an examination of the sculptures and paintings by him in that city. The impression left on my mind is, that the works of Michelangelo are stamped with the characteristics of unity of thought, sublimity of conception, and a grandeur of design possessed by the works of no other artist. Goethe observes: 'In design the soul gives utterance to some portion of her inmost being; and the highest mysteries of creation are precisely those which rest entirely on design and modelling; these are the languages in which she reveals them.'"

Mr. Weld has the impression that life was in much more danger last year in Rome than was generally supposed, and gives evidence in support of his view. Everything is ill managed. Feelings of the deepest discontent prevail, and the "National Committee" are active and urgent. Science is at a stand-still; justice a farce. He calls attention, and not before it was necessary, to the miserable state of the Pantheon, foul without and filthy within: no pains seem to be taken to preserve it from corroding influences.

Of the statue of Augustus, found amidst the ruined walls of the Villa Livia, Mr. Weld says,—

"Among the numerous masterpieces of sculpture which arrest your steps, as you pace the halls in that treasure-house of art, this statue holds the highest rank. It represents Augustus as he has been made familiar to us by history, the type of a man who possessed the rare tact of exercising absolute power over a people who, though jealous of their freedom, became not only his willing but also his grateful subjects. Psychologically similar in many respects to the first Napoleon, who had the power of moulding multitudes to his will, the countenances of these men bear a great similarity, especially in the prominence of their chins, and the massiveness of their foreheads.

Ancient sculptors were always extremely careful to embody whatever attributes pertained to the subjects of their statues, and which were at all likely to identify them. Thus, the statue of Augustus is highly emblematic of the man, but the various insignia with which it is covered, and its great artistic merit, can be only properly seen and appreciated by viewing it by torchlight. I saw it twice by this light, and on the last occasion was even more struck by its excellence than when I first examined it. And I have entertained a higher idea of the æsthetic taste of the Pope, since hearing that his Holiness spent an hour before the statue last winter, seated at a small table, on which was placed hot coffee—a great luxury on a winter's evening in the Vatican—an attendant meanwhile exhibiting all the excellences of the statue by means of a small light properly screened."

Mr. Weld sought to obtain leave for a company to search the Tiber, a desire that has occurred to others before him. The reason given for the refusal he obtained in an interview with Cardinal Antonelli was, that any derangement of the bed of the river would be certain to engender malaria. Some few slips are apparent in the work here and there, such as "chair" for "choir" (p. 104), "doff leather" for "don leather" (p. 248), which we mention merely that they may be corrected in the next edition. The book is illustrated partly from Mr. Weld's own sketches. Here is one of them which we are enabled to present, a view of the most picturesque campanile in Rome. It is attached to the church of SS. Giovanni e Paolo on the Cælian, and is interesting as the base is formed of a portion of the Temple of Claudius. You cannot mistake this, for it consists of enormous blocks of travertine, into which the masonry of the tower is built. The tower dates from the twelfth century. Beneath the church is a vivarium, where it is supposed the wild beasts were confined before being introduced into the arena of the Colosseum. It is not possible at present to penetrate through the passage to the Colosseum, as it is choked; but there is every probability that it might be easily opened so as to admit of being explored throughout its entire length. Shafts were pierced in the rock to admit light, and a pool of water is still shown where the beasts are said to have slaked their thirst. Adjoining the vivarium are various large arches, forming vaulted chambers, in which prisoners destined for martyrdom in the Colosseum are stated to have been confined. But all this is mythical.

We must break off here, but our readers will probably think that we have given sufficient evidence that "Last Winter in Rome" is a book to be read.

MALVERN PROPRIETARY COLLEGE.

In our present number we give a general view of the new Proprietary College at Malvern, just completed from the designs of Mr. Charles F. Hanson, of Clifton. We purpose, in a future number, to give plans of the two principal floors, and an enlarged elevation of entrance-tower, which is the principal feature of the building.

The college is situate on a gentle slope, at the foot of the Malvern hills, a little to the south of the village, and commands beautiful views of the Worcestershire valley on the east, and of the far-famed range of hills on the west.

The college contains all the necessary accommodation for 600 boys, with ample provision for a full staff of masters, secretary's offices, board-room, etc., etc. The plan is in the form of the letter E, the eastern side being left open, to secure ample light and ventilation to every part. The west, or principal front, is 210 ft. long; the north and south fronts 140 ft. The entrance-tower is in the centre of the west front, 35 ft. by 25 ft., and 100 ft. high, flanked by a low range of buildings on each side, which connect it with the wings, in which are waiting-rooms, secretary's and clerk's offices, master's rooms, etc. The board-room and library are immediately over the entrance-hall, above which are the museum and clock chamber.

The north and south wings are devoted to class-rooms on the ground floor, all entered from spacious cloisters running round the interior of the building. At the four corners of this cloister are stone staircases, leading to the upper floor, on which are the principal school-rooms, 97 ft. by 35 ft., and 57 ft. high. The classical school



MALVERN PROPRIETARY COLLEGE.—MR. CHARLES F. HANSON, ARCHITECT.

on the north can be increased to 135 ft. long, by opening the sliding-doors between it and the drawing-school. The modern school, on the south, is fitted up as a temporary chapel, the permanent one shown in the view not having been erected as yet.

The basement extends about half-way under the wings, from which access is gained to the lower terrace and play-ground. On this floor are lavatories, closets, and the apparatus for warming and ventilating the buildings, supplied by Messrs. Haden & Son, of Trowbridge. The contractors for the building were Messrs. Warburton, Brothers, of Manchester, the cost being about 16,500*l.*, exclusive of furniture, roads, boundary walls, &c.

In addition to the above, a residence has been erected for the head master, at a cost of 2,500*l.*; a porter's lodge, 450*l.*, and shortly will be added racket and five courts, gymnasium, &c.

Two masters' boarding-houses, capable of containing forty boys each, have been erected by an auxiliary company, called the "Malvern College Building Company," on land immediately adjoining the play-ground, one of which is ready to receive pupils, and will be occupied on the 25th inst., when the first term commences: the other house will be ready for the Easter term.

The head master is the Rev. Arthur Faber, M.A., late Fellow of New College, Oxford. We understand the college will commence with the goodly number of nearly 100 boys for the first term.

SCHOOLS OF ART.

The Leeds School.—The annual meeting of this institution, and the distribution of medals, prizes, and scholarships to the successful candidates at the recent examination, has taken place in the Mechanics' Hall, the works of the successful competitors being exhibited upon the walls of the building. There was a large audience. Lord F. C. Cavendish occupied the chair. The report of the committee stated that at present the unusual number of 7,430 students received instruction either directly or indirectly from the masters, and that the numbers had more than trebled during the past six years. Mr. Walter Smith, the head master, next read his report, which concluded with the following summary:—

—The Leeds school has, during the last five years of its existence, taught 20,000 children in National schools at a nominal fee; given instruction to 5,000 pupils of the middle classes; taught 2,500 working men in evening classes; has educated four art-masters; has been referred to in evidence given before a commission of Parliament by the chief inspector of art-schools as the type of a successful school of art; is now carrying on art-work in all the great towns of the West Riding, teaching thirty National schools, thirteen middle-class schools, five evening classes in mechanics' institutes, two branch schools of art, and its own classes in the central school. In course of his address, Lord F. C. Cavendish said he believed that there had been implanted in the nature of man by his Creator, a taste for and a love of the beautiful. This taste, like all other natural tastes, was meant for a certain use, and they would all agree with him when he said that this use was to refine and elevate the nature of man. But no taste could exist and grow unless there was something to feed and nourish it. The tendency of modern civilization, crowding vast masses of human beings into towns, where the long rows of streets and the dusky canopy of smoke above shut out the beauty of nature, to a great extent prevented this; but they must not sit down and think that because civilization had certain disadvantages, nothing could be done. Marvellous things might be achieved. Thousands might be sent by cheap trains to the most beautiful parts of the country; and the cheap illustrated books and prints were carrying to the homes of many artisans copies of all that was most beautiful in art; but still he believed there was a wide field for institutions like that, which, by means of their galleries, in which exhibitions could be held, and by means of their teaching in popular schools, might nourish that taste, even in spite of the disadvantageous circumstances in which they were placed.

The Exeter School.—Sir Stafford Northcote, M.P., who presided at the annual meeting of this school, said, in allusion to the complaints made as to the central school—Attention has been drawn to complaints made, not altogether without reason, of the unequal division of funds

between the central institution at South Kensington and the provinces, although it should be considered that the institution had an immense influence upon the country. He believed that a great deal more would in a few years be effected in disseminating the advantages of the central institution, although more was being done than some persons perhaps were apt to think. Expensive foreign works of art had been purchased by the Government at large prices; and these had been lent, or copies or casts had been made of them, so that they had been reproduced and rendered saleable at prices fabulously low. Mr. Cole mentioned to the committee an instance in which a majolica plate, originally purchased by the State for 200*l.*, was lent to Messrs. Minton, and had been reproduced so as to sell at 35*l.*; and when the copy was compared with the original, there were hardly any members of the committee who professed to know which was which. In this way it would be sought to circulate those valuable articles that would create a taste for art which fine works of art were capable of engendering. It must, therefore, be acknowledged that South Kensington was doing a great deal of good in the country. Mr. Cole had suggested a plan of organising a system under which fine works of art could be lent from the great national institutions centralised in London to the different provincial museums for limited periods. The more the department of South Kensington was stirred up the better, and he did not regret having been on the committee that had called them to account for having monopolised too much of the Parliamentary grant.

The Kidderminster School.—At the annual meeting of this school, Sir John Pakington, M.P., who presided, thus spoke of the ruling authorities of the schools of art—"I am not one of those, as you may perhaps be aware, who are very enthusiastic admirers of the Committee of the Council on Education. But I must, at the same time, say that I think the encouragement which they have on the whole given—which that department of the Committee of Council intrusted with the conduct and management of these schools of art has given to the cultivation of art in this country—is highly to be commended; and I cannot help thinking that although there may be defects in some respects, yet, as a whole, the management of the Science and Art Department has been such that it has given a great stimulus to the cultivation of art in this country."

The Birkenhead School.—A meeting of the subscribers and friends to this school has been held at the school, Hamilton-street, in order to receive from the committee explanations as to the present position of the school, and to take such measures as might be thought desirable for carrying it on, provided sufficient funds could be raised for that purpose. Mr. John Laird, M.P., presided. The chairman said it had been found necessary to call that meeting because the amount of fees received from the students had not been sufficient, under the system hitherto adopted, to meet expenses. He thought they must, under the circumstances, look to the town to provide 180*l.* a year in subscriptions to carry on the school in an efficient manner. A committee was appointed to endeavour to carry out the object of the meeting.

The Sheffield School.—The council of this school have presented to Mr. Benjamin Wightman, for twenty years the honorary secretary, a mark of their appreciation of his services. The testimonial consisted of a silver tea and coffee service.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening, the 6th inst., at the House in Conduit-street.

The chair was taken by the President, Mr. J. H. Christian.

Mr. J. T. Hanson, of 10, Old Jewry Chambers, and Mr. W. Wade, of Dean-street, Soho, were elected members of the Association.

The President called attention to the drawings which Mr. R. P. Spiers had submitted to the Royal Academy in competition for the Travelling Studentship and Gold Medal, and which were exhibited in the room. Although he (the chairman) was a Gothic man, he could not but appreciate the affection which Mr. Spiers entertained for the Classic school, and which had evoked the admirable drawing to which the Royal Academy had awarded the studentship. Mr. Spiers had produced a fine façade,—a hand-

some group, and a plan which was at once simple and well adapted for the object in view. The subject selected for illustration was not an easy one; and when the very short time which Mr. Spiers had devoted to his drawing was taken into consideration, the success which he had achieved was the more remarkable. He thought the Association ought to congratulate Mr. Spiers on the very creditable manner in which he had competed for the prize of the Academy.

After a few words from Mr. J. D. Mathews, to the same effect,—

Mr. Spiers observed that the advantages held forth by the Royal Academy were not so generally understood by students of architecture as they ought to be. All that was now required to gain permission to compete, was to send in a drawing, which, if considered of sufficient merit, entitled the author to be admitted as a probationer. The design to be submitted for a student-ship now occupied but twelve days in the preparation instead of three months as heretofore. For the travelling studentship of 100*l.*, but thirty days' work was required. He regarded these prizes, as also that given by the Royal Institute of British Architects, as most valuable, because they afforded the many means by which young architects could get their ideas on paper before they got into practice. There were, he believed, about 2,000 architectural students in the metropolis alone, and yet last year but three out of that large number offered themselves as competitors for the gold medal. He hoped that students would for the future exhibit a spirit of greater emulation in this respect, and thus encourage the Royal Academy and the Institute to do yet more for the profession.

The Chairman said that until he had heard the statement of Mr. Spiers, he was not aware of the altered rules of the Royal Academy in reference to the prizes offered by them for architectural designs. The subject, however, was one of such great importance to students of architecture, that he hoped the Association would take some means to make the regulations of the Academy familiar to its members.

Mr. Lacy W. Ridge (hon. secretary) then read a paper on Boxgrove Church, Sussex, which has already been described in detail by the Rev. J. L. Petit, the Rev. Mr. Turner, Professor Willis, and others. The priory of St. Mary the Virgin and St. Blaise, at Boxgrove, was founded by Robert De La Haye, the lord of the manor of Hahaker, or, as it occurred in some ancient documents, "Halfnaked," whose residence was in the immediate neighbourhood. The monks were of the order of St. Benedict, and were originally three in number. They were subsequently increased to thirteen, at which number the establishment remained until 1414, when it was reduced to nine, and remained so until the Reformation. The priory was subject to the abbey of St. Essay, in Normandy, but was within the diocese of Chichester. The village of Boxgrove was four miles north-east of the cathedral town. It consisted at present of a low central tower, transept, and one double bay of the nave. The ruins of the latter extended beyond the present west wall, the whole foundations of which were uncovered in 1853, when the Archaeological Institute of Great Britain and Ireland visited the spot. The excavations then made showed that there were five more double bays towards the west. There did not appear to be any record of the precise date of the building, but, judging from the style of the architecture, it was erected most probably within the last quarter of the twelfth century. Mr. Ridge then proceeded, with the aid of the drawing-board, to point out the most interesting details of the building, which he said he had measured very carefully, and subsequently sketched on the spot. The church was a conventual building, of simple but tasteful construction; and although it was evidently built with a view to economy, the architect had, by judicious proportions and appropriate though not costly ornamentation, shown that he thoroughly understood his business. The walls were faced with flint, and filled up with rubble; but as the dressings were now completely coated over, he could not tell of what stone they were composed.

A member observed, that as there was no stone in the immediate neighbourhood, the dressings were probably of Portland stone.

The Chairman said, he did not think the Portland quarries were known in the twelfth century. It was, he thought, more probable that the stone was imported, and similar to that used in the adjoining cathedral—namely, Caen. He also observed curious perforations in the doors

(which opened outwards) forming a sort of grille, which were ornamented, but for the use of which he was at a loss to account, unless they were intended to give alms through.

A member here remarked that precisely similar openings were to be found in the doors of an old red brick house (formerly a monastic building), with pointed roof, and very strong walls, near the village of Prittlewell, in Essex; the tradition with respect to which was, that the inmates had made a gallant stand against the soldiers of Cromwell, when on their "reforming" campaign, and had fired through the grille upon their assailants.

In reply to a question, Mr. Ridge said, that he had not been able to obtain any clue to the name of the architect who had built the church and priory of Dogrove; but that the natural supposition was that they were the work of the same architect who had built the Cathedral of Chichester.

After some further discussion a vote of thanks was passed to Mr. Ridge for his paper.

THE ARCHITECTURAL EXHIBITION.

We desire to call the attention of architects and others to the approaching Architectural Exhibition, which will open as usual in March; in the hope that we may lead them to contribute to it. The committee notify that,—"Although pictures in perspective are the most suitable, still absolute working drawings, merely put together on a strainer, or in a frame; details, mouldings, or parts of buildings, are all most desirable." Two conversations, besides the opening one, will be held during the Exhibition, and the committee want assistance in that direction also.

THE ARCHITECTURAL INSTITUTE OF SCOTLAND.

THE EDINBURGH ALBERT MEMORIAL.

At a meeting of the Scottish Institute on the 12th, Mr. Seton, advocate, in the chair; Mr. Rodgers, the honorary secretary, read a letter from Mr. D. Cousin, urging somewhat strongly that the Institute had no right now to interfere in respect of site; and maintaining that it was not actually Arthur's Seat that was proposed for it, but a ridge quite distinct from what is properly so called. Mr. Lessels, Mr. Peddie, Mr. Thomas Stevenson, engineer, and several other gentlemen, spoke in condemnation of the proposal to make Arthur's Seat the site; and the meeting unanimously decided to memorialise the Committee of Advice, to that effect.

The following has been accordingly presented:—

"Petition of the Architectural Institute of Scotland," humbly shewing:—"That at a unanimously called meeting of the Institute, held in the Hopetoun Rooms, Edinburgh, on the evening of Thursday, the 12th inst., it was unanimously resolved that the site on Arthur's Seat, named by the committee, is unsuitable for any monument, and that the erection on it of the Memorial to the Prince Consort would be inexpedient. That this meeting of the Institute was attended by a large number of influential citizens of Edinburgh, who were invited to take part in the proceedings, and who unanimously and cordially concurred in the opinion of the Institute; and the Institute is fully satisfied, from the statements of the press and otherwise, that this opinion is entertained by the public at large. May it therefore please the Royal Committee of Advice to take this petition into consideration, and to adopt such steps as may be deemed desirable to prevent the proposal above referred to from being carried into effect."

THE CROSSLEY ORPHANAGE, NEAR HALIFAX.

We are requested to mention what, if we had been informed, we should certainly have stated in giving the illustrations of the orphanage—namely, that the original architect of the building was Mr. John Hogg, of Halifax. The alterations made by the architects who rearranged the interior, and completed the work, appear to have been confined mainly to the upper part of the building, including especially the clock-tower. Mr. Hogg appears to have just cause of complaint that his name was kept out of sight.

STRIKE AGAINST AN ARCHITECT.—At the moment of going to press we received a printed account from Mr. A. Waterhouse, of Manchester, of the treatment he has received at the hands of the Manchester Union Bricklayers. A hasty perusal seems to show that he has been treated scandalously. We must return to it.

BRISTOL SOCIETY OF ARCHITECTS.

At the annual meeting of this society, held recently, Mr. E. W. Godwin in the chair, Mr. Chas. J. Phipps, hon. secretary, read the report, from which it appears the society now consists of 21 fellows, 18 students, 13 amateur members, 9 corresponding members, and the artist members of the Academy. The gentleman who has filled the office of president for two successive years, Mr. P. W. S. Miles, now retires, in accordance with the rules; and the council have elected their oldest member, Mr. Charles Underwood, to fill the office. The council desire to impress on the members generally the necessity of maintaining the library in an efficient condition, and would invite donations of books for that purpose. They have also under consideration a proposal for offering prizes to art-workmen. A balance-sheet of the receipts and expenditure since May last was presented, showing receipts to the amount of 46l. 4s. 8d., and expenditure, 46l. 13s. 8d.

The chairman referred to the present prospects of the society, and of art in this locality; and observed that one feature was now occupying the thoughts of a good many persons,—architects among others,—viz., the new Assize Courts for Bristol. If Bristol acted in the matter of those assize courts as she had hitherto acted in all matters of public interest, she would only add another bad mark to her name on the list of the cities of England. An opportunity was now afforded for Bristol to redeem all the bad things she had hitherto done, by erecting the assize courts on some suitable site to begin with, not to cramp them up where it was impossible for the angle of vision to take them in.

Mr. Charles Poley read a paper on "The Crosses of Gloucestershire," which was illustrated by a number of drawings of ancient crosses to be met with in different places in the country, amongst them being representations of those at Bisley, Calmsden, Cirencester, Lydney, Clearwell, and Aylburton, contrasting with the high crosses of Gloucester and Bristol, and the preaching cross at Iron Acton.

A BRISTOL NEW CLOTH WAREHOUSE.

THE establishment of Messrs. Crowe & Co., clothiers, adjoining Colston's-hall, Hot-street, is a very extensive one. The cloth room is 90 ft. by 24 ft.: a staircase in one direction leads to the cellars, and another flight of steps conducts to the made-up goods or stock-room, which is 150 ft. in length and 26 ft. in width, and the fittings here are of mahogany and pine, French polished, and supported by bronze standards. The cutting-room, which is immediately over the stock department, is about 150 ft. long by 25 ft. broad, and contains accommodation for some forty cutters. Attached to this room is a ponderous cutting-machine, which in a separate compartment will be worked by steam-power. The trimming-room, an apartment adjoining, is 50 ft. by 25 ft., and fitted up with a great number of shelves and drawers. The out-workers' apartments have separate entrances and places of exit; and there are also in this part of the building a cash office, and a room in which the goods manufactured out of the premises can be examined, whence they may be removed to the brushing-room, and then deposited in the stock-room. The large work-room, capable of accommodating between 400 or 500 hands, is directly over the stock-room, and is similar in extent to it. Upwards of forty sewing-machines, driven by steam, are here ranged, and also great lengths of tables. There are immense stoves for heating the irons used by the tailors, and likewise a considerable quantity of shafting for working the machines. By a very simple arrangement—the invention of the architect—the sewing-machines are put in and out of gear, and the stitches can be regulated so that a machine will work very slowly, or produce 500 stitches per minute. Adjoining the apartment just noticed, is a room, 50 ft. by 30 ft., to be used for the manufacture of juvenile clothing. The whole of the different apartments are approached by a fireproof staircase. Above the staircase is fixed a tank, nearly 20 ft. square, which will be required in working the hydraulic machinery, and will contain a general supply of water for the building. Extensive and improved lavatories, &c., are on each floor. In the cellar is an enormous gas-meter, for the supply of 500 lights. The whole of the building is ventilated by a shaft in connexion with the engine-chimney, and which is capable of carrying off

about 6,000 cubic feet of air per minute. The place is warmed by steam. There are about 140 windows in the whole building. Attached to the business premises is a dwelling-house, with an entrance from Trenchard-street, to be occupied by some of the clerks, a housekeeper, &c. Mr. Masters, of Bristol, was the architect, under whose superintendence the work has been carried out. This gentleman also designed the extensive premises of Messrs. Walsh, clothiers, Quay-street, which have been recently erected. The following tradesmen executed the work:—Mr. M. Kingstone, mason; Messrs. Eastabrook & Son, carpenters and joiners; Mr. D. Taylor, plasterer; Mr. J. Palmer, plumber and glazier; Mr. J. Smith, smith; Mr. H. Harris, gas-fitter; Mr. E. Roach, engineer; Mr. R. M. Bryant, fitter; and Mr. J. Edbrooke provided the smith's work for the fittings.

NOTES FROM YORK.

A CORRESPONDENT writes,—The improvements in Little Blake-street, consist in laying out the cleared space of ground near the new Masonic hall with grass sods, and railing it off with a sort of Gothic open rail, ornamented at intervals with the fleur-de-lys. By having the rails open, it interrupts as little as possible the seeing York Minster from pinnacle to base,—a most desirable matter, and very grand it looks. There have been measurements taken and drawings made, for a restoration of Belfry church; and it is to be hoped that if it is restored, the frightful modern Gothic windows will be taken out, and windows of a character corresponding with the age at which this ancient building was built substituted. It will be desirable to open the ancient doorway, which is a beautiful one, and which can easily be used now there is such an ample space before it. The next building, the guildhall of the ancient city of York, is going to have a series of stained-glass windows, placed in the old windows now filled with plain glass. The subjects, I should suppose, will be connected with the history of the city. The walls of the guildhall are whitewashed. I would suggest the plan mentioned in the *Archæological Journal* of the Archaeological Institute, vol. xix., p. 220, where it says, "St. Cuthbert's church, the ancient cathedral of Cologne, situate to the north of the cathedral, on the bank of the Rhine, has recently been carefully restored and decorated in polychrome, with great effect. The semicircular apse has been painted in imitation of tapestry, with a grand figure of the Saviour in the upper part. The stained glass in this church is considered to be the oldest in this part of Germany." There is another matter in the decoration of this old hall which ought to be remembered. It had before the memorial window erected to the memory of Alderman Meek, a good window, by Giles, a glass stainer of the time of James II. Besides having the royal arms of James II., it had figures of Justice and Abundance, and a representation in a lower compartment of a stag or hart, and a waterfall, most likely allusive (in a covert way), to the verse in Scripture, Psalm xlii. 1.—"As the hart panteth after the water brooks, so panteth my soul after thee, O God;" meaning, no doubt, King James II.'s preference for the Catholic religion. It is supposed a window cannot be found, when all the new windows are arranged, large enough to contain this old window; and as the painted glass of "Giles" is rare and fine, I would suggest that one of the windows of the Minster now filled with plain glass be the place to put this interesting and very curious old window of the time of James II. The old chapel of the Bedern had some painted glass, which was taken out of its windows to preserve it from destruction. It is now in cases in the Minster; and I would also suggest that it be put up in one or more of the windows of the Minster at present filled with plain glass. Of course, a label at the base of the window should describe, in Gothic characters of the same age as the glass, whence all these windows were brought, and the date of their putting up in the Minster. Mr. Verrill, the ironmonger, on the Railway-station side of the One bridge, is extending his handsome Gothic shop and warehouse front, which well deserves to form an illustration in one of the numbers of the *Builder*.

A most desirable thing as an improvement to the city of York would be to have a central station (as stated some time ago in the *Builder*) in Little Blake-street, where, if the houses that

remain were pulled down, a square would be formed before York Minster similar to the landing "Citadel station," at Carlisle. Then the line might be carried down Parliament-street, which might be covered with glass. From thence it might proceed through the White Swan-yard; cross, I believe, the Fosse, pass York Castle; and joining the cattle line down the moat, outside the City walls, at Micklegate-bar, join the Cattle-market near Walmgate-bar. The river Ouse might be crossed by an American bridge, wood or stone piers, which might be put across the river at St. George's-fields, for (say) the expense of 3,000l. I need not say how much this would benefit all the property in the neighbourhood, as well as the city at large.

It has been proposed to change the name of Museum-street, from the new bridge to Great Blake-street; and from Great Blake-street to Little Blake-street, to Duncombe-street. Now, I declare, as an antiquary, I cannot agree to this changing of the names of streets. They have changed Jubbergate, the Jews' quarter, where we can imagine Isaac of York, mentioned in Sir Walter Scott's novel of "Ivanhoe," to have resided,—into Market-street, thus confounding its identity; and as I detest this, neither can I agree to the substitution of the name of Duncombe-street in the city that James II. took his title from as Duke of York. Let us preserve the names mentioned by great authors and allowed by great events; for (to alter Longfellow).—

"These are the grand old masters,
These are the men of olden days,
Who have lived and laboured,
Through the corridors of time."

CONDITION OF THE MANCHESTER POOR.

A COMMITTEE appointed by the Manchester Statistical Society has been investigating the social condition of the Manchester poor, and they have published a number of statistics on the subject. The inquiry has been prosecuted from house to house, and such information as the people could give has for the most part been very readily imparted. The numbers representing the density of the population show that for the whole district inquired into there are 231,167 persons to the square mile, or an average of 13.25 square yards of ground for each individual. The average number of rooms occupied by a family is 2.46; but there are no less than 297 families, or 28.15 per cent. of all the families in the district, living in one room: many of these families consist of four, five, and six persons, and in several cases of seven persons each. In one case there are five persons in the room, their total earnings are 4s. and the rent is 1s. In another case there are four persons living in a one-roomed cellar, consisting of a widow and her lodger, and a spinster and her child. In another case, a man and his wife and two lodgers are living in one room: the man earns 18s. a week. In another, the family consists of seven persons, the children being two boys and three girls, two of them over twelve years, and their earnings are 23s. a week. Many other cases of a similar kind have occurred in the inquiry.

In 574 cases the occupation of the head of the family is described as permanent, in 398 occasional, and in 82 cases as none at all. There are 571 families which consist of father, mother, and child or children. The number of lodgers who pay for their lodging is less than half the whole number. Very many of those who do not pay take care of the house or the children as an equivalent for their lodging: in some cases the lodgers are parents or other relatives of the head of the family, but in many cases they are no doubt prostitutes. The number of those who have money in the savings-bank is extremely small, viz., twelve, and of these only three are strictly working people.

In reference to the articles of food which form the staple of the family, considerable difficulty has been experienced, and it was found that in most cases the people were either unable or unwilling to tell what their principal food consisted of, or what was the cost of it. In forty-five cases, however, the principal food was stated. In one case a man and his wife and five children, whose total income is 19s. and rent 2s., spend 8s. 9d. a week in bread. Another family of six persons whose income is 26s. and rent 2s. 3d., spend 5s. for bread, 2s. for potatoes, 2s. for bacon, and 1s. for coal. In one family they never have any meat, their chief food being bread and tea. Another family of four persons,

whose income is 4s. and rent 1s. 9d., have for five months had only one meal a day; and another, of three persons, where the husband and wife both work, and earn between them 5s. a week, and pay 1s. rent, have also but one meal a day.

THE CENTRAL CO-OPERATIVE STORES IN MANCHESTER.

THE new central co-operative stores in Downing-street have been opened. The building depends externally for architectural effect on a mixture of coloured and moulded bricks, stone being sparingly used. The shop-fronts are carried on box lintels of cast-iron, visible, and constructionally treated. The pediment bracks in the line of main cornice. The facade is in Downing-street, from which entrance is effected by a stone staircase to the reading-room and library, which are special features connected with the stores. The large hall above is capable of seating nearly a thousand people. Another entrance leads to the drapery establishment and to the show-room on the first-floor; and on the ground-floor is the shopping warehouse, divided into two compartments, one for groceries alone, and the other for bread and food stores. In the cellar is a larder, admirably fitted up.

Messrs. Pennington & Bridgen were the architects. The cost, including the fittings, supplied by Messrs. Statham & Sons, of Pendleton, has been over 3,000l. The builder was Mr. Johnson, of Ancoats.

At the inauguration, Mr. Percival gave some facts as to the progress of the society since its establishment, a little over five years ago. During that time, he said, the business done had been to the extent of 150,000l., and the working expenses amounted to 6,900l., leaving a net profit of 5,022l. The latter sum had been expended in interest to the members, 1,089l.; allowed for depreciation on fixed stock (costing the society 1,400l.), 771l.; devoted to the purposes of reserve fund, 125l.; applied to educational purposes, 111l.; 56l. had been given for various benevolent objects; and 5,870l. had been divided amongst the members and non-members. The society commenced with a capital of 100l., which had accumulated to 3,000l.; and, during the year, 2,000l. had been added.

THE BUILDING TRADES MOVEMENT.

THE strike and its cause still remain unsettled, and the men are everywhere protesting against the "discharge note," and resolving to assist those on strike in the Midland Counties. The masters at Birmingham are said to be wavering, but a series of resolutions by the Association, published in the *Birmingham Journal* of last week and elsewhere, do not give much indication of a disposition to abandon the "discharge note," although the resolutions "strongly recommend to the whole body of the operatives that all future disputes in the building trade be settled by arbitration." They also urge the formation of a national union of masters, and point attention to the "discharge note" as a chief object to be kept in view by such a union at its meetings. Others of the resolutions are explanatory of the intentions of the "note," and (uselessly, we will venture to say) endeavour to persuade the men that they misunderstand its objects and its consequences, and that these are not hostile to their interests. The last resolution is, "That the original address read at the Birmingham meetings, the president's speech, and these resolutions, be sent to the *Times*, the *Builder*, and all the leading provincial papers in the Midland Counties." As to this resolution we feel it requisite to explain that, if these documents were addressed to the *Builder*, they failed to reach us, otherwise we should not have allowed our last issue to appear without any allusion to them.

Since these resolutions were passed, however, the aspect of the dispute has, it seems, undergone some change. Several of the masters, it is understood, are dissatisfied with the action of the general body, and are disposed to sever their connexion with it. The various trade societies throughout the kingdom, as we have already noted, are organising subscriptions in aid of the men on strike, and the leading organs of the newspaper press—London and provincial—have unanimously taken an adverse view of the policy of the masters, as we stated last week. The men, we believe, will agree to settle all other

questions by arbitration, in accordance with the resolution adopted by the masters, but they will admit of no arbitration and no compromise as to the objections "ticket-of-leave," in respect to which their adverse feeling is very strong. The carpenters and joiners, the only class at present on strike, have formally signified their assent to the proposal of arbitration as a rule, and the other branches would, no doubt, follow their example were the "discharge note" withdrawn. At Malvern, one of the members of the Masters' Association has already formally renounced the "discharge note," in a written agreement with his men, who have accordingly returned to their employment, on the terms of a three months' mutual notice of change. At Sheffield, Halifax, Stockport, and other places, the workmen have had meetings protesting against the "note," and resolving to aid those on strike. A delegate meeting of the London carpenters and joiners, who also done the same thing, and forwarded 100l. in one week to the Midland districts on strike. At this meeting the propriety of calling a general meeting of the London trades was discussed.

THE "DISCHARGE NOTE."

Sir,—Knowing that you adopt the motto of bearing both sides, I am somewhat surprised that no workman has forwarded his reasons for opposing the above project of "The Master Builders' Association." The masters have shown that they can outdo in the wildest doings of the trade-unionists. This innovation, so far as my observation is concerned, is condemned by every class of workmen. In working men's clubs, the discussion-hall, and workshop, it is opposed by men who have always held aloof from trade-unionism. Not a workman is now to be found who will in public act as the masters' apologist. Where you will, the cry is for a national union, which will embrace every village and town in the kingdom. It is too late, the day for such a farago of nonsense to pass current as that which is the cry of the day. The Master Builders' Association, at Nock's Hotel, Birmingham. The talk about the oppression and dictation of operatives is mere bomb, whilst the operative can point to builders who a few years ago had not, as the saying is, a farthing in the world, but who now have their carriages and establishments, which outdo those of the aristocracy and merchant princes. The operative begins to understand some little about capital; and it is now quite common to hear the masters' loid called "accumulated labour." The masters seem to forget that the schoolmaster has been abroad, and that the works of Adam Smith, McCulloch, Morrison, J. S. Mill, the *Edinburgh* and *Westminster Reviews*, and other politico-economic writings, are found upon a large number of building operatives' book-shelves. And the master build, ever the politician, has become familiar with the economic doctrines they are always prating about as many of the operatives are, I fancy they would have thought twice before introducing "the passport and ticket-of-leave." Adam Smith says,— "The property which every man has in his own labour, as it is the original foundation of all other property, so it is the most sacred and inviolable. Capacity to labour is to the poor what stock is to the capitalist. Now, a hundred or a thousand capitalists may form themselves into a company and combine to take all their money in commerce and dispose of their property as they may, in their collective capacity, judge most advantageous for their interests; and why should not a hundred or a thousand labourers be allowed to do the same by their own means? Of all the species of property which a man can possess, the faculties of the mind and the powers of his body are most particularly his own; and to fetter him in the mode in which he is to exercise or dispose of these faculties and powers, is a manifest encroachment on the most inviolable of all rights." The masters reverse the above, and make capital sacred, and labour the property. The cry of the master unionists is, Why do the operatives oppose the "Discharge Note." Answer of a non-unionist—Because the operative would be at the mercy of every little selfish master builder. Because the steady, industrious operative would often be at the mercy of a drunken, bullying foreman, and on that account would have to treat to get a ticket-of-leave. Because not one in 500 builders could promise an operative six months' employment. Because the note would be one-sided, as the operative would have no knowledge of the character of his next employer. Because it would be a re-enactment of the law of settlement, as an operative could not leave a district without the master's consent. Because it would reduce the educated mechanic to the level of a felloe labourer who is now kept down and crushed by just such a combination as the builders propose. Because it is opposed to free trade and every law of political economy, and would again introduce a servitude but little better than that of the Middle Ages. Because the character of a builder's workman is seen in his first piece of work; and as a door, eash, and frame take but a short time to make, and as they are in hand and the finish of them constitute character sufficient for a three weeks' or a month's engagement with a master builder. I might cite other objections did space permit, but I think there is in the above sufficient to justify a non-unionist opposition of the "ticket." A JOINER.

"PATENT BRITISH CEMENT."—As a cement to unite either similar or dissimilar substances, such as glass and stone, marble and wood, and so on, this certainly seems to be a valuable material, and likely to be useful. At any rate, a number of specimens of such "joinery" have been laid before us, exhibiting remarkable adhesiveness.

* We print the following, as representing seven or eight communications to us on the subject of patent joiners, bricklayers, and masons.

MONUMENTAL.

A GREAT memorial work is to be raised on the spot lately occupied by the Barrière de Clichy, Paris, to commemorate the defence made there under Marshal Moncey, in 1814, and the project has been submitted to public competition. Twenty-seven designs were sent in, and six were chosen, the authors of which were invited to compete again amongst themselves. The prize has fallen to M. Doublémar. The principal group represents the marshal protecting with his sword an allegorical figure of the City of Paris, and being supported by four other figures—a garde national, a man of the people, a polytechnic student, and a pensioner.

A colossal statue of Vercingetorix, the celebrated Gallic chieftain, is about to be raised in the town of Alise, the ancient Alesia, where that hero made a desperate resistance to Julius Cæsar. This statue is about 20 ft. high, and the work of M. A. Millet. The difficulty and expense of executing such a gigantic work, either in stone or bronze, have led to the adoption of repoussé work. A considerable portion of the work is done, and report speaks highly of the effect, as far as it can be judged at present. The repoussé work has been entrusted to M. Aubert.

A granite obelisk, 15 ft. in height, has been sent out to Shanghai, to be erected over the grave of Mr. Alexander Bremner, C.E. The obelisk is of Aberdeen granite, sculptured by Mr. Kitch, of Aberdeen, and prepared under the direction of Miss Sarah Bremner, sister of the deceased gentleman. The inscription on the base of the obelisk is—“In memory of Alexander Bremner, C.E., of Wick, Caithness, N.B., who was cut off by cholera, when preparing to return to his native land, after a temporary sojourn in Shanghai, on the 14th October, 1862, in the 44th year of his age.”

Sir George Abercromby, of Forglun, bart., says an Elgin paper, is about to have a monument erected at Forglun, from plans by the Messrs. Reid, architects. It will cover 45 ft. square, and contain thirty coffin-shelves, of marble, on the sides, and six sunk compartments in the floor. The style will be Decorated Gothic, having parapet and raking parapet, pierced with quatrefoils.

PROPOSED TECHNICAL EXAMINATIONS FOR ARTISANS.

As growing out of the paper on Art-workmanship, recently read at the Society of Arts, and the discussion that followed it, Mr. Thomas Twining has proposed to the Council of that society the establishment of examinations for testing the abilities of certain classes of workmen who may desire to be examined, and granting certificates of competency; offering to defray the cost of preparing the text-books required, and the examination fees for the first experiment. We shall doubtless hear more of it.

SANITARY MATTERS.

Liverpool.—Under the new Liverpool Sanitary Improvements Act, the Deputy Recorder, at St. George's Hall, has received a presentment from grand jury upon premises reported to them by Mr. Trench, the medical officer. The presentment reports upon twenty-nine different lots of property, mainly situate in close courts and alleys, to the effect that “they are in a condition, state, and situation prejudicial to health, and ought to be improved; and that the houses, privies, and ashpits thereto belonging, and specified in the report of the medical officer of health, dated the 7th of December, are in a condition, state, and situation prejudicial to health, and unfit for human habitation.” The presentment extends to the erection of water-closets, in the places named, and concludes as follows:—“That they (the grand jury) find that many courts and alleys within the borough of Liverpool are rendered prejudicial to health and unfit for human habitation by reason of the same being open middens, ashpits, and privies attached thereto, and that such courts and alleys be improved, and the above objections thereto removed, by rough water-closets being substituted in the place of such open middens, ashpits, and privies.”—At the last weekly meeting of the Liverpool Workhouse Committee, was stated that the typhus fever epidemic prevalent in the town was almost entirely amongst the indigent and dissolute classes. The

melancholy announcement was made that of the six workhouse surgeons attending on the patients in the fever hospital, one had just died, two others were seriously ill, a fourth was absent on sick leave (all from typhus), and that only two remained fit for duty.

Stamford.—The fatal prevalence of scarlet fever in this town has called into action the Sanitary Committee of the Corporation. At a meeting, the Mayor in the chair, it was resolved that a notice be sent to the owners of property in Water-street, &c., recommending, “as an essential step, that the landlords and tenants in the affected localities do immediately cause the said tenements to be cleansed, whitewashed, and properly ventilated; also furnished with a liberal supply of clean water; and that they should prevent, as far as possible, overcrowding in their tenements.”

RAILWAY MATTERS.

The estimated cost of the proposed high-level railway bridge over the Severn, just above Old Aust Passage, is 1,800,000. The river at this point is nearly two miles wide, but the main channel is not more than one-third of a mile. In order to bridge over this channel, and not interfere with the navigation, it is proposed to construct a bridge at a height of 110 ft. above high-water of ordinary tides, and of three openings—one of 600 ft., and two of 250 ft. respectively. Mr. H. H. Fulton, the engineer, in conjunction with some influential coal and iron masters, is the originator of the movement which has led to the adoption of the project by the Great Western Company. Mr. John Fowler, the consulting engineer of the Great Western, and Mr. Fulton, are now acting as joint engineers.

A compensation case, Wyld v. The Manchester and Sheffield Railway Company, has been decided in the Court of Queen's Bench. The plaintiff, a contractor and quarryman, was a passenger from Glossop to Newton, and the train being an exceedingly long one, part of it shot beyond the platform, and many of the passengers had to get out in the dark beyond the platform. The plaintiff, in getting out, received serious injuries from falling against a pump-handle, and the jury awarded him 1,250l. damages. The Lord Chief Justice, however, considered the damages excessive, and stayed execution on the payment into court of 500l. Subsequently, Mr. Temple, Q.C., obtained a rule nisi to set aside the verdict, and for a new trial, or to reduce the damages. At the suggestion of the Lord Chief Justice, it was arranged that the damages should be reduced to 1,000l., without costs on either side for the rule.

The total railway receipts for 1864 amounted to 33,182,490l., being an increase of 2,683,830l., or about double the average increase per annum. The increase of traffic on the Caledonian Railway amounted to 100,900l.; Great Eastern, 108,000l.; Great Northern, 201,000l.; Great Western, 209,000l.; Lancashire and Yorkshire, 191,000l.; London and North-Western, 449,000l.; London and South Coast, 32,000l.; London and South-Western, 61,000l.; Manchester, Sheffield, and Lincolnshire, 84,000l.; Midland, 237,000l.; South-Eastern, 51,000l.; North-Eastern, 309,000l.; and North British, 62,000l.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 7th of January, on 11,786 miles, to 565,249l.; and for the corresponding week of last year, on 11,460 miles, to 580,292l., showing an increase of 326 miles, and of 34,957l. in the receipts.

METROPOLITAN BOARD OF WORKS.

THE RIDLEY TENDER.

At the last weekly meeting of the Board, the Main Drainage Committee presented a statement on this subject, which they submitted to the Board, as a reply to the charges made against the Board and its officers respecting the non-acceptance of Mr. Ridley's tender.

Mr. Upton moved that the statement be adopted by the Board. Various amendments were moved and negatived; and after a long discussion and an adjournment, the motion of Mr. Upton was finally adopted by a majority of 21 to 6.

It was then ordered that copies of the Drainage Committee's report and statement be sent to the members of both Houses of Parliament, and to the members of vestries and Court of Common Council.

PLAIN-TILING.

SIR,—In answer to your query on plain-tiling, thirty-five years ago I was employed to tile the roof of a mansion containing over 100 squares. The tiles were all laid in mortar; the mortar was laid at the bottom of the tiles; and the cross joint of each tile was carefully struck from top to bottom, thus preventing any water getting under the tiles. There was no symptom of wet getting in on any part of the house, nor any repairs for many years afterwards. There are very few bricklayers in the London district who can be safely entrusted to do plain-tiling in mortar unless strictly looked after, they using too much mortar, and not being careful with the cross joints, in which lies all the mischief. The mortar should not be laid more than 2 in. wide, and the tiles rubbed close together. All red tiles, as they are more or less porous, should be thoroughly saturated with water before using; it makes them tougher, and they will not absorb so much a second time.

With respect to laying plain-tiles in hay (I have done a great deal that way, as in the part of the country in which I resided slate was the exception, plain-tiles the rule), I consider if a roof is lathed with heart-of-oak lath fixed on with tenter-hooks boiled in linseed oil,—the hooks not driven through, but at the under edge of the lath,—loose hay litter spread evenly over the tiles, kept on with flat-headed iron pins, boiled the same as the hooks,—you will have the best kind of plain-tile roof for buildings where there is no walking over; but where there are gutters and trap-doors in the roof, I consider laying in mortar is the best, it not being so likely to get damaged by walking over. As to laying in hay being a modern practice, my father, who is seventy-six years old, and in the trade, says it was common in his youth, and considered the best method.

PRACTICE.

Another correspondent says, in the course of a letter on the subject:—

“In answer to query No. 3, Has mortar ever been known to render roofs damp; and, if so, why? My experience goes to show that tiles bedded in mortar always render the roof damp, from several causes. First, there are always hollow places, or cups, in the mortar underneath the tiles, which serve as reservoirs for the water, which escapes only by percolation or evaporation; secondly, in bedding tiles in mortar, the mortar squeezes into the vertical joint, which prevents the water running freely down the edge of the tile, and causes it to spread along the bed of the tile, to be again impeded in its descent by the mortar which forms the bed of the tile above; thirdly, mortar encourages moss to grow in the joints, as, when it decays, it forms a soil for the moss to grow in, and the moss, again, impedes the escape of the water. The best method of tiling is to hang the tiles on to the laths without any bedding of any description; and when the roof is covered in, to touch them on the inside with stout hair mortar, run along on the top of the laths and the heads of the tiles, which prevents the snow drifting up, and holds every tile down to the lath. But all tiles should be made an eighth of an inch wider and one eighth of an inch deeper than the lath, which prevents the tiles from pushing the bottom end of the joint open, which forms a channel for the water to run down, which is very important; for if the edge of one tile touch the other, the grout for the roof washes into them, and stops them up; thus the water is impeded in its natural channel, which causes it to spread on the bed of the tiles and run through them, which would not be the case if the joints of the tiles were an eighth of an inch wide, as the water would prevent them from gluing up.”

H. P.

COLOURED BUILDING STONES.

SIR,—It has occurred to me that a very good opportunity has arisen for treating our building stones from a polychromatic point of view, through the medium of a lithographic publication. Great service might thus be done in assisting architects in the introduction of colour into their buildings.

There can be no doubt that, with the great variety of stones within our reach, greater effects, and those of a more artistic sort, might be produced than at present. The continued use of the positive colours, so much in vogue, has a tendency to vitiate taste by a crudeness of tones, and coarseness of feeling, nowhere to be found in our great instructors, Nature.

We have various means for illustrating the effects of our old architecture as questions of form, but very few in regard to their effect in colour; and while we may therefore study these works in one direction, we are deterred from considering them in another.

It has been argued that the natural mode of using stone is to take it as it occurs in any particular part of the country, and so confine its use to that district. The fallacy of this our artificial atmosphere will at once demonstrate. Of course, as nature did not take into account, in the formation of rock, the various combinations of air would have to submit to, by reason of smoke, &c., the argument becomes rather more ingenious than sound. There is, therefore, no reason why we should not have full use of any stones that may be harmoniously combined in our buildings. Of course, another question than colour would have to be considered,—durability, and the capabilities of the various stones to stand different atmospheric influences. Another thing might also be taken into account,—the ultimate general effect which a particular stone will have after a certain length of exposure, independently of the colouring influences at work through smoke, &c.

G. S. A.

THIN SHEET IRON.

THE American specimen which we some time since noticed in the *Builder* has naturally led to attempts in this country to ascertain the thinness to which British iron can be rolled; and Messrs. Murrell & Stothert, the metal brokers, of Cardiff, are said to have produced some sheets which, it is claimed, surpass the American specimens, both in quality and thinness. The plates are less than the 1,000th part of an inch in thickness, and a plate 8 in. by 5½ in. weighs 2 dwts. 14½ grs. only, without the slightest flaw, either at the edges or elsewhere. They are manufactured by Messrs. T. W. Booker & Co., of the Melingriffith Works, near Cardiff, from their celebrated R. G. "tagger" or "button iron," and are one-tenth thinner and lighter than the American plates to which such great consideration has been given. "The thinnest sheet of iron yet rolled in the world" (1,000th part of an inch) has elicited numerous competitors in this country. We mentioned that iron had been rolled at Cardiff considerably thinner, and since then some iron still thinner has been rolled by Messrs. James, of Bilston. A sheet has been rolled from common iron in the ordinary sheet mills by Messrs. Robert Williams & Co., of Swan Village, West Bromwich, which is only 1,015th part of an inch thick, is very tough, and has a good even surface. Another specimen consists of two sheets, measuring 8 in. by 5½ in., weighing respectively 49 and 49½ grains, and being the 1,400th part of an inch in thickness! These marvellous examples of iron rolling were produced by Messrs. Nevill, Everitt, & Co., of the Marshfield Iron Works, Llanelli.

ACCIDENTS.

DURING the late storm of wind, about 60 ft. of the great chimney at the factory of Messrs. Pontifex & Wood, engineers, in Shoe-lane, London, was broken off by the gale, destroying a smaller shaft, and falling into a dwelling-house in Plumtree-court, injuring six of the inmates, who were asleep at the time.

At the Peterborough station of the Great Northern Railway, a locomotive boiler has exploded, killing two persons, and injuring several others, besides destroying a shed, 100 yards long by 40 yards wide. The damage to property is estimated at between 2,000l. and 3,000l.

At Liverpool, one of the 14-in. mains, connecting the Prescot with the Kensington reservoir, at Rivington, burst, flooding the neighbourhood, and destroying the road and footwalks. It, about half an hour the water was shut off, and new pipes were immediately forwarded from Prescot. The double line of mains will shortly be completed to Kensington from Prescot.

A builder, named Jacks, of Lambeth, has been dashed to pieces, whilst crossing the line at Clapham Junction station.

An explosion of fire-damp, attended with terrible loss of life, has occurred in a coal-pit at Hainault, in Belgium. Forty-two dead bodies had been got out of the mine, and sixteen or seventeen more remained to be found.

The tower of the well-known church of St. Lawrence, at Nuremberg (Bavaria), which is 300 ft. high, has been struck and set on fire by lightning, destroying the whole of the upper part.

CHURCH-BUILDING NEWS.

Pett (near Hastings).—The Church of Pett is designed in the style of the architecture of the fourteenth century. The building is erected with the stone of the neighbourhood; but the window dressings, door jambs, and other ornamental parts are executed in Bath stone. The church consists on plan of a nave, chancel, and vestry, and a tower standing at the north-west corner of the nave, the ground story forming a porch to the church. The tower is square on plan to the belfry stage, when it changes to an octagonal plan, with conical belfry windows. The tower is surmounted by a lofty spire covered with shingles. The roofs are covered with local tiles. Internally the church is fitted with deal stained seats, and open timber-work stained. The edifice is visible from the road between Hastings and Rye for a great distance. The church accommodates 250 persons, and costs about 2,000l. Mr. B. Ferrey was the architect; and Messrs. Dove, Brothers, were the builders.

Roads (Northants).—The Parish Church of Roades has been re-opened for Divine service, after having undergone extensive alterations. The south wall and porch have been rebuilt, the west wall restored, the nave re-roofed, the south door of the new south porch restored, the galleries taken away, and the pews have given way to open seats. The cost of the restoration is about 800l., the expense of all, with the exception of the pews, being covered by a rate extending over six years. The seats have been put in by voluntary subscription. The restoration has been carried out under the superintendence of Mr. Whitney, of Northampton; Mr. Shakeshaft, of Ashton, being the contractor.

Mentmore.—Baron Rothschild has erected a Protestant church here for the benefit of Protestants in his employment.

Bournemouth.—The new chancel and burial ground of St. Peter's Church have been consecrated by the Bishop of Winchester. The newly-added chancel, and its aisles and transepts, are in the Early English style. The carving, including reredos and pulpit, was executed by Mr. Earp, of London, under the direction of Mr. G. E. Street, architect. The contractors were Messrs. Rogers & Booth, of Gosport, and the clerk of the works was Mr. Davison.

Cricklade (Wilts).—St. Sampson's parish church has been re-opened for divine worship. The former ruinous and dilapidated condition of the structure is well known. The Earl of Radnor offered to restore, at his own cost, the Widhill aisle; and the vicar, the Rev. F. Dyson, assisted by the churchwardens and the leading inhabitants of the town, at once set about the work of restoring the remaining portion of the work, under the direction of Mr. Christian, architect. The expense of these works was at first estimated to amount to 2,000l., but as the work proceeded it was found necessary to extend the sum to 3,450l., or nearly double. With the exception of a large new east window in the chancel, which replaces a very small and inadequate one, the works have been strictly confined to a restoration of the building. The old plaster ceiling of the chancel has been taken down, and the open roof exposed. The lath-and-plaster partitions which separated the Hungerford Chapel from the chancel and the south transept have been removed, open wooden screens being substituted. The old irregular pews have been replaced by low open pews. The whole building has also been ventilated, heated, and lighted; the gas-fittings being by Skidmore, of Coventry. The contractors were Messrs. Poley & Son, of Highworth.

Stoke Newington.—St. Mary Magdalene Church, Stoke Newington, has been re-opened by the Bishop of Gloucester and Bristol, after having undergone some alterations and additions. The original structure was erected in the year 1810. The drawings for the building were supplied by Mr. Norton, architect. It consisted of a nave, chancel, and aisle, with a porch on the south side, and was capable of seating about 300 persons. The congregation, however, became too large for the building, and it was found necessary to increase the accommodation. Mr. Norton advised the addition of an aisle on the south side of the structure. The work was commenced about six months ago, under the superintendence of Mr. Baker, of Stoke Newington, builder, who had been the builder of the church. By the increased space which the addition affords about 100 additional sittings have been gained. A series of subjects, four in number, and illustrative of events in the life of St. Mary Magdalene, to whom the church is dedicated, have been worked into cornices of the new arcade. Besides the aisle a vestry has also been added at the western end. The cost has been estimated at 1,000l., and the architects are waiting to give finish and proportion to the exterior.

St. Mary's Church (St. Mary).—A new north aisle has been added to the church of St. Mary Compton, and the roofs of the nave and south aisle removed, and now they form three nearly equal gables. The chancel roof has been re-roofed, and a vestry added on the north side. The church has been re-seated with open seats of deal, and the nave being very narrow, there is no central passage. The chancel seats are of oak, and were carved by Mr. Forsyth, who has also executed the figures of the Virgin and Child, placed in the niche on the south porch. The reredos is of stone, and the central panel is filled with Dr. Salviati's mosaic, executed from the architects' designs. The floor is laid with Poole tiling. The chancel windows are to be filled with stained glass, executed by a Brussels firm.

The works have been carried out from Messrs. Slater & Carpenter's designs, and under their superintendence, by Mr. Clarke, of Bruton. The chancel roof is now being decorated in colour, by Messrs. Clayton & Bell.

Torquay.—On consideration of some additional figures being sculptured in the reredos at St. John's, Torquay, the Bishop of Exeter has now given his consent to its remaining in its place. The object of the alteration was to make the work a more exact representation of the actual facts of the Crucifixion than it was originally. This has been accomplished without any alteration of the figures first of all sculptured.

Tuppesley (Herefordshire).—St. Paul's Church, commenced in July, 1864, is now making rapid progress. It will contain 537 sittings, all free; and will cost 2,300l., towards which sum only about 1,600l. have been promised. The *Hereford Journal* of December 31st gives a view of the edifice. Mr. E. Kempson, of Hereford, is the architect.

Knutsford (Cheshire).—A font, in Grinshill stone, has just been put up in the Parish Church, Knutsford, by the family of the late Mr. Roscoe. The shape is octagonal; around the shafts are carved in relief figures of St. James, St. Peter, St. Paul, the Virgin Mary, and the four Evangelists; and on the basin are representations of the Baptism and Confirmation, Crucifixion and Ascension; Christ blessing little children; the Marriage Feast; Christ walking on the Sea; and the Last Supper. The floor is laid with Minton tiles, raised about 6 in. The font is about 5 ft. high, and is approached on one side by two steps for the minister during baptism. It bears the inscription "In memory of James and Hannah Roscoe, A.D. 1864." The work has been designed and executed by Mr. Harrison, of Chester.

DISSENTING CHURCH-BUILDING NEWS.

Loughborough.—The new Unitarian chapel, lately erected in Loughborough, has been opened. The chapel, which fronts towards Victoria-street, is an adaptation of the style prevailing in the early part of the thirteenth century. The walling is of undressed random stone, from Charnwood Forest, pointed with black mortar, and dressings of Hollington stone, the inside of the wall being faced with white bricks, for distemper and diapering hereafter, when the nave shall have become thoroughly dry. The nave is flanked by buttresses on either side, and lighted by six lancet windows, together with a circular window over the doorway in the gable, filled in with plate tracery, the whole being glazed with leaded panes. Three lucerne lights are also introduced in the roof, on the Park-street side. Accommodation for the choir is obtained by an arched compartment, projected from the south-west corner of the nave, finished externally with a slated spire (in green and blue bands), terminated by a wrought-iron finial, in colour and gold, 72 ft. from the ground. The chapel is fitted up with open red deal benches, stained and varnished, affording accommodation for 176 hearers. The roof is open-timbered, of interlaced rafters, and a layer of felt is introduced between the slates and the boarding. The nave of the chapel measures 42 ft. 6 in. by 26 ft., independent of the choir. In the rear of and adjoining the chapel is a school-room, 42 ft. by 23 ft., with boarded floors, and with an independent entrance from Park-street, and having three class-rooms, and underneath the ground-floor an apartment containing the boiler which heats both chapel and school. The school buildings are built of red brick, relieved with a sparing introduction of blue bands, and the windows, gable copings, &c., are of Hollington dressed stone. The premises are entirely enclosed by a walled fence, that of the chapel being of stone, in character with the fabric. The stone walling, and bricklayers' and plasterers' work, have been carried out by Mr. Wm. Moss; the carpenters' and joiners' work by the firm of Messrs. Lamb & Stevenson, of Nottingham; the masonry by Mr. Walpole, of Loughborough, with the assistance of Mr. W. P. Smith, for the carved work; the glaziers' work and heating apparatus by Mr. Messenger; the painting, &c., by Mr. Greening, of Nottingham; and the gas-fittings were furnished by Mr. Rhodes, of Nottingham. Mr. Geo. S. Norton, of Nottingham, was the architect, from whose designs and under whose superintendence the works have been carried out; and the total outlay, exclusive of site, amounts to something over 1,200l.—The Victoria-street

Chapel of the Presbyterians has been opened. The new building fronts towards Victoria-street, and is an adaptation of the style prevailing in the early part of the thirteenth century. The walling is of undressed Forest slate, and the dressings of Hollington stone, the inside of the walls being faced with white brick. The nave is lighted by six lancet windows, with a circular window over the doorway, filled in with plate tracery. Accommodation for the choir is obtained by an arched compartment, projected from the south-west corner of the nave, finished externally with a slated spire, the final of which reaches 72 ft. from the ground. The chapel is fitted up with open deal benches, varnished in the natural colour, and affording accommodation for 176 persons. The lighting is effected by ten gas brackets projecting from the walls and the usual branches to the pulpit. The heating is by means of hot-water pipes under continuous gratings on the aisles. The roof is open-timbered, of interlaced rafters. Adjoining to the chapel in the rear is a school-room with an independent entrance from Park-place; also a vestry and an upper and lower class-room. The school buildings are of red brick, relieved by a sparing introduction of blue bands, and the windows, gable-copings, &c., are of Hollington dressed stone. The stone walling, bricklayers' and plasterers' work, have been carried out by Mr. W. Moss, of Loughborough; the carpenters' and joiners' work by Messrs. Lamb & Stevenson, of Nottingham; the masonry by Mr. W. Walpole, of Loughborough, assisted by Mr. W. P. Smith for the carved work; the glaziers' work and heating apparatus, by Mr. Messenger, of Loughborough; the painting, &c., by Mr. Greening, of Nottingham; and the gas-fittings were furnished by Mr. Rhodes, of Nottingham. The architect was Mr. John S. Norris, of Nottingham. The total cost of land, buildings, and other charges will be little short of 1,450l.

Mexbro' (Yorkshire).—The new Primitive Methodist Chapel, Mexbro', has been opened. It stands on a conspicuous site, and can be seen from the railway, rising above surrounding buildings. The rapid elevation of the ground from front to back necessitates flights of steps to the principal entrances and lobby. From the lobby, doors lead into the chapel on either side, and galleries are approached by means of separate staircases. The inside dimensions of the building are 46 ft. in length, by 36 ft. 6 in. in width, and 25 ft. from the floor to the ceiling; a vestry also 15 ft. by 10 ft., is built at the back, over which is arranged the gallery for the singers, which can be used as a rostrum. The galleries range round either side of the chapel, as well as over the front portion. The building presents an Italian elevation, the semicircular and segmental arch being prominent features both in the interior and exterior arrangements. The walls are built of stone from the neighbourhood, and the quoins rusticated and clefted similar to the stone dressings, architraves, friezes, inscription stone, and tablings. The ceiling is a flat one, with a cornice running round the walls. The chapel is capable of seating 600 persons. The works have been designed and carried out under the direction of Mr. A. Fippard, of York, architect, by Mr. Arnold, of Doncaster, builder. It is the fifth Primitive Methodist chapel built by Mr. Arnold in the Doncaster circuit. The gas-fittings were executed by Messrs. Smith & Son, of Doncaster.

STAINED GLASS.

Cobridge Church (Staffordshire).—A stained glass window, to the memory of the late Rev. R. H. Bentley, the former incumbent, and Mrs. Bentley, has just been placed in the chancel of this church. The subject is "The Sermon on the Mount." In the highest part of the central light our Saviour is represented sitting under a palm-tree, while beneath and around him are grouped the multitude, who fill up the lower part of the central and the two side lights. Several of the disciples are prominently introduced. The window has been supplied by Messrs. Cox & Son, of London, and is the production of a French artist. It has cost about 200l.

Kingswinford Church.—The parish church of Kingswinford, at Wordsley, has just been beautified by an east window, presented by the Misses Parrish, in memory of their late brothers, John and Richard Parrish. The window is a large one, containing ten compartments besides the upper tracery. The middle upper light is occupied by a medallion of our Lord's Ascension,

taken from a picture of Raffaele's; and the three middle lower lights contain Leonardo da Vinci's well-known representation of the Last Supper. The tracery and the other lights are filled in with quarries of a geometrical pattern, the prevailing colour being blue. The window is the work of Messrs. Powell & Sons, of London.

St. Stephen's Church, Norwich.—The large west window of twelve lights in this church has recently been filled with stained glass. The subject illustrates the life and death of St. Stephen, each subject being carried through two openings, as follows:—1, St. Stephen ordained; 2, Distribution of Alms; 3, Preaching; 4, Cast out of the City; 5, Stoned; 6, Burial. The ornamental portion is Perpendicular in character. In the tracery are the twelve apostles, angels with emblems, &c. Two other windows of four lights each, have also been filled with stained glass, the subjects being "Abraham's Sacrifice" and "Rebecca and Abraham." A fourth window, having for its subject, "Christ blessing little Children," has also been erected. These are all memorials given by a lady in memory of deceased relatives. The whole of this work has been executed by Messrs. Heaton, Butler, & Bayne, under the direction of Mr. R. M. Phipson, Norwich.

Howe Church, Norfolk.—A window of three lights has just been filled with stained glass as a memorial, the figures of Faith, Hope, and Charity, with their emblems, being introduced. This window is from the works of Messrs. Heaton, Butler, & Bayne, under the direction of Mr. R. M. Phipson.

PROVINCIAL NEWS.

Hulme.—The completion of the Town-hall for the township of Hulme has been celebrated by a public dinner. The building, designed by and erected under the direction of Mr. Lynde, the city surveyor, is in the Italian style of architecture. The completed façade, in Halifax stone, presents a rusticated basement, comprising the cellar, rock-faced in Bolton stone, and the ground-floor, smooth or polished. In the centre of the ground-floor is the principal entrance, a segment-headed doorway. Carved modillions support a cornice which divides the ground-floor from the first-floor. This contains seven balustraded and semicircular-headed windows: the arches, containing an enrichment of the laurel-leaf pattern, spring from a moulded entablature, resting upon Ionic columns. The three central windows are slightly recessed. The middle window is between two Corinthian columns; and these and four corresponding pilasters support a cornice, surmounted by a balustrade, having in the centre the city arms, and further relieved by four vases. In the frieze are carved floral festoons, and over the three central windows are heads of Oratory, Justice, and Mercy. The principal front, in the Street-front, is 184 ft. in length. The design comprises a centre and two wings; the central portion, 94 ft. in length and 66 ft. high, being appropriated for the Hulme Town-hall and township offices. The west wing, 45 ft. in length and 50 ft. high (now in course of erection), is appropriated to a branch free library; and the east wing, also 45 ft. in length and 50 ft. high (not yet commenced), will be appropriated to the overseer's offices. The central building comprises, on the ground-floor, the township offices, committee-room, fire-proof room, and surveyor's department, together with a public weighing-machine and office at the back, in Dale-street. In the basement are a spacious kitchen and offices, with serving-room, and hoist to the upper floors, as well as workshops and other conveniences connected with the township business. The principal floor is approached from the entrance in the centre of the principal front of the building by a vestibule and grand staircase, lighted by a stained glass window bearing the Royal arms in a central compartment at the top, and the arms of the Duchy of Lancaster, the township of Salford, the city of Manchester, and the township of Hulme, in the four corners, and the central divisions having emblematical figures of Industry, Commerce, Peace, and Plenty. The hall is paved with encaustic tiles. On the principal floor is the public room, 90 ft. long, 45 ft. wide, and 38 ft. high. It is lighted by day by the seven windows in the principal front, and by night by three sunlights suspended from the ceiling. In connexion with this room is a refreshment or supper-room, 35 ft. long by 22 ft. wide, and 18 ft. high, with dressing and retiring-rooms. On the upper floor is another supper or committee-room, of the same dimensions, with

dressing and retiring-room in connexion with it. The area of the large hall is double that of the Manchester Town-hall. The contractors were: for the excavation and drainage, Messrs. Naylor & Son; for the brickwork, Mr. Wm. Healey; for the masonry, Messrs. Ellis & Hinchliffe; for the joiners' work, Messrs. Clark & Jones; for the iron work, Messrs. Kitchen, Brown, & Co.; for the plumbing, &c., Messrs. Harrison & Son; for the plastering and painting, the late Mr. Hood; for the gas-fittings, Mr. Helsby; for the slating, Mr. Kirkley; for the stone carving, Mr. T. R. Williams; for the encaustic tiles, Messrs. Maw & Co.; for the stained glass window, the late Mr. Edmundson; and for the heating apparatus, Mr. Crowe. The whole has been executed under the superintendence of Mr. S. Taylor, the clerk of the works. The cost of the central portion of the building has been about 12,000l.

Colchester.—On the part of the Colchester new Corn Exchange Company, communication has been made with owners of property, with a view of providing an extended frontage to the street; and if the entire Public Hall property, including the house and premises in the occupation of Mr. J. B. Harvey, could be purchased on reasonable terms, it would materially add to the accommodation. There appears to be a prospect of facilities being offered for the erection of a corn exchange, in every way adequate to meet the requirements of the district.

Manchester.—The proprietors of the Royal Exchange have ratified the proposals of the committee for the erection of a new building, and sanctioned the raising of the necessary funds by the creation of new stock. The probable expense of the undertaking, including the purchase of the property required, the erection of the new Exchange, and the alteration of the present building, is estimated at nearly 200,000l.

Books Received.

Normandy: its Gothic Architecture and History as Illustrated by Twenty-five Photographs. A Sketch. By F. G. STEPHENS. London: A. W. Bennett, Bishopsgate-street. 1865.

THE title of this book scarcely commends it to the right class of readers: it is not an architectural work, but a very pretty and interesting volume for the general reader or the drawing-room table. The photographs are too small and indistinct to be of value to the architect, but make picturesque illustrations for the tourist and general student. One great peculiarity, however, in respect of the views, must be noticed, that, illustrating Normandy, the photographer has given no example of "Norman" (round-arched) architecture, if we except the interior of the nave of Bayeux Cathedral. The title, "Normandy: its Gothic Architecture," &c., prepares the reader for this; still the omission is a singular error. The historical essay is clearly and agreeably written.

Speaking of the fine church of St. Ouen, in Rouen, Mr. Stephens says,—"The nave was completed about 1340; but such was not the case with regard to the transept until 1430, when the rose windows were inserted by A. Berneval, 'architect and clerk of the works.'" We should be glad to have these quoted words in the original, and to know their source.

VARIORUM.

It will suffice to mention that "The Builder's and Contractor's Price Book, revised by Mr. G. R. Burnell, is published for 1865 (Lockwood & Co.). Mr. Burnell is well qualified for the task, and is, moreover, of so painstaking a habit, that we should put faith in the result of his labours. The fact that for daywork the charge for artificers (bricklayers, masons, &c.) is put down at 6s. 8d. a day, and for labourers at 4s. 2d., shows that revision must have been made in many of the detailed prices. An Appendix gives a number of useful tables, items of information connected with the various trades, and instructions as to mode of measuring.—"The Engineer's, Architect's, and Contractor's Pocket-book for 1865," contains its usual large amount of special information. It includes, *inter alia*, a useful résumé of the available knowledge as to cast-iron girders and iron roofs.—"The Railway, Banking, Mining, Insurance, and Commercial Almanac for 1865" (Red Lion-court), contains, with the usual matter of an almanac, a large amount of useful reading, in the manner of the "Companion to the Almanac," bearing on

the departments to which it is devoted. We are disposed to award high praise to the present issue. It is edited by Mr. W. Page Smith.—A new edition of Mr. Septimus Piess's "Chemical, Natural, and Physical Magic," just now published by Messrs. Longman & Co., contains some fresh tricks and games requiring mental labour. It is a book full of amusement for young people, and well calculated to educe ingenuity and "sharpness," and induce quickness and precision of thought. The recreation afforded by it may be made to administer many good lessons.—The *Literary Gazette* has been revived as a monthly record of literature, in a shape that will be useful to book clubs and buyers generally; but scarcely one to commend it to the reading public. It contains a vigorous letter from William Jerdan, the founder of the original *Literary Gazette*, pointing out what all must feel who think about it, that the present period can scarcely compare for great names in literature with that which has just passed away. The prospect in art is equally, as it seems to us, disheartening.

Miscellaneous.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The seventh session of this society was opened on the 12th, with a *conversazione*, which was held at the Institute of Painters in Water-Colours, Pall-mall. The programme of music for the evening embraced both vocal and instrumental selections.

LIVERPOOL ARCHITECTURAL SOCIETY.—At the meeting on Wednesday evening, the 11th, Mr. Joseph Boulton presiding, Mr. A. B. Anderson read and explained his scheme for the river approaches. The chairman alluded to the various schemes that had been brought forward, and expressed his opinion that this was the best he had yet seen. He pointed out that it would be necessary to have more than one system of approach to the river. It was suggested that Mr. Anderson should exhibit his plans publicly. The chairman called attention to the circumstances that, by the permission of Mr. Lyster, the dock engineer, the members of this society would, on Saturday, the 14th inst., view the works in progress at the north entrances, and the sluicing channels of the Birkenhead Docks.

ASSOCIATION OF FOREMEN ENGINEERS.—The London Association of Foremen Engineers held their annual meeting on January 7, when Mr. Joseph Newton, of the Royal Mint, was, for the seventh time, unanimously elected president for the year. In rendering his resignation, Mr. Newton observed that during the past year, thanks to Messrs. H. Grissell, Henry Mandalay, Telford, Field, John Penn, and others, the jealousy with which their proceedings had for some time previously been regarded by engineering employers had been to a very considerable extent dissipated. Mr. Thomas Sanson was chosen vice-president, and Mr. David Walker, of Messrs. Mandalay's, secretary, for the current year. Mr. C. F. Hayes explained the processes employed in converting solid ingots of homogeneous steel into tubes by hydraulic power.

LORD S. G. OSBORNE AND THE WORKING CLASSES.—On Saturday evening the Rev. Lord Sydney Godolphin Osborne delivered a lecture in the temporary church of St. Michael, St. Leonard's-road, Bromley-by-Bow,—the extreme east of London,—to the working men who attend the evening schools in that district. In consequence of the number of artisans and others employed in the docks, the population of the parish of Bromley (the living of which is in the gift of Mr. John Walter, M.P.) increased from 11,000 in 1851 to 24,000 in 1861, and it is now about 28,000. Through the exertions of the clergy, classes have been established for the working people, large numbers of whom now devote portions of their evenings to the study of mensuration and geometry, navigation and nautical astronomy, arithmetic, algebra, history and geography, book-keeping, French, Scripture history, drawing, and other branches of useful knowledge. Lord S. G. Osborne's lecture was introductory to the course of the present year, and his subject was "The Hand and Hands," in which his lordship extolled the human hand as the most wonderful of machines, and expressed his opinion that, to speak of workmen as "the hands" of an employer, was the highest title that could possibly be conferred upon them.

THE CHURCH AT GILSLAND.—Sir: I see you include the church at Gisliland amongst those you name as being the works of the late Mr. Dobson, of Newcastle-on-Tyne. Allow me to say the above church was designed by me, and carried out solely under my direction.—JAMES STEWART, Carlisle.

LOSS BY FIRE IN SWEDEN.—The library of the cathedral church of Strömgärd, Sweden, has been destroyed by fire. It contained a great number of Scandinavian antiquities, valuable manuscripts, and rare books, which came from the pillage of the convents of Bohemia and Moldavia during the thirty years' war. The library was founded in the fifteenth century, and science and literature have by this catastrophe suffered a severe loss.

WORCESTER CATHEDRAL RESTORATION.—The Dean and Chapter, and the committee appointed to act on behalf of the subscribers to the restoration fund, have decided that the organ, the screen, and the canopies of the stalls, shall be at once taken down. A portion of the present organ will be temporarily removed by Mr. Hill, of London, to a site in the north aisle, in order to ascertain the effect of an instrument placed not far from the great south transept, where it would interfere with nothing, nor hide anything which is worthy of being seen? By the erection of the stoves in the cathedral, a warm and comfortable atmosphere has been secured.

NORTH LONDON WORKING CLASSES INDUSTRIAL EXHIBITION.—The distribution of prizes to the successful exhibitors took place on the 16th inst., at Exeter Hall. The Earl of Shaftesbury, K.G., presided, and distributed the prizes. The large hall, galleries, platform, and orchestra were crowded. The prizes consisted of books and certificates. The certificate is in the form of an illuminated design, commemorative of the exhibition, each signed by the Earl of Shaftesbury, and framed in a gilt frame. The memorial, given to every exhibitor, is a volume, containing a complete history of the exhibition, with a frontispiece portrait of Mr. Watts. In his address the chairman said he had been told that in future exhibitions the exhibitors were to be confined to the branches of industry in which they were daily engaged. To that he responded, Heaven forbid! The exhibitions were more social than financial. Their object was to hold out refined recreation to the working classes, to break the monotony of their labour, and to give a large development to the taste and imagination of the working men. To put the interdiction in operation to which he had alluded would be to put an extinguisher upon the efforts of working men, and would stand between them and recreation. Why, they had lamp-lighters and hairdressers and costermongers exhibitors. How could such men exhibit if they were to be confined to the products of their usual industry? Let taste and genius have their full scope, and let them not be drowned in the pot-house and gin-palace. The secretary of the West London Exhibition denies the accuracy of Lord Shaftesbury's information on this point. It is nevertheless desirable, as we have said, that artisans should do their best in their own line.

BEVERLY NEW CATTLE MARKET.—A field in the neighbourhood of the railway station has been converted into a market. A wall, $7\frac{1}{2}$ ft. high, protects the railway side, the remainder being hedge fences. The market is divided lengthwise into two equal divisions, by a road 22 ft. wide. The cattle-stalls are constructed of 9 in. by 9 in. and 7 in. by 7 in. oak posts, with four rails of 1-in. and $\frac{1}{2}$ -in. wrought-iron tubing; the uppermost being $4\frac{1}{2}$ ft. from the ground. The number of stalls devoted to cattle is seventy, and these will hold 1,500 head. The seven, and these will hold 1,500 head. The commodious from ten to fifty sheep each, or 3,000 in all. These are entirely formed of iron, the rails being of 5-8ths iron, and the uppermost of the four being 2 $\frac{1}{2}$ ft. high. All the roads are laid with chalk foundations, and the drainage is effected by 6-in. sanitary pipes, with a 9-in. fall. The sheep-pens are all paved with bricks, and the ironwork covered with a coating of tar. Within the market stands the market-keeper's office, urinals, &c.; and there are also two or three gas-pillars. The total cost of the market, including land, fittings, &c., will not, it is said, exceed the estimate, 2,200l. A banquet has just been held to inaugurate the opening of the new market.

A NEW USE FOR MAGNESIUM.—The magnesium lamp (if it can only be made practically useful) promises to become a regular article of furniture in every silk-mercer's show-room. Whether by night or on a dark day, any question as to colour is in a moment set at rest in the flame of a bit of magnesium wire.

BRADFORD WATERWORKS.—Mr. Ferrand, M.P., has addressed a letter to Sir George Grey, in which he complains that orders have been given by the Bradford corporation to refill the Doe Park Reservoir before an inspection of the repairs has been made by a civil engineer. The repairs have been made under the sole superintendence of the borough surveyor. Mr. Ferrand alleges that the reservoir is still in an unsafe condition. The mayor of Bradford replies that he thinks the public need be under no alarm after the result of Mr. Ferrand's complaints last session, and gives an assurance that the water-works committee know their responsibility, and will discharge their duty.

THE ATLANTIC TELEGRAPH.—A coil of 279 miles of this cable has been shipped in H.M.'s ship *Amethyst*, for transmission to the *Great Eastern*, in the Medway. Upwards of one-third, or 900 miles of the cable have now been manufactured at the works of the "Telegraph Construction and Maintenance Company," formerly Glass, Elliot, & Co. The entire length will be 2,300 miles; but allowing for slack, 2,400 miles will be provided. A very small space in the *Great Eastern* will be required for the whole, which will weigh about 17,000 tons. In about six months the line will be laid.

PROPOSAL IMPROVEMENTS IN MILAN. Some months ago we informed our readers that plans had been approved of in Milan for re-arranging the space, and re-erecting streets and buildings around the cathedral. It seems that a company has been formed, with a capital of 600,000l., in 20,000 shares of 30l. each, for the purpose of carrying out these plans. The concession, dated the 28th of July, 1864, granted by the municipality of Milan, confers the grant of the fee simple of about seven acres of land in the heart of the city immediately surrounding the cathedral, for the purpose of re-building the Piazza del Duomo, and connecting it with the Piazza della Scala. The capital is already in a measure subscribed, and English enterprise, it is expected, will soon complete the business. The project is launched under the auspices of the Credit Foncier and Credit Mobilier Companies of England.

PORTRAITS PHOTOGRAPHED FROM THE RETINA OF THE EYE.—Our readers for the last few years may remember a notice in the *Builder*, of an instance in which it was alleged that a photograph of a butcher had been obtained from the eye of a bullock which had been killed by him. Some doubts were cast upon the circumstance at the time; but the possibility of it seems now to have been brought up again by the Florence correspondent of the *Morning Post*, who has seen the photograph of a murderer, taken from the retina of a human eye. The photograph appears to be rather a nebulous one; but the general traits of the countenance, such as the wide nostrils, the large mouth, &c., are said to have been sufficient to identify the man. As corroborative evidence, such photographs would be valuable, of course; but it would be perilous to risk a life upon such evidence alone, as the portrait might not be that of the murderer.

"WORKING THE ORACLE."—The writer of a paper in the *Social Science Review*, "On the Employment of Returned Convicts," speaking of John Kendrick, who lived in the bad old times of James I., says he established in 1624, in his native town of Reading, a manufactory for the production of woollen fabrics. "Into this factory any man who chose might enter and find employment. If a man had other and better employment elsewhere, good; if he had none, then at Reading he had no pretext for idleness or vagrancy, for he knew where he would find work, and receive proper wages for work done. It was a house 'for the begging poor.' For a few years the plan answered well. In course of time, for some curious reason of which we know nothing now, this factory was called the 'Oracle.' 'To work in the Oracle' implied that the workman had resorted to it because he was out of work elsewhere; at last the term became general, and from it we believe sprang, somewhat modified, the slang phrase, 'Working the Oracle,' which we hear to this day."

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The Builder.

VOL. XXIII.—No. 1147.

Strike against an Architect, Manchester.

E alluded briefly last week to what seemed to us, and seems still, shameful proceedings on the part of the Manchester Union bricklayers against Mr. Waterhouse, the architect of the Manchester Assize Courts and the County Gaol. The possibility of such an occurrence applies to so many of our readers, that it is necessary, if on no other ground, that we should make the particulars known.

A strike occurred some months ago, and still continues, against Mr. Bramall, the contractor for the Assize Courts and the new gaol in Manchester. The strike related exclusively to

the management of the works. Mr. Bramall employed as foreman a man named Kettle, in whom he trusted; and Kettle, who had been a master, put at the head of the bricklayers' labourers a man who had already served him in the same capacity. This arrangement was resisted by the men. They alleged that, by custom of the trade, the first labourer who offered himself for a job was entitled to be the head man of the gang. There was no written rule to this effect, but it was a custom. It is not disputed that the master has the power, by dismissing all the men above any man whom he may prefer, to place him at the head of the gang, and take on the rest at the tail, so that the utility of the rule is not very apparent. However, Kettle had broken it, and the labourers struck work. This threw the bricklayers off work, and they adopted the labourers' quarrel as their own. To supply the place of the labourers, Kettle engaged "navvies," and announced that the bricks would be wheeled down to the works. This raised the question of hods *versus* barrows; and barrows were denounced as an innovation. A bricklayers' committee determined that Kettle was "unfit for his post," and insisted upon his dismissal. But Mr. Bramall refused to part with his foreman, and the works were abandoned. The bricklayers induced the carpenters on the Assize Courts to leave work, and the magistrates had to engage workmen from a distance to finish them. The strike still continued on the works of the new gaol, but Mr. Bramall succeeded in obtaining a sufficient number of non-unionists to carry them on.

The bricklayers, finding they were not succeeding, now addressed themselves to the architect, and urged him to interfere with Mr. Bramall; and, as the architect was exceedingly anxious that the work should be done, and moreover had satisfied himself that the primary cause of the dispute was an infringement, on Mr. Bramall's part, however slight, of the ordinary customs of the trade, he did what he could towards bringing about a settle-

ment of the dispute. The men demanded the dismissal of Kettle, and said that if that were conceded they would not press their claim for payment for lost time.

Mr. Waterhouse appears to have taken the men's side to a considerable extent, and did what he could to carry out their views, but without success.

Another deputation, composed of men belonging to different trades, then called on him shortly after, going over the old ground, and complaining that a man had been allowed to work as a bricklayer at the gaol who had never set a brick before in his life, and that the work which had been lately done by non-unionists was not equal to the work which the union men had done. He promised to inquire into the case of the incompetent bricklayer, and assured the men he would pass no bad work, whether done by union or non-union men. They again urged him to endeavour to settle the dispute, and said they believed the contract gave him power to dismiss Kettle. This he denied; but promised he would do what he could to bring about a settlement. He could not, however, succeed, Mr. Bramall being determined to support Kettle.

The bricklayers then concentrated their wrath on the architect. He was informed that if Kettle were not dismissed by a certain day, the other works under his superintendence in Manchester should be stopped; and, in the course of a few days, the threat was carried into execution, and all his other works in Manchester and its neighbourhood, as far as the brickwork was concerned, were suspended.

He wrote a letter to the Association pointing out the injustice of their proceedings, denying their charges, and almost suing them to reconsider their determination. But all in vain, and so the matter still remains. He offered to hand over the works he had in hand to other architects if the men would go on with their work; but without avail. One builder had all his other works stopped for daring to carry on one of Mr. Waterhouse's buildings. Even lime and brick merchants were prevented from supplying materials for his works, and, as Mr. Waterhouse says,—"If the thing be carried out to its logical results, I suppose I shall find in time that my butcher and baker are compelled to refuse my custom."

He has offered to submit the point in dispute to arbitration; but this has been rejected: in fact, they propose to ruin him.

It now behoves Mr. Waterhouse, as it seems to us, to take a different attitude towards the leaders in these scandalous proceedings, and at once to institute proceedings against them for conspiracy. If need be, the whole body of the profession should assist him in it.

There are very serious matters involved in this case; matters affecting the well-being and progress of the community. The working-classes have seen, by the unanimity with which the recently proposed Discharge Note was discouraged by the public, that every disposition exists to support them in all just efforts to maintain or advance their position; but they may rely upon it that such proceedings as those to which we have been forced to draw attention will separate from them good friends, and will tend to bring about a public opinion very difficult to be resisted.

FOGS.

THERE has been a considerable amount of information obtained lately about fogs; and as these vapours affect the architect, engineer, operative, and artist in their respective pursuits, perhaps, more than they do persons following other occupations, we purpose calling attention to the string of facts meteorological observers have patiently threaded. None of our readers who were forced to go into the streets of London

on Saturday evening in last week, will see the word "fog" without a certain amount of personal interest.

A fog is a mixture of air with minute globules of water. Far from being the useless inconvenience dwellers in towns are apt to consider fogs, they play an important part in the economy of the earth's surface. Indeed, it is calculated that if the aqueous vapour contained in the ordinary atmosphere were removed but for one single summer night, every plant upon the face of the globe not capable of bearing intense cold would perish. The minute quantity of water suspended in the atmosphere acts as a warm mantle to the earth, absorbing and radiating heat that would otherwise be dispersed in space, and so lost to our vegetation. It is estimated that the atmosphere under ordinary conditions contains, on an average, but one globule of water to two hundred particles of air, and that this one globule absorbs eighty times as much heat as the collective two hundred particles. Looking at fogs as reservoirs of watery particles from which the atmosphere replenishes itself, we can appreciate their usefulness. Professor Tyndall, who a few weeks ago received a medal in acknowledgment of the addition he has made to modern knowledge on this subject, has made a series of extremely delicate experiments relating to the absorption and radiation of heat by vapours and permanent gases. He writes that but for the aqueous vapours in the air the warmth of our fields and gardens would pour itself unrequited into space, and the sun would rise upon an island held fast in the grip of frost.

Fogs are of two kinds: local and general. For some time Dr. J. H. Gladstone obtained returns of the occurrence of fogs at different stations round the coasts of the United Kingdom. These have enabled him to make several guiding generalizations. General fogs are known to extend over a district measuring from 100 miles to 200 miles in length, and sometimes over still larger tracts. Sea fogs are generally of this character. Local fogs are confined to limited areas not extending beyond the neighbourhood of a single station, except in rare cases, when they have extended to two. Dr. Gladstone's observations have led him to conclude that there is nothing intermediate between those two kinds of fog; they either extend over a space occupied by a great many stations or are confined to one small area; for there is scarcely any record of a fog extending to three or four stations and no more, or of fogs insensibly passing into one another. Probably local fogs are due to certain conditions only existing at the several spots at which they occur; and the prevalence of general fogs at sea to the absence of such peculiarities upon the broad uniform surface of the ocean. The most extensive fog traced by Dr. Gladstone occurred on the 22nd and 23rd of June, 1861. All England, Wales, and Scotland were veiled in one vast mist, except part of the Suffolk and Norfolk coasts, and a few places in the extreme north of Scotland; and the same fog extended across the ocean, and touched various parts of the Irish coast.

Certain places appear to possess an attraction for fogs, or to be peculiarly liable to become the landfall of these wandering vapours. The Suffolk coast, Yorkshire, the headlands of Cornwall and Wales, are some of the landing-places most frequented. The fogs taking up a centre in Yorkshire sometimes pervade the coast as far north as Aberdeenshire, and as far south as Suffolk, and even, occasionally, re-appear at the Fens; at other times they confine themselves within the limits of Northumberland and Lincolnshire. Now and then, these vast vague visitors make a wingless flight across the mainland, to take water again in the Bristol Channel. Curiously, the Mouth of the Thames is rarely invaded by them. Dr. Gladstone's returns from Ireland, however, are more complete, and extend over a longer period than those gathered at home. From these it appears that the south-eastern corner of Ireland is often the centre of fogs that cover the coasts of Wexford, and obscure the whole southern and eastern shores. Another point of attraction is the western half of the southern shore, where the fogs land within a compass bounded by Minehead on one side and Valencia on the other. The northern and north-western shores are singularly free from them. Scotland is frequently included in the fogs visiting the eastern coast of England; and sometimes the Shetlands are pervaded by the same palpable presence. The Orkneys are within large fog areas. The architect can apply

the information thus gleaned, and any extension of it hereafter placed at his disposal, to great advantage. In a neighbourhood found to have especial natural attractions for fogs, he will be careful to use no building materials upon which aqueous vapours exert deleterious influences. He would be wise, also, to avoid the use of any material in internal decorations likely to be affected from damp. In those localities shown to be exempt, or nearly so, from fogs, frescoes, and other vehicles of art requiring a dry atmosphere, might be ventured upon with a greater probability of a happy issue than experiments based upon no such reference.

Under some conditions fogs become sources of danger to human life: these conditions, it is almost needless to remark, occur most frequently at sea. Human ingenuity has endeavoured to counteract this tendency by inventing a system of fog-signals, whereby ships can be informed of their neighbourhood dangers. The lights that mark such places in ordinary weather are not visible in fogs: recourse is therefore had to sounds. These, again, are so much affected by the direction of the wind, and by the density of the fog, that persons interested in the preservation of the life and property committed to the seas are anxiously casting about to obtain improved methods of signalling. They look towards submarine signal by sound as a mode most likely to be more efficacious than any other, from the known power that water possesses of transmitting sound; but the details and development of this scheme yet require to be worked out. Our marine engineers may give the matter thought.

The signal most approved by the sailor is the gun. Bells and gongs are also extensively used; but, in some cases, have been abandoned for guns. The ammunition for a single gun costs about 200*l.* a year. Besides the expense, there is the objection that guns are also fired by ships in distress; and the firing depends upon the punctuality of the signal-men. The intervals at which they are fired are generally half an hour; but, when rapid steamers are expected, as at mail stations, more frequently. The Holyhead gun is fired every fifteen minutes. There is a bell at the Copeland Light, Belfast Lough, which is tolled by machinery. This is stated to have been heard at a distance of thirteen miles, but as its locality happens to be noted for the number of wrecks occurring in foggy weather, it can be of little real efficacy. At Boulogne the signal-bell is placed on a parabolic reflector made of masonry; but this contrivance for intensifying sound does not seem to have answered very well. Some other material for the reflector would probably be more suitable.

The steam whistle has been applied as a fog signal. One is used in the Bay of Fundy, and is said to be heard eight miles off. The air-whistle blown by bellows is not heard at such long distances. Horns and trumpets blown by men are also used. Mr. Holmes has applied steam to these trumpet signals with considerable success. The instrument has a long reed: it is blown by steam of about 20 lb. pressure. One of Holmes's instruments was heard at a distance of nine miles and a half. Mr. Daboll's instruments are said to possess great power. Mr. Robertson, of Poplar, has patented a gun-trumpet as a fog signal.

The loss of the *Anglo-Saxon*, with most of her crew and passengers, in a fog, in June, 1863, occurred only a few days before a memorial was forwarded to the Board of Trade from the British Association urging the national importance of an inquiry that had for its object the saving of human life under similar circumstances, and suggesting that the Board should set on foot a series of experiments to determine upon the best kind of fog signals. This memorial threw out the suggestion that a central station should be appointed for experiments, and pointed out the suitability of the flag-ship at Spithead for such a site; and that coast-guards or other officials should be set to record the results at various points at a series of distances of from two to ten miles, and in all directions, so that the difference in the transmission of sound when with or against the wind should be observed. Guns, bells, gongs, drums, steam-whistles, organ-pipes, Holmes's and Daboll's trumpets, were all recommended for test; and it was suggested that the relative efficiency of the various calibre and charges of powder of the guns, the weight of bells, the force of blows, the steam-pressure upon the wind-instruments, should be all noted. It also called attention to the probable superiority of subaqueous signals. But the Board of Trade

allotted the settlement of the question to the marine department. This branch of the public service communicated with the Trinity House: the Trinity House Elder Brethren referred it to Dr. Faraday. The professor recommended the Corporation not to make the suggested researches, on the grounds of the difficulty, the magnitude, and the expense of the investigation.

One of the instruments already invented for the subaqueous transmission of sound is the Siren. This is a box with a lid pierced with numbers of oblique apertures, through which a fluid passes and causes it to revolve with a musical noise, which is intensified under water in an extraordinary degree. Bells, too, have been tried. A bell has been struck by a hammer under water and heard at a distance of nine miles across the Lake of Geneva; and Professor Wheatstone has ascertained that a wonderful sound is emitted by tubes fitted with the embouchures of organ-pipes when made to speak under water by a current of that fluid. An American application of the whistle to the revolving cylinder of lighthouses appears to be an ingenious contrivance not yet tried in this country. It is the suggestion of Mr. Wilder, Detroit, Michigan. By this contrivance the signal whistles at regular intervals as the lights revolve: it does not depend upon the punctuality of an attendant, nor does it involve any cost for combustibles or charge. This has several advantages over the subaqueous system (which presents the drawback of requiring a hearing-tube to be dipped into the water and the ear applied to it to hear signals at any great distance, as sounds made beneath the surface are reflected when they come to the junction of air and water); but it has the need to contend against as a rival noise, and as a power that sweeps all sound before it in one direction. The economical use of the power of the revolving cylinder, however, is worthy of note. It could be as easily made to toll a bell.

A London fog is one of the sights of the metropolis. Where else does the atmosphere assume the aldermanic tint and density of green turtle soup? In what other part of her Majesty's dominions can her subjects boast of being invisible to the rest of their fellow creatures beyond arm's length? Where else may we stand by and watch men, women, and children, and vehicles pass into the palpable air as into a stranded, discoloured, "yawning gulch,"—taking the latter to mean some open-jawed danger peculiar to the sea? The London fog, too, has ordinances of its own. When its silent approach is perceived, a thousand and more boys are ready, with links and shouts, to pioneer passengers through it. Vehicles seem to muffle their wheels and find their way, warily, to the nearest quarters. The lamplighters turn out and set dots of yellow glare, at intervals, along the streets. The shops are lighted with gas; and as the darkness becomes more intense the silence of a snow-storm, broken only by occasional shouts as the flame of a torch comes into view and is lost again, settles upon the great home of three millions of people. As the fog vanishes, its retainers, the linkboys, also disappear; omnibuses commence tearing to and fro again; calbs whip round sharp corners with redoubled velocity; stall-keepers are "discovered" on the kerb giving finishing touches to their pyramids of fruit, as though some stage-curtain had been withdrawn; careful householders turn out the gas, burner by burner, and the population returns to its ordinary pursuits with the sensation of having risen early twice that day. There is nothing like it in the country; a fog towards the coast is scarcely more than a silvery haze, answering well to its name of "sea-fret"; and the white eddies that disengage themselves from inland low-lying grounds, and unfurl their wreaths over field after field till the whole landscape is enveloped in a dewy and almost luminous mist, form a very different visitation to the smoke-laden vapour that tarnishes the gilded ball on the top of St. Paul's and blackens the traceried canopy-work on Westminster Abbey. If the Londoners would consume their own smoke, they might exchange their steamy, clammy, choky, old-brass-coloured fog for a mist scarcely less silvery than that which deposits dew on asphodels.

Thus we find fogs have their beneficial uses like everything else in Nature's domains; that it is our own wilfulness that intensifies their density into a metropolitan fog; further that there is a deficiency in the efficacy of existing fog-signals, and consequently an opening for the

exercise of mechanical and scientific genius on a matter that bears upon the ever-important question of the saving of life.

THE GENTLEMAN'S HOUSE.*

In this nineteenth century, according to the author of the contribution to the subject of house-planning, of which we have already given some account, a new era in domestic plan was entered upon. Whilst as regards architectural the portion now passed of the century, an age of revival, has been accompanied by the open avowal (as he puts the case) of the styles as "equally good in their way," our practice of planning has come to an adopting "quite indiscriminately and interchangeably" two classes of models, the Palladian and other forms of Italian on the one hand, and the Elizabethan and pure Medieval on the other. Of the "two processes of reasoning involved" in the competition, as in all arts and letters, between Classicism and Gothicism, the Classic Mr. Kerr considers to have had no effect upon domestic arrangement in this century; whilst the Gothic revival, he says, has had much. Indeed, he believes that the "chief consideration which brought the Tudor and Elizabethan Mansion as a whole into fashion, was the obvious superiority of its plan."

Mr. Kerr remarks that it may be of use here to remember a reaction that there was, and of which the tendency is yet observable, from the pretentiousness of the Palladian, which accompanied its staidness; for "it must be looked upon as a rule that an English gentleman will desire to avoid obtrusiveness even at the sacrifice of a good deal of that importance which properly belongs to the rank, wealth, education, and character of his class."

Palladian plan went out chiefly as "the solid block of building, generally with wings attached and Basement Offices;" Elizabethan plan came in "commonly, perhaps chiefly," as "the quadrangular system, with the Domestic Offices on the Ground-floor, sometimes separate and sometimes not." As examples of the manner of the first quarter of the century, the author adduces the plans of Longleat as remodelled, and Todington, both already named, and mentions those of Wallaton (altered), Cassiobury, Fonthill, Abbotsford, and Eaton Hall, besides "various Castles so called." The arrangement of Longleat he refers to frequently; and he considers the plan of enhanced value by reason of its combination of "freedom from Palladian restraint," with "that perfect symmetry which the professional architects of the time would still necessarily seek after, . . ." Amongst its noticeable features are a "noble suite of Public rooms," a Principal Staircase, central yet private; the ready communication with the Dining-room from the Kitchen, and "the still almost unimprovable grouping of the chief offices generally;" and, as "last, not least," the completeness of the Private Suite of rooms,—nothing so suggestive of comfort according to the habits of an English family, being to be found "except piecemeal," in the eighteenth-century mansions. The general block-plan of this building is simply quadrangular, or with projections of the bay-windows,—there being two internal courts. Todington was a "somewhat extreme case of the development of the Medieval idea as then understood." The main house is quadrangular; the domestic offices take the same form, and are attached to the angle of the first group; and the stables are also quadrangular, and similar in their position with reference to the second group; but the interior arrangement is not so good as in the case of Longleat. The Palladian principle settled into that which is commonly called the "Square-house," with or without a basement of offices,—a form to which a wing is attached at pleasure for the offices, or one wing for offices and one for stables. Sometimes the offices have been more elaborately developed, attached to the rear, and made to embrace a small courtyard; sometimes the pair of wings provides certain principal rooms, and encloses an entrance-court in front. In all these changes, and those more recent, the abandonment of basement-offices has become more and more established. "The present state of the rivalry of style in respect of plan," says the author, may be set forth in a sentence:—

"First, the old Palladian manner has died away, except in the common 'square house'; secondly, the Media-

* See p. 2, ante.

val principle has been followed out in a great variety of instances, and with perfect success; and, thirdly, although it cannot be said that our Palatial-Italian exterior has brought with them a new system of plan to do battle with the old English manner (which would be needless), yet certainly there has taken the place of Palladianism in a large number of our best Mansions an equally Classical manner of arrangement which has proved itself a worthy rival to the best Elizabethan, and may even, on certain ground which is its own, claim a clear preference. The balance of power is perfect. The charming irregularity of unfettered convenience is the Mediæval merit; and, when duly refined by an educated and skilful judgment, can never be called upon to recede from its position; but there is the stately Classic symmetry, on the other hand, all grace and balance (claiming indeed to be still greater refinement, the work of a still more highly-educated and more skilful form of judgment), which must not be denied one iota of its pretensions until the price of its elegance is the sacrifice of convenience."

To illustrate the practice of these two systems of arrangement, or "Styles of Plan," four pairs of plans are given,—each pair being considered to present a fair contrast of Classic and Gothic arrangements of their kind. The first pair comprises a plan of Llyn House, Oswestry, and one of Old Connaught, Wicklow, the former a symmetrically disposed plan, having a square top-lighted saloon in its centre, and the latter (to which and to Mr. Kerr's remarks upon it we referred in our former article), a plan with Mediæval features, such as a hall entered from a porch at one end of it, a passage-way behind "screens," and a bay-window at the end where the "dais" would have been. Both these houses are of very recent date. The second pair comprises plans of Osborne House and Balmoral Castle, these two being considered particularly eligible as having been based on the instructions of the same person, the late Prince Consort, and as having been intended for the self-same occupation. In each, perfect domestic convenience was aimed at; yet the plans present a striking dissimilarity. One is founded upon the Italian Villa, the other upon the Elizabethan Manor-house: in the former, symmetry prevails in spite of a certain purpose of irregularity in the bulk; in the latter, notwithstanding an obvious desire to provide that regular disposition of thoroughfare lines which is so important a means of convenience, and none the less that simple regularity of partitionment which belongs to good plain modern rooms, yet "Mediævalism" displays itself constantly in an unaffected but decided disregard of all needless or fictitious correspondence." The next contrast is between the plan of Bridgewater House and that of West Shandon, on the Clyde, which last, Mr. Kerr says, "shows perhaps as much of the disorderly convenience peculiar to Mediæval plan as could safely be compressed within the space," the "entire composition" suggesting "the idea of a rabbit-warren," where you could "get from anywhere to everywhere at a jump—provided" you knew "the way." Finally are given two plans by the author, with the same items of accommodation in each, and "equal stateliness." At the end of the book, moreover, there is a plan, also by the author, intended to represent the modern arrangement in Scotland, "the best ordinary application of the Mediæval principle, but considered to be deficient in internal refinement;" only the irregularity that is inevitable, becoming a merit; whilst intentional, or even unnecessary obliquity is "an affectation and an inconvenience." These Scotch plans have many good features, but combined with defects, as in the internal lighting. The reader will not fail to observe that the author's argument in favour of irregularity of disposition, is not all that might be hastily supposed, and that the case in favour of symmetry remains pretty much as we viewed it.

The first Part of the book, or preliminary essay, is concluded with the inquiry, "What may be the more immediate prospects of domestic plan at this moment?" We have a system of plans the resources of which are not understood. Mere accommodation is overflowing; whilst, in convenience and comfort, the best works of our architects leave little to be desired. Yet in our best works, the family apartments are frequently far inferior to the offices,—the reason being," he says—we do not feel sure whether correctly—"that the science of the superior apartments is a superior effort." And he finds that there is "another grievance (of universal prevalence)," "the want of due consideration for the all-important question of Aspect." Niggardiness of space, and insufficient provision for internal salubrity and external disposition, and for cheerfulness of general character, are to be noticed; and the "complex qualities of stateliness wedded to comfort, and comfort to stateliness," are frequent desiderata; but all are "capable of being supplied from a

proper study of the abundant resources of the existing English system." As to which of the two great styles now practised is to displace the other, or how far may a compromise or combination be effected? and, what is the natural style of the soil?—these questions often mooted, and not so often answered, need not be evaded.

"The grandeur, refined balance, and repose, of the Italian manner in its highest efforts are attributes all its own. The piquant utilitarianism of the Mediæval manner is none the less peculiar to itself. This is so, just as much as in the decorative element the Classic style possesses the same grandeur, refined balance, and repose, and the Gothic the same piquant utilitarian charm. But these characteristics, we must congratulate ourselves, may in plan at any rate compete without collision; we cannot consent to part with either of them. Some of our ardent archeologist architects may occasionally stretch a point to carry Mediæval authenticities into practical house-building; but the effort is harmless,—if it pleases the resident and family. Any similar attempt to reproduce the identical glories of some forlorn Roman or Venetian palazzo could only result in the same way."

We stop quotation to express difference with Mr. Kerr as to the harm done, even as taking the meaning of his words to be confined to plan. We say, without reference to Mediæval or Italian, there is harm done beyond that to the first resident, and to his family,—of whom our author takes little account. Every one who enters the house, or who sees it, is exposed to harm, to a certain extent: moreover the house will not be pulled down on the decease of the first resident; it will pass to others,—perhaps not his family; and the art and the building-practice of some succeeding generations will be prejudiced through the errors or whims of him who thought he had right to do what he liked with his own. No one has the moral right to perpetuate a blunder by his ignorance of architecture. Why is it that general self-education, and the education of his children, are the duty of every man, and should be required of him by the State? Surely not alone that the lack of education may be his misfortune, but because the deficiency will make him a non-contributor to the world's progress, and even a centre from which evil will radiate beyond the limits of his family. Properly viewing a question, whether of house-building, education, or morals, it will be found there is incumbent upon every one who has work to do, the duty that he should accomplish that work in the best manner, seeking counsel if need be. The ground we take, and have taken before, seems to us plain and the only right ground, that he who erects a bad building, even though it be within his park, and hidden for a period by a wall as impenetrable as that with which Beckford surrounded his estate at Fonthill, does a public injury. We do not expect the world at large to assent to this, in the nineteenth century, or to some other truths; but we expect Mr. Kerr to see that "the effort" that "pleases the resident and his family" is not necessarily, as he writes it, "harmless."

Mr. Kerr continues, saying that there are demands of the day, which refuse to recognise mere authority; so that the competition of styles proceeds not only under such modification, but along with their mutual influence and aid. And to "the never uninteresting question, What is our natural style?" he answers by directing attention to his essay, wherein he has "not failed," throughout, to "award to domestic plan of the Mediæval type its full claim to historical authority on English ground." But the question, he says, is not thus at the end.

"Whatever our national type of the old world, there was up-eradded, at the birth of the new world, in England only as everywhere else, and in the subject before us only as in a hundred others, a singular majesty-and-grace combined—we call it the Classic—character, which this new world, gathered from antiquity in its Italian birth-place, and with which it clothed itself, never to be divested of it again, unless indeed some great change should come over intellect which is far beyond our foresight. Both types, therefore, are our inheritance in modern England; and to suggest the repudiation of either is to imply disloyalty to both."

Our author then proceeds to the "Exposition of Plan as now practised," or "Part Second" of his volume. We have already specified the titles of its Divisions, and those of the subsidiary sections of each Division. It first discusses the general principles to be kept in view, and of which the relative importance must be left to be decided by the individual architect, according to what may be the conditions, as of site, and then gives attention to each feature in the plan of a house, defining its purpose, and its situation most to be desired,—as with reference to aspect, and to the position of other features of the plan,—and treating of the positions for doors, windows, and fireplaces, and the provision to be made for furniture.

Of course, the class of habitation to which the

author restricts his attention, still includes houses in great variety of magnitude, and such as may differ considerably through local circumstances and tastes of occupants: so that a scheme of classification of their features, which may be applicable to all the houses, is not easily made. But our author finds that the house of an English gentleman is divisible into two departments, one of them that of the Family, and the other that of the Servants. In some mansions of very superior class, another special department is constituted by the State-rooms. As out-door departments or appendages, there are the Stables and the Farm-offices. Such is the author's primary classification. The subdivision of the Family Department, and that of the Servants' Department, we gave in our last article. With this introduction, he arrives at the general considerations affecting the arrangement of the Family Apartments. But, before specifying what these considerations are, as required to govern the rooms generally, with the supplementaries and thoroughfares, he says,—

"The points which an English gentleman of the present day values in his house are comprehensively these:—

Quiet comfort for his family and guests,—
Thorough convenience for his domestics,—
Elegance and importance without ostentation."

"However small and compact the house may be, the family must have privacy and the servants commodiousness; and the whole dwelling must display an unassuming grace."

Even grandeur, he observes, must not be pretensions, or wealth ostentatious: "the attributes of an agreeable English home must never be sacrificed." The general requirements which he enumerates and treats under separate heads, are, Privacy, Comfort, Convenience, Spaciousness, Compactness, Light and Air, Salubrity, Aspect and Prospect, Cheerfulness, Elegance, Importance, and Ornament.

The idea implied under the first head, was the basis of the primary classification. Illustrations of the want of privacy may be found in "houses of the smaller sort," where one entrance admits visitors and tradespeople, thin partitions transmit sounds, and odours from the kitchen fill the house. It should be understood, that the bulk of the volume is applicable rather to country-houses than to houses in towns, where many of his requirements could not at all be answered. However, in any house of tolerable dimensions, a separate staircase for servants' use becomes necessary. Advancing in the scale of establishment, "privacy of corridors and passages becomes a problem;" and the lines of traffic of servants and family respectively, have to be kept clear of each other at recognized points. The author says,—

"The idea which underlies all is simply this. The family constitute one community; the servants another. Whatever may be their mutual regard and confidence as dwellers under the same roof, each class is entitled to shut its door upon the other, and be alone."

He considers the Classic model "certainly less" favourable to privacy than the Mediæval; in other words, "that the open central lines of thoroughfare in Italian plan must favour publicity, whilst the indirect routes of the Mediæval arrangement must equally favour privacy."

Secondly, there is to be considered Comfort. Much of what it includes might come under the term convenience, which, however, the author prefers to apply to another quality. The comfortableness of a house is described as the "exemption from all such evils as draughts, smoky chimneys, kitchen smells, damp, vermin, noise, and dust; summer sultriness and winter cold; dark corners, blind passages, and musty rooms." As to the separate apartments, it is too frequently considered he says, that any form will make a good room, if space and height be adequate, and doors and windows sufficiently distributed.

"But here lies the cause of incalculable shortcomings in respect of comfort. As a rule, no random arrangements of this kind ought to be tolerated. No room ought to pass muster on the plan until the designer has in imagination occupied it and proved it comfortable. It is too much if he plots upon the drawing every important article of furniture which the room has to receive, and so establishes its capacities and qualities beyond all hazard. A little fastidiousness on paper will save much discomfort on the building. Take, for instance, the case of a gentleman's Business-room of small size, or a Study; and suppose that when the occupant comes to place his desk in it he discovers that he must choose between three evils (and it is not unfrequently the case), whether he shall turn his back to the fire, or to the door, or to the window. He will be told, perhaps, that the reason of this awkwardness lies in the conflicting claims of a neighbouring apartment; or that it is the fault of the architect, or the chimney breast, or the prospect, or what not; but the simple fact is that it is the fault of the architect,—the room has not been carefully planned. It is true, it would be dangerous to assert that the architect is bound to pro-

vide for each individual apartment an arrangement as perfect and complete as if itself alone were the subject of plan; questions of compromise must continually arise, and often they will prove hard of solution; but the skill of the designer has its chief task here, in reducing every compromise, by sheer patience of contrivance, to a minimum; and the plan can never be considered perfect whilst anything of the sort is so left as to provoke the perception of a radical defect, or even a serious discomfort.

Convenience is distinguished from Comfort, as referring to the active, whilst the latter to the passive,—convenience being the characteristic which results from an arrangement of parts in such relation as may enable the establishment to be carried on in perfect harmony; and it is of two branches, one relating to the family and the other to the domestics. The requirements of the offices are more difficult to fulfil than those of the family department.

In the chapter on Spaciousness, the author says, that this requirement, an element of comfort and convenience alike, ought never to be undervalued, though it often is. It would be better to choose a smaller number of rooms, than a larger with the rooms of questionable size.

"There are many otherwise good houses in which the sense of contractiveness is positively oppressive; you feel a constant fear of overturning something, a sense of being in somebody's way, you speak in a subdued voice, lest you should be heard outside, or upstairs, or in the kitchen; you breathe as if the place were musty; you instinctively stop to pass through a doorway; you sit contractively in your chair, and begin even to lie contractively in bed; and to step out into the open garden, or even upon the footpath of a street, seems an act of leaping into free space. And there are others, perhaps of much less aggregate size and importance, where the mind and body, the spirits, and even the self-esteem of a man, seem to expand and acquire vigour under the simple influence of elbow-room."

Compactness, the author calls "the exquisite quality," "opposed to spaciousness, but only in appearance, and by way of contrast." The other provisions combine to give to the plan an extended and straggling character; and this increases more and more with each increase in the establishment.

"In plain language, the more we have, the harder is the task of keeping it well together,—the greater the aggregate the more difficult the preservation of its unity. The very completeness of convenience in one form produces inconvenience in another. The very elaboration of the mechanism disjoins it."

In London houses, compactness as regards site is a primary question; but "the more scientific form of the quality is that compactness of an extended superficies which is chiefly required in Country-houses." The best compacted plan is that which provides the shortest and easiest routes; yet compactness is "not always to be judged of by what may be called the compact appearance of the drawing." Mere regularity of plan, as there seen, may be only "paper-deep beauty;" "in the actual house, such merits are altogether lost; whereas it is frequently the case that arrangements which are in the building both convenient and compact, have on paper an aspect of irregularity and want of repose which strikes the superficial critic as evidence of crudity."

Little is said in the chapters on "Light and Air" and "Salubrity;" but many of the points relating to the latter belong to Site, which is treated of in the next Part of the volume.

On the other hand, much that is valuable is put forth under "Aspect and Prospect,"—conjoined subjects, to which the author has paid considerable attention; and he here gives an "aspect-compass," which shows the quarters whence the different winds blow, those in which the sun rises and sets on the longest day, and the shortest, and the ranges of sunshine for different points of the compass. Aspect of a room is properly defined as "the relation of its windows to sunshine and the weather." The problem of a room has to be considered, "with relation, first, to the landscape, and, secondly, to the light in which that is to be seen." There is no doubt that Mr. Kerr is quite correct in saying that every room has, according to its particular purpose, a better aspect as opposed to a worse. He is not content with this: he says, the room has "a certain very limited range of suitable aspect as opposed to the whole remainder of the compass more or less decidedly objectionable;" and there is truth in this also. But here, as he allows, "arises one of the greatest possible difficulties of plan, demanding on the part of the architect so much careful attention to domestic requirements, and so much patient exercise of skill in plotting as to be itself a science." Considerations of prospect are frequently at variance with those of aspect; whilst the former, not to mention other matters, are insisted upon by the person about to build. It results that the choice of aspect ends in a

compromise, generally, or more frequently than our author's chapter seems to imply would be requisite. In towns, he says that questions of aspect and prospect are so entirely "subordinated to others that they may be said to be altogether lost sight of;" whilst he appears not to consider the case of aspect hopeless. It is clear that, in towns, there is little scope for attaining the object unless by varying the disposition of rooms according as the house may be on one or the other side of a street; and even in suburbs it is difficult to escape from "the rule of absolute parallelism to the high road." But "too frequently in the open country," where, he says, "everything in respect of site is perfectly untrammelled," aspect is so little regarded as to raise a question whether the matter of it is understood. There can be no doubt that it should be understood, in order that the inevitable compromise may be effected in the best manner; and Mr. Kerr's chapter, and his frequent allusions to the subject in the volume, should be carefully studied. He considers that when considerations of prospect are allowed to set aside entirely those of aspect, the error of judgment is a grave one; for, prospect, he thinks, loses its charm in the eye that constantly looks upon it; whilst aspect, if radically unsuitable, will never lose its unpleasantness. Acknowledging that there are few things in the whole province of plan more difficult and complicated than the disposal of rooms so that that they may possess the advantages of aspect and prospect together, he notes as simple expedients, the provision of extra windows specially placed, that is for prospect, and the use of bay-windows of special plan; the rule which he recommends being, in fine, that whenever the considerations of aspect and those of prospect happen to be quite irreconcilable, the properties of aspect should be deemed of most importance, and that some mode of turning the prospect to account otherwise should be devised.

The quality next considered is "Cheerfulness," which in our climate he would adopt as a leading idea. The chief element of cheerfulness is the sunshine; so that the question is that of aspect: though prospect is equally important. The other elements he specifies as "Spaciousness of plan, loftiness of ceilings, a slight excess (rather than otherwise) of light and air, a character of decoration and furniture neither too heavy nor too dark [he is here going beyond the field of plan], all coupled, of course, with comfort and convenience, without which it is difficult to make by any means a cheerful house."

Then follows the consideration of the requisite "Elegance." The more advanced the taste, the more fastidious it becomes; and "repugnance to the meretricious or obtrusive has sometimes even led to a sort of repudiation of the element of elegance itself. . . . Persons the most exalted seek relief in their private retreats by the adoption of simplicity; but whilst the luxury of grandeur is reduced to a limit, grace need not be quite rejected. The limit is indicated by the term Elegance."

"Grandeur and artistic ambition must be spared even in places of state; mere richness will often be pronounced vulgar; simple grace, and elegance, and perfect finish are generally enough; their absence, if it is truly, will be at once detected, but any endeavour to reach beyond them will be labour in vain."

It would be a mistake, he thinks, to fancy that the "aesthetic abstemiousness" of English gentlemen is not shared by the ladies; and he says that the "sound principles of criticism upon which the pretensions is discarded" are fully comprehended by the latter.

Under the head "Importance," however, he remarks that there are considerations of dignity essential to the plan of a Gentleman's House. Though removed from ostentation, the house must be equally removed from meanness. Solid values for the money spent should be provided. The importance of the rooms as a whole will greatly depend upon the means of communication: in fact, Mr. Kerr says, whenever display is allowable at all it should there begin, and that when the quality of Importance has to be carried into that stateliness which is proper for dwellings of the very first rank, Italian plan will offer great facilities for effect.

The recognition of the English taste amongst "the superior orders" as "averse to rich or sumptuous effects," does not lead Mr. Kerr to repudiate altogether, ornamentation. That, he says, would be "an act of morbid asceticism which English gentlemen, and still more English ladies, would not approve." The house must have no "excessive adornment," which is "almost invariably vulgar, and at the best barbaric;" "no exuberance;" but there should be "no poverty."

Even in simplicity there may be "an affectation as demonstrative as any other;" and when the fastidiousness of excessive refinement takes refuge in a mental blank, it is but an artificial idiosyncrasy in taste." In a "Gentleman's House" there should be neither ostentation nor an opposite extreme; the house, he says,—

"ought to be not merely substantial, comfortable, convenient and well furnished, but fairly adorned. It ought to exhibit a reasonable amount of intellectual liberality, faithfully keeping on the side of simplicity and moderation, and clinging to the grace of elegance as the beauty which will last the longest, but avoiding none the less that poverty of dress which is not self-denial, but inhospitality."

Mr. Kerr's view that hospitality requires there should be a certain adornment, is the same as Mr. Garbett's in his Principles of Design in Architecture, that courtesy requires it. We are pleased to find the accordance between the two writers: only, we are inclined to add that the possession of means involves the duty not merely of the hospitality and courtesy which may be comprised in abstaining from "poverty of dress," but of the investment of the means so that they may return a positive contribution to the progress of art. Mr. Kerr, however, is much nearer to our view, in his later assertion, than he was in his other, above, on which we joined issue with him.

The several qualities, or requirements, treated of with reference to the Family Apartments, are discussed again,—or the chief of them are,—when the author comes to the Domestic Offices.

It is not our intention to follow Mr. Kerr minutely, through the remaining sections of this first division of the second part of his work, or through the divisions headed "State Rooms, &c.," "The Domestic Offices," and "The Stabling and Farm Offices, &c." His definitions under the separate heads "Dining-room," "Dining and Sitting-room," "Morning-room," "Breakfast or Luncheon-room," "Drawing-room," and so on in great detail, throughout the section given to "The Day-rooms," under the heads "An Ordinary Bed-room," "An Ordinary Dressing-room," "Principal Guests' Suite," &c., of "The Sleeping-rooms," in similar detail; under those of "Nurseries," and "School-room," of "The Children's Rooms," under "Cloak-room," "Lavatory, &c.," "Bath-room," &c., of "The Supplementaries;" and under divers heads of the section devoted to "The Thoroughfares;" and similarly throughout the other divisions,—as the third, where each separate office-room is treated of in a distinct chapter,—are not less valuable than is his minute specification of the conditions and requirements in each case. To appreciate the whole of this part of the work, the book itself should be resorted to. The arrangement of the heads, of which we have before spoken, cannot, even without reference to them severally as treated, be studied without results, as well in the facility in planning which a logical view of the subject will give, as in the improvement of what conduces to domestic comfort. But whilst we may leave a valuable portion of the book comparatively unnoticed, we reserve for future attention portions of the volume which, belonging to the subject of planning, can perhaps be appreciated with less difficulty through the medium of a review, than those for which the appreciation would have to be founded upon an abstract of matter already condensed, and therefore on such an abstract as would with difficulty accommodate itself to our space.

PROFESSOR SMIRKE'S OPENING LECTURE ON ARCHITECTURE: ROYAL ACADEMY.*

DISMISSING now all further reference to the subject of ornamental detail, I would somewhat enlarge the sphere of my observations, and suggest for your consideration the interest that may be given to buildings of small extent, or of unimportant character, by the application of the rules of good art to their design. Beauty and even dignity are surely capable of being impressed upon a building, although it may want prestige of nobility in its origin, and although it may lay no claim to the doubtful merit of mere bulkiness. I would be careful to guard myself from being supposed to advocate any attempt at giving an inordinate, or undue, importance to trifling works: what I would fain urge on you is, that they may be made to interest us, and even to excite our admiration, without any attempt being made to stilt them up to a level with great

* See p. 38, ante.

works. The hand of the real artist can never pass undetected.

It has been said of Virgil's rustic swains, such was the natural grace with which he seemed to invest them, that they appeared to perform the humblest and commonest tasks of rustic life with the dignity of gentlemen. So, perhaps, we may say with truth that buildings, even of the very least importance, may be raised high in our esteem by the artistic treatment of them.

It would be easy to multiply to any extent examples of this happy effect resulting from the judicious exercise of taste on minor works of architecture; and to illustrate the dogma that I would press upon your attention, that objects of architectural design do not derive their value so much from their intrinsic importance as from the quality of art bestowed upon them.

Take, for instance, the bow window, a peculiarly English feature which well deserves our regard and attention. Though so cheerful and pleasant a feature in dwelling-houses, it was, perhaps, in its origin, designed not only for light and prospect, but also as conducive to security in troublous times, as a looking-out place, giving a wider area for observation than would be afforded by an ordinary window. We see the idea of a bow-window carried out, although somewhat timidly, in the Border castles of the North.

Subsequently, however, in Tudor times, when castles began to lose their frowning character, indicating a greater sense of security, and a desire to render home not only a place of refuge and defence, but also, to some extent, of domestic enjoyment, we then find them, as at Berkeley Castle, Kenilworth, and many other examples, assuming that particular character which afterwards became one of the principal attractions of an old English mansion. Indeed, we are justified, I think, in claiming this agreeable architectural feature as peculiarly English.

Bow-windows, no doubt, occur, in some form or other, in various parts of the Continent; scarcely even, perhaps, in Italy; not very commonly in France; but in Germany some types of the bow-window are, I admit, common enough. At Nuremberg, that great mine of picturesque architecture which every architectural student should visit and study, some particularly beautiful examples occur. Still there is a manifest local character that distinguishes all these German examples from the genuine old English manner of designing them. The Germans never appear to have so entirely departed from the ancient Gothic type, as we find to have been the case in English domestic buildings.

Their bow-windows are apt to look more like perforated towers than with us; and there seems to have been retained a special disposition to place them at the angles of their houses, as if covertly intended to command the sides of the building, as the bastion of a fortification commands the curtain. Our Tudor bow-windows, on the contrary, seem more designed for interior domestic enjoyment. As Bacon says of them, "These be pretty places for a conference," and it is certainly obvious that our ancestors, in building these bows, were far more bent on providing means for the pleasant occupation of a room than on producing any ornamental exterior effect. It is true, they are almost always extremely picturesque, and never fail to contribute to the beauty of the building of which they form a part; but this only tends to prove what on former occasions I have repeatedly urged, that in design, whatever is peculiarly fit and proper for its individual purpose rarely fails to be agreeable in its appearance.

Whilst dwelling on those subordinate parts of a building which the genius of artists has loved to endow with especial beauty, I must not forget to do justice to the chimney-shaft. Out of these trivial and uncleanly smoke-vents architects have taxed their ingenuity to produce really marvellous objects of high æsthetic value. Of classical interest they can scarcely be said to possess any, for it is very doubtful whether architects of classic times recognized the existence of such a feature. Vitruvius does not even name them. The remains of Herculaneum present not a single example of one; nor do the mosaics, frescoes, or bas-reliefs of antiquity show any indication of one, as far as I know. There is every reason to believe that the only means of escape for the smoke of their fires was through a hole in the roof, like the *louvre* of Mediæval times; so that the "smoke nuisance" we complain of at the present day may lay claim to high antiquity. The very name of the large hall in a Roman's house, *atrium*, is believed to be

derived from this nuisance, "*Atrum, enim, erat ex fumo.*" The statues in these halls are described by Juvenal and others as "*fumosi*;" and Vitruvius advises that there shall be no carved work in the interior of winter rooms, as they so soon, as he says, get covered with soot. I apprehend that the roof-timbers of our old baronial halls must have presented much of the same appearance; and as Horace complains of the "watery eyes" produced by the smoky halls, so our own mailed knights and their retainers could hardly have been better off. You will find that antiquaries are by no means satisfied as to the period of the introduction of this great domestic convenience, the chimney; but it was somewhat late in Mediæval times before chimneys became very common. Viollet-le-Duc gives us in his "*Dictionnaire Raisonné*" a good example of one of the thirteenth century, formerly existing in the Abbey St. Lô, and in England we have examples of still earlier date; but as civilization advanced, and men's domestic habits refined, the chimney became conspicuous. They lavished art upon the decoration of the hearths below; whilst the chimney above partook of the same feeling, and both gradually grew into favourite objects of design, until, in the sixteenth century, the exuberance of architecture,—especially, I think, in France,—led to the erection of those enormous and elaborate towers which we see provided for the discharge of smoke at Fontainebleau, the Tuileries, and very many other places.

The hypercritical may ask, why clothe these subordinate features with the dignity of art? Why bring out into so great importance and conspicuousness objects which have so mean a use? The artist, I apprehend, will rejoine—why not? Why should we not give to these chimneys any amount of beauty and expression that such objects, trivial though they may be, can be made susceptible of, provided we do so honestly, and keeping within the limit of good sense. To give to a chimney-shaft the air of an embattled turret, with loophole and crenellation, would be a falsity and an outrage on that good sense to which all things in art should be amenable; and indeed, to make them appear to be anything but what they are would be a fault which I should be ashamed here to defend or extenuate. But that it should be considered unworthy of the dignity of art to descend to the adornment of even a chimney-shaft, by beauty of proportion, as well as of detail, merely because it is an object subservient to a very humble purpose, is what I feel bound to deny.

At all events, let not the architect think that he can afford to slight any portion of his inventions. "*De minimis haud curat Prætor*" may possibly be a sound maxim in law,—and even that I apprehend admits of a doubt,—but the arts of design are subject to a far milder, less severe rule; and, I repeat it, an architect cannot adopt such a rule of conduct without abandoning a part of his plainest duties, and at the same time abandoning a large and fruitful field for the exercise of such genius as he may be endowed with. I have now urged this principle upon you by referring to various minor details of architecture. It would be easy to greatly extend the number of similar illustrations, but perhaps we should profit more by enlarging the scope of our observations, and by showing how the same principle applies to the designing of whole buildings as well as of their details. I would wish you to consider that buildings of small dimension, and appropriated to subordinate and even very insignificant purposes, may yet be made pleasing and interesting objects by a judicious application of the resources of art. But before endeavouring to enforce this opinion by special illustrations, let me assure you that I am by no means about to lead you into that vulgar error of which we see so many evidences constantly presented to our view, of that misapplication of art which consists of loading small buildings destined for humble purposes with excessive or obtrusive decoration. On the contrary, that is a practice against which I would strongly protest. In like manner, I would warn you against another error common enough, and perhaps all the more dangerous on that account, of giving, or attempting to give, to those smaller buildings, a character that belongs to other more important works. To design a gate lodge so as to represent some classical temple, or to deck out a tavern, or a shop-front, as if it were a temple of Osiris, on a small scale, these are vulgar habits which I beg of you to avoid as repugnant to good sense, and derogatory to your art. No delicacy of finish, no exactness of representation, no excellence of

execution, will compensate for so great a violation of propriety. Indeed, this disregard of the appropriateness of style—this ambitious assumption of dignity, incompatible with the size as well as with the character of the building, never fails to bring on the work, and on its author, the condemnation, and perhaps the ridicule, of sound critics.

However, as I have already said, very trivial buildings are capable of beauty and expression, that beauty not being sought in excessive or inappropriate decoration, and that expression not being enforced by resort to theatrical or obtrusive artifices. The idea which it may be desirable to express should be delicately hinted at, rather than forced on the observer. Perhaps I may best illustrate the principle that I am endeavouring to present to you by hypothetical cases. Suppose, for instance, that a bailiff's, or a gamekeeper's lodge has to be built, in one of those ornamental and picturesque parks with which English scenery is so often graced. One ambitious architect will overlay his ornaments upon it from plinth to roof; his ridges will be bristled with a luxuriant cresting; his walls will be speckled over with bricks of all manner of colours; he will give it perhaps two or three very pert-looking gables; his bow-windows and porch will present a complete storehouse of crockets and corbels; tall chimney-shafts will of course not be wanting elaborated after the types of Hatfield or Knowle; in short, there will be a whole world of art within the compass of this nutshell. Another architect, whilst he gives to his work that careful and even polished aspect that is demanded by the genius of the place, will yet keep it subordinate and unobtrusive. He will not force it upon your notice, but rather would let you perceive it amidst a becoming veil of foliage: like the modest rural belle of Virgil, she is retiring, but not unwilling to be admired:—

"Fugit ad salices, at se cupit ante videri."

His work will present nothing to your view either ambitious or sordid. Ornament will not be wanting, but it will be sparingly used and suitable in character. There will be elegance, but a total absence of ostentatious ornamentation. In both these supposed cases there may be beauties, but in the one case there is an incongruous display of them; in the other case, its beauties are but modestly disclosed, and have to be sought for in order to be duly appreciated. Which, I ask you, of these two men's works would best deserve the name of *fine art*?

It is, I fear, a deplorable fact that the present day is distinguished by far too great a prevalence of the evil taste to which I advert. *Æsthetic* cultivation has not kept pace with the accumulation of the means of indulgence in the luxuries of taste. I believe that many an architect finds himself, contrary to his better judgment, constrained to work down to the level of his patrons, and erects unsightly examples of misplaced finery to meet the exigencies of such patrons, whilst he is conscious of higher and worthier aspirations. I am treading, however, on hazardous grounds, and must proceed no further. I will, therefore, at once dismiss the subject, merely remarking that, however improvable may be the fine-art education of my profession, no improvement would be so productive of good, and none so needed, as an improvement in the knowledge and appreciation of the art outside the profession. But for the enlightened perception of the beautiful in general,—and, indeed, in the Greek culture generally—Greece, perhaps, would never have had a Phidias. It was the ardent love of art, and the earnest study of it, in Lorenzo di Medici, to which may justly be attributed that memorable school which gave us Michelangelo and all the other glories of his age.

I have observed on the capacity of even very small buildings for beauty and expression, without that resort to excessive decorative detail which is supposed by some to be so essential. Examples in endless variety might be adduced in verification of this opinion. The cottages that remain to us of the sixteenth and seventeenth centuries have often a most pleasing character, contrasting painfully with the ordinary cottage of the present day. Notwithstanding the simplicity of design and the apparent absence of all effort at "effect," there is yet a play and variety of form, and breadth of light and shadow, which will produce, by chance, as it were, a most picturesque object; and this desirable result, let me add, will be often found to be brought about without a single merely ornamental adjunct. When

these humble yet pleasing structures happen to occur beside a cottage of the ordinary type of the present day, it is impossible not to admit that in matters of taste, at all events, the world makes very slow progress, if it be not retrograde. The utilitarian spirit seems to have completely extinguished the feeling that prompted the cottage builders of former times; so extinguished, indeed, that the rash man that would venture to insinuate a doubt whether we might not derive valuable lessons from these very unpretending works of our simple forefathers would probably meet with far more derision than sympathy.

Do not suppose that I am not alive to the very important improvements that have been made of late years, in the domestic arrangement of cottages. It would be a gross injustice to many able and benevolent men who have laboured in the good cause of bettering the material condition of the humbler classes, were I to deny that great success has attended those efforts: there is not a doubt that the interior economy of cottages has been wonderfully improved, and that the health of their occupants, both moral and physical, has been greatly promoted by those improvements; nor do I hesitate to admit that these are considerations which have a far higher claim on our attention than the merely picturesque consideration which I have been noticing, and to which it is perhaps my duty here to confine myself. My object in touching at all upon the utilitarian view of the subject is to suggest to you, as artists, not that the first place is to be given to artistic excellence in these humble productions, but that art should not be altogether overlooked in them; and to urge upon you the duty which, so it seems to me, devolves on all who love their art, to study seriously and carefully how to reconcile and adopt the high qualities of beauty and expression to the severer virtues of convenience and healthiness.

At the risk of being charged with extending my remarks on this cottage architecture to an unreasonable length, I am strongly tempted to point out the fertile source of profitable study to be derived from the critical observation of the villas and other rural buildings that so often meet the eye of the observant artist who wanders over the campagna of that land of art, Italy. They are for the most part the works of former and better times, and illustrate forcibly the picturesque tendencies of the Italian mind. Every group of these unostentatious structures that we meet with is apt to arrange itself agreeably and to become in itself a picture, attractive to the painter's eye and inviting his pencil. They are not tricked up exhibitions of artistic coxcombry; not theatrical displays, "smelling of the lamp," and betraying the vanity and vulgarity of their authors; but their charm lies in the unaffected grouping together of very simple forms, pleasing us by the accidental beauty of the result. It may be difficult to explain the cause of the pleasure which these rustic buildings produce on the mind of the wanderer who has leisure and inclination to seek benefit from a contemplation of them. The pleasure derived from this exercise of the eye is to be felt, but not described, and will perhaps best be realised by those who will take the trouble to compare these examples with buildings of like nature usually erected by ourselves at the present day, and in our own truly utilitarian country, from the contemplation of which we usually derive anything but satisfaction.

I must not detain you longer with these reflections. I might readily draw ample illustration from the works of the great painters of the Renaissance and later periods. I can assure you that even the architectural student who, in search of the picturesque in his own department of art, will examine the works of the great masters of the sixteenth and seventeenth centuries, will not fail to find the delicate perception of beauty which so greatly distinguished the Italian mind, eminently manifesting itself in the backgrounds and subordinate portions of the refined compositions of that golden period of art.

Now, when endeavouring to enlist your interest on behalf of these minor objects of picturesque architecture, it may seem inexcusable that I should pass by without recognition the almost proverbially attractive form and features of the Swiss chalets; but they are objects so familiar to all that we need not be detained by any special reference to them, except to point to them as a most obvious illustration of what I have been urging on you, namely, that in these smaller works of art those will assuredly please the

critical eye the most which seek to give pleasure, not by multitudinous enrichments, but by an agreeable outline and chiaroscuro. The singular charm of those plain wooden tenements consists in their breadth and simplicity, in the unaffected rustic beauty which particularly characterises the Swiss chalet.

It is time to close these desultory remarks on small matters. Let me sum up in few words the perhaps not sufficiently marked or steady aim of all the observations with which I have been soliciting your attention this evening. I would not have you despise small objects of design. Never regard it as beneath you, nor beneath the real dignity of your art, to pay even minute attention to every object, however unobtrusive; for there is in designing nothing to which true art may not be applied with advantage. It is the slovenly neglect of these details which contributes, more than almost anything else, to make a design crude and sometimes even vulgar.

Some may be disposed to regard such inattention as a noble indifference to trivial matters, and as an evidence of true genius; but must we not rather look on this defect as a proof of the very narrow and finite range of human capacity?

Look, as I have often repeated in former lectures, to what Nature does, and no true disciple of art will ever think that he can too carefully pursue that study. In the works of Nature we shall find, in the veriest trifle of organised life,—the tiny moth's wing, the fly's foot, even the dead leaf that is drifted as an utterly worthless thing before the wind,—that there is no less careful adherence to Nature's laws, no less thoughtful adaptation of means to the end, than in the most stupendous works of the Creation; and yet we shall find that over all these minute though not less noticeable manifestations of Divine power and wisdom, there has been extended an all-pervading spirit of grace and beauty, a manifestation which should prompt the artist to follow humbly yet zealously the example thus set, and never to relax his best endeavours to endue his works, whatever they may be, with such touches of those heaven-born qualities as may be within the reach of his ability.

WALKS AND TALKS ABOUT LONDON.*

"WHICH is the most interesting portion of London?" said a distinguished Fellow of the Society of Antiquaries. "I can scarcely make up my mind to the locality," replied the person thus interrogated. "It is Covent Garden," rejoined the F.S.A., "because its celebrity is just old enough for us to be familiar with the lives of eminent persons who have rendered it so celebrated." This is reasonable: so let us have a little walk and talk about "the amorous and herbivorous parish," along with Mr. Timbs, F.S.A., as our very efficient conductor.

Walter Savage Landor, in one of his imaginary conversations, thus glances at the changes in Covent Garden: "The convent becomes a playhouse; monks and nuns turn actors and actresses. The garden, formal and quiet, where a salad was cut for a lady abbess, and flowers were gathered to adorn images, becomes a market, noisy and full of life, distributing thousands of fruits and flowers to a vicious metropolis." Although the market dates from the reign of Charles II., in 1726, and later, it was called Covent Garden; and by the vulgar "Common Garden" (Sir John Fielding, 1776).

Covent Garden was the first square inhabited by the great; for immediately upon the completion of the houses on the north and east sides, after Inigo Jones's design, they were every one of them inhabited by persons of the first title and rank, as appears by the parish-books of the rate at that time.

The chambers occupied by Richard Wilson, now the Tavistock breakfast-rooms, were portions of the house successively inhabited by Sir Peter Lely, Sir Godfrey Kneller, and Sir James Thornhill. Covent Garden, even so late as Pope's time, retained its fashion, as may be seen in the *Morning Advertiser*, March 6th, 1730—

"The Lady Wortley Montague, who has been greatly indisposed at her house in Covent Garden for some time, is now perfectly recovered, and takes the benefit of the air in Hyde Park every morning, by advice of her physicians."

The parish of St. Paul's was at that time the only fashionable part of the town, and the

residence of a great number of persons of rank and title, and artists of the first eminence; and also from the concourse of wits, literary characters, and other men of genius, who frequented the numerous coffee-houses, wine and cyder-cellars, jelly-shops, &c., within its boundaries, the list of whom particularly includes the names of Butler, Addison, Sir Richard Steele, Otway, Dryden, Pope, Warburton, Cibber, Fielding, Churchill, Bolingbroke, and Dr. Samuel Johnson; Rich, Woodward, Booth, Wilkes, Garrick, and Macklin; Kitty Clive, Peg Woffington, Mrs. Pritchard, the Duchess of Bolton, Lady Derby, Lady Thurlow, and the Duchess of St. Albans; Sir Peter Lely, Sir Godfrey Kneller, and Sir James Thornhill; Vandervelde, Zincke, Lambert, Hogarth, Hayman, Wilson, Dance, Meyer, &c. The name of Samuel Foote should be added.

The Garden became infamous when its opulent inhabitants exchanged their residences for the newly-built mansions in Hanover, Grosvenor, and Cavendish squares, and Holles and the other streets adjacent. It was at that period that Mother Needham, Mother Douglass (*alias*, according to Foote's *Mirror*, Mother Cole), and Moll King, the tavern-keepers and the gamblers, took possession of the abandoned premises. Beneath the church-porch was "Tom King's Coffee-house," shown in Hogarth's print of "Morning." It was a mere shed, as Murphy describes it—"well known to all gentlemen to whom beds are unknown." Upon the south side of the market-sheds was the noted "Finish," kept by Mrs. Butler, open all night—the last of the Garden taverns, and only cleared away in 1829. This house was originally the Queen's Head.

The market was a strange and shabby assemblage of shed and pent-house, rude stall and crazy tenement, coffee-house and gin-shop, intersected by narrow and ill-lighted footways, until the site was cleared for a new market, in the year 1829. A sketcher of that date says—

"Enter it from Russell-street: what can be more unightly—with its piles of cabbages in the street, and basket-measures on the roofs of the shops—narrow alleys, wooden buildings, rotting vegetables, and swarms of Irish basket-women, who wander about like the ghosts on this side of the Styx; and who, in halits, features, and dialect, appear as if belonging to another world? Yet the Garden, like every garden, has its charms. The narrow passages through this mart remind one of the Chinese streets, where all is shops, bustle, squeeze, and commerce."

Of the place, before the new market was erected, Mr. Timbs thus speaks of his own recollection:

"We have viewed the Market from one of the windows of an adjoining hotel; and a more deplorable picture of wretchedness cannot be conceived than this dual area presented; yet, at stated times, might be seen the collector descending from his cuspid, to gather, with outstretched hands, the rents from stall-keepers."

At length the site was cleared, and a new market commenced, from the designs of Mr. Fowler. In digging for the foundations was exhumed a quantity of human bones, on the north side of the area, supposed to have been the convent burial-ground. The market, we may remind our readers, consists of a quadrangle, with two exterior colonnades of shops, and in the central building an avenue of shops for forced articles, the choice fruits, vegetables, &c. At the east end is a quadruple colonnade, with a terrace and two large conservatories, a fountain, emblematical sculpture, &c. At the west end are a colonnade, conservatory, and the flower market.

The market buildings cannot be mistaken for anything else but what they are, unless the inscription, "John Duke of Bedford, erected MDCCLXXX," over the east end, lead posterity to regard this as a patriotic act; whereas the Bedford family derive a large rental from the market, stated at £5,000. per annum. The area is three acres. The rent of some of the shops is from 400l. to 600l. per annum. The market is said to pay 10 per cent.

Some of the larger items of the market sales are exclusively of modern date, such as the 300,000 pines which come yearly into the port of London, or the hundreds of tons of rhubarb which are now sold in Covent Garden. According to the evidence of Mr. Maynwaring, one Boyce, of Maiden-lane, recollected when Covent Garden was let for 30l. a year. To the Horticultural Society of London much of this progress is due.

It has been said, that there is more certainty of being able to purchase a pine-apple here every day in the year, than in Jamaica and Calcutta, where pines are indigenous. Of curious herbs for domestic medicines, distillers, &c., upwards of 500 species may be procured at the shop of one herbalist. Three millions sterling

* "Walks and Talks about London." By John Timbs, F.S.A. London: Lockwood & Co., Stationers'-hall-court, 1863.

are said to be paid annually for fruits and vegetables sold in the market!

Inigo Jones's arcades, though good pieces of architecture, were partly removed, to make way for the "Floral Hall." The premises removed were the Piazza Coffee-house, a favourite haunt of Sheridan, who sat here during the burning of Drury-lane Theatre: when a friend remarked on the calmness with which he bore his misfortune, Sheridan replied,—"A man may surely be allowed to take a glass of wine by his own fireside."

One of the celebrities of the Piazza was the flowery auctioneering orator, George Robins, who for half a century knocked down more property than any other man of his time. It is some eighteen years since George adjourned to the next world. Sir Kenelm Digby lived in the old mansion at the north-west angle of the Piazza, where great changes have taken place within the last ten years. Sir Kenelm had his laboratory in the garden behind it. About 1794 when the premises were used as a hotel, Mrs. Hudson, the proprietor, advertised her house, "with stabling for one hundred noblemen and horses." In the garden was formerly a small cottage, in which the Kembles, when in the zenith of their fame at Covent Garden Theatre, occasionally took up their abode; and here, according to Mr. Timbs, was born the gifted Fanny Kemble. It is interesting to recall Sir Kenelm Digby and his grave friends, with their empirical doings and Digby's "Sympathetic Powder" fame, airing themselves in this identical garden, reduced in our time to a receptacle for a few scrub oaks.

In King-street, Covent Garden, mahogany was first used in England: here, Dr. Gibbons, the eminent physician, was building a house, when his brother, a West-India captain, brought over some mahogany as ballast, and thinking the wood might be of service to his brother, the doctor, he sent him a quantity of it; but the carpenters finding it too hard to work, it was laid aside. Soon after this, Mrs. Gibbons wanting a candle-box, the doctor called upon his cabinetmaker, in Long Acre, and asked him to make one of some wood which lay in his garden. Wollaston also complained that it was too hard. The doctor said, he must get stronger tools. The candle-box was made and approved of, inasmuch that the doctor then had a bureau made of the same wood. The fine colour and polish were so pleasing, that he invited his friends to come and see the bureau, and among them the Duchess of Buckingham. Her Grace begged some of the same wood of Dr. Gibbons, and employed Wollaston to make her a bureau also, on which the fame of mahogany and of Wollaston was much raised, and the wood came into general use. The doors of a few of the better class of old houses in King-street are still of solid mahogany.

One of the earliest of the recent improvements was the removal of a labyrinth of alleys at the west end of King-street, followed by the demolition of Rose-street, a dirty thoroughfare with a curious literary history. Here Dryden was set upon by the Earl of Rochester's bully, "black Will with a cudgel," as he was going home to his residence in Long-acre. Samuel Butler, the author of "Hudibras," died in Rose-street, in 1680.

At the south-east corner of Bedford-street the house where Clay sold his *papier-mâché* has been taken down, and loftier premises built for Mr. Mosely, the cutter and tool-maker. Clay was a pupil of Baskerville, of Birmingham, and first applied *papier-mâché* to tea-trays in 1760, by which he realised a fortune of 80,000l. Some of the finest of his trays were painted by early members of the Royal Academy, among whom was Wheatley.

In No. 16, lodged the father of Richard Brinsley Sheridan, as we gather from the following record from Whyte's "Miscellanea Nova":—

"Mr. Sheridan one time lived in Bedford-street, opposite Henrietta-street, which was at the south side of Covent Garden, so that the prospect lies open the whole way, free of interruption. We were standing together in the drawing-room window, expecting Johnson, who was to dine there. Mr. Sheridan asked me, could I see the length of the Garden? 'No, sir' (Mr. White was shortsighted). 'Take out your opera-glass.' Johnson is coming. You may know him by his gait. I perceived him at a good distance, walking along with a peculiar solemnity of deportment, and an awkward sort of measured step. At that time the broad flagging at each side of the street was not universally adopted, and stone posts were in fashion, to prevent the annoyance of carriages. Upon every post, as he passed along, I could observe he deliberately laid his hand, but, missing one of them, when he had got to some distance, he seemed suddenly to recollect himself, and, immediately returning back, carefully performed the accustomed ceremony, and resumed his former course, not omitting one till he gained the

crossing. This, Mr. Sheridan assured me, however odd it might appear, was his constant practice; why or wherefore he could not inform me."

As you enter Maiden-lane from Bedford-street, it is hard to imagine Andrew Marvell lodging in a second-floor in this narrow place while he sat in Parliament for Hull and refused a Treasury order for 1,000l., brought to him by Lord Danby from the King. Nor can we fancy Voltaire lodging in this dull lane at the White Peruke. More in character with the place is the Cyder Cellar, opened about 1730, and described as a "midnight concert-room" in "Adventures Under-ground," 1750. This was the nightly haunt of Person, who is even said to have passed his marriage night there with his favourite beverage, the cyder. In the first-floor of the adjoining house was located, for a time, the Fielding Club—a society of authors and artists, prominent among whom was Albert Smith, ever ready with his lively and harmless rattle, without a grain of ill-nature in the whole night's patter and pleasant humour.

In the house, No. 26, nearly opposite, lived William Turner, who dressed wigs, shaved beards, and, in the days of queues, topknots, and hair-powder, waited on the gentlemen of the Garden at their own houses; when a hair-dresser's was a more profitable trade than at the present day. A door under the arched passage on the right led to the shop, in the room above which was born, in the spring of 1775, Joseph Mallord William Turner, "the most prolific, the most varied, and the greatest landscape-painter the world ever saw." The great painter's natal house has been taken down, but the court, with the quaint school-house, remains.

Through Maiden-lane we pass to Southampton-street: near the foot stood Bedford House, principally built of wood. The garden extended northward, its wall bounding Covent Garden Market. In Southampton-street is a bar-gate of the Duke of Bedford, who has power to erect walls and gates at the end of every thoroughfare on his estate. Here, in 1711, Bohea tea was sold at 26s. per pound, at the sign of the Barber's Pole. At No. 27 lived David Garrick, before he removed to the Adelphi-terrace, No. 5, the new house which he had purchased.

No. 31, late Godfrey & Cooke's, was the oldest chemist's and druggist's shop in London, but was removed from here in 1863. Here phosphorus was first manufactured in England, the above premises having been the house, shop, and laboratory of Ambrose Godfrey Hancock, who, immediately after the discovery of phosphorus by Brandt, the alchemist, under the instructions of the celebrated Robert Boyle, succeeded in preparing an ounce of the substance, and presented it to his master.

Bedford House was taken down in 1704, and Southampton-street was then commenced: here, in 1706, Hancock built his premises, the business of a chemist having been carried on by him in the neighbourhood since 1680. To phosphorus, as every one knows, we owe that domestic wonder, the lucifer-match, accidentally discovered by a chemist and druggist of Stockton-upon-Tees, some forty years ago, and brought into practice by Faraday.

From Mr. Timbs's "Forty years in Fleet-street," which forms another of his interesting Walks and Talks, we must glean a few more scraps.

In Bolt-court, Fleet-street, Dr. Johnson ended his days. The house was burnt down in 1819. It was to this house that Samuel Rogers, when a young man, went to see Dr. Johnson and show him some of his juvenile poems. Rogers knocked at the door; but his heart failed him, and he and his young friend made off without seeking an interview with the dreaded dictator of the republic of letters. While Johnson lived in the court, he is said to have had this provision of gas-lighting: one evening, from the window of his house, he observed the parish lamplighter ascend a ladder to light one of the glimmering oil-lamps: he had scarcely descended the ladder half-way when the flame expired: quickly turning, he lifted the cover partially, and, thrusting the end of his torch beneath it, the flame was instantly communicated to the wick by the thick vapour which issued from it. "Ah," exclaimed the doctor; "one of these days the streets of London will be lighted by smoke."

In Bolt-court, William Cobbett wrote, printed, and published his *Political Register*, and sold Indian corn. He removed thither from 183, Fleet-street, a few doors from St. Dunstan's Church, and midway between that and Fetter-lane.

Of the four-and-thirty streets, lanes, courts, and alleys leading from Fleet-street, the most notable is Crane-court, eastward of Fetter-lane; though this court does not lead anywhere, it being a *cul de sac*. It was originally named Two Crane-court. It was rebuilt immediately after the Great Fire of 1666, and contains a few specimens of fine brickwork. The large front house was built by Sir Christopher Wren, and was inhabited by Dr. Edward Brown, an eminent physician, until 1710, when it was purchased, with the "adjoining little house," by the Royal Society, the president, Sir Isaac Newton, recommending it as being "in the middle of the town and out of noise." The removal of the society from Gresham College was, however, strongly objected to.

The society met for the first time in Crane-court on the 8th of November, 1710. The exterior of the house in Crane-court remains unaltered, though the interior has undergone some changes. "Happily, however," said Mr. Weld, in 1848, "the room in which the Society met is in the same condition as when Newton occupied the presidential chair; and it is impossible to stand in that ancient apartment without feeling the associations connected with those days stealing over the mind." When the Society got settled, by Newton's order, the porter was clothed in a suitable gown, and provided with a staff, surmounted by the arms of the Society, in silver; and on the meeting-nights a lamp was hung out over the entrance to the court from Fleet-street. The repository was built at the rear of the house, and thither the Society's museum was removed. The catalogue of its most remarkable rarities fills twenty pages of Hutton's "London," and it is curious to observe how much it must have propagated error. Thus we find:—

"The quills of a porcupine, which, on certain occasions, the creature can shoot at the pursuing enemy and erect at pleasure.
The flying squirrel, which, for a good nut-tree, will pass a river on the bark of a tree, erecting his tail for a sail.
A bone, said to be taken out of a mermaid's head.
A stag-beetle, whose horns worn in a ring are good against the cramp."

Such were a few of the rarities of Dr. Grew's rarities. Equally curious are the early proceedings of the Society,—such as bottling up stage-tears, catching wild ducks by "walking into the river where the ducks are," and then marching out again; and the marvellous cure of the sailor's wooden leg,—all which are old standing jokes, which, however, got the Fellows laughed into improving their Transactions.

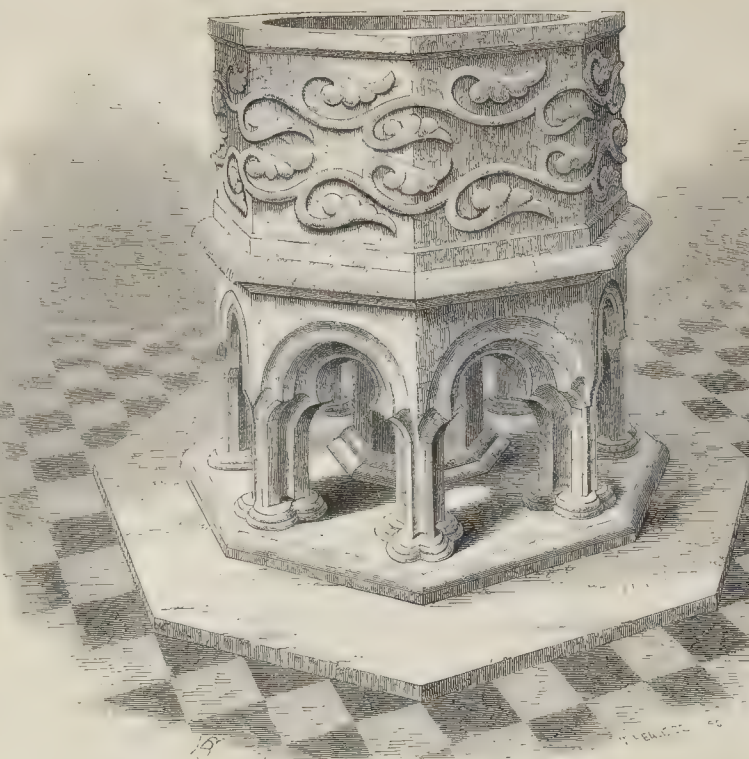
Although the philosophers protested against having to walk up Crane-court in a heavy rain, to get to their new house—for umbrellas were not in those days,—they protracted their stay to seventy-two years, keeping their library in cedar-wood cases, in the adjoining house, No. 8. In 1782 the Society removed to Somerset House, and sold the Crane-court house to the Scottish Hospital and Corporation, who now occupy it.

The Society of Arts first met in Crane-court, in apartments over a circulating library; and here the Society awarded its first prize (56l.) to Cosway, then a boy of fifteen, and afterwards a fashionable miniature painter.

Crane-court has long been a sort of nursery for newspapers.

When the church of St. Dunstan was rebuilt, in 1830-3, the town lost one of its minor wonders. The old church projected some 30ft. farther into the street than the present one; shops, with overhanging signs, were built against the south and east walls, though previously the churchyard thus built in was a permanent station for booksellers, as appears by many imprints. John Smethwicke had his shop here, "under the dial;" as had also Richard Marriott, Walton's publisher, and Lawton Gulliver, at Homer's Head. The clock had a large gilt bracket-dial overhanging Fleet-street, and above it two figures of savages, life-size, carved in wood, and standing beneath a pediment, each figure having in his right hand a club, with which he struck the quarters upon a suspended bell, moving his head at the same time. To see the men strike was a great attraction, and opposite St. Dunstan's was a famous field for pickpockets, who took advantage of the gaping crowd.

These figures were put up in 1671, and were at first painted the natural colours. Hutton describes them, in 1708, as more admired by many of the populace on Sundays, than the most eloquent preacher from the pulpit within. Among those who were struck with the oddity of these figures was the third Marquess of Hertford: when a child, and a good child, his nurse, to



FONT, STANDON CHURCH, HERTF.

reward him, would take him to see the giants at St. Dunstan's; and he used to say, that when he grew to be a man, he would buy those giants. Many a child of rich parents may have said the same; but in the present case the marquess kept his word. When the old church was taken down, in 1829, Lord Hertford attended the second auction-sale of the materials, and purchased the clock, bells, and figures, for 200*l.*: he had them placed at the entrance to the grounds of his villa in the Regent's Park, thence called St. Dunstan's Villa, and here the figures do duty to the present day.

Mr. Timbs's excellent gossip, however, makes us forget that our space is limited, and we must close his lively volume without even glancing at a host of book-marks not yet reverted to.

In what we may, without any exaggeration, call "The Timbs Library," there are many books in which we see little of Mr. Timbs himself, besides his skilful selections, compilations, and condensations. Here, however, as in his "Curiosities of London," and others of his writings, we have the author himself before us. Reminiscences of persons, places, and events form the staple of the "Walks and Talks," which, moreover, though complete in themselves, give indications, as we are informed, of the character of an autobiographic volume of collections and recollections yet unpublished.

We may conclude with a list of the general contents of the "Walks and Talks about London." The work is divided into,—A little talk about Lyon's-inn; the last days of Downing-street; walks and talks in Vauxhall Gardens; the last of the old Bridewell, of London; the fair of Mayfair; from Hicks's Hall to Campden House; talk about the Temple, past and pre-

sent; recollections of Sir Richard Phillips; curiosities of Fishmongers' Hall; a morning in Sir John Soane's Museum; a site of speculation; changes in Covent-garden; the last of the Fleet Prison; forty years in Fleet-street; changes at Charing-cross; railway London; Blackfriars Bridge; the raising of Holborn-valley; and an old tavern in St. James's-street.

STANDON CHURCH, HERTFORDSHIRE.

St. Mary's, at Standon, near Ware, had fallen into a miserable condition, as we mentioned some time ago, before the works were commenced. Through the exertions, however, of the vicar, the Rev. Charles Fuller, and the good-feeling and liberality of the parishioners and neighbouring landowners, money was raised, and the building has been put into a sound and substantial condition. The accompanying engraving conveys something of the present aspect of the interior of the church, looking east, and the following passages from a circular issued at the commencement of the works show the state in which the building was:—

"The ancient parish church of Standon is a large and has been a very handsome pile of building. Its total length, including the chancel, is 110 ft., of which the chancel occupies 40 ft. The width of the nave and aisles is 50 ft. It has two aisles and clerestory. The chancel has neither aisles nor clerestory. The style of the chancel arch is very beautiful Early English. The nave and aisles are in the Decorated style; and the windows are much admired. The chancel is Perpendicular in style.

The tower touches at one corner the south-east angle of the south aisle. It was rebuilt about twenty years ago, when a large portion of it fell down from decay. The chancel is peculiar in being raised eight steps above the level of the nave; the rise of the hill having been followed in laying the foundations.

At present the external walls of the whole building are disfigured by plaster, and the flint work within is much patched with bricks and other stones. The stone-work of the windows and buttresses is much decayed, and in many places has been replaced by brick-work.

The old roof has been removed, and a modern one of low pitch screened by a flat plaster ceiling substituted both in nave and chancel.

The internal walls are dirty and ill-faced, and the internal stone-work (and in the chancel the wood-work also) is much disfigured with paint and whitewash. The paving is imperfect and ill-arranged, and in the nave and aisles three-fourths of the area are occupied by high and inconvenient pews."

The face of the external walls has been renewed with uncut flints, the porches are rebuilt, the stonework of the windows, copings, pillars, and so on, is made good, and all the paint and whitewash which disfigured the building have been removed. The church has been re-pewed, the old organ gallery over the west door taken down, and a new high-pitched roof, in stained fir, placed upon the nave. The whole of the seating is of oak, plain but solid. The pulpit is also of oak, formed with open panel-work, and has a cornice of passion-flowers, very well carved. It is entered from off the steps from the chancel. The font, an early one, and of which we give a view, was much battered, and made up with cement. With some care it has been renewed in stone. A piscina and an interesting recessed sepulchre, in the south wall of nave, with a stone coffin below, were discovered during the works, and have been restored.

The Perpendicular windows of the chancel, decayed and ruinous, were insertions; and the chancel has been brought back to its original Early English character, with a tile pavement supplied by Messrs. Maw & Co. The reredos is also of tile. The tomb seen against the south wall of chancel is that of Sir Ralph Sadleir; and



STANDON CHURCH, NEAR WARE, HUNTS, AS RESTORED.
MESSRS. G. & H. GODWIN, ARCHITECTS.

the King of Scots' standard, which he took at the battle of Musselburgh, in the reign of King Edward VI., stood by his monument in the church until all had gone but the pole; and now only the sword is left. This is still suspended near the tomb. There are other interesting tombs in the church, and several brasses. The latter have been placed at the foot of the chancel steps.

The cost of the works in the chancel was liberally defrayed by his Grace the Duke of Wellington, lay rector of the parish.

A spacious organ chamber has been added to the church, between the south wall of the chancel and the tower (formerly an open yard enclosed by a dead wall), and a moulded opening communicates from the chamber to the chancel. The window at the east end of the south aisle of nave, left without glass, also opens into the organ-chamber. The stone staircase and the opening to the old roof-loom remain. The new south porch, it may be mentioned, is of oak, and somewhat elaborate.

During the progress of the works, a subscription was raised in the county for the erection of a memorial, or memorials, of the late Mr. C. W. Giles Fuller, and part of the amount raised was expended in setting up stained glass in the east window of the chancel, a triquet. The three lights are bound together at the top by a rich hood-moulding, which includes the dog-tooth ornament, repeated from the old work in the chancel arch. The subject in the principal compartments of the three lights, is "The Transfiguration;" in the lower compartments, "The Epiphany," represented by three groups; in the centre, "The Virgin Mary and the Infant Jesus;" on the left, "The Adoration of the Shepherds;" on the right, "The Wise Men presenting Offerings." In the upper quatrefoils are symbols of the Three Persons in the blessed Trinity. A brass plate will be inserted in the north wall of the chancel, notifying that the window is a memorial of the late C. W. Giles Fuller, esq. The window was executed by Messrs. Clayton & Bell.

Between the lights of the east window are pillars of Purbeck marble, the cost of which, as well as that of the red Devonshire marble pillars in the chancel arch, was defrayed out of the Fuller Memorial Fund.

The opening on each side of the chancel arch is somewhat peculiar with reference to the Early English period. Originally the openings probably went down to the floor of the chancel, but when the present nave was built, in the fourteenth century, they were partly filled in and altered to triforce openings. The old mouldings belonging to them were discovered in the wall, and were reinstated. Standon is an ancient place: it is described in "Domesday Book," and the Abbot of Croyland had a seat here in 1030. It is more than likely that the present thirteenth century chancel was built to a Norman, if not Saxon nave, which, early in the fourteenth century, gave place to the present nave, now by the liberality and continuing piety of the people of Standon fitted to endure for coming generations. The total expenditure, including the Fuller Memorial fund, has been something under 3,000l.

The works have been executed from the designs and under the superintendence of Messrs. J. & H. Godwin, architects; the nave by Messrs. Dove, Brothers, of Islington; the chancel by Mr. Thomas Ginn, of Puckeridge; and it is but fair to say that both contractors have done their work well. Mr. Henry G. Brown was clerk of the works.

THAMES DITTON CHURCH, SURREY.

THE parish church of Thames Ditton was reopened for divine service on Friday, the 18th inst., by the Archdeacon of Surrey, after having been enlarged by the addition of a south nave and chancel, aisle and porch, affording accommodation for about 200 persons. The walls are constructed of flint and rubble, with thick stone dressings. The east chancel and western circular gable-windows have been filled with glass by Messrs. Lavers & Barrand. The old part of the church is debased fifteenth century work; but the base of the tower is probably Saxon, and it seems likely that a Roman villa stood formerly near its site, courses of Roman brick being built into the walls. The font is considered by some to be Saxon; the bowl was supported on a modern base, which has been replaced by one more in character. The church possesses several curious and interesting monuments and some brasses of great interest, all of

which have been preserved from injury and replacement in their positions. The works were done under the superintendence of Mr. Ferrey, architect; and Mr. Mathews, of Thames Ditton, was the contractor.

HESTON CHURCH.

NOTWITHSTANDING all that was said on the subject, we learn, and with much regret, that the demolition of this ancient church will, in all probability, be begun in a fortnight's time. It only awaits the receipt of a faculty from the bishop, and it is said there is small hope of its refusal. Considerable desire for the preservation of the sacred edifice is expressed in the neighbourhood by many persons of position; besides which, the local press has been active against the apparently uncalculated-for destruction of a relic of antiquity.

THE EDINBURGH THEATRE DISASTER.

SPEAKING generally and with respect to Scottish and English theatres as a whole, we are afraid there is such a constant and increasing quantity of risk in their construction, and more particularly in their working, that we are induced to think the whole system must, sooner or later, undergo revision and reform. The sensation drama and the imposing spectacles are every day growing more imperious in their demands for dangerous elements. The quantities of gas and gunpowder, for example, which are consumed in a London theatre during some pieces are so enormous and so costly that few would credit the amount who were not, literally speaking, behind the scenes. Then we have the electric light introduced on the stage, the limelight, and every description of red, blue, green, and parti-coloured lights, all of which are composed of materials in the highest degree combustible and inflammable. To make things worse, these materials are consumed or exploded in the very closest contact to timber spars covered with pasteboard, painted canvas, light gauze, and such like inflammable fabrics. Nor do the human creatures who go to build up a transformation-scene or a ballet make the slightest effort to avoid the general danger. A multitude of muslin petticoats fluttering within 3 in. of a glaring gas jet,—long draperies, in interminable festoons, interwoven with artificial lights in enchanted gardens,—these are a few of the situations which a smiling spectator in the boxes of a theatre enjoys during his Christmas holidays. A poor girl, indeed, is now and then burned to death; but this occurrence, he suspects, is a risk inseparable from a profession which is unusually exposed to risks. It is only when the house takes fire, and the lives of the audience are endangered, that it is really seen what a premium the audience themselves hold out for the sacrifice of human life. The fact is, we manage somehow in our modern amusements to kill off as many people as the ancient Romans did in the amphitheatre. But, then, our inhumanity is not so positive, nor our abnormal tastes so conspicuous.

The end of all this, we apprehend, must be something like a suspension of the principles of free trade with regard to theatrical managers. There must be a limit set to their supply of morbid demands. The sensation business must be restricted. The jurisprudence of this country has long recognised a class of official inspectors in other cases, such as chemical works and emigrant ships, where cupidity and self-interest become dangerous to the health of the lieges. We have ourselves strenuously advocated the appointment of such officials in respect to overcrowded dwelling-houses; and sooner or later the principle will have to be extended so as to include theatres, dancing-saloons, concert-rooms, and other places of entertainment.

The Edinburgh Theatre Royal occupied a site on a conspicuous corner at the head of Leith Walk, adjoining a lofty tenement of houses on the one gable and a Roman Catholic chapel on the other. There seems to have been no adequate separation from either of these buildings; and if this be the case it was certainly a prodigious mistake in construction. The old Edinburgh Theatre Royal, in Shakespeare-square, on the site of which the new post-office was built, we remember as an isolated building in the centre of the square. Why was the present theatre not also detached? It is surely a mistake to render the inhabitants, or rather, we should say the population, of a long common stair subject

to extraneous risks of this serious character; for in our opinion they stand in great danger as it is. Again, how is it that the Edinburgh municipality possess neither a steam fire-engine nor a common fire-escape? They are, indeed, profusely supplied with one valuable preventive to the extension of a conflagration in the very construction of their buildings. Fires in Scotland, as far as we can observe, are seldom extinguished by the fire-brigade: they are usually circumscribed alone by the solid masonry of the walls. But in the event of high winds prevailing at the time, even this security would be overcome. And what must we say about a possible scarcity of water? Had this fire occurred in Edinburgh in the month of August or September last year, when the reservoirs were empty, what might not have been the consequences? It is all very well to tell us that the danger is over for the present; but there are more theatres in Edinburgh, we suppose: have we any stronger security respecting these than we had in the Theatre Royal? And what meteorologist can secure us against a succession of dry summers?

COMPETITIONS.

Design for Front of Manufactory.—The designs sent to a firm in the Royal Exchange for the front of a building (nearly fifty in number), in reply to offered premiums of 10l. and 5l., are, as might be expected, mostly rubbish,—the efforts of pupils and other tyros. Drawings by Messrs. J. P. Jones, Gilbert R. Redgrave, Cammings, E. T. Eard, Blake, and one or two others, may be excepted.

AWARD OF THE PREMIUMS FOR THE BOLTON TOWN-HALL DESIGNS.

A MEETING of the Town-hall Committee, at Bolton, was held on Monday evening, when the question of awarding the premium for the best designs, which it will be recollected the town council had sent back, came under consideration. After several proposals had been separately made and negatived, the committee, by a large majority, passed resolutions, awarding the three premiums to the authors of the designs which Professor Donaldson had classified as standing first in the order of merit. The first prize will, therefore, be awarded to the design marked No. 24, "Experientia Docet;" the second to No. 3, "Manchester;" and the third to No. 25, "Nil Magnum nisi Bonum." The committee also passed a resolution awarding 20l. to each of the authors of the other three sets of designs included in the selected six, on the condition, that the plans become the property of the corporation. These awards will, of course, require confirmation by the town council, a meeting of which will probably not be held until the 15th proximo; but as the committee have thus acceded to the principle laid down at the previous meeting of the council, no further attempt will be made to disturb the relative positions of the successful competitors. The plans to which the 20l. awards are offered are, No. 19, "As you Like it;" No. 26, "Titus Dulci;" and No. 10, "Experian."

THE DISCHARGE NOTE.

A MEETING of the General Builders' Association was held on the 23rd, at Nock's Hotel, Temple-row, Birmingham. There were about 150 master builders present, and the following, amongst other towns in the Midland counties, were represented:—Birmingham, Wolverhampton, Walsall, Dudley, Burton-on-Trent, Wednesbury, Nottingham, Derby, Leicester, Willenhall, Coventry, Leamington, Warwick, Hanley, Burslem, Stafford, Stourbridge, Gloucester, &c. The meeting was called for two o'clock; and at the conclusion of a discussion which lasted about three hours, the following resolution was passed:—

"That, with a view to the settlement of the present differences in the trade, the master builders are willing to withdraw the notice they have given respecting the discharge-note, and at once, through their association, to meet their men, in order to settle all labour questions by the adoption of trade rules; and, in case of any difference arising, are willing to adopt a system of arbitration."

It has been asserted that some resolutions were passed after the withdrawal of the "note" which had excited suspicion, and up to the time of our going to press the men had not resumed

work. We have every reason, however, to believe that all obstacles to reconciliation have been removed.

On this subject we have received a large number of letters from masters and from men, but are forced to put them on one side at present.

PROPOSED WORKHOUSE, BRIGHTON.

THE Brighton Guardians certainly have a peculiar way of conducting the business of the town. At their last meeting, the consent of the Poor-law Board to borrowing money to carry out designs which have been doctored up, as we understand, by various parties having been obtained, the following report from the new Workhouse Committee was brought up:—

"Your committee have had under consideration the question of appointing a competent person as clerk of the works in the erection of a new Workhouse, and they recommend that Mr. James Reed be appointed accordingly, at a salary of £2. 6s. per week.

Your committee also recommend that Mr. George Maynard be employed to prepare the working drawings for the new Workhouse, and to superintend the carrying out of the works at a charge of one and a half per cent. on the amount of contract."

After discussion, in the course of which some of the speakers said that Mr. Maynard was an officer of the Board and must neglect his proper duties if he carried out the design, and others that the payment was much too small, the report was adopted unanimously.

CORNISH SERPENTINE FOR EXTERNAL WORK.

THE large and lofty structure which was erected a few years ago on Cornhill for Messrs. Sarl, having been purchased by the City Offices Company, and becoming occupied by the "Gyffid Fancier et Mobilier Company of England," the lower part of the front has been altered under the direction of Mr. John Barnett, architect, to suit their purposes. The space between the existing granite pilasters is filled in with work executed in a light green serpentine, combined with some of the darker varieties and red granite. The effect produced is very good, and shows the capabilities of the Cornish serpentine, either alone or combined with granite. In reply to our inquiry as to its resistance to atmospheric influences, it is stated that examples of serpentine have now been exposed to the weather for many years in London and elsewhere, without any loss of polished surface. It was supplied by the Lizard Serpentine Company, St. James's-street. Messrs. Cubitt & Co. were the builders.

FALL OF CORNICE AND SCAFFOLD IN GREAT WINCHESTER STREET, CITY.

ON Thursday, last week, a large portion of a cornice in progress at the extensive premises in course of erection, for Alderman S. Waterlow, stationer, in Winchester-buildings, adjoining his London-wall premises, fell, breaking down the scaffolding in front of the building, on which about twenty men and boys were at work, and so severely injuring eight of them that one, a lad of seventeen, has since died, and other three are in a precarious state. Messrs. Lawrence, Brothers, are the contractors for the building, and Mr. Randall is the architect.

An inquest on the deceased was held by Mr. Payne, at St. Bartholomew's Hospital, on Tuesday last. The following evidence was taken:—

Nathaniel T. Randall, on being sworn, said: I live at 28, Great Winchester-street, and am an architect. The building which caused the injury is situated in Winchester-street. Under the Act of Parliament I should term it a warehouse class. It consists of six stories and attic. The width or substance of the external wall or the basement is 2 ft. 8 in.; ground-floor, 2 ft. 3 in.; one pair, 1 ft. 10 in.; two pair, 1 ft. 10 in.; three pair, 18 in.; and 18 in. up to the parapet. The height of the building from the ground-floor up to the top of the building is about 64 ft. The mischief occurred through the fall of the scaffolding and cornice. The cornice fell first, and brought down part of the scaffolding. If the scaffolding gave way it would tend to raise up the cornice, but I could not say which gave way first. The height of the cornice from the ground is about 52 ft. to its top. To the lower part of the cornice it would be about 50 ft. from the ground. The cornice is about (in depth from top to bottom) 2 ft. to 2 ft. 3 in. It is made of brickwork and stone. That cornice was nearly level with the floor of the attic. The length of the cornice, extending the whole of the building, is 90 ft. There is a party wall in the middle. The height of the cornice is 2 ft. 3 in. From the wall to the stone core there are six courses of brick; the stone core is 8 ft. 10 in. in length and 3 in. deep, 2 in. projecting on the inside and 9 in. on the outside. Above the stone core there are 6 in. of brickwork. The last time I was at the premises before the accident was

three or four days ago. I do not recollect how much of the cornice was then up. After the accident, I was on the premises about four in the afternoon, when I saw the cornice and scaffolding had fallen down. I understood about a third of the cornice had fallen. Another third was taken down. The building was erected under my plans and directions, the builders being Messrs. Lawrence. It was expected that the stone core would carry the weight of the brickwork above it, considering it perfectly safe. I apprehend the cause of the cornice falling was on account of the "green" state of the work, the cement not having been properly set, and the core not having been burned or shored up in the usual way. It should have been shored up by a raking piece of wood from the wall to the projecting edge of the cornice. I also got upon the scaffolding. I saw myself that such was the case. To put the raking wood to support the cornice and a better plan for the men to go on to the scaffolding, would be the duty of the builders. If the workmen had gone another way to the scaffold, it would have been better for them to have got out of one of the lower windows, and then by a ladder up to the scaffold.

By a Juror: The brickwork above the cornice was not finished. Provision was made to bind down the stone core. (A plan was here submitted to the jury.) There was an iron bolt (fastener) at the top of a stone core, by a washer and a nut, which goes through the stone core. I do not know the dimensions of the bolt. It went to the depth of 1 ft. 9 in. down perpendicularly into the wall. There was a plate of iron, placed horizontally, running the whole length of the building over the stone core, and also at the bottom course of the cornice. After the accident, one-third of the cornice was taken down, and one-third fell. If the cement had set, I apprehend the whole would have been safe, and the tie would have acted.

By Mr. Woollett: That portion of the cornice that remains (one-third) is perfectly safe. That confirms the conclusion I have formed, that the cornice was in the green state, and consequently fell. I do not know whether the cornice standing now was done first or last. There is nothing unusual in the size of the cornice.

By Benjamin Atkinson: The part that remains has no brickwork attached to it.

Mr. Edmund Woodthorpe, district surveyor, said: I have seen the work in course of erection, and attended the cornice five or six days before I did not see the state of it, as I did not go on to the scaffolding. After the accident I found the cornice had fallen, and cut through the patios. I cannot give a definite cause of the fall, unless it was carried up green. I have had experience that cement will not set in cold weather, and additional precautions ought to be taken at this time of the year. But I cannot say what should have been done on this occasion. The working men going upon it might have shaken the key of the cornice, but I cannot say that was the cause of the accident. I should not recommend a body of men continually running over the cornice. The Act of Parliament unfortunately gives us no power as to these projections.

By Benjamin Atkinson: The brickwork over the core, had it been carried out according to the first plan, would have been a sufficient counterbalance to the projecting portion. By Mr. Woollett: The part now standing is perfectly secure, and it is very difficult to account for this accident. It is not always customary where there is a core and cement to shore up a cornice.

By a Juror: I saw the iron ties, which appeared substantial. They were 2½ in. by ½ in., and bolted occasionally. I should consider them quite sufficient to hold the building against the most substantial character. It is much stronger than many buildings now being erected in my locality.

Several other witnesses were examined.

The jury returned the following verdict:—

"We find that Thomas Pears met with his death from the falling of a portion of the cornice, which cornice, from the insufficiency of the bolts and ties, was not properly secured."

Coroner: You mean that it was an accident? Foreman: That is what we mean.

The Coroner then made a few remarks, and said that he might suggest to builders that, in such a narrow street as Winchester-street, it would be better to avoid such heavy cornices. An accident of a similar character had occurred in Wood-street some time since.

WORCESTER.

Sir,—A few weeks since you were invited to Worcester by the editor of the Worcester Weekly Freeman. Your address concerning that city is itself quite sufficient to convince me that you have not yet accepted that invitation. It is probable that the prevalence of the anti-pop in its latest erections may account for your non-appearance. Not through the united efforts of the inhabitants, that fearful malady has almost disappeared. Every one that it cured to put its mark upon it has many have fallen victims to that fearful scourge; and if it feels inclined, it may find more victims here next autumn. No investigation has been made into the cause, and no preparation appears likely to be made for its recurrence.

It is especially desirable that you should pay Virginia an early visit, for the following reason:—

No one can be more fully aware than yourself that in every city and large town in England, a monster jet of stock hotel has been, or is now being, erected. These hotels are not only remarkable for their size, but for their architectural beauty; for age to come they will be memorials of the taste of the nineteenth century. One of these is now nearly completed in Worcester; but it resembles the others only in size. Its architecture bears description. Imagine a smooth brick wall with a great number of square holes in it, nearly all one size, and you have the facade. Of course, you do not feel the slightest desire to stick the inside with a corner of a corner, and if you do, you pray refrain from expecting the interior is not in keeping with the exterior. Do come and see for yourself.

A FASSER ET.

THE CLOCK TOWER AT ST. ALBAN'S.

AFTER restoring railways, defying and escaping reform, the venerable little borough of St. Alban's,—once all activity, but now rotten,—has now boldly come forward to do something for itself, historically and architecturally. From St. Michael's Mount, in Cornwall, to Berwick-upon-Tweed, commanding the debatable land between England and Scotland, there is not to be found within the Dido-acre it covers a spot of land more rich in what it possesses or more rich in association than the Verulamium of the Romans,—the St. Alban's of ecclesiastical history,—the St. Alban's of the Wars of the Roses. "Who has e'er been to Paris?"—no, not to Paris, as Mat Prior sings, "Who has e'er been to St. Alban's?"—full of the chronicle-recording monks, Matthew Paris, Thomas Walsingham, and William Rishanger; better still; and the great Lord Chancellor of Science, Sir Francis Bacon, "must needs know the Maypole." No. The clock-tower at St. Alban's, standing hoary with age, filthy through neglect,—defying time, with a clock—defying railway time; and meaningless it stands before the visitor who travels n-Murray-handed, or who does not come prepared to see what is to be seen.

Roused at length by the compulsory necessity of doing something, the St. Alban's dignitaries, headed by the Earl of Verulam (the Lord-Lieutenant of the county) and Mr. Kent (the new mayor), a meeting was called, and a resolution for the restoration of the tower put and carried unanimously.

Before, however, the resolution was put, the following letter from the architect was read:—

"Gentlemen,—I have carefully examined the old clock-tower at St. Alban's, and beg to report the result. The tower seems to have been the old tower helmy, somewhat equivalent to those in the ancient cities of Belgium.

The lower story has evidently been built for a shop, having two fronts with stone benches for the display of goods; the one on the south, the other on the east.

One story over the shop seems to have been in the same occupation with it, and was approached by a separate stair, having also a quadrobe or necessary of its own.

It is probable, also, that the use of one or more of the upper stories may have been allowed to the same person, should he have the charge of the bells, though provision is made by a distinct staircase and quadrobe for their possible occupation by another party.

The whole is a very curious structure, and unique in this country, so far as my observation extends. The date is probably about the middle of the fifteenth century, or a little later.

Its present state is by no means satisfactory, though quite within the reach of restoration; and I strongly recommend it as well deserving of what it may cost to place it in a sound condition.

The great object to be aimed at is to avoid over-restoration, and to retain as much as may be the character of an ancient structure.

This is deemed somewhat difficult by the great extent to which decay and mutilation have gone, which necessitates the renewal of very much of the stone dressings. I believe, however, that the original design of them may, in nearly all cases, be recovered.

It should be the object to strengthen the structure wherever it is cracked or become weakened; to restore its architectural details, retaining all ancient portions which can possibly be retained, and reproducing exactly those which are perished. I will not trouble you with details of all this, but will simply state that I estimate the works as carried out at £200.

The tower, so restored, will be a very handsome object, and an ornament to the town, recalling a feature in its past history which should by no means be lost. I have no doubt that uses can be found for the restored tower, just as heretofore, as a clock tower, to which chimneys might with advantage be added; secondly, as a belfry for public uses; thirdly, perhaps as a depot for arms of volunteers, &c.

I would not recommend the use of the lower story as a shop, as its difference for modern usage would cause constant desires for alteration, which would be most injurious to its antiquated value.

Nov. 9th, 1864.

GEO. GILBERT SCOTT."

After a conference on the letter, and much wise talk, managerial and architectural, the following resolution was put and carried, with acclamation:—"Resolved, that Mr. Gilbert Scott's plan and report be adopted, and that measures be taken forthwith to obtain the necessary funds to carry out the same."

The resolution carried, the committee commenced their labours, and the following subscriptions were announced:—The Earl of Verulam, 21l.; W. Jones Loyd, esq., 10l. 10s.; Rev. M. R. Southwell, 10l. 10s.; H. E. C. Stappleton, esq., 10l. 10s.; T. Bagnall, esq., 10l. 10s.; T. W. Kent, esq., mayor, 5l. 5s.; H. Parsons, esq., 5l. 5s.; J. Gulton, esq., 5l. 5s.; T. W. Blagg, esq., town clerk, 5l. 5s.

That the committee will get the seven hundred pounds there cannot be a doubt. Herfordshire, though a small county in the acreage of England, has many landed noblemen and gentlemen in its shire. In addition to those already received, subscriptions are sure to be obtained from rich

The new schools in connexion with Highfield (Independent) chapel, are nearly completed. On the ground-floor are the assembly-room, 42 ft. by 32 ft.; the lecture-room, 42 ft. by 28 ft.; and two infants' class-rooms. Between the assembly-room and the lecture-room is the principal staircase (of stone), with main entrance from the street, and this conducts to the class-rooms—twenty-one in number—and to the ladies' room and library. These rooms extend over the assembly-room and lecture-room, the latter having two stories above it. Those over the former are arranged in a double series with corridors between (vertically lighted), and in both cases are separated by lath-and-plaster trussed timber partitions. They vary in size, the greater number being about 14 ft. by 12 ft., and some are 22 ft. by 14 ft. All have external windows and a few have fireplaces, and all are boarded 4 ft. high, and have fixed seats against each side. The assembly-room a gallery has been constructed, 4 ft. high, 12 ft. wide, and 24 ft. deep at the lower end of the room. All the arrangements are adapted to a division of the sexes throughout. Underneath the end gallery of the assembly-room, is a class-room for 150 infants, semicircular in plan, and having raised seats arranged in the form of an amphitheatre. This room averages 14 ft. in height. The lecture-

room will seat 200 adults, and is 16 ft. high. Beneath the lecture-room are chambers for preparing tea for tea meetings, &c. The ladies' room is the "drawing-room" of the building. It is placed immediately over the lecture-room, and is 28 ft. by 16 ft. The windows are on two sides and command a view of the New North-road. Adjoining the ladies' room is the library. Every apartment is warmed and ventilated. The system adopted is that of Messrs. Haden, of Trowbridge and Manchester, which in this case is a combination of hot water and warm air, and is the same in principle as has been successfully adopted in the Manchester Assize Courts, the reading-room of the British Museum, and nearly all the prisons and asylums in the kingdom.

The style of the structure is Italian. The exterior is of local stone throughout. The parts are all simple.

The contractors of the various works are all Huddersfield tradesmen, viz.—A. Graham, mason; Goodwin & Son, slaters; R. Whiteley, carpenter and joiner; W. H. Chadwick, plumber and glazier; W. Heathwaite, painter; L. Jowitt, plasterer (who has also acted as clerk of works gratuitously).

The cost of the entire undertaking, exclusive of land, which is freehold, is expected to be about 3,500l.

FOREIGN AND ACCIDENTAL.

Moderate.—According to the *Indépendance Belge*, of the 14th inst., the works of the New Opera House have been interrupted by an accident. It has been discovered that a corner of the Grande Hôtel, on the Boulevard des Capucines, will mask the facade of the new building. Overtures have been made to the proprietary of the hotel, which is known to be in the hands of M. Pereire, with a view of removing the offensive portion of the pile of building in the way, and he has demanded no less a sum than twenty-four million francs.

St. Maclou, Rouen.—Considerable damage was done to the Église St. Maclou, at Rouen, during the storm of the night of the 13th inst.: two bays (each 33 ft. high) of one of the high windows of the lantern of the steeple fell with a dreadful crash, carrying in their fall the stones of a massive cornice: they fell into the nave, breaking the grille of the choir and a seat: one of the stones, striking the head of one of the sculptured angels, was thrown against a lustre, which it demolished.

Iron and Water.—At the iron-works of M. Revolver (in the Loire), the water, by which one of the men nearly lost his life. Wishing to cool a considerable mass of scoria just taken from the fire, he threw some water over them without taking the usual precaution to prevent the water getting under the mass. The consequence was the explosion of the generated steam underneath, and the dispersion of the burning mass over the man.

The Mont Cenis Pass.—The works are still progressing for the temporary railway which is to enable the Mont Cenis to be traversed in four hours only. For the Italian side of the mountain, on which the descent is more rapid, the rope system of the engineer, Agudio, is to be adopted, on condition that the Italian Government grant a subsidy of a million and a half francs (60,000l. sterling) for the expenses of the construction of a special direct roadway. Though the Government may be ill disposed to saddle the budget with this sum, yet it is thought that it may do so out of compensation to the town of Turin, which would then be the principal entrance from France into Italy, in a commercial point of view.

IRELAND.

The foundation-stone of the Cathedral of St. Fin Barr, in the city of Cork, was laid on Thursday, the 12th inst., by the Lord Bishop of Cork, attended by several members of the Masonic body, the Dean, and Chapter. Some time since a view and description were given, in this journal, of the approved design, selected from a large number submitted in competition, the author of which proved to be Mr. W. Burgess. It will be sufficient to say at present, that the design will be carried out in its main features, but that the proposed outlay has considerably swelled in amount, the belief being general that 30,000l. not 15,000l., as originally intended, will be the ultimate expenditure. Mr. Robert Walker is the contractor. This new building will re-

place an unsightly old structure, wholly unworthy of the city of Cork, of the age, and of the sacred purpose to which it was dedicated. But around and about it hang interesting relics of antiquarian lore. There is every reason to expect that the new pile will prove worthy of the city, which, at least by its own inhabitants, is called beautiful.

The parish church of St. Peter, situate in what is considered the most fashionable parish of the city of Dublin, is about to be restored, we might more properly say rebuilt,—from the plans, and under the supervision of Mr. E. H. Carson, architect. The old building, of which but little will remain, is a barn-like edifice, not requiring preservation. The proposed works comprise an extended chancel, with choir, vestry, robing-room, with heating chamber below; transepts, these latter provided with galleries; and a handsome tower, with angle stair-case building. It is not intended to carry out the spire yet, but when funds have been collected, one will be added. The entire of the seating will be formed with open benches, with plain bench-ends. A reredos and a pulpit, both in Bath stone, will be erected in the chancel. The lectern will be in red timber: the entire cost will be about 4,000l.

A correspondent from Dublin comments on the doings of builders, who act in the double capacity of architect and builder:—

"These," he says, "obtaining a job, or securing a client, whichever you like, doubtless tell their employers that they 'need no architect'—it is better to leave the arrangement of all such matters as planning, design, specifying, &c. to them. There is evidently some remedy required here: the question arises and ought to be easy of settlement, whether builders, who act in such manner, to the detriment of public taste and to the prejudice of architects, should be disqualified for tendering for the execution of any work with which an architect is entrusted. The practice alluded to is one that deserves suppression let the individual that practices be ever so trustworthy."

METROPOLITAN BOARD OF WORKS.

METROPOLITAN IMPROVEMENTS.

At the last week's meeting of the Board, a report was brought up from the Works and Improvements Committee, recommending that the Board do contribute 3,030l., being one-half of the cost of a further improvement to be carried out by the Commissioners of Sewers of the City of London in connexion with the widening of Newgate-street, by setting back the houses Nos. 71 and 72, as shown on the plan submitted to the committee, at a cost of 5,660l., independent of professional charges. The report, after some discussion, was adopted.

The following contributions to improvements were also sanctioned.—1,500l., being one-half of the cost of an improvement in connexion with the widening of Leadenhall-street and St. Mary Axe, at a cost of 1,000l.—2, 616l. 10s., being one-half of the cost of the improvement carried out by the Limehouse District Board of Works, by setting back the premises Nos. 98, 99, and 100, and the removal of a projection at Eagle Wharf, High-street, Wapping, at a cost of 1,233l.—3, 100l. towards the cost of setting back the premises No. 29, Queen's-road West, Chelsea, estimated at 200l.

DRAINAGE AND WATER SUPPLY.

Tamworth.—The Town Council are taking measures for the drainage and water supply of the borough, and 571 owners, ratepayers, and occupiers of property memorialised them to the effect that the present Nuisance Removal Act, if strictly enforced, would suffice for the public health without wasting the public money on such uncalculated and unnecessary schemes as those contemplated. The memorial was rejected on a point of form, and a public meeting was held, at which a resolution was unanimously passed agreeing to a memorial to Sir Robert Peel, requesting his intercession in the matter. A resolution was also passed requesting the Town Council to open their meetings to the public.

Graham.—The local Board of Health have proposed to the hamlets of Spittlegate and Little Gonerby to take combined action for the removal of the sewage from the river Witham, by obtaining a common outlet, each parish retaining the management of its own sewers. Meetings have accordingly been held, and there is a prospect of carrying out the object in view. Spittlegate has already offered 400l. towards the expense, Graham disposing of the sewage, and making a profit of it if it can.

Chelmsford.—An offer for the sewage has been made by Mr. F. Marriage, of Barnes Farm, Springfield, paying a rent of 80l. for it after the first two years, under certain conditions. The local Board of Health have decided to accept of the proposal, also conditionally; and the matter has been left for further arrangement to their sanitary committee.

Books Received.

Memorials of the late Francis Oliver Finch, Member of the Society of Painters in Water Colours, with Selections from his Writings. London: Longman, Green, & Co. 1865.

As a solace in her bereavement and at the request of many of her friends, the widow of the late Mr. F. O. Finch has provided them with an acceptable remembrance in compiling these selections from his writings, with written opinions of him by others, and adding an admirably-words little memoir of his career, which, with no extraordinary events to chronicle, is both pleasant and instructive to read. No biographer could be preferred to one who must so thoroughly have sympathized with him in all his relations; and although there are, doubtless, many as affectionate wives equally desirous of securing general recognition of their own well-established convictions, few could have invested the simple record of an earnest, well-spent life with so much graceful tenderness, and rendered interesting an account of every-day experiences that differ so little from the common lot, only varying, in their effect of making those they act upon good, bad, or indifferent, wise or unwise, just as their lesson may be heeded or disregarded.

In this case they are proved to have afforded opportunities enough for enunciating the better qualities with which our nature is endowed, and Mr. Finch must have merited the high estimation in which he was held by so many for rectitude of purpose and kindness of disposition. One of the best purposes of biography is fulfilled when it inculcates the doctrine that even the humblest have a sphere of action and an equal opportunity of doing right or wrong as the greater; and that it is possible for all to do a great amount of good if the desire be only proportionate to the capability. Indeed, there may be far more probability of deriving benefit and encouragement from the story that includes but the results of industry, conscientiousness, patience and amiability to make an existence valuable,—throughout which unity has been the paramount consideration, and regard for others more conspicuous than selfishness,—than from the history of heroes, military or civil, whose very eminence as exemplars leaves such an impression as would forbid all idea of emulation in some minds that would be more easily influenced by the direct example of how to make serviceable less rare possessions than are indispensable to the performance of brilliant exploits or other triumphs of exceptional genius.

As an artist Mr. F. O. Finch will be most regretted by those who appreciate those true principles that actuate the painter to become something more than a mechanical imitator of common-place fact; his organization was essentially artistic; his pictures bore evidence of how much he loved music and poetry, and how his refined taste had assisted to leave him almost singular at last at a period when the selective and ideal are so much ignored as to be recollected now in distinction between the older and new schools. Still his name will be remembered chiefly in connexion with his associates,—John Varley, Barret, David Cox, Copley Fielding, De Wint, and the rest,—for owing probably to his occupation of teaching, which absorbed much of his time and attention, he was prevented in great measure from attaining that position his classic feeling and homage for all excellence, with the ability he possessed of expressing his ideas, might have seemed to promise for him.

VARIORUM.

"RAILWAYS: A Plan of Systematic Reform by Legislative Enactment." London: Longman & Co., 1865. The author of this volume is anonymous, except as "the Author of 'The People's Blue Book.'" He here addresses the President of the Board of Trade in the form of a letter, in which he mainly urges a tariff reform analogous to the Penny Postage system, to be brought

but by legislative enactment. Cheap passenger transit, he maintains, would be beneficial to the public and to the companies. He advocates, as has been done in the older years, the erection of working-class dwellings, model or otherwise, in the urban districts, with cheap facilities of access by the railways. On the subject of cheap fares, the author says, "The railway companies may depend upon it that they will find it more for their own interest in the long run to look for their profits in a low mileage rate and a large number of passengers rather than from a high mileage rate and a small number of passengers," and so they would. The principle is identical with that upon which the gas companies now so generally act, after it had been for years drilled into their unwilling heads by the *Builder*, whom they long looked upon as their latest enemy, whereas it has turned out to be their best friend, no less than the public's, so far as gaslight is concerned.—"Railways, their present-way and Rolling Stock. By W. J. Adams." This is a reprint from the *Journal of the Society of Arts* of 22 December.

It contains some important suggestions as to the improvement of locomotives. We wish Mr. Adams could bring about some improvement in the hideous and dreadful screechings by night of railway luggage-trains, before the further extension of railways throughout the metropolis. A sleep of thousands is already murdered by these far more diabolical than anything heard of on railways by day; and, although a howling or a crowing fowl can be put down as a nuisance, here is a monster nuisance which, instead of being put down, is growing worse and worse, and is really most shameful and intolerable. The more central metropolitans are as yet careless ignorance of the purgatory which is waiting for them.—"Observations and Evidence on the Value of Sewage Manure. Mr. J. Kirkman's Tender." The intention of this pamphlet is to establish the advantages of the liquid system. Mr. Kirkman has obtained the sewerage for ten years. He gives the cost of operation 500*l.* for the first five years, and 1*l.* a year for the last five years. The corporation pay for machinery, coals, and deodorizing, and deliver the sewage to him as he requires. As to the metropolitan sewage, he says,—

"I estimate the solid dry refuse from the flow of sewage at 636 tons per day, which, at one shilling per ton, is 6,360*l.* per annum; it has been estimated at a much lower rate by men of science, viz., 1,000 tons per day. Professor Volcker has said that the dry deposit of sewage is worth 6*l.* per ton, or 2,150,000*l.* per annum. It would realize so much to me, the Board would get by selling the terms I offer, 430,000*l.* per annum for the seven years. I offer to guarantee only 10,000*l.* as a premium, because I do not see my way clear to the larger sum."

Mr. Kirkman petitions Parliament for a commission on his system, and on the sewage question generally.

Miscellanea.

STONE FOR INDIA.—On the 20th of this month, a quantity of Little Casterton freestone was shipped for India, by the *Tweed*, sailing for Bombay.

THE INTERNATIONAL EXHIBITION MOVEMENT IN INDIA.—Bombay has determined upon having an International Exhibition, and a company has already been formed with a capital of 500,000*l.*, in order to carry out the project.

MONUMENTAL.—It has been determined to set up a monument in remembrance of the late Captain Speke, the discoverer of the great Equatorial Lake of Africa, the Victoria Nyanza, who, in his gallant companion Grant, followed its waters to the mouth of the Nile. The Geographical Society of Paris have contributed ten thousand francs towards the fund.

THE CITY ARCHITECT'S OFFICE.—Mr. Charles Barry has been elected chief clerk in the architect's office, in the room of Mr. Allen, who has resigned that office. There were originally five candidates, namely, Messrs. Baily, Baker, Eastlake, Strudwick, and James. Mr. Eastlake, however, withdrew prior to the election, and the final result, Mr. Baily and Mr. Baker were the two candidates submitted to the Court for its decision. The former was elected by a majority of only; the numbers being, Baily, 55; Baker, 54.

STEAM OMNIBUSES.—An omnibus drawn by a locomotive, instead of horses, is now running at Chantenay, in the south of France. It can be turned and stopped with ease, and both inside and outside passengers travel by it without fear.

THE JOHN WEST METER MANUFACTORY.—It will be seen in another column that this flourishing concern is to be carried on hereafter by a limited liability company. The tendency seems to be to hand over every undertaking of any magnitude to a "limited" Company.

CRISIS IN THE TIMBER TRADE.—The crisis which was first felt in Birmingham, and which has affected various parts of the country, has touched Liverpool with a heavy hand, the failures during the last month having amounted to nearly half a million of money. The dividends vary in amount from 6*s.* 8*d.* to 15*s.*

STAINED-GLASS WINDOW, COBRIDGE CHURCH, STAFFORDSHIRE.—We are informed that the window recently put up in this church by Messrs. Cox & Son was executed on their own premises by their own people, and that "no French artist had anything to do with it." We may add that we saw the cartoons, made for the execution of the window, and were much pleased with them.

A TURRET CLOCK FOR ST. PATRICK'S CATHEDRAL, DUBLIN.—There is now erecting in St. Patrick's Cathedral, Dublin, a turret-clock (presented by Mr. Guinness), showing time on two dials, each 8 ft. in diameter, and striking the hours on a bell of 36 cwt. and chiming four tones in twenty-four hours. Mr. J. W. Benson, of Ludgate-hill, London, is the maker of the clock.

NEEDLES AND PINS POINTED BY GALVANISM. M. Caudery, of Lausanne, engineer, has applied the galvanic battery to the sharpening of needles and pins, by connecting a bundle of wires with the negative pole. The process is said to be cheaper than the present method, which is also very injurious to the health of the workpeople, in consequence of the fine metallic dust disengaged.

POPULAR UNION.—The guardians having decided to enlarge the workhouse, have arranged to obtain additional ground of the East and West India Dock Company, in the rear of the present house, to enable them to erect buildings to accommodate 1,000 inmates, exclusive of infirmaries, fever and infirmary wards, and have appointed Mr. W. Dobson and Mr. J. W. Morris, the architects, to prepare designs and superintend the works.

PHOTOGRAPHY IN NATURAL COLOURS.—The *Cemeus*, a newspaper published at Port Louis, Mauritius, contains the following extraordinary announcement, according to *Galignani*:—"M. Chambay has succeeded in fixing the colours of the object. The picture is taken instantaneously, as in other kinds of photography. The modelling and relief are marvellous: the blood appears to circulate beneath the skin; the colour is fixed; and the portraits, which present a surprising resemblance, are equal to the finest pastels, miniature, or water-colour drawings. M. Chambay is about to remove to Paris."

WANDSWORTH WORKING CLASSES INDUSTRIAL EXHIBITION.—An Exhibition organized by the Wandsworth Working Men's Club is to be opened on the 2nd of June. Persons eligible as exhibitors must live within the radius of three miles from Wandsworth, and belong to the working classes. Prizes for skill in design or execution will be awarded to—1. Producers of articles calculated to promote domestic, sanitary, and social advantages. 2. Producers of useful, artistic, scientific, and ingenious designs, works, models, &c. There will be two classes,—one for mechanics and artisans; the other for the unskilled and self-taught.

INSPECTION OF NEW STREETS IN THE METROPOLIS.—The Metropolitan Board of Works having directed Mr. Hart, one of their officers in the superintending architect's department, to inspect the new streets formed from time to time under their sanction, 343 new streets have come under his view. In general, it was found that the regulations of the Board have been faithfully carried out. A few exceptions have been observed: they consist chiefly in ignoring the condition requiring narrow streets or footways to be flagged over the entire surface, and the omission of posts at the entrance. The Board has given orders for enforcing their regulations in cases where they have been violated.

THE RAILWAY DEPOSITS.—The Parliamentary deposits this year on account of new railway projects have amounted to 4,272,010*l.*, of which 189,235*l.* was in cash, 258,500*l.* in Exchequer Bills, and 3,824,275*l.* in stock. This total is 2,050,879*l.* less than that of last year.

RAILWAY RETURNS.—The traffic receipts of railways in the United Kingdom amounted for the week ending the 14th of January, on 11,786 miles, to 570,570*l.*, and for the corresponding week of last year, on 11,460 miles, to 540,471*l.*, showing an increase of 326 miles, and of 30,099*l.* in the receipts.

SALE OF CORDIER'S SCULPTURES IN PARIS.—A great sale has attracted the notabilities of the artistic world to the Hôtel Drouot. It comprises all the sculptures of Cordier, as well as his museum of curiosities, collected during his travels in Algeria and the East. Cordier's statues reproduce the Moorish, Arab, and Chinese types. They took the world of art by surprise when first exhibited.

"STEAM SUPERSEDED."—The model of a new electro-magnetic locomotive is now exhibiting at Versailles. Its inventors, M.M. Bellet & Rouvre, assert that locomotives constructed on their principle could travel on ordinary railroads at the rate of 124 miles an hour! The power is obtained by magnetising and de-magnetising by means of a current supplied by a fixed battery; and, it is said, only a small part of the force developed is thus utilized.

THE GRANITE FOR THE ALBERT MEMORIAL.—The blocks of granite intended for the base and pedestal of the memorial of the late Prince Consort are about to be polished at the works of Mr. Kelk, the contractor. The granite comes from the quarries of the Scottish Granite Company, in the Isle of Mull. We are informed that several of the lighthouses on the west coast of Scotland which have stood well are constructed of this granite, and that it has been used in the building of the Liverpool Docks, the harbour at Greenock, in the foundations at Westminster Bridge, and the Thames Embankment.

THE FALL OF THE CHIMNEY IN SHOE-LANE.—Mr. Vulliamy, superintending architect to the Metropolitan Board of Works, having been directed to inquire into the nature and circumstances of the fall of the chimney belonging to Messrs. Pontifex, in Shoe-lane, has made a report, in which he states that Mr. Parkinson, the district surveyor for the western division of the City, reports that the chimney in question was built about thirty-five years ago, and that about twenty-five years ago, it was raised to the height of about 120 ft., at which height it stood at the time of the accident. The force of the wind during the late gale, acting directly upon the sides of the shaft, which was square upon plan, was sufficient to snap off the shaft immediately above the roof of the building in which it was situate, leaving about 20 ft. of the shaft still standing. The portion which fell in its course struck a smaller furnace-shaft of about 80 ft. high, which, not being able to resist the blow, also gave way, and the two then fell upon the roof of No. 23, Plumtree-court, a building let in tenements, crushing in the roof and floors of the building, and leaving the northern half nearly uninjured. The Board has referred the whole matter to the Building Act Committee.

SANITARY MATTERS.—A Haxby correspondent of the *York Herald* says,—“During the last three years we have had as visitors the small-pox, low fever, and typhus, and at the time I write the scarlet fever is present in many houses, and has been for some time. The cause has been blinched long enough, viz., the defective state of its drainage, which is really a conserve of stench.”—The *Norfolk Chronicle* says of the Fleggs, at Yarmouth,—“From time to time we have reported meetings in which reference was made to the unhealthy state of several of the parishes in the Fleggs, and have inserted letters which have drawn public attention to the progress of disease in those localities. The defective drainage in the districts pointed out has long been notorious, but Mr. Waller's brief but truly appalling statement at the Rallies meeting, on Tuesday, must convince the most indifferent that if speedy measures be not taken in order to remedy the evils which have been so frequently complained of, the result will be an increase in the rate of mortality upon that of last summer, when diphtheria, small-pox, fever, and other contagious disorders spread havoc and dismay throughout the infected places.”

PNEUMATIC DESPATCH.—The report of the directors of the Pneumatic Despatch Company to the shareholders explains the difficulties with which the directors have had to contend in obtaining possession of required property, and states that all obstacles have now been removed, and that there now only remain 5-8ths of a mile of tube to be laid in order to complete the communication between the General Post-office and Euston-square.

ANCIENT GREEK STATUES DISCOVERED IN CANDIA.—In digging for the foundation of a mosque near the village of Hieropetros, on the site of some ancient ruins, three ancient statues have been found. One appears to be the colossal statue of a warrior, unfinished, but of excellent workmanship. The second seems to be Oceanus, with a small stag crouching at her feet. The third is a male figure; but at present it does not appear whom it represents. The figures are considered to be, in all probability, of Greek workmanship.

THE COAL-TAR COLOURS.—The trade in the coal-tar dyes, which began in 1860, continues to expand, amounting probably at present to from a quarter to half a million annually. The colours are, magenta, various shades of blue and violet, purple, yellow, orange, and green. The dyes are sent from London to Lancashire and Yorkshire, and various other places, to be used in the preparation of silk and cotton velvets, printed calicoes, delaines, merinos, finished cottons, silks, ribbons, flannels, and fancy and flannel shirtings. An export trade is beginning to China and the United States, the dyes being sent in their solid form to save freight. It is said that several thousand pounds are annually spent in defending the patent.

LINCOLN ARCHITECTURAL SOCIETY.—The first meeting of the committee of the Lincoln Diocesan Architectural Society was held at the office on the 6th instant. An account of the progress made in the restoration of St. Mary's Church, at Stow, was read, whence it appeared that that interesting work was progressing satisfactorily. Great regret was expressed by the members of the committee that the cathedral pulpit, which had been so long in hand, will not be finished in the early spring of this year, as was expected. The various first-class artists employed, it appears, require four or five months more to complete their labours upon the sculptured panel subjects, the canopy work, the iron work, and, above all, on the numerous statuettes of apostles and evangelists with which the pulpit will be adorned. Of the statuettes, we understand that about half are presented by societies or distinguished persons connected with the diocese, among whom are Mr. Alfred Tennyson (the Poet Laureate), Professor Conington, Mr. Anthony Trollope, Chancellor Massingberd, Mr. Lewis Fytche, the Rev. W. Smyth, the Lincoln Diocesan Architectural Society, the Yorkshire Architectural Society, &c. These statuettes are ten in number, and each will bear the name of the donor. They will represent Apostles and the Evangelists, &c., to be carved by the best wood-carvers that can be found.

FALL OF A NEW WAREHOUSE AT SHAD-THAMES.—At Butler's Wharf, on the south side of the river below London Bridge, a new block of buildings, only very recently completed, and upwards of 100 ft. in height, 140 ft. in width, about 70 ft. in depth, containing four floors, with iron girders and supporters, and fire-proof throughout, gave way, and the entire front of the building fell into the river. Happily there was no one in the building at the time of the occurrence. As to the cause of the accident, it is stated that a large quantity of rice had been recently stored in the third floor, but whether the iron ties had given way, or the brickwork was insufficiently set, does not appear. Owing to the influx of business, the firm were compelled to warehouse cargoes of vessels before the building was actually completed. Indeed, there were masons and bricklayers still engaged on it at the time of the accident. A loud cracking was heard in the river frontage wall, and on the men looking upwards they saw the floors bulging downwards, and succeeded in getting into the street, when the whole fabric fronting the river fell into the water, bringing with it several thousand bags of rice. The land side of the structure remains entire. The excessive weight on the raw structure, no doubt, caused it to give way.

A NEW ENGINEERING AND REVOLVING SHUTTER MANUFACTURING COMPANY, LIMITED.—The well-known firm, Messrs. Burnett & Co., have transferred their business, as "manufacturing engineers, founders, smiths and machinists, manufacturers and patentees of revolving shutters, drawn brass and cast-iron shop-fronts, lifts, and hoists," to a new limited company, under the same title. The capital of the Company is 30,000l., divided into 500 shares of 60l. each, 150 being preference shares, and 350 ordinary shares. The shares have all been taken amongst the families and connexions of the old firm, and the new company are building new factories, and greatly adding to their machinery.

PUBLIC WORKS AT STOCKPORT.—According to a return prepared by the borough surveyor, it appears that 21,441l. have been expended in the execution of public works in that town. The average daily number of skilled and unskilled labourers employed has been 280, and out of this number only an average of twelve were skilled, the remainder being, with very few exceptions, cotton operatives. The average earnings of the skilled men were 3s. 10d. per day, and of the unskilled 2s. 2d. per day.

GAS.—The Ipswich gas company have reduced the price of their gas from 4s. to 3s. 9d. The Nottingham gas company have reduced the price of theirs from 3s. 2d. to 2s., and further to large consumers in proportion. The company have seen it to be for their own interest to do so, as they have had no pressure from without. After such reductions as those at Ipswich, Nottingham, Plymouth, &c., what can the metropolitan companies say in defence of their present charges?

BUILDING IN BIRKENHEAD.—At a recent meeting of the Health Committee of the Birkenhead commissioners, Mr. Mott submitted the following returns of the number of buildings and alterations to buildings within the townships of Birkenhead and Cloughton-cum-Grange, for the ten years ending the 31st December, 1864, according to the notices given to the building surveyor:—

Years.	Places of Worship, Schools, and Public Buildings.	Dwelling Houses and Shops.	Cottages.	Offices, Workshops, and Alterations.	Total.
1855	3	41	26	13	83
1856	3	61	130	37	231
1857	3	84	85	23	215
1858	0	75	135	41	251
1859	3	50	134	45	232
1860	3	77	304	48	332
1861	3	122	465	60	628
1862	2	162	712	91	967
1863	3	101	351	57	512
1864	4	109	157	61	328
Total in ten years	23	850	2,100	402	3,788
Average per annum	2.3	85.0	210.0	40.2	378.8
Increase in year above average of ten years	1.3	20.1	11.8	...	...
Decrease	...	...	53.9	...	50.8

The total extent of passage and court flagging which has been done by the commissioners (at the cost of the owners) during the past year, amounts to 1,680 square yards, or 1,066 lineal yards. The total extent of private drainage also done by the commissioners at the cost of the owners is 508 lineal yards of 9-in. pipe drain, and 340 lineal yards of 6-in. pipe drain; the drainage of ninety-one back-yards, seventy ash-pits, and ten water-closets being connected therewith; the whole of this work involving an outlay of 822l.

TENDERS.

For building chemical works at Hackney Wick, for Messrs. Simpson, Maule, and Nicholson. Mr. Cooper, architect:—

Dalby	28,400 0 0
Hack & Son	2,997 0 0
Sawyer	7,653 0 0
Henshaw	7,328 0 0

For the erection of a parsonage-house and offices, at Berwick Bassett, Wilts, for the Rev. E. J. Vicary. Mr. Weaver, architect:—

Barnden (accepted)	21,130 0 0
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For alterations to the Barley Mow public house, No. 50, Long-lane, West Smithfield, for Mr. Robins. Mr. C. Foster, architect:—

Ballard	2440 0 0
Terrey	345 0 0
Sinclair	301 8 0
Smith	273 10 0
Davey	272 5 0
Barker	267 0 0
Palmer	267 0 0
Gadsby	227 0 0

For alterations and additions, conservatory, &c. to East Hill House, Frome, Somerset, for Mr. H. C. Lopes. Mr. Weaver, architect:—

Barnden	21,067 0 0
F & G. Brown (accepted)	1,054 10 0
May	986 0 0

For additions and alterations to dwelling-house at Streatham, for Mr. J. J. Frost. Messrs. George & Vaughan, architects:—

Mason (accepted)	21,761 0 0
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For building an intended public-house, for Mr. Richards, at Leytonstone, Essex. Mr. John M. Dean, architect:—

Chellins	2613 0 0
Chellins	690 0 0
Harris (accepted)	585 0 0
Arber	585 0 0

For building five houses and shop, for Mr. George Park, in Fox-street, Halesville, West Ham. Mr. John M. Dean, architect:—

Cordery	2345 0 0
Hicks	800 0 0
James	792 0 0
Howlett	750 0 0
Holmes	740 0 0
Heritage	725 0 0
Heritage (accepted)	723 0 0
Farmilo	720 0 0

For the erection of a new bank, at Basingstoke, for the London and County Bank. Mr. F. Chancellor, architect:—

Budden	22,750 0 0
Martin	2,750 0 0
Mann	2,475 0 0
Harris	2,425 0 0
Sawyer	2,338 0 0

For sundry works to be done in building thirty-two almshouses at Reading:—

Dover	24,500 0 0
Biggs	4,340 0 0
Simmons	3,238 0 0
Barrecoat	4,287 0 0
Pulter	4,255 0 0
Searle	4,130 0 0
Matthews	4,119 0 0
Randel & Son	4,069 0 0
Rendell	4,050 0 0
Wheeler & Sons	3,968 0 0
Norris	3,920 0 0
Grover	3,810 0 0
Shephard	3,807 0 0
Sawyer (accepted)	3,804 0 0

For restoration after fire, Haberdashers'-hall, Gresham-street, exclusive of all painting and decorations. Mr. W. Snook, architect:—

Ashby & Horner	24,149 0 0
Holland & Hannan	3,928 0 0
Mansfield	3,821 0 0
Trollope & Son	3,622 0 0
Brass (accepted)	3,622 0 0

For the erection of warehouses, Downe's Wharf, Lower East Smithfield, for Mr. Charles Jack. Messrs. Snooks & Stone, architects:—

Downe	236,360 0 0
Lawrence & Son	34,830 0 0
Hart	33,573 0 0
Ashby & Horner	32,960 0 0
Holland & Hannan	32,845 0 0
Rider	32,840 0 0
Masters	32,769 0 0
Foster	32,740 0 0
Smith & Co.	32,650 0 0
Hill & Keddell	32,541 0 0
Downe	32,296 0 0
Trollope & Son (accepted)	32,243 0 0

For additions and alterations to the Pavilion of the Marlborough Cricket Club. Mr. Harry B. Newton, architect. Quantities not supplied:—

Rennell & Co.	22,813 0 0
Ring & Wainman	2,350 0 0
Palmer	2,184 0 0

For alterations and additions to the Merchant Taylor's School, Suffolk-lane. Mr. E. T. Anson, architect. Quantities supplied by Mr. F. Waller:—

Dunn & Co.	21,335 0 0
Hill & Son	1,326 0 0
Axford & Co.	1,294 0 0
Little	1,284 0 0
Ryder	1,089 0 0

For alterations and additions to a house at Thames Ditton, for Mr. M. Abrahams. Mr. H. H. Collins, architect:—

King & Sons	21,369 0 0
Newman & Mann	1,886 0 0
Cohen	1,297 0 0
Sharrington & Coles	1,044 0 0
Matthews	955 0 0

TO CORRESPONDENTS.

See (cancelled, having appeared elsewhere)—Theda (in type)—J. W. G. (there is no Royal Road to the knowledge of architecture: it must be studied methodically and patiently)—W. F.—W. G. (will have attention)—O. N. S.—S. & B.—W. R.—J. R. H.—L. J. W. S.—

The Builder.

VOL. XXIII.—No. 1148.

Baalbek.—The City of the Sun.



WHEN you occupy a country, and wish to hold it, carry roads through it. The force of this maxim of the Iron Duke has been duly recognized by our Continental neighbours, or, at least, by their ruler. Napoleon III. has also proved himself a man of metal, for he has carried his macadamized boulevards right through the strongholds of the vanquished Parisians. No more paving-stones to play with, my little *gamins*,—no more narrow lanes for ambuscades, my gentlemen of the red,—but broad imperial ways, easy for the passage of artillery, and affording elbow-room for *indigenes*, who will fall to work with a will on the first occasion you afford them. From these premises we may infer that the French, or, rather, he, the embodiment of the French will, intends, or intends, permanently to hold Syria; for he has carried a noble road, also macadamized, right over the summit of Lebanon, through the centre of the country from Beyrout to Damascus, and has established khans at proper intervals, with relays of horses for the diligences which have commenced running. Whether or not this road was begun by the French army, during its temporary occupation of Syria, or by the company who are finishing it, we know not; but we do know, that in whatever way it will be accomplished, it will be a great and good work, tending greatly to the comfort and security of travellers in that insecure and comfortless country. It is the path by which civilization will penetrate to the very edge of the desert; for that great civilizing power—Commerce—is already covering it with her caravans.

At the time of our visit to Damascus it was only completed three parts of the way, and the diligence only travelled half the way, the rest of the journey being accomplished on horseback. On our return from that interesting city we left the road in the great plain of Bekaa, which lies between Lebanon and Antilibanus, and is from six to ten miles wide and one hundred long, stretching from above Hums to Mount Hermon. We left the road in order to visit the ruins of Baalbek, which were situate a day's journey to the northward. A conveyance was to have met us at the branch road to Zekleh, but, as the Americans say, we "missed connexions," and proceeded to the town on foot, leaving our dragoman in charge of our saddle-bags. The plain of Bekaa is quite flat, well cultivated, but without trees. In this part of it the French army was encamped many months, so the Christian boys of the neighbourhood flouted us in our progress with "Bon jour," much at first to our astonishment. Zekleh, the largest Christian town in the district, is recovering its opulence after the depressing results of the massacre; and we noticed that new convents were being built upon the sites of those

that were destroyed, and in a manner to resist the attacks of Arabs and Druses. We found there a hotel, dignified by the name of hotel, where we had breakfast, and where we were shortly joined by Michael, our dragoman.

We went then into the market-place to hire mules; and, having at last been successful, mounted in haste in order to reach Baalbek, if possible, before sunset. Our road lay athwart the plain to the north-east. For some miles cultivated fields without hedges or other inclosures were visible on both sides of us, and we passed at first through villages inhabited by those sons of Ishmael who had become domesticated, had relinquished "the road" to their brothers the Bedouins, and had taken to the field instead. After a time the cultivation and villages ceased, and we had around us the usual sand, stones, and brushwood. Though our progress was but slow, the wonderful grandeur of the scenery consoled us. The snowy range of the White Mountain on the one side, and on the other the red peaks of Antilibanus,—which seemed to have been burnt by the sun's rays until they had the appearance of mountains of brass,—kept company with us all day long, and, as evening approached, overshadowed us,—too soon, alas! for they obscured the great pile of the temple of Baalbek a few minutes after we came in sight of it. We had but time to gain a glimpse of its grandeur in the short twilight, for night overtook us while we were yet miles from the ruins. It is not pleasant to be blighted in the East, for the roads are stony and difficult to follow, as there are in general no boundaries to them; but fortunately Michael knew the road well, and, after a few stumbles, we at length reached the village which adjoins the ruins in safety, and obtained quarters in the house of a Christian family. At the end of a courtyard there was an oblong building, consisting of two living-rooms, divided by an open archway like the *lewan* of the houses of Damascus. Unfortunately one of these rooms had no floor, as it was but newly built, and consequently while some of our party occupied the remaining apartment, others had to seek rest in the open archway,—to seek, but not to find it, for myriads of fleas held their revels there and banished sleep. But "it is an ill wind that blows nobody good," for to these little tormentors we were indebted for one of the most lovely sights eye ever beheld. They were the cause of our being roused at daybreak in time to see the sun rise over the ruins. Hurrying to a hill in front of the house, we gained a perfect view of the whole plain.

Looking over the flat-topped houses in the foreground, we beheld the broad plain of Bekaa still wrapped in grey shadow. Beyond it rose the lofty chain of Lebanon, whose jagged summits were just lighted up by the rosy light of morn; every ravine in its indented sides by degrees became distinctly visible, even to its purple depths. In the foreground of this majestic picture of nature rose the huge dark mass of masonry, one of the grandest of man's works, apparently an immense fortress, rising high above the houses and groves of trees which surrounded it, and surmounted by six slender columns. At first it looked gloomy and sombre, but little by little the sun's rays painted cornice and capital with rich rose madder, bringing out clearly every detail, admirable in contrast with the mass of green foliage beneath. Rapidly the shadow fled across the plain before the pursuing ray, till it was finally gathered up into a small space at our feet, and old Baal resumed possession of his early inheritance—Heliopolis, the City of the Sun—to reign there royally for the next fifteen or sixteen hours. We have seen the sun rise upon the Alps from the summit of the Superga, near Turin; we have watched it tip with gold the minarets of Stamboul; we have seen it gild the sides of the

Pyramids; but we never remember to have beheld such a splendid effect as when we witnessed his return to the city which bears his name,—and we owed all this to the fleas!

Upon descending to breakfast—for we early birds are always ready for our matutinal worm—we were glad to find that Michael had provided a substantial meal. After heartily discussing it, we made our way to the ruins. Upon approaching them, we found that they consisted of temples and other edifices, erected upon an immense platform, some 20 ft. or 30 ft. above the level of the ground, and enclosed by a wall heightened in Arab times, so as to form altogether a vast fortress, 1,000 ft. in length, from east to west, and 500 ft. in breadth, from north to south, with walls varying from 60 ft. to 80 ft., or even 100 ft. in height. The platform was originally reached by a flight of lofty steps, at the east end, removed by the Mahometans, and replaced by an embattled parapet. There appears to be no mode of access to the terrace except through a breach at the south-west angle, though there is in reality another through a subterranean passage. But before entering we will walk all round the pile,—which may be called the acropolis,—and remark the construction of the platform, looking especially for the three great stones mentioned by all travellers, which, from their dimensions, have given the temple at Baalbek, the name of *ἱεροὶ Τάλιθοι*.

The east end is entirely occupied by the pylons. The columns of the portico no longer exist, but their bases and pedestals have been built into the embattled parapet. There were originally twelve columns, which were flanked by a pylon, 25 ft. square at each end. These pylons stand entire, and have four pilasters on each face; the cornice of the podium is returned on both the north and south sides. Upon the entablature surmounting the pilasters, a wall has been erected by the Arabs, so as to make the total height of the building at this point almost 100 ft. above the level of the ground.

On the south side the wall is continued for the full height, to a distance of 30 ft.; here it juts out at right angles to some 50 ft. In the east face of the projection there is an entrance to subterranean passages, which run through the basement. These we shall afterwards describe. The remainder of this side is formed by the walls of a Saracenic palace, which occupies the corner of the platform; beyond it the barrier is formed by the south wall of the cella of the Temple of Jupiter and by the columns of the peristyle: eleven of these have fallen, but four remain standing. Roberts chose this point for one of his most beautiful sketches. Beyond the Temple occurs the breach already mentioned, as existing at the south-west angle.

On the west side we find a plain unbroken wall, and at the north-west corner the three enormous stones that we were seeking form apparently one unbroken course, 186 ft. in length by 18 ft. in depth, for they are so nicely laid that the joints are not easily to be discerned. We should suppose the temple to have been built upon rock levelled to receive it, if these stones had not other smaller courses beneath them, and if we did not see, on turning the corner, at least six other stones of large dimension, ranging with them, and forming with them part of the original temple, built by the Phœnicians, or by Solomon, as the Arabs say. According to them, this edifice was built by that monarch as a sort of country mansion, where he could retire to divert himself with his 1,001 wives: no great sin in their eyes. We wonder that they do not associate in their imaginations these stones with the time of the giant Noh, whose tomb was visited on our return, at Nohy Noh, near Zekleh. It is a coped tomb, about 4 ft. above the ground, and 100 ft. long, showing the full stature of the truly great patriarch. We are giants in science and inven-

tion, but we have never moved a stone weighing 1,000 tons a mile's distance; perhaps because we never had occasion to do so. The quarry from which these stones were hewn is almost a mile from the temple, and there is another stone lying in it of still greater dimensions than these, being 68 ft. 4 in. long, 17 ft. wide, and 14 ft. 7 in. high, according to those who have measured it. It is tilted up at one end, all ready to be moved by rollers or whatever means were employed by primitive builders.

On the north side there is an outer wall, composed of the above-mentioned large blocks. It is about 15 ft. or 20 ft. high, and is some 20 ft. or 30 ft. distant from the higher wall, which supported the peristyle of the Temple of the Sun, leaving a sort of fosse between. Beyond the peristyle of the temple the main wall juts out at right angles, passing beyond the end of the lower wall. The cornice of the podium begins here, and is continued round to the eastern side. In the west side of the projection is another entrance to the subterranean corridors, and there are two pilasters above it, ranging with those of the portico.

If we clamber through the breach at the north-west angle, we find ourselves on a platform lower than the general level of the enclosure. Upon it stands the Temple of Jupiter, which, after the Temple of Theocna, is the most perfect existing; and which in its dimensions exceeds the Parthenon. It is octastyle and peripteral, and of the Corinthian order. The portico had three rows of columns, and was larger than that of the Pantheon at Rome. Most of these columns are standing; those on the north side stand entire, with their entablature and with a great part of the ceiling of the peristyle, which consists of a flat segmental curve, formed of single stones laid side by side. The soffits are most elaborately ornamented with hexagonal compartments, each filled with a group of figures. Three columns of the posticum are also standing, but those on the south side have for the most part fallen down.

The doorway of the temple has been so often described by able pens, and delineated by able pencils, that we shall not attempt to picture it in detail; suffice it to say, that the architraves are single stones 42 ft. high. The lintel is of three stones, the centre stone of which slipped down 3 ft. or 4 ft., but remains suspended, as though ready to fall upon the intruder into the adytum of the temple. The internal walls have engaged columns, the spaces between them being filled with two rows of niches. Inscriptions inform us that this temple was erected in the time of Antoninus Pius.

Such being the smaller temple, what must the larger have been in its pristine state? Now there are but six columns of the southern peristyle remaining. These stand upon a supporting wall on the general level of the upper platform. Wood and Dawkins restored this temple, and from their plan it appears to have been decastyle, peripteral, and most probably hypæthral, standing upon a high podium, which upon the north and west sides rose straight from the level of the ground. The shafts are 62 ft. 4 in. high, and the total height, with the entablature, is 76 ft. Thus they were the highest in the world. This stupendous structure was approached through an atrium about 350 feet square, lined with *exedrae* and ornamented with numerous columns and niches. This again was approached through an outer and smaller court, likewise lined with *exedrae* and niches. Portions of the former, and a great part of the latter still remain. The decoration is extremely rich in style. This outer court terminates in the grand eastern portico, which had twelve columns, 4 ft. 4 in. in diameter. We quote these dimensions from various authorities, as we had not time to measure, but simply to explore. After a general survey of the ruins on the platform, we visited the subterranean corridors—not the least interesting or curious part of the structure. There are two long vaulted passages running the full length of the platform, or nearly so, connected by transverse galleries. They are partly built of immense blocks, evidently of the same date as the large stones at the north-west corner; the greater part, however, is Roman work. These passages have never been thoroughly examined. Dr. Robinson appears simply to have peeped into them; others seem to have devoted their time exclusively to the examination of the upper work. We observed in our exploration an opening in the south wall of the southern corridor about 6 ft. from the ground, and, with the assistance of

Michael, managed to scramble into it; but not being furnished with lights, did not venture to descend on the other side. It was too late in the day to go for candles, so we unwillingly deferred our visit till the next day, and retired to our flea-haunted mansion, when we were rejoiced to find that our hostess had actually procured and cooked chops for dinner—an unusual luxury in a country where butcher's meat is rarely to be obtained by hungry travellers.

Early the next morning, having supplied ourselves with candles and the only ladder in the village, we returned to our underground researches, and were rewarded by the discovery of an arched chamber about 20 ft. square. The ceiling was semicircular, elaborately enriched with caissons filled with rosettes, and at the sides of the room there were rich niches with pediments over them. This chamber had evidently been open to the exterior at one time, as the end wall was of more modern date, and the crevices between the stones admitted faint rays of light. What this chamber could have been is difficult to say. We have not met with any notice of it either in Wood, De Saucy, Robinson, or any other writer, and we therefore feel ourselves at liberty to suppose that it was not remarked by them; the whole building is a fine study for the archaeologist, and has to be thoroughly explored, measured, and explained by some future traveller, for it is without doubt the finest pile of ruins in the world as far as grandeur and completeness go.

Not far from the acropolis, as we may venture to call the fortified enclosure, stands an elegant little octagonal structure, which Miss Beaufort aptly terms the *boudoir* of the gods; each side is curved concavely, and at each angle there is a detached column, about which the entablature is returned. It is circular in the interior, 38 ft. in diameter, and has had a domical roof, the lower courses of which remain.

There are many other objects worth a visit in Baalbek: for instance, the quarry where is the great stone, and in which there are various rock dwellings, apparently those of anchorites; the magnificent source of most limpid water forming a small river which fertilizes this part of the plain; a ruined mosque with three rows of pointed arches springing from classical columns, no doubt taken from the court of the temple; and the walls of the ancient town, which, with their gates, are almost entire, enclosing a great tract of ground, a corner of which is occupied by the modern village. All these are well worth visiting; indeed, a residence of several weeks would be necessary to enable a person to see the place thoroughly. But Michael was inexorable, and, after the second day, we unwillingly mounted our mules, and turned our faces with regret towards the Neby Noub.

ENGINEERING ARCHÆOLOGY.

THE HISTORICAL LOCOMOTIVES AT KENSINGTON.

People talk very glibly about invention and its progress, but we have often had occasion to notice that but few have any clear notion of what industrial invention really is, while a philosophic history of invention has yet to be written. Invention has been termed the poetry of science, and one popular belief about inventions would maintain that they are struck off like the stanzas of a poetical improvisatore. But very few inventions, however, could be traced to such a source, and the history of the arts shows that time, accident, and tentative experiment are, after all, the greatest inventors. One of the chief features observable in the maturity of any invention is its gradual and slow evolution, by the work of many brains, of many hands, of many circumstances of time, place, and chance. So slow and gradual is this progress, that the different stages in its history are of the hands of a note as would be the progress of the hands of a clock unprovided with a dial-plate; and the different stages are difficult to determine, not merely with regard to entire machines or processes, but also with respect to the different details and these processes. As a natural result, when inventors or their descendants do at last come to understand the importance and value of what they have been doing, there take place endless controversies as to priority of invention. Witness that of the blast-pipe, for which there are several claimants. The importance, for reasons of social and commercial polity, of determining the laws of the deve-

lopment and progress of industrial improvement is scarcely recognized,—although the patent law and other laws bearing on inventions may be supposed to have some such theoretical basis. A generalization of this kind could only be conducted on a firm groundwork of historical truth, and there are many difficulties in the path of an investigation in this direction. To mention only one. There is scarcely one important modern invention which is not claimed for a distinct and different inventor in each of the more important civilized countries of Europe. The first originators of many of the steam engine are thus subjects of fierce contestation between the savants of England, France, and Germany. It would be scarcely possible to get at any true account of a question of this kind without studying the records and claims in these three languages at least. It is the French who show the greatest ardour and vivacity in these discussions; and we regret to say these patriotic sentiments have not in all cases been tempered with many scruples as to the means of maintaining, or rather of annexing, honour of this kind. We say this advisedly, having in our memory some yet unpublished discoveries as to the history of the steam engine.

We thus look upon the Museum of Patents at Kensington, mainly founded by Mr. B. Woodcroft, and greatly extended by the zeal of the present Curator, Mr. F. P. Smith, as being of yet greater importance than is generally acknowledged. This Museum, even in its comparatively undeveloped state, is not merely an historical record of inventive progress,—is not merely a museum of engineering archaeology,—but is also a place whence may be drawn some most valuable lessons towards a philosophic theory of the development of invention. One lesson, apparent to the most casual observer, is that an invention is not a thing of spontaneous, inspired, production, but is rather a plant of slow growth,—sown, nourished, tended, and reaped by many different hands. This view is a rather disenchancing one to take, however true it may be. The popular imagination seems to always require a corporeal object for the embodiment of its fancies. It delights in a hero, its sight does not range so far over the intellectual horizon as to perceive a principle,—it can only see a person. It is forgotten that men's powers—the term being used in the widest sense—differ but little in extent from the physical stature of a given number of persons. The popular belief that, for instance, invents Watt with the invention of the steam engine; Arkwright with that of spinning machinery; Fulton with marine propulsion by steam; George Stephenson with the first invention of the steam locomotive. A brief account of the locomotives already existing in the Kensington Museum of Patents, would dispel this last belief, and even without greatly shortening George Stephenson's status. At the time we write too, the celebrated "Sanspareil" the rival engine to Stephenson's "Rocket," built by Stephenson's rival, Timothy Hackworth, is just now being re-erected in the Museum, in company with its former competitor of the famous contest on the Manchester and Liverpool Railway, in 1825.

In the matter of priority of invention in, or rather of attempts at, land propulsion by steam, the French may well claim to be any true Englishman, and we do not think that any true Englishman will be inclined to grudge them this honour. The first steam-engine seems to have been made by a Frenchman, Cugnot, in 1769,—that same marvellous year which witnessed the birth of Napoleon I., Wellington, Humboldt, Mehemet Ali, Lord Castlereagh, Sir M. I. Brunel, Cuvier, and the first patent of Arkwright, the first patent of Watt, as also some other events almost as great in their eventual influence on the present era. An engine made by Cugnot is still in existence in the Conservatoire des Arts et Métiers at Paris. It has a copper boiler, very much like a common kettle without the handle and spout, furnishing with steam a pair of 18-in. single-acting cylinders. The engine propels a single driving-wheel, which is roughened on its periphery. Altogether, this engine bears considerable testimony to the mechanical genius of its inventor. It was unsuccessful, having got overturned once or twice on the very bad roads then existing in France, and it was put on one side.

It is stated, however, that arrangements were made, in 1801, to put it to work in the presence of Napoleon Bonaparte. The departure however, of Napoleon for Egypt, prevented the trial,—a circumstance which recalls Fulton's subsequent unsuccessful na-

gations with Napoleon for aid in attempting marine propulsion by steam. Watt then, in 1784, patented a locomotive engine, the boiler of which was to be "of wood," hooped like a beer-barrel. Watt, however, had not much faith in steam carriages, and he objected to the attempts made in this direction in 1784 by William Murdoch, his very able assistant. The miniature engine made by Murdoch in that year is still carefully preserved at Soho. Careful and elaborate researches, such as those lately made by Mr. Zerah Colburn* into the history of the locomotive, seem to more and more confirm existing impressions as to the great part done by Trevethick in the introduction of the locomotive engine. In 1802, he and his moneyed partner Vivian patented the application of the high-pressure engine to steam carriages, and one of these was made, put to work in Cornwall, and exhibited in London. A model locomotive, made by Trevethick in 1802, is now in the Museum of Patents, at South Kensington, having been found out in Cornwall by the present curator, Mr. Francis P. Smith. The boiler is fitted with an internal double fire, and a chimney of small diameter. Mr. Colburn has shown clearly enough, in spite of previous misstatements, that Trevethick understood the value of the blast formed by the exhaust steam when turned into the chimney, and the practical sufficiency of the adhesion between smooth metallic surfaces for propelling the locomotive and its load. Trevethick's engine of 1804 was able to work over a rough tram-road at the rate of 5 miles an hour; but in Cornwall, where fuel was then so dear, the comparatively high quantity of coal consumed rendered this performance of inferior commercial value. The Northern districts of Newcastle-on-Tyne clearly offered the fairest opening for the childhood of the locomotive, and accordingly, Mr. Blackett, the proprietor of Wylam Colliery, wrote in 1809 to Trevethick respecting his locomotive. It appears that, at the time, Trevethick replied that he was too much engaged; but in 1811, however, he sent an engine to Newcastle. It was not put on the Wylam railway, but set to drive a foundry.

At this time a locomotive was being made by Murray, of Leeds, at the order of Mr. Blenkinsop, of Middleton Colliery, near that town. It will be remembered that Mr. Blenkinsop's name is connected with the employment of a strong rack rail on the line, into which worked a toothed pinion driven by the engine. A horizontally-placed cylindrical boiler was used, in which were placed two vertical steam cylinders. The boiler had a single internal fire, containing the grate at one end,—like a Cornish boiler,—while the chimney rose out of the other end of the fire. A pair of cranks on each side of the engine drove a toothed wheel, and these two wheels themselves propelled a larger toothed wheel, on the axis of which was a pinion with coarse teeth working in the rack rail. With such a light engine as one of 5 tons, and working at the slow rate of only 3 miles an hour, Mr. Colburn considers that we should be obliged to use a rack, and that thus Mr. Blenkinsop did not deserve the ignorant ridicule which has been directed against his rack and pinion. In fact, Mr. Murray's engines on Blackett's plan were the first locomotives ever worked permanently and on a commercial scale, and this line between Middleton and Leeds is in reality the first commercial railway. It is not, perhaps, generally known in England, but it is stated by Mr. Colburn, that as late as 1848 the rack rail was adopted upon an incline of 1 in 17, on the Madison and Indianapolis Railway, in the United States. "This incline, which has since been superseded by a line with practicable gradients, rose from the north bank of the river Ohio at Madison, and was about five-eighths of a mile in length." The engines provided had five steam cylinders in all, amounting, in a way not to be made clear without a sketch, a cogged wheel working on a rack rail.

The next step was the commercial working out of the adhesion of the driving-wheels. This was done by William Hedley, the colliery viewer of Mr. Blackett, of Wylam; but it is probable that this would have been done by any one who first built a rather heavier engine than that of Murray's. Hedley thus, in 1813, constructed the engine now in the South Kensington Museum, but which has been at work near Newcastle down to such a recent date as 1863. It has been known for many years under the name of the "Puffing

Billy,"—a nickname given to its maker, Mr. William Hedley, by the colliery hands, from the fact of his being rather stout, with a consequent shortness of breath. Mr. Hedley first of all made an engine somewhat like that of Trevethick's, with a cast-iron boiler, provided with a single internal fire, and working by adhesion on a smooth rail. This engine was not very successful, from a deficiency of boiler power, and from the fact of its having only one cylinder; but it clearly proved the possibility of doing away with the expensive and cumbersome rack. The "Puffing Billy" was then made. The inscription on it states that it was built in 1813, by Jonathan Foster, engineer, of Wylam colliery, under the superintendence of Mr. Blackett, owner, and of Mr. Hedley, viewer of the colliery, in order "to haul coal-laden waggons along a railroad to Lemington, where the coals were shipped in keels." This railroad was a substitute for the old tramroad, and was laid down on the site of the latter, between the years 1807 and 1811. The "Puffing Billy" has a wrought-iron boiler, containing a return fire,—the chimney being at the same level as the fire-door. There are two vertical cylinders, driving beams centred each at one end, termed the "grasshopper" beam—a plan first due to Oliver Evans. The motion of the wheels is given to the four wheels by toothed gearing. An original document of great interest and instructiveness, is framed and glazed and hung to this engine. It appears that the noise and smoke made by this engine were considered a nuisance by some of the people living in the districts it traversed. They accordingly threatened to indict the "Puffing Billy" as a nuisance, and Mr. Blackett found himself obliged to take counsel's opinion on the matter. The barrister, who doubtless noted one in his day, evidently agreed with the neighbours in their bad opinion of Mr. Blackett's engine. The case being put to him, he writes on the back of the document, that,— "It does not appear to me that there is any objection arising from the lease itself, to Mr. Blackett's conveying his coal-waggons by means of this steam-engine; but I think that the use of such an engine may be deemed a nuisance to A. if the smoke and noise occasioned thereby render his habitation unhealthy or uncomfortable; but this must entirely depend upon the quantity of smoke and noise so occasioned, and the distance of the house of A. from the waggon-way,"—(signed) R. Hopper Williamson, Newcastle, 12th September, 1814. But the most amusing bit is a note, apparently the result of an after-thought of the learned lawyer:—"If the noise of this engine disturbs the cattle grazing on the land adjacent to the waggonway, so as to injure them with regard to their feeding, I think it may be considered a nuisance." In all probability Mr. Williamson's capacity was rather above than below the average; but this is one of many more instances that shows the difficulties to be encountered in the introduction of any new thing. It is not very likely that such an opinion would now be given, or that we shall ever abolish locomotives for fear of disturbing the digestion of grazing cattle; but the first thing has been done, and the introduction of traction engines is just now greatly impeded by the same difficulties which beset the Puffing Billes of 1813. At the same time, it is clear that horses are more liable to be frightened by an engine on common roads than on a line,—or, rather, more properly speaking, the engine is brought within sight of a greater number of horses when it is made to travel on a common road. But it is well known that horses very soon get accustomed to a railway locomotive, and there is no doubt that they would just as soon forget their fear with a traction engine.

About a couple of years after the construction of the "Puffing Billy" Mr. Hedley built a yet more efficient engine for the Wylam Railway. In the same way as he had first put to commercial use the adhesion of smooth surfaces for railway traction, so did he first apply the return-fire boiler and the narrow chimney. By the way, talking of "adhesion" we think that this term is often used very improperly. Adhesion only takes place between two surfaces of the same substance, or of the same—or of nearly the same—molecular structure, and consequently similar surface. Adhesion thus does not take place between a cast-iron surface and a wrought-iron surface,—between (say) a cast-iron wheel and a wrought-iron rail. The grip is in this case produced by simple friction without any adhesion, properly so called.

A careful observer of the doings on the Wylam Railway was George Stephenson, and he persuaded his employers at the Killingworth Colliery to construct an engine which was finished towards the middle of the year 1814. Its boiler, 8 ft. long and 34 in. in diameter, was carried on four 3-ft. wheels, and provided with a single internal fire. Two vertical cylinders were placed for half their length in the boiler. The motion for driving the wheels was almost the same as that in the "Puffing Billy." It is stated by Mr. Smiles that the speed of this first engine of Stephenson's was only three miles an hour, and a year's trial with it showed that it had no advantage in point of economy over horse-power,—being thus much inferior to Hedley's engines. This weakness of Stephenson's first engine was due to the low boiler power produced by the use of a single fire and a chimney of large diameter with its weak blast, unaided by exhausting the waste steam into the chimney. In 1815, Stephenson made his second engine, according to the patent which he took out in that year. A different kind of gearing was adopted for driving the engine, and additional adhesion was obtained by coupling the wheels of the tender to the engine by means of an endless chain. Stephenson also used springs, according to a suggestion of Mr. Nicholas Wood. George Stephenson also applied a strange and even absurd scheme to some of the Killingworth engines as a substitute for springs. This consisted in adapting a number of pistons sliding in cylinders fixed to the bottom of the boiler, and in communication therewith. Stephenson, in his own words, supposed that as they "acted upon an elastic fluid, they produced the desired effect with much more accuracy than could be obtained by employing the finest springs of steel to suspend the engine." Of course, the plan had to be at last abandoned, after some unsuccessful trials. At this time, and some years previously, the placing of steam-carriages on common roads was being attempted,—a feat which is now being carried out in our own time mainly for agricultural purposes. The wedding of the wheel and the rail put an end for the time to the experiments in this direction, conducted by Griffiths, Gurney, and others. Mr. Colburn remarks on these experiments, that while road locomotives had ample adhesion, they only lacked evaporative power. "The steam blast, which for railway engines running at a slow speed, and having insufficient adhesion, was as yet hardly required, nor, for some of these engines, even admissible, was therefore of great importance to the road locomotive engineers. Goldsworthy Gurney, then a surgeon and lecturer at the Surrey Institution, has claimed the discovery of the properties of the steam-jet in 1820,—the year, by the way, in which Nicholson's patent for various applications of the steam-jet expired. In 1820 and 1821, Gurney employed the jet for promoting combustion in laboratory furnaces, for decomposing various compound bodies, and for working platinum; in 1824 he applied jets of steam, taken directly from the boiler, to increase the draught in the chimneys of the steamboats *Aligator*, *Duchess of Clarence*, &c.; in 1826 he applied steam in the same manner to increase the draught in the chimneys of his road-locomotive; and in an *ex parte* statement not long ago published by Mr. Gurney, he alleges that he "supplied Timothy Hackworth with the blast-pipe employed by that engineer in the locomotive 'Sanspareil,' which so nearly won the Liverpool and Manchester prize in 1829." It would seem, however, that Hackworth used the single contracted blast orifice about two years previously to 1829.

Timothy Hackworth was a practical engineer of much ability, and, though not so successful as George Stephenson, it is probable that his mechanical powers were little, if at all, inferior. He helped to make the "Puffing Billy" at the Wylam Railway; in 1824 he was the manager of George Stephenson's locomotive foundry at Newcastle; becoming, in the following year, the locomotive superintendent of the Stockton and Darlington Railway. The engines of this line, opened in 1825, were made by Stephenson, and they gave such bad results that it stated that the directors, as late as 1827, were thinking of altogether giving up locomotives. Hackworth, however, took in hand one of the engines on the line, made by Wilson, of Newcastle. Hackworth applied the return-fire to the boiler, and, above all, he applied to it the blast-pipe. The "Royal George" was thus the best locomotive of its time, as it was, besides, fitted with the then novelties of "a cistern into which, a portion of

* "Locomotive Engineering," Glasgow: W. Collins, 1864.

the exhausted steam could be turned to heat the feed-water: it had short-stroke force-pumps, worked by eccentrics; adjustable springs, instead of weights, upon the safety-valves; and a single-lever reversing gear.*

Two years after the application of these improvements to the "Royal George," in 1829, took place the Rainhill trials on the Manchester and Liverpool Railway, which had the effect of bringing to a head most of the existing knowledge in locomotive traction. One of its most important results was the first application of the multitubular boiler to the locomotive. The invention of this important form of boiler has afforded, and still affords, a field for both intestine and international wars as to its priority of invention. The English claim the multitubular boiler; so do the French; and so do, we believe, the Americans. Perhaps a Chinese claim may be yet put forward. In the mean time, Mr. Colburn shows that it was first prepared by a London engineer, Mr. James Neville, of Shad-Thames, in specification No. 5,344, A.D. 1826. This is an important document in engineering archaeology, as it annihilates the pretensions of the French claimant, M. Marc Séguin, who only patented the multitubular boiler in France in 1828.

Thus were combined and brought into practice all the essential points of the present locomotive, which has only been since improved by, in the main, the mere effect of time,—of time and experiment, eliminating inferior forms of detail. Nevertheless, the then existing locomotives were by no means very successful machines; such distinguished engineers as Messrs. Walker and Rastrick reported against their use on the Liverpool and Manchester Railway; and they were confirmed in their impressions by a man of such ability as Mr. Nicholas Wood, who (just as Smeaton firmly believed that steam-engines could never do better work than pumping up water for water-wheels), gave it as his conviction that no locomotive could be made to go faster than 8 miles an hour. Thus, even so late as the spring of 1829, the directors of the Liverpool and Manchester Railway were thinking of applying fixed engines and ropes for working the line. Fortunately, however, the counsels of two or three members of the board prevailed, and it was decided to make a last trial of locomotives. As one of George Stephenson's engine had already failed on the line, a prize of 500*l.* was publicly offered to all comers on the 25th of April, 1829.

The conditions that engines had to fulfil have been often published. One of these was, that the engines should burn their own smoke; and it is a pity that this "condition" has not even now, been fulfilled, as every railway passenger knows to his cost. The only engine ready at the appointed time was the "Rocket," entered by Robert Stephenson; Hackworth's "Sanspareil," Braithwaite and Ericsson's "Novelty," and Mr. Blandreth's "Cyclops" were not ready at the appointed time. The "Rocket" and the "Sanspareil" (both somewhat altered) are now in the Kensington Museum, the last, as we have stated, being just now there re-erected. Both are four-wheeled engines. The boiler of the "Rocket" is traversed by a number of copper tubes, and its two inclined cylinders work crank-pins on the driving-wheels at the front or smoke-box end of the engine. The honour of the application of the tubular boiler is not due to the Stephensons, but to Mr. Booth, the secretary of the Liverpool and Manchester Railway. The diameter of the driving-wheels was 4 ft. 8½ in., and that of the travelling-wheels, 2 ft. 6 in.

With regard to the "Sanspareil," it is stated that this was the second engine to which was applied the blast-pipe; the "Royal George" (1827) being said to be the first.* The exhaust steam from each engine is taken into the chimney through a blast-pipe. It also appears to have been one of the first engines with coupled wheels, of which it had four. The most striking peculiarity to the eye accustomed to the present locomotive is, that the driver stood beside the chimney, the boiler being completely traversed by a return flue. The boiler is cylindrical, about 4 ft. in diameter and some 6 ft. long. The fact that the apparent front end is in reality the hind portion which was coupled to the tender, has misled some of the writers of treatises on the steam-engine, causing them to figure the tender in front. An inspection of the engine would ap-

pear to show that the driver stood on the tender in order to fire the boiler. The cylinders are vertical, and, in the original engine, were 7 in. in diameter, the stroke being 18 in. The two front wheels are fitted with crank-pins, driven by the connecting-rod of each engine. The "Sanspareil" was tried on the 13th of October, 1829. The total weight of the engine and load being 19 tons 2 cwt. The failure of the feed-pump, however, led to its stoppage, as the boiler could not be kept filled with the necessary water. It was also unfortunate with regard to one of the steam cylinders cracking through the bore into the steam vent. The rate of evaporation, and consequent tractive power of the "Sanspareil," was, however, higher than those of the "Rocket," the successful engine. It is stated by Mr. Hick, of Bolton, the donor of the engine to the Kensington Museum of Patents, that it was purchased by the Liverpool and Manchester Railway after the trials. In 1831 it was sold to Mr. T. Hargreaves, of Bolton, in order to work on the Bolton and Leigh Railway. In 1837 the old cylinders were replaced by new ones of larger dimensions, and the original wheels with wooden spokes were replaced by cast-iron wheels, with hollow spokes. It continued till 1844 on the Bolton and Leigh Railway, but was, by that time, found too small and weak. Mr. Hargreaves then removed it to his colliery at Cophall, near Chorley-lane, and fixed it over a coal-pit, in order to drive a pumping and winding apparatus, a pair of wheels being removed for a set of toothed gear. The boiler was not used, the engine being driven from a stationary boiler. It thus worked up to the end of 1863, when it was removed solely in connection to the Kensington Museum, and, having seen the other engines there of historic fame, he determined to add the "Sanspareil" to the number. Mr. Hargreaves then presented the engine to Mr. Hick, who, in his turn, gave it to the Museum, where, in the words of Mr. Hick's letter, the engine, after all its chequered and eventful career, may end its destiny "in peace and not in pieces." It may not be uninteresting to state, that the railway companies on the road from Bolton to Liverpool carried the old engine free of cost, according to the suggestion of Mr. F. P. Smith, that the venerable engine which had carried so many, should, in its turn, have its own carriage franked to its last resting-place.

The "Novelty," though very unsuccessful—as it was very soon disabled by an accident—displayed high constructive power, and is considered by some good judges as being in many respects the best designed engine of the four. It was a four-wheel tank engine; its boiler consisted of an upright cylinder for the fire-box, and a horizontal barrel 15 in. in diameter, and about 12 ft. long. The flame was taken from the fire-box through the barrel by means of a tube folded backwards and forwards on its way to the chimney. The two steam-cylinders were placed vertically in the flange, being 6 in. in diameter, with a 12-in. stroke. The diameter of the wheels was 4 ft. 2 in. Mr. Burstall's "Perseverance" very soon gave up, and was found unfit for the trials.

It would be a natural remark to make, that the greater number of the engines and machines which have been so long at work have been greatly altered from their original construction by the exigencies and accidents of practical wear and its attendant repairs. Like John's old knife, which still remained "John's old knife," though it had received about as many new blades in succession, and about as many new handles, it might be doubted whether these engines really represent their original construction. In one sense this may be true, and it is probable that only a portion of the original raw metal is still in combination. But then it must be remembered that in piecemeal repairs any part repair is in a great measure tied to the original form. The new blade of the old knife has to conform to the existing handle, and the new handle has to be made to the shape of the blade. The same must be, more or less, the case with repairs to an engine or machine. At the same time, such a consideration points to the absolute necessity for a correct history—or rather engine biography—being appended to each engine, pointing out where and what alterations and repairs have been made.

The Patent Museum, at South Kensington, only yet needs the "Novelty" to complete the trio of the engines which figured at the great Rainhill contest. It is not now known where the

"Novelty" at present is, or, indeed, whether it is even still in existence. We believe that Mr. F. P. Smith is anxiously looking about for it, and we hope that he may be successful in his search. What lessons of the way in which "Fortune turns her wheel," may be read by a look at these old engines,—the progenitors of the apparatus, the use of which is stamping its impress on present life in so many direct and indirect ways. The two Stephensons are now dead, but their engine, which killed Mr. Huskisson, raised their fortunes above those of perhaps any other engineers of their time. Timothy Hackworth is now dead, but his works at Newcastle, like those of the Stephensons, are still flourishing. The Messrs. Braithwaite are now living, but their factory has been given up, and their partner of 1829, the Swedish engineer, Ericsson, is now building "Novelties," in the way of gun-boats, for the Federals. In centuries hence, time will have thrown its hale of distance round these engineers, and their doings will be scanned with a kind of romantic interest. Let us hope that, in the course of the next century, the Government will have provided a decent building for the objects which represent such important interests, but which are now sheltered in the crowded and dark shed at South Kensington.

OUR DOMESTIC FIRE-PLACES.*

On the strength of the aphorism of "every man to his trade," we may inquire who should be a more competent person to give us information about fire-places than a well-informed practical man who has manufactured thousands of them, and made an examination of their respective merits a life-long study? But it is so generally admitted that, as in love and war, all the sorts of stratagems are fair in trade, that the public are apt to eye with reserve any production dealing with the writer's own wares, and to regard it as an oblique or disguised advertisement. We would, however, gain say the application of this opinion to Mr. Edwards's work on "Our Domestic Fire-places," which, although it may answer the purpose of an ordinary trade-book, belongs to a higher order of things. Thus Mr. Edwards has the particular grates manufactured by his own firm, but has fairly weighed the merits of many that are patented by their inventors, and are therefore inaccessible to him as a source of profit. He gives a chronological account of the improvements made in fire-places in modern times, and particularly of the various contrivances that have been introduced to render fires smokeless,—the simple device known as "the Builder's fire" among others;—and beyond this, makes several useful recommendations, to the most striking of which we shall refer. Seventy-four illustrations of different forms of fire-places assist the reader very materially. And a supplementary chapter on the Patent law brings up the rear somewhat lamely, as a foreign contingent is apt to do.

Some of the principal fire-grate manufacturers have been required so frequently to remove old-fashioned fire-places and fire-dogs from country seats, when replacing them with new, that they have quaint collections accumulating in spare ware-rooms. A selection from these would be very curious. But Mr. Edwards takes up his subject at the period when the bad draught of the wide chimney-openings then in use, and the great waste of fuel they entailed, attracted the attention of Count Rumford. He remarks that exceedingly little progress has been made in the method of warming apartments by open fires since the Count published his essay, towards the close of the last century. The cause of this stagnation he attributes to two circumstances. In the first place, to the fact that the Count has had no successor of equal influence with the public; and, in the second, to the circumstance that builders deal principally with the great emporiums in Thames-street, who do not enter into details or trouble themselves about improvements, but continue to manufacture what they find to be saleable articles. The efforts of Count Rumford to improve our comforts should be gratefully acknowledged, if it were only for the single suggestion to use firebricks for the backs and sides of our fire-places instead of metal; but he has a

* See the London Quarterly Review for 1859, and the Practical Mechanic's Journal for 1850 and 1851.

"Our Domestic Fire-places," a Treatise on the economical Use of Fuel and the Prevention of Smoke. With Observations on the Patent Laws. By Frederick Edwards, Jun. Second edition. London: Robert Hardwicke, 1863. Price, 6d. 1863.

further claim upon us, which, perhaps, the next generation may allow; for Mr. Edwards believes that his *Rooster* for the use of the poor, which is an admirable contrivance, in which economy of fuel is practised to a very great extent, is likely yet to become a favourite with the industrial classes. We think of the Medes and Persians when we consider that the hundreds of thousands of grates distributed from Thames-street are all made of metal, and that their manufacturers altogether ignore the great economy and comfort of firebrick backs and sides, and the propriety or advantage of adapting the width of the bars to the size of the coals in general use. Many of our readers will, doubtless, remember that Count Rumford declared that metal of any kind is the very worst material it is possible to employ in the construction of fire-places; and that fire-stone and common bricks and mortar were the very best that he had been able to discover. In reality, the neat little metal registers now so generally inserted in every room in the rows of small houses growing up like garden-stuff upon the sites of suburban fields and market-gardens, are in fact monuments of extravagance. Mr. Edwards suggests that district surveyors should be empowered to condemn such grates whenever they find them in new houses!

Sylvester's patent introduced a new idea. The fire was placed nearly on a level with the floor, and each bar of the grate extended some distance into the room, so that it might conduct the heat there. King's patent and Stephens's patent next appealed to the public; they embraced the principle of directing the smoke to escape through an aperture at the back of the grate, and diffused chiefly, from one another, in the mode of regulating the draught. Messrs. George Wright & Co. hold a patent which is also modelled on this construction, with the addition that the whole of the recessed arch extending from the point of junction with the front of the fireplace to the back is suspended on a hinge in addition to the door used in the former patents, so that the opening into the chimney can be enlarged at pleasure. Another novelty works out the principle enunciated by Cardinal de Polignac 150 years ago. It presents a chamber behind communicating with the external atmosphere, which, after being heated by its contact with the back of the grate, is admitted into the room through ornamental apertures in front. Mr. William Pierce made a great advance when he invented a little grate composed entirely of fire-lump except the bars. The grand problem, however, with regard to the domestic fire-place is the same as that over which furnace-builders ponder,—how can the fire be made to consume its own smoke? This has been endeavoured to be accomplished in various ways. Altogether forty-eight plans have been proposed to effect this piece of economy. These Mr. Edwards has divided as follows:—

1. Rotating grates, the first of which was invented by the American Dr. Franklin, and for which ten different patents have been taken out.
2. The use of a chamber contiguous to the fire, from which fuel can be introduced below or behind the burning fuel when required. (Six patentees have adopted this principle.)
3. The use of a contrivance, not forming part of the grate itself, to introduce coal at any time below the fire.
4. The use of a double fire. The fresh coal being introduced into the lower division is supposed to get its smoke consumed in the upper one.

5. For the prevention of smoke by a downward current for the products of combustion. (The first grate aiming at this result was constructed in 1680, and exhibited at St. Germain, near Paris.)

6. The use of a chamber to contain coal for a day's supply, a fire being made on the top of the fuel, which burns gradually away as it is exposed to the action of the air.

The grates, the use of which Mr. Taylor advocated in a paper printed in these columns, falls under the fifth of these divisions. Mr. Edwards finds several objections to them. It will be remembered that Mr. Taylor has two modes of dealing with the products of combustion. In one the heated products are intended to divide above the grate, and to pass off by separate channels to the chamber under the fire bars, and then to unite in an ascending flue into the chimney; in the other the heated products are carried down a single flue behind the grate, and are then intended to divide, and to pass by two ascending flues into the chimney. Mr. Edwards

states that the first of these suggestions is a very unfortunate one, as it affords indubitable evidence of the scheme having been devised without practice or experiment; for no person familiar with the working of flues could have proposed to carry off the products of combustion from a register grate by opposite descending currents of air. The single descending flue he considers a happier thought. In this, he says, "the products of combustion are carried off as they should be in the same direction as that from which the air enters; but it must be remarked that after passing from the descending flue into the space below the fire-bars, they would scarcely ever be known to separate, as Mr. Taylor would lead us to suppose, but would pass at once to that flue in which the ascending current happened to be the strongest, which current would become thereby accelerated." It is our author's opinion, however, that descending flues are only applicable to a very limited number of cases; and that it would be utterly absurd to apply a grate with such an obstruction into an opening which communicated with a short chimney. He doubts, too, whether the smoke is consumed even in an otherwise successful application of Mr. Taylor's grate:—

"How is it possible for smoke to be consumed in passing at a short distance below the bottom bars of the grate? When and how does Mr. Taylor make oxygen combine with the hydrogen and carbon of the smoke so as to decompose the smoke? The space under the bars is simply a chamber which is by no means highly heated. There is no flame there whatever; for irrespective of the fact that under ordinary circumstances there could be no downward current between the bars, we must consider that coal in a full state of ignition, as coal generally is at the bottom of a grate, has lost most of its hydrogen, and is therefore flameless."

Dr. Arnott's popular grate belongs to the sixth division of inventions aiming at the consumption of smoke. It was based upon the patent of Mr. John Cutler, the principal feature in which was a movable bottom, made to rise or fall by means of chains and wheels worked by a handle. When lighted in the morning the bottom was to be lowered, the chamber filled with coal, and a fire made on the top; and when fresh fuel was wanted, all that was required was to raise the bottom by winding up the chains attached to it. This plan was patented in 1815. Thirty years afterwards Mr. George Tillot took out a patent for an improvement upon this device. He added a contrivance by which fresh fuel could be put into the bottom chamber when the supply was exhausted. He made a little recess at the top of the grate, into which the remains of the ignited fuel and the front fire-bars could be pushed while the process of lowering the bottom and refilling the chamber went on. When this was accomplished, the fire-bars were restored to their place, and the ignited fuel drawn forward on to the top of the fresh supply. Mr. Tillot proposed also to raise the bottom of the chamber by springs. Eight years later Dr. Arnott stepped into the arena with an additional contrivance and some simplifications. He provided a similar chamber for the fuel, but made a point of preventing air entering it, and provided the effective instrument, the lever, as the means of raising the movable bottom. The upper part of his fire-place he contracted into a metal hood, in which he placed a damper, to regulate the draught. Two firms manufactured the doctor's invention,—that of which Mr. Edwards is a member, and the Messrs. Bailey.

Dr. Arnott may be said to have been the successor of Count Rumford as a reformer of the fireside. He read a paper upon the subject of his improvement to the Society of Arts, in 1854, which was very well received. The *Times* and *Quarterly Review* approved of the new suggestions; and orders began to flow in. Mr. Edwards does not state the number manufactured by the Messrs. Bailey, which, by-the-by, presented his own firm differences in the details from those despatched to the present Archdeacon of Dorset, in 1854, to the end of the year 1863, Messrs. Edwards had supplied 2,617. The advantages expected from the mode in which the fuel was treated were, that there would be no smoke after the coal was properly ignited, and scarcely any soot; that the fire, and consequently, the heat of the room, could be maintained at a certain point with less variation; and that it could be left from five to eight hours without attention. To ascertain whether these results were actually obtained, Mr. Edwards took the trouble to address circulars to about 650 persons to whom his firm had supplied these grates, omitting wholesale houses dealing in grates, exporters, and builders, as they were not expected to have used them.

156 persons replied. Of these, 83 wrote favourably of them, and raised no objection; 30 wrote favourably, but mentioned certain objections; 21 passed neutral opinions; and 22 condemned them.

The pith of Mr. Edwards's experience is to be found in his deductions and recommendations. Allowing that our insular traditions are not likely to be superseded by the acceptance of any other mode of heating our habitations than open fires, and that our latitude and longitude require that the majority of these should burn from eight to sixteen hours a day for, at least, seven or eight months of the year, he compresses into seven heads, the gist of the national requirement. 1. What is the best form for a grate? 2. Of what materials should it be composed? 3. What should be the general arrangements of the fire receptacle? 4. What provision should be made for checking the escape of the heated air? 5. How should air be supplied to the fire? 6. How are the heated products escaping into the chimney to be utilized? 7. How should coal be supplied to the fire? With regard to form, the grates that are provided with sloping surfaces from the fire-bricks to the metal fronts, radiate or reflect, according to their material, the most heat. The square forms expose most heated surface, and are on that account to be preferred to the more popular circular form. On the subject of materials, Mr. Edwards says,—“It is much to be desired that the use of tiles in a fireplace should become very largely extended, for few persons have an idea how cheerfully, elegantly, cheaply, and usefully their fireplaces can be arranged with the aid of a few tiles, some fire-bricks, and a little ironwork, instead of the usual chess-piece black grate.” The most economical receptacle for the fuel is that of a dish-shaped fire-brick below the fire, and fire-brick back and sides extending to the chimney-opening. A few small holes are perforated, tapering downwards, at the bottom of these fire-brick basins for the purpose of allowing a little air to enter the fire on certain occasions. (Should, however, the fire be lighted from the top, as in the *Builder's* fire, these holes might be dispensed with.) Our author makes a useful suggestion when he insists that every ordinary register stove should be fitted with the means of regulating the size of the opening into the chimney. As most of them are already provided with racks on which their doors can recline at any angle, all that is wanted is a communication from the outside with the door. There should be a handle outside the fireplace, by which any one could adjust the door without soiling their hands. When he comes to the question of supply of air, the author admits that in a common way thereto a large supply of it from below the grate, and that the sheet of iron over the bottom, prescribed by the *Builder*, is one of the best antidotes to the waste arising from a too rapid combustion that can be devised. He thinks, however, that an ash-pan in the same place would answer the same purpose and do double duty. Although it may be against the manufacturing interest to recommend so simple and costless a contrivance, Mr. Edwards candidly admits that the mode we have so frequently advocated is very efficacious and economical,—that “it will burn with great steadiness, give considerable heat, and require no attention.” After this recommendation, we find him poaching upon our manor, counting probably upon not being ordered off on the ground of extending the utility he acknowledges our plan to possess. He says that the system can be so elaborated that the fire need not be replenished for a whole day. This is to be done by making an extra depth for the bottom layers of coal by means of an extra bar or two added to the top; and to provide against the ignition of the mass a sheet of iron is to be suspended by two hooks before the lower bars. A still more elaborate method, makes this metal cover or air excluder to the lower front of the fire, to be suspended by chains in grooves, at each side of the grate, instead of merely hooking on to the bars or fitting on to hooks projecting from the sides. Mr. Edwards says, assuming that the objection advanced to Dr. Arnott's plan of want of simplicity is disposed of by the above propositions, that “the cover or blind to shield the coal can be as ornamental as any one can wish; the fire-bars can be substituted by ornamental lattice-work of the required depth, and a polished steel ash-pan, such as is used to an ordinary grate, can improve the appearance of the hearth and receive any fine dust falling in front.” We must sum up these elaborations by repeating that our recommendation of this mode of dealing with a fire is based upon its economy, cleanliness,

readiness, and efficacy, more than upon its capabilities for ornamentation.

Mr. Edwards finds a great many faults with the Patent Laws, and, as we have indicated, devotes a long chapter to their blemishes. He first stumbled upon his grievance in visiting the library of the Patent Office in Southampton-buildings, for the purpose of ascertaining the merits of any suggestions for improvements in grates which might have been patented but not brought into public notice. It was certainly an aggravating circumstance that for one patent, or application for protection by patent, of which he had heard, there were not less than ten that were new to him; and, perhaps, still more so, that the atmosphere of the library—or, as he names it, *the long passage*, in which his investigations were conducted, was such that, though the fortunate possessor of an excellent constitution, he was unable to remain in it for two hours without discomfort; but these facts scarcely warrant the opinion that he has formed of the working of the Patent Laws. But, although we do not agree with his extreme views, we can admire the continuance of purpose that prompted him to examine three hundred of the specifications relating to grates, and appreciate the industry with which he collected every particle of information relating to his subject that was of value. The total number of patents connected with fire-places, stoves, &c., down to 1852, when the Patent Law Amendment Act came into operation, was 169; the number of patents, or of cases of provisional protection only, from that date till the last day of December, 1863, was 348, making a total of 517. The year 1862 was the most prolific in that period; as many as thirty-five applications for the various terms of protection having been made for new ideas connected with the improvement of our fireplaces. In the following year they fell to thirty-one. Mr. Edwards made a digest with a view to ascertain in how many cases patentees were able or willing to extend their period of protection. Of the 183 applications made up to the year 1857, inclusively, 63 received provisional protection only; 87 obtained powers for three years, which they did not renew; 26 obtained protection for seven years; and 7 only for the full term of fourteen years. He notes, too, as a significant fact, that the inventors of the best improvements, such as Count Rumford, Mr. Stephens, and Dr. Arnott, gave their discoveries to the public; and that, while a French nobleman and a butcher may be found among the patentees, the names of well-known London dealers seldom do so. Mr. Edwards is, doubtless, great upon fire-places; but he is lost in the Patent Offices.

One consequence of taking up the history of our fireplaces at so late a period, is the fact that we appear, upon the face of it, never to have had any other mode of heating our houses; whereas we know that, during the four hundred years of the Roman occupation, buildings were warmed by hypocausts. Supply this link in the experience of man, and a new train of thought arises. The modern Italians have gradually modified the ancient Roman plan into a system of zigzagging their flues to such an extent that they serve as heating apparatus to the rooms they skirt. Is not this a rational mode of utilizing the heat we waste?

THE DOCKS AND WAREHOUSES AT MARSEILLES.

INSTITUTION OF CIVIL ENGINEERS.

On January 24th, Mr. John Fowler, V.P., in the chair, the paper read was "Account of the Docks and Warehouses at Marseilles," by Mr. T. Hawthorn.

It was stated that the port of Marseilles comprised five docks in actual use, and one in course of execution. The old dock, or old port as it was generally termed, constructed about the time of Louis XV., was formed out of an inlet of the sea. It was 1,100 yards in length, with a mean breadth of 120 yards, and near the entrance the depth of water was from 21 ft. to 22 ft. The dock de la Joliette, the first constructed basin of the new port, was 500 metres in length by 380 metres in width. The dock du Lazaret, which served exclusively for customs purposes, came next; and then the dock d'Arene,

succeeded by the Napoléon dock, 380 metres in length by 300 metres in width, recently completed by the State, who were at present engaged in the construction of the dock Impériale, as well as graving docks, which would be executed to the level of the quays by the Ponts et Chaussées, and then be handed over to the "C^e des Docks et Entrepôts." All these basins were formed by constructing moles in the sea, a pier, or breakwater, parallel to the shore, constituting the seaward side of the enclosure. The earthwork for the moles of the Joliette and Lazaret, as well as for filling in the space upon which the magazines and warehouses were built, was taken, for the most part, from a bill immediately to the east of the docks. This bill, of nearly 100 ft. in height, might literally be said to have been thrown into the sea; two million cubic metres of "déblais" having been thus employed. The mole d'Arene was formed with "déblais" from the Rue Impériale, a new street cut through the old town to the level of the new town, which involved the excavation of 1,200,000 cubic metres. Previously to the filling in of the Lazaret, excavations to the depth of from 8 to 10 metres were made in some places, to remove a mass of slimy earth, that had accumulated at that part for many years, from the residue of old soap works. This earth was so impregnated with a green coloured matter, that obnoxious gases were frequently given off, producing illness among the labourers.

In the construction of the pier and breakwater, an embankment was first formed of hard calcareous stone, mostly taken in barges from the islands opposite the port. This stone was sorted in classes thus: rubble weighing from 20 lb. to 250 lb. each piece, first class from 250 lb. to 1 ton 2 cwt. each; second class, from 1 ton 2 cwt. to 3 tons 15 cwt. each; and third class, from 3 tons 15 cwt. and upwards. The smallest material was used for the core, or hearting, of the embankment, the larger pieces being successively added. This embankment was levelled* at a height of 2 metres (6 ft. 7 in.) above low water, the surface being 7 metres in width, and the slopes having an inclination of 1½ to 1 in height. At a depth of 8 metres under low water, the width of the embankment was increased to 7-84 metres, horizontally towards the sea, in order to receive the large concrete blocks, placed on it promiscuously to break the force of the sea. The artificial blocks had a width of 10 metres at the level of low water, and they attained a mean level of 3-8 metres above the same level. On the inside of the pier, a quay, 30 metres in width, was formed of natural blocks, with a wall in front, the latter having its foundations 6 metres below the water-line. The embankment had a slope towards the dock of 2 base to 1 in height, and as its formation progressed, it was from time to time solidified, by placing on it artificial blocks, in tiers one above another, by means of a floating crane, or derrick. These blocks were generally allowed to remain about three months.

It having been ascertained by experiment, that blocks weighing 20 tons each, and measuring 10 cubic metres, could not be moved by the most violent sea in the Mediterranean, artificial blocks of concrete were made of an average weight of 23 tons; their dimensions being 2-4 metres long, by 2 metres wide, and 1-5 metre deep. These blocks were composed of two parts of hard, broken limestone, to one part of cement; the cement consisting of five parts of sand to one of lime. These materials were mixed in portable iron cylinders, made to rotate by means of a belt connected at pleasure with a steam-engine, which also drove the stones for mixing the cement. The mixture in the cylinders was emptied into wooden moulds, which could be detached from the blocks. The moulds were so constructed as to form a groove at each end of the blocks, for facilitating the lifting and setting of them. The contents of each cylinder were beaten down by two men, an operation which occupied half a day for each block. The moulds were allowed to remain for at least three days before the cases were removed; but the blocks were not considered to have attained sufficient solidity and hardness, for those that were to be thrown promiscuously into the sea until after a lapse of three months, and for those that were to be employed in forming the foundations of the piers and quays until after a period of six months. The blocks attained, in course of time, a hard-

ness almost equal to that of stone; those first used, about sixteen years back, being very little worn by the action of the waves. The cost of the blocks was 12s. 8d. per cubic metre, or, including setting, and other incidental expenses, 15s. 10d. per cubic metre. The entire cost of the breakwater had amounted to from 290l. to 310l. per lineal metre.

In the construction of the quay-walls of the docks Lazaret, Arène, and Napoléon, the system of building on artificial blocks, somewhat similar to the inside of the pier, was adopted. At 6 metres under the level of low water an embankment was formed of second and third class stones, having a base of from 8 to 9 metres in width, and an inclination at the sides of 1 to 2. Upon this embankment, and up to the level of the water, four rows of artificial blocks were placed longitudinally side by side, making a total height of 6 metres, with a width on the top of 3-4 metres. Two rows of blocks were usually placed on these to consolidate the embankment, and were allowed to remain for about six months. When they were removed, a masonry wall was built up to the level of the quay. At the back of this wall there were other artificial blocks, from the upper side of which a further embankment of stones was formed, having an inclination of 1 to 2. The quays of the Arène and Napoléon docks were 2-4 metres, and those of the Lazaret dock 3-4 metres, above the water-line. In several places the embankment beneath the artificial blocks had moved, generally slipping forward, and causing the artificial blocks, as well as the quay walls resting on them, to incline over towards the dock. This usually arose from an insufficient time having been allowed for consolidation, and most frequently occurred in the quays or the moles, where it had caused some of the walls to yield. Owing to the instability of the quay walls, and from the nature of the embankment behind them, the quay cranes simply rested on platforms of heavy timbers, which had sufficient base to insure stability during the "slewing" of the jibs. The entire length of the quays, at present constructed, belonging to the Dock Company, was 2,840 metres. The cost of the quays above the embankment, that was of the quay walls with the artificial blocks supporting them, was 24l. per lineal metre.

Sheds 14 and 10 metres in width, extended completely round the dock du Lazaret. These sheds were covered with a simple roofing of double T iron, the rafters for supporting the tiles being also of iron, of an A section. The sides towards the dock were closed by sliding or rolling doors of corrugated zinc, the roof resting on this side on cast-iron columns, and on the other on the walls of the magazines. These magazines were of one story only at present, and were constructed of rubble masonry, with dressed piers and quoins, and wrought-iron roofing, with vaults in brickwork. The amount of covered space, including the floors, was 67,132 square metres. The flooring for all the magazines and sheds was composed of a layer of asphalt half an inch in thickness, costing 2 francs per square metre; but including the levelling of the ground and the bed of cement below, the cost was about 6 francs per square metre.

The bonded warehouses, or "entrepôt commercial," formed one block of buildings, to which were attached the company's offices. Two lines of railway, and a public thoroughfare which ran parallel to it, separated these buildings from the Dock du Lazaret. On the east side were sidings from the Paris, Lyons, and Mediterranean Railway, a junction with this line having been made by means of an incline and a tunnel under the town. The length of these warehouses was 365 metres (1,200 ft.), with a breadth of 37-5 metres, and a height of 35-7 metres. The offices were of the same breadth, with a length of 37-6 metres. The warehouses were divided into four quarters, each containing an interior court with two doorways. There were six stories above the ground floor, with vaults below; the whole having been constructed in stone and iron, the concession requiring that all the materials should be fire-proof. The masonry was for the most part a better class of irregular rubble; but the piers, arches, quoins, windows, and ornamental work, were of dressed ashlar. The cost of the several kinds of masonry and brickwork per cubic metre was, hard limestone dressed and built in place, 4l.; less hard quality, 3l. 4s.; soft calcareous stone from Miramas, 2l. 2s.; rubble, 12s. 6d.; and brickwork, whether of solid or of hollow bricks, 2l. 6s. The thickness of the

* The level of the Mediterranean varied at Marseilles about 18 in., according to wind and other influences.

walls was 1.25 metre at the foundations, 1.08 metre at the ground floor, and diminished gradually to 0.56 metre at the sixth story. The ground floor was supported by massive stone pillars and vaulting, while the other floors rested on cast-iron columns. Each quarter was provided with two hydraulic hoists, capable of lifting $\frac{1}{2}$ ton each, and with two sets of lowering apparatus, the cradle going up empty, by means of a counter-weight, while the extra charge brought it down again. All these warehouses were constructed without the aid of scaffolding, by means of three travelling cranes, two on one side, and one on the other, of the buildings. These cranes consisted simply of a jib 28 metres in length, suspended a little below its centre; the extreme end being lifted at one time was 2½ tons, and per day, by each crane, 150 tons. There were 14,136 cubic metres of masonry in these warehouses, and it had cost 3,000,000 francs (120,000*l.*), exclusive of the foundations, the latter having cost 93,000 francs. All the doors and window-frames were of wrought-iron, 30*l.* per ton having been paid for the former, or in all, for the doors alone, 4,800*l.*

The floors for each story were composed of wrought-iron double T girders $\frac{1}{2}$ a metre in depth, 4.53 metres in length, and weighing 155 kilos, per metre. These rested on cast-iron columns varying in section at each story, according to the load. The junction of two columns with the wrought-iron girders was made in such a way as to allow of the expansion of the girders taking place. One column simply rested at the top of the other, the two ends being turned at a lathe, while the girders rested on the lower end of the upper column, the attachment being by bolts. The columns were all cast-iron, were 4 metres in height, and were tested to support a vertical load equal to 12,000 kilos, per millimetre of section. The wrought-iron girders were subjected to a tensional force equal to 12 kilos, per millimetre of section. The cost per ton of the girders had been 22*l.*; of the tie-rods and other pieces of wrought-iron, 500 francs; of the columns and details, 300 francs; and of ordinary castings, 3 francs. The vaulting between the girders is built of hollow bricks, 6 in. deep, costing 1 franc per square metre complete. The floors are all constructed to carry 2 tons per square metre, but it was believed that they would bear much more than that.

The wrought-iron roofing of the warehouses is then described in detail. The girders were composed of two angle-irons at the top, and two at the bottom of the section, separated by strips of flat iron, forming a sort of lattice web. The girders were free to move in the direction of their length, resting simply on a cast-iron shoe embedded in the wall. They were 4 metres apart from centre to centre, and were separated by the crown by similar girders. The tiles were supported by iron of an A section, 8 centimetres in depth, and galvanised. It was calculated that a roof would sustain 4 cwt. per square metre. The vaulting between the girders was of hollow bricks, similar to those used for the floors, but with lighter. The vaulting cost, including all expenses, 6*s.* 8*d.* per square metre. The quantity of cast and wrought iron was 340 tons, and the mean cost had been 24*l.* per ton.

The total cost of these bonded warehouses, comprising machinery, hydraulic pipes, &c., had been half a million of pounds sterling.

SOCIETY OF FEMALE ARTISTS.

The ladies, who, for the last few seasons past, have contributed an agreeable item, to the picture exhibitions of the metropolis, have just opened their well-lighted little Gallery, 48, Pall Mall, and now invite inspection. Perhaps to those who were most sanguine in their expectations that some such society would speedily assume an importance and position, significant, in some degree, of the great amount of artistic subsisting amongst the female members of a profession who have lately made themselves known, the collection of pictures and drawings submitted on this occasion will bring surprise and disappointment, and they will deplore the lost opportunity of achieving success for the situation where the means of it would appear to be so easily accessible. Fruit and flowers are a too preponderating monopoly of attention above all else, though there are certainly specimens that justify the predilection for selection; and landscape finds its appropriate

places in many delineations of its more easy phases; but those of the sisterhood upon whom it would mainly depend for evidence of any such association as a Society of Female Artists being needful or advisable, either lend too little of their assistance to be of material benefit, or, worse still, appear to have no concern at all in the matter. The consequence of this is, that there is little to raise it above an ordinary exposition of amateur and student progress, with very insufficient pretensions to the title it assumes.

Compositions, illustrative of even the simplest incidents, are of the rarest occurrence; and this is very remarkable in these picture-book times; and even figure-drawings, judging by the few who have attempted them, either find little favour, or offer difficulties less surmountable than the admirers of Mrs. E. M. Ward, Miss Emily Osborn, Mrs. D. Murray, the clever Miss Clartons, Miss E. Edwards, and others conspicuous by their absence, would wish to believe, if they look for any extension of the list. An exception must be made for Miss Kate Swift, whose couple of domestic episodes (177), "Two Heads are better than One," and (186) "A Stitch in Time saves Nine," are worthy of better company; and, saving Mrs. Ward's two mites of mortality (182), "The Young Archer," and (188) "Beatrice Mary Florence," a real live baby, are the best representations of humanity present: but it may be observed of this young lady, that in the acquirement of greater finish, some sacrifice of the naturalness and force that belonged to her earlier performances is to be regretted.

The initials E. V. B. are so inseparable from those charmingly poetical creations that won for them a notoriety some time since, under the title of "Child's Play," and known as having been repeatedly connected with similarly conceived illustrations, that it is difficult to identify such emanations as (221) "A Dream," (225) "Arcadia," and (235) "Fragments," with their more valuable precursors, wherein the aim and effect were so different. Nature and probability are ignored in these, where they had formerly been the basis for ideal treatment; and an absorbing faith in Giotto and Angelico, with their conventional usage of form and symbols, has replaced a far better object of devotion.

There are many very pretty and prettily-executed studies of heads, such as Miss Adelaide Burgess's (28) "French Flower Girl," and (38) "Grimm's Fairy Tales," present, with (33) "Kiss Little Sister," by Miss Agnes Bouvier; (77) "A Young Knight," who does not look as if he meant more harm than he apparently could do, by Miss Margaret Gillies, and not half so mischievous as (78) "A Little Gleaner," by Mrs. Backhouse; and some nice landscapes by Miss S. S. Warren; for instance (72), "Path through the Woods;" and by others equally good. But the strength of the exhibition is to be found in a less ambitious employment. Fruit and flowers in their irresistible attractiveness of brilliant hues and graceful curves and wreaths, offer very fascinating inducements to the painter, whether male or female; but, in virtue of their analogy, they are more appropriately to be considered properties for feminine study: so that it may be, after all, unreasonable to complain they should be here the staple commodity of such a locality.

For the closeness with which the qualities of "fruit" can be imitated there are specimens by Miss Helen Coleman that would satisfy the most exacting taste—or rather anything but taste: (230) "Grapes and an Apple" are as real-looking as things of the kind can be that are not intended to be eaten; and still more exquisite is her study of a cluster of hazel-nuts (236) "From Nature." Another excellent fruit-piece (not included in the catalogue) is furnished by Mrs. Withers; and for flower-painting, even amongst so much that is good, to Miss Emily Lane's beautifully-drawn (222) "Iris" must yield the palm, even though Miss Lane, an elder sister it may be presumed, shows to such great advantage a remarkably facile method of imitating the crispness and pure colour throughout some eight or ten cuttings from a varied selection of blossoms. Miss Emma Walter, combining "Fruit and Flowers" (47), is more elaborate in her delineations, securing for them a claim to be considered as pictures by her taste in grouping them. A curiously literal copy of one of Mulready's life-studies, by Miss C. James (148), and the bronzes of bulls and sheep—too good to be agreeable or adapted for general ornaments—after models by Rosa Bonheur, will be certain to attract attention.

DESTRUCTION OF THE SURREY THEATRE.

SOME observations in our last on the fire-risk attending theatres as at present conducted, and more especially under existing requirements, have been further emphasized by the complete destruction by fire of the Surrey Theatre, which unfortunate occurrence took place on Monday night last. The natural end of every English theatre appears to be a fire: it is simply a question of time, and, that being the case, how urgent is the necessity that all managers should look to the adoption of the amplest precautions and the means of ready and safe egress from their houses. The first Opera-house built in London, by Novoselski, in the Haymarket, was burnt down in 1789; Drury-lane was burnt down in 1672 and 1809; Covent Garden in 1808, and again a few years ago; the Olympic in 1849; Astley's in 1794, 1803, and 1841; and so we might go on through the provinces and right away to the Scottish capital. This very Surrey, first opened in 1782, in opposition to old Astley, and re-arranged interiorly in 1799, was burnt down in 1805. The theatre just now destroyed was opened on Easter Monday in the following year, having been rebuilt under the direction of Cabanel. Elliston was once its manager; and here Buckstone first appeared.

The fire on Monday night appears to have broken out in the roof over the pit, and was observed from the stage towards the end of the pantomime. It is supposed by some about the theatre that the gas by which the chandelier was lighted, having been lowered for due effect to the transformation-scene, was turned on again with too great power, and the upward draught carried the heat through the aperture in the ceiling, composed of thin boards and oil-painted canvas, and set light to the edges, from which the fire communicated to the workshops. It is certain that it was through this aperture the fire was first perceived by the performers on the stage and the audience in the pit. Mr. Hinckley, the gas engineer, who went up immediately after it was seen, got to within a few feet of the carpenters' shops, which run over the roof of the pit, separated by a second-floor. He then saw a large quantity of shavings in a blaze, and the flames were rushing round the workshops with the greatest fury. Scenery was in preparation, it seems, for a new piece, which accounts for the quantity of shavings. However, nothing certain is yet known, and it is to be hoped that a careful inquiry will be made. One thing we may say with certainty, that in no new theatre should any portion of the roof be used for stores or work. Spontaneous combustion, where oil and rags are lying about with shavings, may occur under ordinary circumstances; but in an atmosphere overheated by the chandelier, as was necessarily the case in the present instance, and is so in some other theatres, it is strange if it do not often occur than we hear of it.

Great praise is due to those members of the company who, by their presence of mind and discretion, so communicated with the audience as to prevent a panic, and enable all to leave the theatre without any injury, and who also assisted most bravely and efficiently in placing the ladies and children of the company out of danger.

With the exception of a heap of charred timbers and a few bent iron ties, nothing remains but some of the enclosing walls. The bond-timber in the walls is all burnt out, and the evil of its use made evident. The site is an ample one, and will admit of the erection of a fine theatre. Let us hope the present and previous disaster may lead to the adoption of the arrangements best calculated to prevent its recurrence.

LADIES' SANITARY ASSOCIATION.

WE want a little aid for this valuable association in a special direction. To try and lessen a little the "ignorance that is not bliss" the committee devised a course of lectures giving simple domestic sanitary information, and engaged lecturers to deliver them in various "Mechanics' Institutions, working men's clubs, and similar places. One treats of the "Essentials of a healthy and comfortable home, as exemplified by some of the improved dwellings recently provided in London;—the external gallery system;—fireproof construction;—suburban cottages. It gives an insight into the relative advantages and best mode of using various building materials; fittings and furniture; the

mechanism of locks and other household contrivances; the manufacture and respective qualities of different kinds of hardware, earthenware, glass, and other domestic articles." A second teaches "Personal Hygiene"—means for promoting the proper development of the frame, and for the preservation of health in infants, children, and adults; means for the avoidance or relief of common infirmities, especially those of the eyes; means of comfort for the sick; correct notions concerning the use of household remedies and the abuse of empiric medicines," and so on.

The course of six lectures has been given in nine places, besides a little skirmishing elsewhere. The lectures have succeeded beyond expectations, and the people have been much pleased, and we hear instructed, by them. The expense, however, has also far exceeded the committee's expectations; and what we wish is, that some of our readers interested in the subject will contribute to the lecture fund. It has been suggested that the course should be given (if permission can be obtained) in the eight Training Colleges in and near London. This seems a very good suggestion, as a means of teaching those who are to rear little England; but the expense would amount to about 50*l.*, and the committee could not face it without some help. This help, therefore, we again invite.

We are glad to hear of the establishment of branch associations. At Leeds, last week, one was formed. A committee of six ladies was appointed to transact the business of the branch association, and a sum out of the funds in hand was voted for a supply of sanitary tracts and publications from the parent society. These tracts will be distributed by the members and others forthwith, it being the feeling of the meeting that, for the present, it would be sufficient to supplement the operations of the branch association to the numerous and existing charitable societies and agencies; and that it was desirable to begin by spreading sound sanitary information amongst the working and poorer classes. It would be well if the gentlemen of Leeds united also. Efforts are needed there, as we have before now said.*

FIRE EXTINCTION AND PREVENTION.

It seems but a useless task to offer suggestions and improvements to the great intellectual and non-intellectual organization—"the public." Numerous useful and practical ideas are continually being published upon various subjects; which are read and approved, and then pass into an honourable oblivion. Such has been the especial fate of "fire prevention" remedies; yet absurd as it may seem to expect those having the power and opportunity to construct and employ such auxiliaries, I cannot refrain from adding a few more hints to those already before the world, in the hope that there may be, sooner or later, a more active interest taken in a subject of such imminent importance as "fire extinction" and life preservation.

At the meeting of the National Association for the Promotion of Science, held in 1861, Mr. Bateman gave important testimony on the subject of fire extinction. He showed that Manchester, although second in rank and wealth to London, was far ahead of the latter as to the means afforded for preserving life and property from fire. In Manchester, within reach of nearly every block of valuable buildings and the neighbourhood, there were from two to three sources of water supply, and ten or twelve fire-cocks within a hundred yards. He entered at length into the use of stand-pipes, and stated that, "as into the use of stand-pipes, they had been found sufficient without the use of fire engines. The highest mills

in Manchester were from 40 ft. to 60 ft. above the ground, and experiments had shown that at the low pressure the highest stand-pipes would throw 30 ft." This is equal, or very nearly so, to the capability of a fire-engine. He further stated, it had been proved, that with large engines requiring thirty men to work them, with constant relays, no advantage was gained over the stand-pipes, which required but two men to work them. He concluded with the following rational observations and suggestions,—"If once the flames had obtained a hold of the building it was utterly impossible to extinguish it; and all the water poured on it became converted into steam, and thus increased the draught, and only served to add fury to the flames. All the fire-brigade could do then was to prevent the fire from spreading to the surrounding buildings. And yet if a bucket of water had been applied at the right time, the fire might have been prevented. Therefore, what ought to be done was, that in every district a fireman should be stationed within a distance of not more than 100 yards from the scene of any possible fire. Manchester was divided into seventeen districts, in each of which districts a waterman was stationed, whose duty it was to make himself master of his own district." All these men should be enrolled and trained in the fire-brigade. Mr. Bateman further suggested that telegraphic communication should exist between all such districts and the central stations; and that there would be no difficulty or great expense in carrying out such an arrangement. Such a rational system would probably prove in the end a great economy of capital.

Mr. W. Smith, another member of the before-named association present, conceived that water should be thrown as much as possible in dashes, and in a body. Mr. Adamson suggested that instead of water being thrown so much to the top of a burning building, it should be thrown in at the bottom, so that the steam therefrom would assist in extinguishing the flames above. These various suggestions appear to be worth the most attentive consideration.

The injection of steam in place of water would, I conceive, prove a greatly superior agent in the reduction of fire. Steam would permeate through a very much larger amount of space at each injection than water, which only falls on a circumscribed extent of surface; besides, it would, by its ascension, attack the flame which, ever rising higher and higher, and above the glowing mass or basis of a fire, is its most destructive constituent.

The value of "stand-cocks" was especially shown at a fire which broke out in a pile of bonded warehouses in Lower Thames-street in 1861. The Custom House stand-cock, being close at hand, "was the first machine at work, and did a marvellous amount of good in staying the ravages of the fire." So says the newspaper report of the catastrophe.

The insufficient provision of water is exemplified by an incendiary fire which took place at a farm, near Folkestone, where the supply could only be obtained from a well, so that nothing could be done to extinguish the flames. The remedy for this would seem to be the erection of more or less capacious tanks at every isolated farmstead, as well also every small village or town, at the cost of individuals, or of the parish in which a house may be contained.

It has been suggested, and very sensibly, that the police (or parochial) authorities, might render good service, by having long and strong yet light ladders placed within easy access upon every beat in the metropolis. These being secured by padlocks, a key to which each policeman should have, and who, with little delay, could have them brought to any house on fire, and elevated to any window where the endangered inmates presented themselves. Instances have occurred where, a builder's ladder being at hand, life has been saved by such immediate help before any "fire-escape" could possibly arrive.

"Stand-cocks" should be fixed at regulated distances, in every street throughout a city or town; while large warehouses and all public buildings should have several or many placed round their arcege,—these again being increased when the contents of a building were more than usually inflammable. It would even be a wise precaution for the occupants of shops, &c., to provide themselves, independently, with such efficient yet simple auxiliaries, either at the rear or in front of their premises. They could be constructed so as to appear a mere and ornamental pillar, capable of being readily unscrewed in part, and a hose affixed thereto.

An "engine" can rarely arrive under half an hour in the metropolis—often requiring a much longer interval to elapse. By the use of "stand-cocks" a fire might be put out in the space of a few minutes after its commencement.*

The late Mr. Braidwood held in such great estimation the common hand-pumps as a means of fire extinction, that no engine was allowed to leave its station without one. A considerable number of fires have been extinguished by the brigade using hand-pumps only. These simple machines have been introduced at the Theatre Royal Drury-lane, and consist merely of a hand-pump worked in a bucket of water. The erection of "stand-cocks" in various and many parts of a house would be still more useful. The hose being affixed to these, they could, by having them of ample length, reach to and throw a copious stream of water over and into every part and corner of a theatre.

Our present arrangements for supplying water for extinguishing fires are very defective. At a coroner's inquest, held September 7th, 1863, upon the bodies of some children destroyed at a fire in the Soho district, the coroner inquired whether the water could not be turned on at any plug; to which Mr. Galehouse, the engineer of the London Fire Brigade, replied, that it could only be turned on at particular plugs in the first instance. The coroner again asked,—"And do not the firemen know where these main-plugs are?" To which the answer was, "No; there are so many plugs, that whether the firemen may know the situation of the particular plug which turns on the water in the street main is quite a matter of chance." Without doubt this is an evil state of things, which needs a speedy rectification.

At a fire which took place in August, 1862, at a tobaccoist's, in the Old Kent-road, the inmates were aroused by a parrot, belonging to the occupier, crying out, "Master, master!" The residents were in all probability saved by the exclamation of "poor Poll," who was unfortunately burnt to death.

I believe that by a more judicious and simple system of house construction a fire might always be confined to the one room or warehouse in which it originated. Here are my suggestions to effect this desirable result. The inside of each room-door is to be plated with iron, which could be cast, and present an even more ornamental appearance than the wood-work now does. Every door should have a "box spring" attached to it, so that it would not depend upon the thoughtfulness of any occupant who might, through alarm or other cause, vacate an apartment. Instead of the primitive and (as I conceive) poor invention of plaster ceilings, let there be cast-iron plates riveted to the joists and together—similar plates being affixed to "wainscots" and "skirting-boards." These alterations or additions in the materials used would, there is little (if any) doubt, prove perfectly fire preventive, so far as relates to its extension beyond the room it first originated in. Yet mankind is so slow to adopt rational means, especially if they be simple in character; remembering, too, the all-powerful influence of interest and its opposition to progress, that it may be long before such practical and economical improvements will be acted upon.

Much, if not the chief part, of our articles of furniture might be constructed or prepared so as to be fire-proof. This could be effected either by making them of iron or other metal, and bronzing, painting, gilding, &c. Or wood might be steeped in some anti-combustible chemical preparations,—such as sulphate of ammonia, and many others.

Carbonic acid gas extinguishes fire immediately. Might not this be generated in portable or ordinary fire-engines, and impelled into the front or back of a house or building through openings permanently made therein, and ordinarily kept plugged, high up in the doors or walls of buildings?

The burning of a ship, when occurring in the hold from the want of ventilation and due egress of the combustible gaseous matter generated, might, we believe, be rendered impossible. To effect this it is now suggested that a temporary and moveable framing be fixed to the narrow ledging of scarcely a foot high which commonly surrounds the opening to the hold, and carried up some 7 ft. or 8 ft. high, or even more, the last 2 ft. or 3 ft. taking a conical form; and at the extreme

* Some of the thinking people of Leeds are becoming convinced, that if they had attended to our exposition of the state of their town, and our advice given, some years ago, they would now be the better for it. The *Leeds Mercury*, in an article on this subject, says,—"It is a melancholy, indeed, an appalling, fact, that the decay of man in Leeds is actually more rapid than in any of the great towns of the kingdom, with two exceptions. London, with all its had parts, Birmingham and Bristol, neither of them mounds of sanitary arrangement, are all far below this borough in the rate of mortality." There are 2,000 unnecessary deaths happening in the borough every year, every one of which might have been prevented if our town had been built with due regard to sanitary conditions; the town council had resolved to deal vigorously with the matter only a few years ago, the recurrence of which may still be prevented if even now the disgraceful lethargy and apathy of the Leeds Corporation can be removed, and stimulated by the vigorous spirit can be breathed into the hearts of the leading men of the town."

* Stand-pipes, to be effective, would of course require a reform in the present water-supply.—Ed.

top an opening to be left, to serve as a chimney or the escape of the combustible air or gas. The reason for elevating this hold-covering so considerably is to preserve the cargo from heavy seas washing into the hold and destroying very frequently the greater portion of its contents. The office or chimney might, perhaps, be judiciously fitted with a tube, whose lowest end, or that terminating in the hold, might have a "rose" top, similar to those attached to the watering-pots used in gardening operations. It should be a fire break out in the hold, a hose should be fixed to the upper end of the chimney, and a stream of water thrown down, which, by means of the "rose" top, would be spread over a larger extent of surface.

In prisons, in poor-houses or unions, and in very large public or private establishment serviceable fire-engines should be kept, and armature companies or brigades organized to work them. Each a course of training would be physically and mentally valuable in all cases, and especially to relieve the dreariness of a pauper's existence.

For safety as a means of escape from fire, and indeed in all other respects, I maintain a preference for flat roofs, or, at least, but slightly inclined or sloped at each end of a roof. This would suffice to carry off the rainfall; and each house might be kept inviolate from its neighbour by means of a high and close railing. At some part of this there should be a gate, and kept instantly locked, the key to which should be conveniently accessible. An iron ladder should be hung up or fixed against the wall at the top of a house, so as to be readily detached and available for passage through the main door in a fire.

It has been suggested that balconies should be constructed at the first-floor windows from the roof level, and at every succeeding floor upwards. This has been objected to on the ground that such a means of escape from fire might be improperly used, and also facilitate robberies. It would be easy to obviate such a possible consequence.

It occurred to the writer so long back as 1861, that a telescopic sliding principle might be usefully applied to fire-escapes. Three (or more) ladders, containing one within another, might be wound up by a winch readily; or they might be folded up into several pieces or ladders, and in either case be much less unsightly, and what is still more important, they would, of course, be shortened or lengthened, so as to reach the various floors and elevations of a building.

Our greatly boasted ingenuity and invention have hitherto to have proved but pretence. The "Fire Annihilator" is rarely if ever employed. The Duke of Sutherland, the Earl of Athlone, and other noblemen and gentlemen, are formed themselves into an association for encouraging anti-ignitive inventions. Great ingenuity has been shown in the production of combustibles; but it would be more conducive to human happiness if at least an equal amount of mental labour were devoted to the origination of a manufacture of such materials as would extinguish fires. A "Fire Prevention Act" should be passed, compelling the attention of all connected with the construction and proprietorship of houses and buildings.

Fire-guards hitherto in use, although they vary in shape, have all been constructed on the same principle, involving the adjustment and removal of the guard in order to furnish a fire with fuel or otherwise attend to convenience and details. This objectionable feature might be removed, and a perfectly preventive guard or mechanism devised would be a fixture, and not require, consequently, the trouble of being continually fixed and unfastened.

In the building up of new houses, the baring-weight, &c., could be enclosed in a cage on each side of, and within the brickwork, at fire-place; the sash running up a little way to the chimney. The sash should be made of iron or other metal, the guard or blind-like part being a sheet of iron, zinc, &c., perforated with numerous holes, so as to present a gauze or sieve texture; and thus allow the fire-heat to pass through to the room, yet protecting clothing from the possibility of contact with the fire, and preventing burning coal from flying out and giving a room.

It may here suggest a very cheap and simple life preservative apparatus which could and should be in the possession of every separate family, transient, or temporary dweller of each house or apartment. This consists in providing a stout

and moderately thick rope; yet not so thick but that it might be easily tied or affixed. It should be sufficiently long to reach from a bed-post or other heavy article, through a room window, and thence to the ground; and it must be strong enough to bear the weight of any person, however heavy, who may be resident in such apartment.

The rope should be kept in one place only, and loosely coiled round a large hook or nail, not too high up for ready access by means of a chair, yet not too low for any children or others, or cats, dogs, &c. to tamper and play with it. When needed for use, one end is to be fixed to the post of a bed or any other heavy article of furniture, or even it might be longer and fastened to the room door, by running it through the key-hole and tying it to the edge of the door: the latter being locked would offer a strong resistance to the weight of a descending human body. If the bedstead or other article had posts or projections, a loop or a slip knot might be made, and so being fixed thereby it would obviate any delay from tying it up when a fire happened. A simple contrivance like this would save many lives, if not every life endangered.

For the better protection of firemen, there should be an improvement upon the present helmet or head-covering. At present, the men incur the dangerous possibility of being scorched and injured in the face, and are hindered thereby from rendering greater service than is now possible from their exposure to flame and fire. It is proposed, therefore, that the helmet be made somewhat after the style of the ancient ones worn by soldiers in the days when armour was in use. This is to be provided with glass, or, better still, mica, in the openings for the eyes to see through, and corresponding apertures for the nose and mouth.

Fire Brigades attached to each "volunteer" regiment might prove valuable auxiliaries. The system of organization adopted by the firemen companies in New York and in Australia, might probably be reproduced here with advantage, though these would perhaps require modification, to suit with English habits and character.

It has been suggested in the *Builder* to use alum for the suppression of fires. This chemical is a powerful non-conductor of heat, cheap, and readily obtained. At a moderate heat it dissolves, and liberates its water of crystallization in the shape of vapour. Although only recommended to be employed in large buildings, filling in iron hollow cellular houses, joists, &c. It might be beneficially used in all houses and buildings, however small, and where no iron-work is at present made subservient. Between the floor and ceiling of each succeeding room, and between each room and house wall, a space being left for the purpose, alum might be filled in, either in a powdered state or in blocks of a suitable size. W. M. M.

OXFORD NEW WORKHOUSE.

The designs for the new workhouse for Oxford were obtained, it will be remembered, in a competition open only to architects residing in Oxford. The accommodation required was for 330 inmates. The building is now completed, with certain exceptions to be mentioned, and is set forth by the accompanying engravings. The foundation-stone was laid on the 6th of April, 1863. The site consists of about 12 acres of clay soil, on the north side of the Cowley-road, and was purchased for about 2,800*l*. The building is of red and white brick, with dressings of Bath stone. Its base being about 20 ft. above the level of the road, it forms a conspicuous object from many directions. It consists of three principal ranges or blocks, parallel to each other, approached by a wide road which leads to the centre of the house. The centre portion of the front range of buildings comprises two stories, with entrance archway, surmounted by a bell-cote. This portion is allotted to the porter's day and bed rooms, clerk's and committee rooms; and the other portions of the range, forming wings on either side, contain a board-room and dispensary. Beyond these are the receiving wards and tramp wards for both sexes, with separate entrances to each from without, and also private entrances from within, for the use of the officials. Passing through the great archway, in a straight line, at a distance of 120 ft., is the main building, 258 ft. by 11 ft., forming the northern side of the quadrangle. It has a central corridor extending the whole

length of the building, with a large and lofty hall in the centre, over which is a tower, 90 ft. in height to the vane, serving the purposes of a staircase for the use of the master and matron and of a ventilating shaft. The building is divided into separate day-rooms and dormitories for the several classes of inmates, each class being kept quite distinct, having its own staircase, lavatories, and yards. The aged of both sexes occupy the front, and the able-bodied the back, where yards are already formed, and workshops, laundries, &c., erected.

The kitchen, offices, and dining-hall are at the back of the main building, being approached by well-arranged separate covered ways.

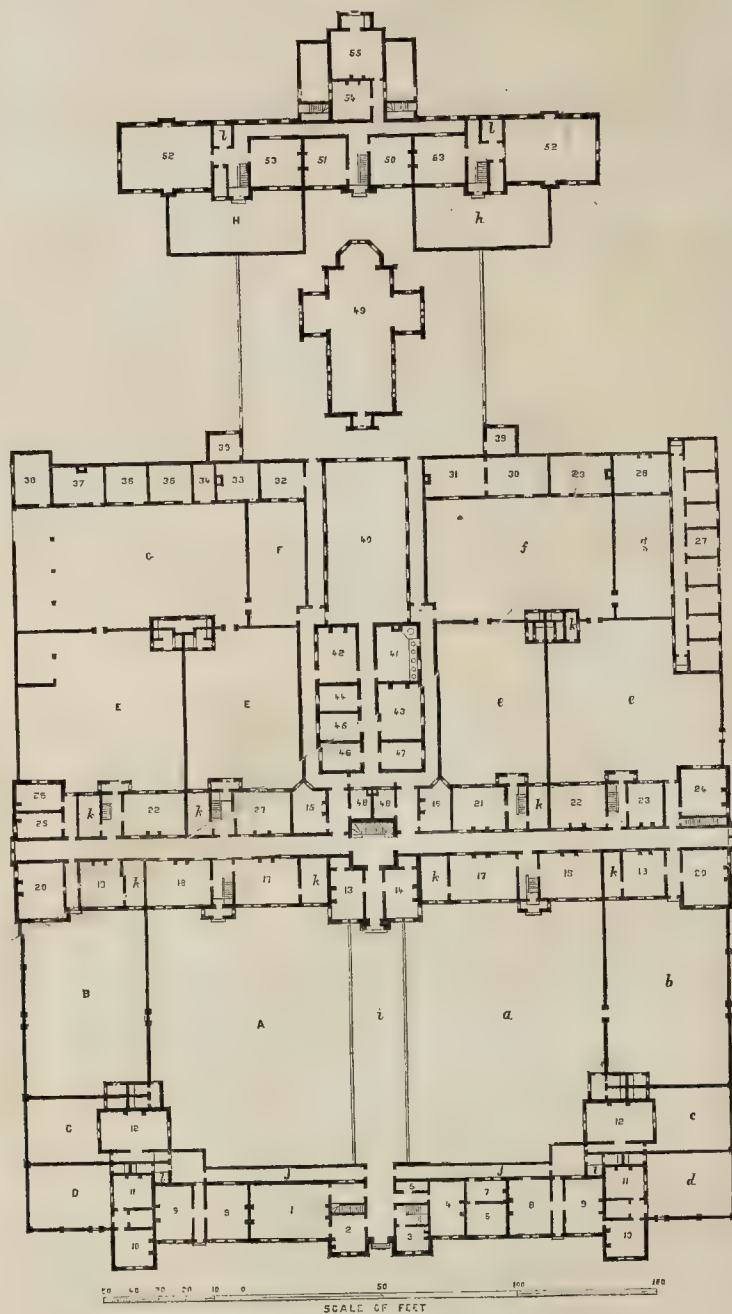
The infirmary, which is not yet commenced, will be at the back of the whole on the higher ground, with the nurses' rooms for each class, the fever wards being on the third story, with separate staircases from the back. The chapel, which is also not begun, will be of a cruciform shape, inclosed by iron railings, and detached from the workhouse.

The staircases in the building are of York stone, and all the internal walls are of brickwork. The dormitories are 12 ft. in height. Bath stone has been used for cornices, brackets, and tabling. The apartments are warmed with hot-water pipes, fireplaces however being provided, and the cooking is also performed by steam. An attempt was made to procure water on the spot, but without much success, and an arrangement was consequently made with the trustees of the City Water Works to lay a main to the cistern. The guardians obtained authority from the Poor Law Board to effect a loan of 9,000*l*, repayable by instalments, to meet the cost of the site and buildings, and the contract was taken by Mr. Curtis for 6,000*l*, besides extra items, making a total of 7,155*l*. Up to the present time the expenditure has been 8,939*l*, independently of several payments which will fall due, and of the chapel and infirmary, which have yet to be erected. An extra levy of 6d. in the pound has been necessary this quarter, mainly on account of the roads, fittings, &c., which cannot legally be charged on the loan; but the old site of 5*1*/₂ acres having been disposed of for upwards of 8,000*l*, the permanent burden on the city caused by the new house will not be large. The architect was Mr. W. Fisher, of Oxford; and the clerk of works was Mr. John Castle.

REFERENCES TO PLAN.

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| FRONT RANGE. | 28. Married Couples' Day-room. |
| 1. Board-room. | OFFICIALS. |
| 2. Waiting-rooms. | 29. Wash-house. |
| 3. Porter's room. | 30. Laundry. |
| 4. Dispensary. | 31. Drying-room. |
| 5. Strong Closet. | 32. Coal-house. |
| 6. Clothes-store. | 33. Brew-house. |
| 7. Drying-room for Clothing. | 34. Oaken. |
| 8. Tramps Ward. | 35. Gypsum-pounding. |
| 9. Sick Tramps Ward. | 36. Ditto Store-house. |
| 10. Probationary Day-rooms. | 37. Ditto Boiling-room. |
| 11. Ditto Bed-rooms. | 38. Carpenter's Shop. |
| 12. Cutaneous Diseases Ward. | 39. Refractory Cells. |
| MAIN BUILDING. | 40. Dining-hall. |
| 13. Master's Sitting-room. | 41. Steam Cooking. |
| 14. Matron's Sitting-room. | 42. Scullery. |
| 15. Master's Office. | 43. Kitchen. |
| 16. Matron's ditto. | 44. Buttery. |
| 17. Old Men and Women's Day-rooms. | 45. Bread-room. |
| 18. Epileptic Day-rooms. | 46. Meat-store. |
| 19. Ditto Bed-rooms. | 47. Ditto. |
| 20. Able-bodied Men and Women's Day-rooms. | 48. Dry Stores. |
| 21. Day Nursery. | 49. Chapel. |
| 22. Tailor's Shop. | INFIRMARY. |
| 23. Shoemaker's ditto. | 50. Surgery. |
| 24. Married Couples' Bed-rooms. | 51. Nurses' Room. |
| 25. A. Old Men's Yard. | 52. Sick Ward. |
| 26. Old Women's Yard. | 53. Convalescent War. |
| 27. Epileptic Yard, Male. | 54. Venereal Wards. |
| 28. Ditto Female. | |
| 29. Airing Yard, Male. | |
| 30. Ditto Female. | |
| 31. Probationary Yard, Male. | |
| 32. Ditto Female. | |
| 33. Able Men's Yard. | |
| 34. Ditto Women's. | |
| 35. Kitchen Yard. | |
| 36. Laundry Yard. | |
| 37. Work Yard. | |
| 38. Airing Yard, Male. | |
| 39. Ditto Female. | |
| 40. Entrance Roadway. | |
| 41. Covered Way to Tramps' Ward, &c. | |
| 42. Baths and Lavatories. | |
| 43. Baths. | |

MANCHESTER ALBERT MEMORIAL.—The *Manchester City News* is asking what has become of the Prince Consort's statue which which that city was to be endowed, or what hinders its erection?



OXFORD NEW WORKHOUSE.—Ground Plan.



OXFORD NEW WORKHOUSE.—MR. W. FISHER, ARCHITECT.

POMPEII.*

THE subject I have chosen for my paper this evening is one which, I think, has not yet occupied the attention of the Association,—at all events, during my recollection; and I esteem myself especially fortunate in having the opportunity of so doing, because I remember that I looked forward to no portion of my route in Italy with greater interest than that which should include Pompeii and Herculaneum. And I am inclined to believe that the same feeling influences us all; and that, not only with a view to any practical hints in architecture or decoration which one might derive from it, as from the simple fact of being able to visit a city hidden from the sight of man for nearly seventeen centuries, and exhumed,—as it were, restored almost to its original state, in all its pristine beauty of form and colour. It seemed almost a dream or fairy-tale to imagine that we could wander through the same streets, look upon the same temples and monuments, enter the same doorways, and tread on the pavement of the same houses, as those who had lived 1,800 years ago; and that all their features should be in the same condition as they were then. Generally the discovery of a wall, a gateway, tower, or temple, is looked upon with thrilling interest, and many are the learned dissertations as to their origin or original use. Here, in England, the finding of some ruin (now devastated by time and age, though still more by the destructive hand of man) constitutes one of the greatest pleasures that can be afforded us; and should its date remount back five or six centuries, it is looked upon with the greatest respect, when we remember the length of time that has elapsed since the stones composing it were quarried, carved, and placed in their respective positions; and be it uncouth in the extreme, its age renders it sacred in our eyes, and we regard it with veneration, if not with admiration. What, then, shall we say when we are able to look at buildings—may, a whole city—bearing no traces of modern restoration and beautifying, not the uncouth works of a barbaric age, but of a people far more elevated in the artistic scale than we are even at the present day,—with a greater instinctive knowledge of form and colour, and with a greater power of displaying it in the different materials in which they worked?

Being the first time that this subject has been brought before the Association, I shall do right, I think, to give you a general description of the city and the chief characteristics of its architecture, decoration, and paintings, reserving special accounts of newly-excavated portions for some future occasion, when, after visiting the ruins a second time, I shall be better able to do so.

The ancient town of Pompeii was situated on the volcanic rocks of the Campania; its south and west walls washed by the sea; its east wall bounded by the river Sarno, which was then navigable for a short distance above its mouth. Though Seneca mentions it as a celebrated city, little is known about its early history. Its origin is generally ascribed to the Oscans, and its name is supposed to have been derived from the Greek word *πομπή*, signifying "storehouses."

From its great richness, the country seems to have had the peculiar property of enervating those who settled there, rendering them an easy prey to invaders, who, encamped in their turn, gave place to some sterner enemy. Hence it was possessed successively by the Oscans, the Ausones (both these of Pelagic extraction), Cumæans (or Etruscans), Samnites, and Campanians; these latter, in a second attack by the Samnites, threw themselves under the protection of Rome, about 360 B.C., and then sank down into one of the dependencies of that empire. About 91 B.C. they revolted, and then a colony was sent down from Rome to cultivate their territory and keep them in complete obedience.

In A.D. 63 a violent earthquake shook the city to its foundation, causing it to be almost abandoned for some months, at the end of which time the inhabitants gradually reappeared, and set to work to repair the damages done and rebuild the shattered edifices.

In A.D. 79 the great eruption occurred which covered Pompeii with showers of ashes and scoræ, hiding it from sight, and thus preserving the greater portion of it more or less complete for our study and admiration. Herculaneum, situated at the foot of the mountain, was covered also with ashes and scoræ; but the vast

volumes of steam sent up by the volcano caused the deposit of these ashes in a liquid state, which solidifying, became as hard and compact as lava; so that the excavations of this latter town are more difficult to make, especially as subsequent eruptions have gradually poured their lava over the town, which is now found at a depth of 75 ft. below the present surface of the ground. These subsequent eruptions have been almost the cause of Pompeii's remaining more or less intact; for the inhabitants returned again after the burial of their city to search for its treasures; and would probably have settled there up to this present day (as at Portici and Resina, built over Herculaneum, after each successive eruption). As many as eight successive layers, some of lava, have been counted over Pompeii, and it is only the lower one, which first buried the town, that has been disturbed. This accounts for the fact that so few articles of intrinsic value, such as jewels and money, have been preserved. Pompeii remained buried for nearly seventeen centuries, and it is singular that Domenico Fontana, a celebrated architect, who in 1592 was employed to bring the water of the Sarno across the city to the town of Torre dell' Annunziata, and who in the course of the work must often have encountered the foundations of ancient buildings, should not have had his curiosity awakened as to their origin; in fact, the city was entirely lost till 1748, when a countryman sinking a well discovered a painted chamber, with statues and other objects of antiquity. This brought the attention to it of the king, Charles III., and in 1755 the works of excavation commenced, which have continued up to the present time, more or less slowly; so that after a lapse of 120 years, probably not more than one-third of the city has been excavated.

Before the laying down of the railway, the visitor generally entered Pompeii by the street of tombs; and a more fitting entry to the desolate and empty city could not be well afforded. The street rises as it approaches the walls, and is lined on each side by a series of tombs, some of great magnificence, it being a Roman custom to bury the dead not in cemeteries or spaces set apart for that purpose, but along the principal and most frequented roads leading from the town: thus the Via Appia, at Rome, is fringed on either side with tombs, for upwards of 13 miles away from the city. The Romans, as you are aware, buried their dead, and then, collecting the ashes, placed them in small jars, or urns (the origin of those delightful features in our modern churches and cemeteries); these were deposited in vaults, in the walls of which were small niches resembling pigeon-holes, for which these vaults have acquired the name of columbaria. The tombs consist for the most part of a small altar, either square, oblong, or circular in plan, raised on two or three steps, the whole carried by a pedestal or podium (in the interior of which was the vaulted chamber), and a small inclosure with low wall around.

The upper portion, or altar, of these tombs, was generally in white marble, with bas-reliefs and inscriptions on them recording the virtues and exploits of those buried beneath. The podium was in masonry, ornamented with stucco decorations, and sometimes painted. Near the city gate are some tombs of larger size, one of the Priestess Mammia, built in stuccoed masonry adorned with columns, the walls of the interior covered with arabesque work: two large exedra or semicircular seats in stone, and a hemicycle or large niche very richly decorated, are still in very good preservation. In this street of tombs are also one or two villas or suburban residences; of one of which, "the Villa of Diomedes," I shall have a word to say farther on.

The walls surrounding the town have been traced throughout their whole extent, so that the size of the city is known. They are not more than two miles in length; and the space enclosed, about 100 acres, is of the form of an eye, at the apex or smaller end of which is the amphitheatre. The walls were of great solidity and width. They had a double parapet and terrace, the latter about 14 ft. wide, sufficient to admit of two chariots passing abreast. It was carried by two walls, the outer one with a slight batter, 25 ft. in height, the inner wall about 40 ft., and occasional flights of steps on the city side to admit of easy access on to the terraces.

The walls are built of large blocks of volcanic tufa and travertine in horizontal courses with inclined joints; and on some of the stones are found Oscan inscriptions, so that these date probably from the foundation of the city. Square

towers are placed at intervals along the walls. The battlements seem to be of later date, being built in that kind of work called *Opus incertum*, the rubric work of the ancients.

There are eight entrance-gates to the city, five of which are mere ruins; of the three others, the gate of Herculaneum, through which we enter from the street of tombs, is the most perfect. It is in Roman architecture, built in alternate courses of brick and lava, and consists of a central archway, 14 ft. 6 in. wide, and two side ones for foot-passengers, 4 ft. 6 in. wide each, these latter vaulted throughout their whole length. The central passage, of which the arch is gone, seems to have had an open space in the centre, so that the enemy who had already forced the porticulis might be attacked from above whilst endeavouring to force the second door which swung on pivots. The height of the arch is calculated at 20 ft.

Outside the gate was a niched tomb, long taken for a sentry-box, from the fact that the skeleton of a soldier, in the usual accoutrement and arms, grasping a lance, was found in it, instanced as a proof of the excellent and praiseworthy discipline of the Roman soldier, who remained faithful to his duty to the last.

The streets are for the most part straight, and run at right angles to one another. They are not wide, many of them not admitting of the passage of more than one chariot at a time; and probably these were not much used, taking into account the small extent of the city (only three-quarters of a mile in length, and half-a-mile in width), though the deeply-worn ruts in the stones would seem to indicate the contrary.

The roadway is composed of huge polygonal masses of lava, from 9 in. to 18 in. in diameter, and 9 in. in depth, closely fitted together. The stones were worked in a wedge shape, so that they spanned the roadway like a vault, each stone resembling the voussoir of an arch. All the streets have pavements for foot-passengers, even those where chariots could not pass, consisting of curb-stones of lava, with the pavement composed of bits of marble and stone, set in cement, the whole rubbed flat. In places where the curb-stones have broken away, they have been cramped together with iron. These foot-pavements are elevated sometimes more than a foot above the roadway. It is supposed that the latter, in times of rain (which falls very heavily in those countries), became a kind of sewer, as all the streets are slightly inclined one way or the other; and this supposition seems well founded, because there exist everywhere huge stepping-stones from pavement to pavement, the wheels of the carriages and the horses (always two) passing on either side of the stone. The way in which the solid refuse of the city was carried away is still a mystery, scarcely any traces of sewers having been found. Mazois gives us a drawing of one, the position of which he does not state; but it seems only to have served to carry the waters from the street under the walls to outside the town. It is just possible that the streets may have been the only sewers, as they are still in some towns in the East.

Though traces of aqueducts are found in the country around, it is not known with any great certainty from whence Pompeii was so plentifully supplied with water, there being no wells.* A very large number of leaden and earthenware pipes have been found, the former of which supplied the numerous fountains which were placed in all the principal streets. They consisted of a cistern, formed of blocks of lava, cramped together with iron, the water falling into them through a pipe fixed in one of the back stones of the cistern, which rises higher than the rest.

Public Buildings.

The public edifices and monuments of Pompeii give more direct information as to its history than might else. The more ancient are essentially Greek, both in plan of building and style; the later edifies show the influence of Roman customs and habits, though always preserving a certain Greek feeling.

In a description of a Roman city, the Forum is the first place to which we should direct our attention, as the centre of business, the resort for pleasure, and the scene of all political and legal contention.

The Forum is the largest and most imposing spot in Pompeii, measuring 500 ft. in length, and 150 ft. in width. It was surrounded on three sides by a portico of Doric columns, set

* Read by Mr. R. Phéas Spiers, before the Architectural Association, January 20th.

* One deep well has been recently discovered, with good potable water in it.—Ed.

wider apart than usual, so that stones could not be depended upon to span the distance between them; and accordingly wooden beams were used, on which rested the stone entablature, in the back of which holes were cut to receive the ends of joists of a gallery, which extended over the portico round the Forum. Several pedestals of masonry, deprived of their statues and marble coatings, still exist, and some bear still the names of the distinguished inhabitants in whose honour they were erected. At the north end of the Forum is situated the Temple of Jupiter, on an elevated podium or basement, reached by steps flanked on either side by pedestals for statues. The temple has a portico of six columns in front, and three on the side. The columns are about 3 ft. 8 in. in diameter, which would give 36 ft. 8 in. for their height. In the interior of the cella on either side was a row of columns of smaller size, on which probably rested a second row, as at Pæstum, to support the roof, and a gallery, the stairs to reach which are at the further end of the temple, as also three small chambers for the priests. The painting of the interior is not remarkable: the floor is paved with mosaic.

The prisons on the right are approached by an archway in brick, formerly covered with slabs of marble. These prisons consist of dungeons without light, in which skeletons were found, with their leg-bones encircled in iron shackles or stocks.

The Temple of Venus stood in a large arena, 180 ft. by 75 ft., surrounded by a wall and portico. The columns of this portico were originally Doric, but afterwards altered into Corinthian by successive coats of stucco, an anomaly which I will explain further on. The walls of this portico were decorated with a series of paintings on a black ground, representing architectural scenes, landscapes, and figure subjects. The temple itself stood upon an elevated basement; had a portico of four columns in front, and two deep; and a peristyle round the cella, which latter was very small. There was an inscription in it, stating that "Marcus, Holconius Rufus and Caius, Ignatius Posthumus, decemvirs of justice for the third time, by a decree of the Decurions, bought again the right of closing the openings for 3,000 sestercies, and took care to erect a private wall up to the roof of the incorporated Venerians;"—the proceedings of that corporation, I suppose, being of such a nature that it was wise to conceal them from the public gaze.

The Basilica, or court of justice, is the largest building in Pompeii, of an oblong form, and measures 220 ft. by 80 ft. It is entered through a vestibule, by five doorways of masonry, in which grooves have been cut for the insertion of wooden door-jambs. From the vestibule the area of the Basilica is reached by a flight of four steps, leading through principal and two side doorways. The roof was carried by a peristyle of twenty large Ionic columns, built in brick and tufa, covered with stucco. The centre was probably open to the sky. At the further end of the building, on each side, are two square chalcidies; in the centre, the tribunal for the judges raised on a basement, and approached on either side by steps. It was decorated by columns, detached and semi-detached; between the latter were spaces for cupboards, in which the robes or records were kept. There was a gallery round the peristyle, reaching up about half the height of the Ionic columns, with a railing between them, to prevent persons falling over.

The three buildings at the south end of the Forum, opposite the Temple of Jupiter, are similar in plan; two of them are supposed to have been places of assembly for magistrates; the third is an ærarium, or treasury.

The Chalcidicum, or Cryptoportico, of Eumachia is the next largest building to the Basilica: it is supposed to have been the Exchange of the cloth merchants. The interior was surrounded by a double gallery of forty-eight very beautiful columns of white marble (only one of which, broken, has been found); a chalcidicum, or enclosed apartment, at the further extremity; and a cryptoportico (a gallery in which the spaces between the columns are walled up and pierced with windows). Behind the chalcidicum was a niche, in which stood a statue of Eumachia, at whose expense the building was erected. The Temple of Mercury now serves as a museum for all those objects found in the excavations, and not taken to the museum at Naples. The House of the Augustals, or Pantheon, as it is called, from the twelve pedestals in the centre of its court, in which it was supposed were the Dii Consentes, though from the numerous culinary paintings on

the north wall, and the large collection of fish-bones and other fragments of food found in the sink in the centre, it would seem more to have been devoted to banqueting than religious purposes; and, indeed, its contiguous position to the Forum would point it out as a very convenient place for a large tratteria or restaurant; the twelve rooms on the south side being private dining-salons. It is a spacious building, with entrances on three of its sides, the one from the Forum decorated with columns and niches with pedestals for statues. This completes the list of the monuments round the Forum, and we may look upon them as the most important of those in Pompeii.

The triangular Forum adjoining the large theatre, in the smaller part of the town, has a portico of ninety Doric columns round two of its sides. It is entered by a propylæa or vestibule, of eight Ionic columns, which, when complete, must have been one of the most beautiful features in Pompeii. The Temple of Hercules in this Forum is the most ancient building yet discovered here, its capitals, columns, and general construction resembling more the temples of Pæstum than any of the other temples in Pompeii: from its ruined state it is difficult to define exactly its plan; it was 120 ft. by 70 ft. wide.

The great or tragic theatre is placed on the south side of a hill of tufa, in which the steps or seats are cut. It was semicircular, open to the air, and lined in every part with white marble. The seats faced the south, commanding (as in all these ancient theatres) an extensive view, so that the visitor, if tired with the performances, could at all events solace himself with the enjoyment of the fine prospect before him. The walls of this theatre were never entirely buried, and the stage was covered with so slight a deposit only, that here (as, in fact, probably in the greater part of the most northern portion of Pompeii), the decorative parts, such as marble, statues, &c., may have been easily removed after the eruption. The general audience entered the theatre by an arched corridor, on a level with the colonnade of the triangular Forum, and descended thence into the cavea by six flights of stairs, which divided the seats into five wedge-shaped portions or cunei. The space allotted to each was 1 ft. 3½ in., so that from calculation the theatre would accommodate 5,000 persons. A separate entrance and staircase led to the women's gallery, which was placed above the corridor just mentioned, and divided into compartments or boxes. It seems also that they were protected from the gaze of the audience beneath by a screen of iron wire. In the lowest portions of the theatre, with special entrances, and separated by a low parapet or balustrade, was the precinct,—what we should call the pit or orchestra stalls, reserved for the nobles, Augustales, and patricians. The level space in front of the reserved seats was destined for the magistrates, whose seats, the bisella in bronze, with purple cushions, were brought by their slaves. There was also some distinction made between the middle and lower classes, the latter occupying the higher range of seats, and being divided into their respective trades and occupations. The stage or pulpitum is a long narrow platform, with seven niches in the front of the wall which carries it, in which it is supposed the musicians were placed. The proscenium was decorated with columns, and niches between them for statues, with three doorways, the centre one larger than the others, and only entered by the important characters. Their scenery was very simple, either a door swinging on a centre axis or a triangle, the one having two, the other three different views represented on it, its position being in the central doorway. Behind the stage was the postscenium, where the actors' rooms were placed. The exterior of the upper wall round the theatre still retains the projecting stone rings for receiving the poles of the velarium or awning, which on special occasions was spread over the theatre.

The small theatre adjoining is supposed to have been used for musical performances. It is also semicircular, and similar in arrangement to the other, except that a portion of the circle is cut off on either side by walls continued from the side of the stage. The style and execution of the work are very inferior to the other, which is explained by the fact of an inscription, stating that it was built by contract. It seems to have been permanently roofed in, and accommodated 1,500 persons.

Adjoining the theatre is a large forum, surrounded by a portico of columns, supposed to

have been occupied by the soldiers, from the large amount of armour discovered. In the various rooms round these were two floors, the offices occupying the first floor. Inside one of the entrance-gates, also, were found the skeletons of thirty-four soldiers,—the guard, probably, called out on the night of the eruption. Sixty-three skeletons in all were found in the barracks,—more than in all the rest of Pompeii.

In the south-east angle of the city walls is the amphitheatre, intended for gladiatorial shows, the chase, and combat of wild beasts. It was here that the people were supposed to have been assembled when the grand eruption took place. From the number it would accommodate (10,000) and the interest taken in these shows, it was probable that more than half the inhabitants were there. From the sharpness of all its mouldings and little wear visible on the stonework, it is probable that this building was erected not long before the destruction of the city; and, from the absence of the greater part of its stone seats, that access was had to it after the eruption. Its form is elliptical, 430 ft. long by 135 ft. wide. The masonry of the walls is of the *opus incertum* kind, and also of bricks placed diagonally after the Roman fashion. The interior contained twenty-four rows of seats. There were separate entrances in different parts of the theatre, the patricians, nobles, and magistrates, as usual, occupying the lower ranges, the plebeians the upper, and the women the boxes. At each end of the ellipse were entrances into the arena, for the admission of the gladiators and wild beasts, and removal of the dead.

Various inscriptions announcing displays in the amphitheatre are found on the walls in the city: one more especially of them says that "On the occasion of the dedication of the public baths there will be a chase of wild beasts, athletic contests, sprinkling of perfumes, and an awning." The value of an awning will be easily appreciated by those who know either what the heat of an Italian sun is, or the deluge of an Italian rain. It has been a matter of some controversy how a temporary covering could be stretched over so large a space without any intermediate props. The stone rings existing on the upper portions of the exterior wall round the theatre gives me reason to suppose that they were intended to support and hold the wooden masts to which the ropes carrying the awning were attached: there must have been considerable difficulty in keeping the awning stretched sufficiently tight, and we find that on windy days it was impossible sometimes to stretch them. As to the sprinkling of perfumes, Seneca tells us that "the perfumes were disseminated by being mixed with boiling water, so that the scent rose with the steam and became diffused throughout the building." Rimmel's patent vaporizer, therefore, introduced three years ago, at the pantomimes in all the chief theatres of London, was by no means a novel idea.

The Temple of Isis is a small but interesting building, standing on a basement in the centre of a court, round which is a portico of Corinthian columns, in brick, covered with stucco, and painted. In one corner of the court is an ædiculum with a vaulted roof, and pediment covering the sacred well of lustral purification, to descend to which there was a narrow flight of steps. Near it was an altar, on which were found the burnt bones of victims. On the south side of the inclosure were the chambers of the priests and a kitchen. In one room a skeleton was found holding a sacrificial axe, with which he had cut his way through two walls to escape from the eruption, but perished before he could penetrate the third. In another room a skeleton was found with bones of chickens and fish, eggshells, bread, wine, and a garland of flowers, as if he had been beguiling away the last moments of his life merrily. Many other skeletons were found in the inclosure, testifying to the belief in the power of their deity.

A flight of steps leads to the temple, the front of which is a portico of six Corinthian columns, with niches on either side of the entrance to the cella, the interior of which is small; the entire width of the back, occupied by a long hollow pedestal for statues, having two low doorways at the end near the secret stairs, by which the priest could enter unperceived and deliver the oracles as if they proceeded from the mouth of the goddess herself.

Public Baths.

Two large establishments have been found in Pompeii. They are based on a similar system to the so-called Turkish baths lately introduced

in this country, and are remarkable for their admirable distribution.

The establishment first discovered behind the Forum is divided into three portions. The first containing the furnaces and fuel; the second, the baths for men; and the third, those for women. The two sets of baths were similar in arrangement, both heated by the same furnace, and supplied from the same reservoir. Each set had its apodyterium or disrobing-room, its frigidarium, tepidarium, and caldarium, and court with portico to the men's bath, only these latter were the largest and most rich. The apodyterium has seats of lava on either side. The clothes were hung up on pegs, the holes to hold which are still visible. The roof is vaulted in stone and rubble work, faced with stucco, and painted. It was lighted at one end by a window furnished with small panes of glass, ground, on one side, pieces of which were found on the floor. A cornice runs round the room, under which is an arabesque frieze in relief on a red and blue ground, composed of griffins, lyres, vases, dolphins, &c. A small recess at one end of this room is supposed to have been a wardrobe: at the opposite end is the entrance to the frigidarium, a room circular on plan, with a large cold-water bath in the centre, 12 ft. 10 in. in diameter, and 2 ft. 9 in. deep. The chamber is covered with a conical-shaped roof painted blue, the light admitted by a window in the side of it near the top. The walls are in stucco, painted yellow, and have four semicircular niches, in which are seats for the convenience of bathers. The cornice is decorated with bas-reliefs in stucco, on a red ground, representing Cupids and warriors engaged in a chariot race. The tepidarium, or warm bath, is entered from the frigidarium. It has a barrel-vaulted ceiling stuccoed, in low relief, with figures of flying genii and other ornaments, relieved on coloured ground, in medallions and panels.

The more remarkable portion of the decoration, however, is the series of niches divided by terra-cotta figures, representing Telamones or Atlases, who support the cornice. These figures and niches are at a height of 4 ft. 6 in. from the ground. The figures are about 2 ft. in height, stand on square plinths, and are similar in form to the giants of the temple at Agrigento, which are supposed by Mr. Cockerell to have carried the roof. The object of these figures at Pompeii was simply to ornament the divisions of the niches, which we may suppose contained either the robes or the ointments and perfumes of the bathers. A brazier for coals, and two seats, all in bronze, were found, and still remain, in this room. The windows were awkwardly contrived. We next enter the vapour-bath or caldarium: it terminates at one end with a semicircular niche, containing a marble basin or labrum, 5 ft. in diameter: at the other end is the hot-bath, 12 ft. long and 2 ft. deep, in white marble. The ceiling is a barrel vault in brick, covered with stucco, and ornamented with a series of transverse futing in relief. The walls are decorated with pilasters. The walls and floors in this room are hollow, to admit of the easy circulation of the hot air from the furnaces. The floors were of similar construction as those found in the Roman villas in this country, being carried by series of small pillars or piers formed of tiles, 1 ft. 5 in. in height, and about 18 in. apart. The walls are formed of tiles, held by cramps of iron, at a distance of 3 in. from the main wall, by means of small hollow pipes attached to these tiles, through which in fact the iron cramps pass. The women's baths are arranged on a similar system, being somewhat smaller and less rich in their decoration. The second establishment of baths, discovered in 1858, have a very large open court or palaestra, surrounded on three sides by a portico of fluted columns. The walls of the three sides under the portico are covered with paintings; and on the fourth side, there is decoration of a similar design, but executed in stucco relief. The baths were arranged and warmed on the same principle as the others.*

FALL OF A FLOOR AT WESTMINSTER.

On Thursday night in last week, an accident of the most alarming character, by which nearly 100 men, women, and children were severely, and more than one fatally injured, happened at a Roman Catholic school-room, in Westminster. The Roman Catholic Chapel of St. Mary, Horseferry-road, has recently been repaired and redecorated; and, in order partly to meet the

expenses, the priests belonging to that establishment got up a prize drawing, which took place in the St. Mary's school-room, Great Peter-street. This building, which is of L shape, consists of two floors, and it was the upper one which was selected for the purpose. It was capable of accommodating some 800 or 400 people, and the place appears to have been well filled. While the prize drawing was in progress, a large beam, which supported the centre of the floor suddenly broke in towards one end, and a part of the flooring, about 20 ft. by 18 ft., gave way, precipitating those who were standing or sitting upon it to the ground beneath. After some delay and great excitement, nearly 100 persons were got out, all of whom were injured more or less. Nearly sixty cases were taken to the Westminster Hospital, and of these thirty-eight were found to be casualties which included severe cuts upon all parts of the body, contusions, and some broken limbs, injury to the spine, &c. An examination of the beam, which is about 14 in. square, showed, it appears, that it was a piece of wood which ought never to have been employed to bear a great weight. It was a knotty balk, of a particularly short cross grain, and very liable to snap, as it did. The wood was also to some extent affected by dry rot. The building was erected in 1857. The beam rested at each end about 4 in. on a set-off, and, as it seemed to us the day after the accident, when we examined the place, the ends were not pinned up. The rest of the floor is unsafe for a crowd, and should be taken down. About 500 persons were on the floor at the time of the accident.

(d.) At the Friday's meeting of the Metropolitan Board of Works, Mr. Miller, M.P., called attention to the accident, and moved that the architect be asked to report upon it. This was at once agreed to.

COMPETITIONS.

Boston.—The committee of the Primitive Methodist Chapel, Boston, have awarded the premium to design (for new chapel) offered by Messrs. Bellamy & Hardy, architects, Lincoln. The works are to be immediately carried out under their superintendence.

St. James's Church, Denon, Holm, Carlisle.—The committee of St. James's Church, Denon Holm, Carlisle, have received designs from competing architects from various parts of the country, and have awarded the first premium to Messrs. Andrews & Pepper, architects, Bradford, who are instructed to carry out the works.

PRIZES FOR ART WORKMANSHIP, SOCIETY OF ARTS.

The following is a list of the prizes awarded. The judges were Messrs. Richard Redgrave, R.A., M. D. Wyatt, and John Webb:—

1st DIVISION.

WORKS EXECUTED FROM PRESCRIBED DESIGNS.

CLASS 1.—CARVING IN MARBLE, STONE, OR WOOD.
(a.) *The Human Figure.*—Work executed in marble or stone, after the Boy and Dolphin cast from a chimney-piece, ascribed to Donatello. Four works sent in.—1st prize of 15*l.* to G. T. Sherborn, 59, Pensonby-place, Millbank, S.W.; 2nd prize of 7*l.* 10*s.* to Alexander Kemmure, 43, Pancras-square, N.W.
(b.) *Ornament.*—Work executed in marble, stone, or wood, after a carved chair-back in the South Kensington Museum. One work sent in.—1st prize not awarded; 2nd prize of 5*l.* to James Stuart, 7, Pancras-square, N.W.
(c.) *Ornament.*—Work executed in stone, after a Gothic bracket in the Architectural Museum. Three works sent in.—1st prize of 10*l.* to T. V. Wan, 65, Lambeth-walk, S.; 2nd prize of 5*l.* to John Barker, 7, Draycot-street, Sloane-square, S.W.
(d.) Work carved in wood, after a design by Holbein. One work sent in.—1st prize not awarded; 2nd prize of 10*l.* to W. H. Baylis, 69, Judd-street, W.C.
(e.) Work carved in wood after the *Head of a Harp* of the period of Louis XVI. One work sent in.—1st prize not awarded; 2nd prize of 7*l.* 10*s.* to T. E. Mayle, 17, James-street, Camberwell-new-road, S.
(f.) *Ornament.*—Work carved in wood after an Italian picture frame.—No works sent in.

CLASS 2.—REPOUSSE WORK IN ANY METAL.
(a.) *The Human Figure as bas-relief.*—After Raffaele's "Three Graces."—Four works sent in.—1st prize not awarded; 2nd prize of 5*l.* to W. Holliday, 14, Nailor-street, Islington, N.
(b.) *Ornament.*—Work executed after a Flemish silver in the South Kensington Museum. Three works sent in.—1st prize of 5*l.* to Septimus Berezford, 29, Myddelton-street, E.C.; 2nd prize of 3*l.* to H. R. Batchelor, 148, St. John-street-road, E.C.

CLASS 3.—HAMMERED WORK, IN IRON, BRASS, OR COPPER.
Ornament.—Work executed after a portion of the Pediment of a Gate (German work, date about 1700), in

the South Kensington Museum. Three works sent in.—1st prize of 7*l.* 10*s.* to T. Winstanley, 10, Arthur-street, New Oxford-street, W.; 2nd prize of 5*l.* to J. Zobel, 139, Euston-road, N.W.; 3rd prize of 3*l.* to W. Lethers, Lansdown Iron Works, Cheltenham.

CLASS 4.—CARVING IN IVORY.

Human Figure in the Round.—After an Ivory by Fiamingo. Two works sent in.—No first prize awarded. Two second prizes of 10*l.* each awarded; one to J. W. Bentley, 22, Sherwood-street, Golden-square, W., and one to John Richards.

CLASS 5.—CHASING IN BRONZE.

(a.) *The Human Figure.*—Executed after a reduced copy of "Olympe." One work sent in.—1st prize of 10*l.* to T. Nicholas, 4, Everilda-street, Hemingford-road, N.
(b.) *Ornament.*—Work executed after Goussier, from a cabinet in the possession of her Majesty the Queen.—Nine works sent in.—1st prize of 10*l.* to R. E. Barrett, 26, Harrison-street, Gray's-inn-road, W.C.; 2nd prize of 7*l.* 10*s.* to H. J. Hatfield, 16, Alfred-street, Tottenham-court-road, W.C.

CLASS 6.—ETCHING AND ENGRAVING ON METAL.—NILIO WORK.

Ornament.—Work executed after arabesques by Lucas Van Leyden, 1528. Two works sent in.—1st prize of 10*l.* to Gilles Mackenzie, 12, Tudor-street, Sheffield. 2nd prize not awarded.

CLASS 7.—ENAMEL PAINTING ON COPPER OR GOLD. No works sent in.

CLASS 8.—PAINTING ON PORCELAIN.

(a.) *The Human Figure.*—After Raffaele's "Two Children," in the cartoon of "Lystra."—Seven works sent in. No prizes awarded.

(b.) *Ornament.*—Executed after arabesques by Lucas Van Leyden, 1528. Two works sent in.—1st prize of 5*l.* to J. B. Evans, South-street, Mount Pleasant, Fenton, Staffordshire Potteries. No second prize awarded.

CLASS 9.—DECORATIVE PAINTING.

After an ornament, from *Custet R. Pandino*, near Lodi, from a drawing in the South Kensington Museum.—Two works sent in.—1st prize not awarded. 2nd prize of 3*l.* to John Henk, George-street, Stoke-upon-Trent.

CLASS 10.—INLAIS IN WOOD (MARQUETRY, OR BURL), IVORY OR METAL.

Ornament.—Executed after a specimen in the possession of the Hon. John Ashurst sent in (metal). 1st prize of 5*l.* to E. A. Millward, 35, Little Clarendon-street, Somers-town, N.W.

CLASS 11.—CAMBO CUTTING.

(a.) *Human Head.*—After Wyon's heads of the Queen and the Prince Consort, on the Javiers medal of 1858. Two works sent in.—1st prize not awarded. 2nd prize of 5*l.* to James Ronce, 168, King's-road, Chelsea, S.W.

(b.) *Animal.*—Work executed after Wyon's "St. George and the Dragon," on the Prince Consort's Medal.—One work sent in. No prize awarded.

CLASS 12.—ENGRAVING ON GLASS.

No works sent in.

CLASS 13.—WALL MOSAICS.

Human Head.—After Bertini, of Milan. General competition.—Three works sent in.—1st prize of 15*l.* to Samuel Cooper, Kensington Museum, Hatfield, Stoke-upon-Trent. 2nd prize of 10*l.* to G. H. Stevens, Lambeth Glass Works, Carlisle-street, S. Female Competition.—One work sent in.—1st prize not awarded. 2nd prize of 10*l.* to Miss E. Mossop, Windmill-lane, Brentford, W.

CLASS 14.—GEM ENGRAVING.

(a.) *Human Head.*—After an original in the possession of Mr. John Webb. Three works sent in.—No prizes awarded.

(b.) *Full-length figure.*—After an original in the possession of Mr. John Webb.—One work sent in. 1st prize not awarded; 2nd prize of 5*l.* to John Wilson, 14, Leicester-place, W.C.

CLASS 15.—DIE SINKING.

Human Head.—After the head of the Prince Consort, by Wyon, on the Society's medal. Five works sent in.—1st prize not awarded; 2nd prize of 5*l.* to John Hatchett, 5, Gloucester-terrace, Kennington-park, S.

CLASS 16.—GLASS BLOWING.

No works sent in.

CLASS 17.—BOOKBINDING AND LEATHER WORK.

Bookbinding.—After an Italian specimen in the South Kensington Museum.—One work sent in.—1st prize of 7*l.* 10*s.* to Louis Genth, 15, Broad-court, Bow-street, W.C.

CLASS 18.—EMBROIDERY.

No works sent in.

2nd DIVISION.

WORKS EXECUTED WITHOUT PRESCRIBED DESIGNS.

WOOD CARVING.

(a.) *Human Figure in alto or bas-relief; animals or natural foliage may be used as accessories.*—Twelve works sent in. No first prize awarded. 2nd prize of 15*l.* to Mark Rogers, 111, Hackbrook-street, S.W., for a carting "Spring"; a child's head. 3rd prize of 10*l.* to James Griffiths, 8, Addington-place, York-road, S., for a carting "Cain"; a child's head. Extra prize of 5*l.* to T. W. Wallis, Louth, for a carving of a child's head, "Hope for the Future."

(b.) *Animal or Still Life. Fruit, flowers, or natural foliage may be used as accessories.*—Five works sent in.—2nd prize of 7*l.* 10*s.* to T. Wallis, Louth, for a carving of "Wagtail and Fly." 1st and 3rd prizes not awarded.

(c.) *Natural Foliage, Fruit, or Flowers, or conventional ornament in which grotesque figures or animals may form accessories, preference being given where the work is of an applied character for ordinary decorative purposes, as representing commercial value.*—Nine works sent in. No first or second prizes awarded. Two third prizes of 5*l.* each awarded; one to George Murray, 6, Claremont-crescent, Hammersmith, for a carving of a frieze; and one to W. H. Bower, 100, Dean-street, Soho, W., for a tripod-stand. Extra prize of 3*l.* to George Lock, 26, Albert-street, Camden-town, N.W., for a carving of festoons of flowers.

An extra prize of 5*l.* to Gerrard Robinson, 14, Duke-street, Manchester-square, W., for carvings of the human figure in the round.

* To be continued.

INTERNATIONAL COMPETITION: PALACE FOR THE STATES GENERAL OF THE NETHERLANDS.

The following letter speaks for itself:—

SIR,—A new palace, for the accommodation of the States general of the Netherlands, is to be built at the Hague, near to public competition of all countries. I have been specially requested by my Government to send to you a couple of the programmes for that proposed building, with the view of making such use of it as you may think best for the information of British Architects. I have the honour to be, &c.

HARON BENTINCK,
Minister of the Netherlands.

We have placed a copy of the programme at the Office, in York-street, where it may be consulted. We may state briefly, that the edifice is to include two Chambers,—the cost, exclusive of foundations, is not to exceed 1,000,000 of florins of the Low Countries; the author of the selected design will be entitled to a premium of 500 florins; the minister reserves the right of buying, at the sum of 1,000 florins each, any of the other designs which are distinguished by happy combinations or excellence of execution; the selected design is to be made use of as the minister thinks fit; the designs are to be sent in by the end of June.

COMPETITIONS AND THE ALLIANCE.

SIR,—The periodical correspondence on this subject having just appeared, I send you a copy of the circular, which I send every Saturday morning to the managers of all competitions advertised in that day's *Builder*, and any more I can hear of. If any of your readers will send me the advertisements of any others, they shall be similarly favoured. I know that the circular has done good in some cases, and *hope* it has in all. Trusting you will be able to find room for it, I am, Sir, &c.,

J. P. PRITCHETT, Hon. Secretary to the Alliance.

THE ARCHITECTURAL ALLIANCE.

Embracing the following Architectural Societies:—

- 1. London Architectural Association.
- 2. Architectural Institute of Scotland.
- 3. Birmingham Architectural Society.
- 4. Bristol Society of Architects.
- 5. Glasgow Architectural Society.
- 6. Liverpool Architectural and Archaeological Society.
- 7. Manchester Architectural Association.
- 8. Northern Architectural Association.
- 9. Nottingham Architectural Association.

SIR,—In consequence of your advertisement asking for designs to be submitted in competition for —, I am instructed, as hon. secretary for the Architectural Alliance, to offer for your consideration the views of the Allied Societies on the subject.

Assuming that competition as an abstract principle is good, the working out of an architectural competition is so fenced round with difficulties, that the greatest care is requisite to prevent injustice to competitors on the one hand, and disappointment to promoters on the other; and, feeling sure that you wish to avoid both these evils, the Allied Architectural Societies presume that you will not object to profit by their experience in bringing the matter to a successful issue.

The chief desiderata in every competition must necessarily be—

- 1st. Clear and precise conditions and instructions for the guidance of competitors.
- 2nd. A strictly honourable adherence to such conditions and instructions both by the promoters and competitors.
- 3rd. The offer of remuneration sufficient to induce men of talent and experience to compete. And, lastly, Provision for a competent and impartial adjudication of such remuneration.

The conditions and instructions should lay down—

A. Either the exact accommodation required and the approximate outlay intended, leaving it to the competitors to send a definite estimate; or the exact outlay intended and the approximate accommodation required, leaving it to the competitors to decide the amount of accommodation they can provide for that outlay.

If both the accommodation and outlay are fixed, the estimate is manifestly the work of the promoters, not of the competitors.

B. The drawings to be submitted should be fixed, as follows, being what are usually re-

quisite:—A plan of each floor; two sections (one longitudinal and one transverse) of each building; two elevations of each building, and perspective drawings and details, at the option of the competitors.

The plans should have the walls coloured with Indian ink, sepia, or neutral tint, with the floors coloured yellow or brown, to show whether of wood or of stone.

The sections and elevations should be either in outline, or coloured, to show the different materials proposed; no shading to be used, except flat shadows in the windows.

The perspective drawings should be either in outline, or etched in black or brown ink, or shaded with Indian ink or sepia; no colour to be used.

Detail drawings should be coloured to show the materials proposed, but no shading to be used.

All drawings to be mounted on strainers, but without frames or glass.

The scale of all drawings, except details, should be fixed at $\frac{1}{4}$ in. to the foot, if the ground-plan will come in a sheet of paper 52 in. by 30 in.: if not, a smaller scale, to enable it to do so.

C. A plan of the site, the same or half the scale that the designs are required to be, should be furnished to competitors, together with sections, if the ground is not level.

If the required designs are for the alteration or enlargement of existing buildings, plans, elevations, and sections of such parts as are expected to work in with the new buildings should also be furnished.

D. It should be made a distinct condition, supposing our suggestion A to have been followed out, that unless a tender is received from a competent builder to execute the works for the amount of the architect's estimate, the promoters may be at liberty to abandon the design on payment of a moderate sum to the designer (say 1 per cent. upon the amount of his estimate), to cover what he may be actually out of pocket, and to proceed with the next design in order of merit; and should no tender be received at or about the amount of estimate (say within 10 per cent.), this course should be adopted.

The promoters should distinctly state that any competitor violating the conditions by sending any coloured perspective drawings, or any drawings framed or glazed, will be excluded from the competition, and his plans will be at once returned to their author—not merely that such drawing will be excluded, as it may accomplish the designer's object by creating an exalted impression of the design before it is excluded; and in all other matters the promoters should strictly adhere to the conditions, and should give competitors to understand that they will do so, which will not fail to produce an honourable response on the part of competitors.

It is manifest that when architects are asked to compete, the remuneration to the successful competitor should be more than he would receive were he commissioned to carry out the work without a competition; and also that there should be some slight acknowledgment to the next one or two designs about whose merit as compared with the one adopted there may have been a difference of opinion.

It is, therefore, clear that there should be a premium for the best design in addition to the commission for carrying out the work, and that there should be moderate second and third premiums.

But above all, the question, an answer to which decides men of ability and experience whether to compete or not, is,—Will the author of the selected design be employed to carry out his design at the usual rate of remuneration?

No matter how fair the premium, it barely remunerates the receiver of it for the expense and trouble he has been at in preparing his drawings, irrespective of the skill required for designing the building; and is, therefore, by itself, no premium, but merely moderate pay to one competitor only out of a large number for a part of the work done. Competitors look to the commission as their real remuneration, and consider the 'premium,' as the term implies, an extra payment for the extra trouble and anxiety of competing.

It should, therefore, be an invariable condition that the author of the selected design should be employed to carry it out at the usual rate of remuneration, should he be a person of sufficient experience to warrant the promoters in entrusting the work to him.

The proper award of the premiums is the most difficult question connected with competitions;

but its paramount importance demands that an attempt should be made to grapple with it.

In competitions for small works the selection must necessarily rest with the promoters, who should appoint a sub-committee to select and report to the general body.

In works involving an outlay of 2,000l. and upwards, it seems desirable to secure a more experienced tribunal than a committee afford; that is to say, to refer the matter to one or two architects of admitted experience, honour, and discretion.

The award of the adjudicator, whether appointed as above suggested or otherwise, to be final and conclusive.

Hoping you will find these suggestions of service to you,
I am, Sir, &c.,

9, Conduit-street, Hanover-square,
London, W."

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of the Association was held on Friday evening (the 20th ult.), at the House, in Conduit-street. The chair was occupied by the president, Mr. J. H. Christian.

Mr. Edward J. Lowther, of High-street, Stoke Newington, and Mr. R. S. Wilkinson, of Weighton House, South Penge Park, were elected members of the Association.

Mr. R. Phénix Spiers then read a paper "On Pompeii," which we give elsewhere.

At the conclusion of the paper,

Mr. Spiers stated, in reply to questions, that with the exception of two instances, he had not observed any cases in which gardens were attached to Pompeian houses. The reason probably was, that as the inhabitants passed the greater portion of the day in the open air, and that from the peculiar position of the city (built on the volcanic rocks of the Campanian, washed on nearly two sides by the sea, and commanding from almost every point the most picturesque views), it was considered unnecessary to provide that which in England would be regarded as a great attraction to a gentleman's residence.

With regard to baths, two large establishments, on a similar system to the Turkish baths lately constructed in this country, had already been disclosed. That first discovered was behind the Forum, and was divided into three portions. The first contained the furnaces and fuel; the second the baths for men; and the third those for women. The two sets of baths were similar in arrangement, both being heated by the same furnace, and supplied from the same reservoir. Each set had its apodyterium, or disrobing-room; its frigidarium, tepidarium, and caldarium. The clothes of the bathers were hung on pegs, the holes into which they were fixed being still visible. The frigidarium was a circular room, with a large cold-water bath in the centre, 12 ft. 10 in. in diameter, and 2 ft. 9 in. deep. In the tepidarium adjoining, a brazier for coals, and two seats, all made of bronze, were discovered, and still remained. The fact that the Pompeians were familiar with glass was also established, in this case beyond doubt, as the baths were lighted with small windows, glazed with glass ground on one side, the fragments of which were found in the building.

The description of the baths having suggested the "sweating system," a member inquired whether Mr. Spiers had traced any tailors' shops.

Mr. Spiers replied that he had not, as the business of a tailor could be carried on almost anywhere. The Pompeians did not, however, hold the tailors in the very high repute, as they were ranged in the Forum very high up, and were generally a noisy and obstreperous lot. They were not allowed to look at the Pompeian ladies of the higher order, who had a gallery of their own in the Forum, and viewed the performances through a grille of metal-work, somewhat similar to that through which ladies in our own day are permitted to enjoy the exhibition presented in the House of Commons. With regard to the supply of water and drainage, although abundance of earthenware and metal pipes had been found in Pompeii, the source of water-supply had not been traced; neither did there appear to be any provision for carrying off the more solid sewage. Possibly the streets were the only drains, as in Eastern towns; and these might have been flushed occasionally by the tremendous showers with which Italian towns are sometimes visited. He had not been able to trace any remains of public lamps, although he had found (and produced) scraps of

iron. The Pompeians used bronze largely in fine art productions, but the use of iron appeared to have been restricted to works of construction only.

Having described the manner in which the plaster for fresco-painting was prepared, and exhibited specimens with the colours still fresh, Mr. Spiers stated that he hoped to revisit Pompeii in the course of the present year, and on his return, to contribute some further information on the subject to the Association.

In proposing a vote of thanks for this paper, the Chairman said, with regard to the architectural features of the city, but little scope appeared to have been left to the architects of those days, except in the construction of the temples, theatres, and other public buildings; as the private houses and shops, though very beautifully ornamented with coloured marbles, presented no great field for the higher qualifications of the architect. In many instances the chambers of the private houses were decorated with paintings, in fresco, of buildings, or rather outlines of buildings, that might be taken as representing iron architecture. He did not, however, believe that the Italians of the period were familiar with the use of iron for structural purposes; and he fancied that the drawings to which he referred were the outlines of buildings suggested to the eye of the artist, and had no reference whatever to any existing structures composed of iron.

REREDOS IN PRESTWICH CHURCH.

A RICHLY-SCULPTURED reredos has just been erected in this church by the rector, the Rev. H. M. Birch, and Mrs. Birch. The style is in accordance with the architecture of the church, viz., that known as the Perpendicular. The material of which the reredos is principally executed is Caen stone. It consists of five canopied niches, enriched with carved crockets and pinnacles. The three central niches contain a sculptured representation of the "Last Supper," in alto-relief; and the remaining two, "The Agony in the Garden," and "The Three Marys at the Sepulchre." In addition to the sculptured subjects, there is a large panel at each end; these extend from the base up to the cornice, and contain marble tablets, on which are engraved the Ten Commandments, the letters and ornamental embellishments being painted in various colours. The circumstances to which the church is indebted for this handsome work appears from the following inscription, which is engraved on a brass plate, and fixed behind the communion table: "To the Glory of God and to the Memory of Henry Arthur Drinkwater, their first-born and fondly-loved child, who died of scarlet fever, April 25th, 1863, in his eighth year, this Reredos is dedicated by his bereaved parents Henry Mildred and Harriet Julia Birch." Mr. W. Smith was the architect; and Mr. James Forsyth, of London, was the sculptor.

DWELLINGS OF THE LABOURING CLASSES.

THE committee appointed by the Society of Arts with the view of instituting an inquiry, to ascertain if anything can be done to remedy or to mitigate the evils arising from the want of proper dwellings for the labouring classes, has divided itself into three sub-committees, to proceed simultaneously with various parts of the subject. On the 27th ult. the sub-committees 1 and 2 met; present, Mr. W. Hawes in the chair, Alderman Waterlow, Mr. Bosanquet, Mr. Le Neve Foster, Mr. Greenhill, Mr. Gatcliff, Mr. Godwin, Mr. Martin Ware, who is acting as secretary to the committee, and others. The sub-committees discussed jointly at considerable length "the best mode of lessening the burdens on house property of the working classes." The committee includes the names of Messrs. Dyke Acland and Akroyd, Lord Belper, Lord Berrers, Duke of Buccleuch, Messrs. Chadwick, Chester, and Cole, Right Hon. W. Cowper, Mr. J. Bailey Denton, Earl Ducie, Lord Ebury, Mr. Hare, Earl of Harrowby, Messrs. G. W. Hastings and C. Wren Hoskyns, Dr. Lancaster, Marquis of Lansdowne, Lord Talbot de Malahide, Messrs. M. H. Marsh, M.P., H. Maynard, J. Smart Mill, and J. Chalmers Morton, Earl of Shaftesbury, Sir J. Kay Shuttleworth, Lord Stanley, M.P., Mr. Twining, the Duke of Wellington, and several others.

THE ARCHITECT OF THE CHURCH OF ST. OÛEN, ROUEN.

SIR,—In the notice kindly given to my little book, styled "Normandy, &c.: a Sketch" (*Builder*, No. 1146), you ask for the authority for a statement with regard to A. Berneval, one of the architects of the church of St. Ouen, at Rouen, which describes him as "*architect and clerk of the works*." Having destroyed the notes used while compiling the text in question, I cannot now refer to the authority for the words which are italicised above. Allow me to say that they appear in the text as a quotation,—between inverted commas,—and not as a positive statement of my own opinion. Finding these words so placed indicates to me that I did not consider them beyond question. The position of Berneval is best defined by the inscription on the tomb in St. Ouen, placed there by the monks in consideration of his abilities and services. This is thus given by Pommeraye, "*Histoire de l'Abbaye de St. Ouen, 1662*:"—"Ci gît Mr. Alexandre de Berneval, maître des œuvres de maçonnerie au Evêché de Rouen et de cette Eglise, qui trépassa l'an de grace 1440, le 5 Janvier." In another place Pommeraye speaks of him as "*architecte et conducteur des travaux de l'Eglise de St. Ouen*."

With regard to the photographs which my text was intended to illustrate, let me say that they were not made under my direction, either as concerns their subjects, size, or the points of view chosen for them. F. G. STEPHENS.

THE SEWAGE QUESTION.

THE Sewage Committee, in their report, have embodied their opinions in the following paragraph:—

"We recommend that the important object of completely freeing the entire basins of rivers from pollution should be rendered possible by general legislative enactment, enabling the inhabitants of such entire districts to adopt some controlling power for that purpose; but it should include a provision for compelling local Boards to render the sewage of their districts innocuous by application to the land for agricultural purposes. The case of the valley of the Thames (where the purification of the river has been sought by the expenditure of enormous sums, is to a considerable extent, counteracted by the increased discharge of sewage from towns higher up the stream) requires special and immediate attention."

Dr. Ackland, of Oxford, who has for some time advocated the necessity of appointing some authority to control the catchment basins of rivers, presented a memorial, in conjunction with other gentlemen, to Sir George Grey two years since, with respect to the particular catchment basin of the Thames. The evidence he gives in the report of the condition of the river near Oxford is certainly disgusting. He states that in one place the deposits of sewage have diminished the depth of the river by 6 ft.

Mr. Rawlinson, the principal inspector in the Local Government Act Office, who has inspected the rivers of Lancashire and parts of Yorkshire, says—"they are fouled almost from source to estuary." The rivers Irwell, Medlock, Irk, and Bridgewater Canal are more offensive from sewage than the Thames. The Medlock at Manchester is covered with a black scum so thick that birds are able to walk over it! The rivers and streams in Lancashire and Yorkshire are fearfully abused. There are river beds in Lancashire and Yorkshire that are raised 10 or 15 ft. by sewage, ashes, and other refuse. The want of some central authority to deal with the watersheds of districts is illustrated by the case of Salford. The inhabitants of this town wished to carry their sewage by tunnel three or four miles from Manchester at an expense of 80,000*l.*, but were prevented from doing so by the refusal of other towns to co-operate. "Of what use is it," they say, "to expend large sums when Manchester and all the other towns above will continue to foul the river?"

Baron Liebig, the President of the Royal Academy of Science at Munich, has forwarded to the Lord Mayor of London a communication, which would probably occupy four or five columns of a newspaper, and which was evidently intended for national circulation. Leaving untouched the sanitary, engineering, and agricultural questions connected with the sewage, for the reason that they had already been profoundly investigated by the Select Parliamentary Committee over which Lord Robert Montagu presided, Baron Liebig, in the document in question, aims at putting in their proper light before the farmers, the inhabitants of towns, and the legislature, the facts

and principles which he thinks ought to be taken as guides in any estimate of the worth and importance of sewage. The document is written in English throughout, and that is its key-note. The Lord Mayor convened a special Court of Common Council the day after the receipt of the communication, in order that he might lay it before that body, which has of late taken a prominent part in relation to the utilization of sewage. The result was that Baron Liebig's communication was referred to the Coal, Corn, and Finance Committee, to be printed and circulated forthwith among the members of the Common Council.

SANITARY MATTERS.

Woolwich.—At a recent meeting of the Local Board of Health, a letter was read from Dr. Simon, F.R.S., medical officer of the Privy Council, requesting to be informed what steps had been taken by the Board to carry out the recommendations of Dr. Bristowe, who had been specially employed by the Privy Council to make an inspection of the town with reference to the frightful epidemic which recently prevailed. Dr. Bristowe, in his report, strongly recommended the advisability of connecting the sewerage system of the district with the tall shaft at the steam factory department of the dockyard; and it was now stated that the local Board had applied to the Admiralty for permission to carry out the plan proposed, but that some objections had been made, which, it was believed, could be obviated. A reply to this effect was ordered to be forwarded to the Privy Council.

Glasgow.—At the last fortnightly meeting of the Police Board it was reported that during the previous fortnight 376 cases of fever had been announced, as against 312 cases during the fortnight before. Mr. Ure said it would be observed that this was the greatest ever reported to the Board. It is proposed to take on lease for a fever hospital, premises in Main-street, Anderson, at a rental of three years for 400*l.*, and if for five years, at 350*l.* sterling per annum.

Ireland.—Disease is very prevalent in Ireland at present. There is not a town almost where fever is not raging.

SOUTH LONDON WORKING CLASSES' EXHIBITION.

The second South London Exhibition, at the Lambeth Baths, was opened on Wednesday, with some éclat. The Bishop of Winchester presided, and the Hon. W. Cowper, M.P., Mr. John Locke, M.P., Dr. Newman Hall, the Hon. A. Kinnaird, M.P., Mr. Doulton, M.P., Mr. Lucas, and Mr. F. Fowler addressed the meeting. Dr. Hall's speech was remarkably effective. To the exhibition itself we may return. Suffice it to say at present, the number of exhibitors is 633.

The space used for the purposes of the exhibition is about 5,000 square feet of hanging space, 1,200 ft. run of table space of various depths, and 800 ft. of floor space.

IPSWICH TOWN HALL.

THE town council, after a long and cross debate, have determined not to patch up the old hall, and, in building a new one, not to join with it the museum, as originally intended. They further referred it to the Estate Committee, to obtain a design. In what way the Committee are to set about this, however,—whether they are to put aside altogether the previously selected competitors, invite a fresh competition, or name an architect themselves,—did not appear. Having again determined on having a new building, it is to be hoped the members of the town council will now put aside their different crotchets, and work with something like unanimity towards the one end in view.

OPENING OF A RUSSIAN TUMULUS.—An interesting discovery has just been made in a tumulus at Ekaterinoslaw, in Russia. It consists of a treasure which formerly belonged to a chief of the Huns. Among the different articles is a heavy gold diadem, in which is set a cameo of amethyst of ancient Roman workmanship; also a large collar, bracelets, and drinking cups, with handles formed by animals, the whole of which are in gold of remarkable workmanship.

MASTERS AND MEN.

SIR.—Although the “discharge note” has gone by, I shall be glad to say a few words in reply to your correspondent, “A Joiner.” This writer designates the complaints of the masters, expressed by the chairman of the Builders’ Association, as “a farrago of nonsense,” and “the talk about the dictation of operatives as mere bosh.” I shall be happy to hear that the workmen in a “A Joiner’s” locality, know better what belongs to their position, and have the good sense to allow the masters to use their own discretion in the management of their business; but if the masters in that favoured locality, and very probably in many others, enjoy this privilege, it is too patent to be denied, in the off-hand way “A Joiner” does it, that dictation by the workmen does take place to a great extent in most of the large towns. I, therefore, conclude that “A Joiner” has not travelled far, or that he has, he must have wilfully shut his eyes. Let “A Joiner” read the letter of J. Radford, who, judging from a previous letter, is no particular friend of the masters. The letter appeared in the *Birmingham Daily Post*, of the 19th ult., in which there are references to dictation of the workmen, which are something more than “bosh.” If “A Joiner” has not wilfully shut his eyes, he would, even in the *Builder*, have seen recorded some instances of presumptuous dictation; but I fear that “A Joiner” has those exaggerated views of workmen’s rights, that he cannot see that he is claiming more than is reasonable, and therefore cannot understand what dictation is. If so, I will just ask him to consider what he would expect if he were in the position of a master: the masters generally wish too more, nor, perhaps, so much as he would claim. I shall be glad to find that workmen generally do improve their minds by the acquisition of valuable information. Only let them use it fairly and honestly, or it will be like the education of dishonest men, doing greater mischief in proportion to the amount of knowledge possessed; and let me say that the workman who can best serve his master is the educated one. Such a one can serve his master and himself too, and as opportunity offers, raise himself to a higher position without injury to his master; but, in order to do this, the workmen must shake off the chains of slavery which the trade unions would bind upon them, in forbidding their trying to better themselves by piecework, over-time, &c. The workmen do themselves no good by harbouring a jealous fear lest the masters should get a shilling too much out of their labour; that man will generally succeed best who is willing, faithful, and trusting, and, when his time comes, will make the best master.

Whatever “A Joiner” may say to the contrary, and by whatever choice epithets he may term the statements to the contrary, it is too true that the workmen have by their unions usurped a power in interfering with the rights of the masters, who have hitherto too long delayed to make efforts by union among themselves to check the monster evil. I am therefore glad that masters generally now see the necessity of union: experience will soon dictate the best mode of meeting such cases as may arise. I do sincerely hope that the workmen will agree to a set of rules which shall prevent any further dispute, and put the masters in such a position that they may always know what wages they have to pay.

A. B. C.

Several correspondents urge the appointment of a committee of masters and men to arbitrate, as a proposition now before the trade. One, “W. G. Gascoyne, Builder,” writes, “I feel sure, from my own experience, that great good would result by trying to settle differences by reason instead of force. I must think that if the workmen saw themselves properly represented by their fellows, and any questions affecting them fairly discussed, with the usual amount of common sense which they possess, they would, on the other hand, allow in all fairness a full discussion and an impartial hearing of any question also affecting the employers. One great fact must be admitted, that is, that in a commercial point of view, the labour is as valuable as the capital which is paid for it; therefore, I think, if both are fairly represented at this conference, there could be no cause of complaint. I feel sure that if both parties were brought together in this way both would have better faith in each other, for both are equally dependent on each other. For example, the workmen would be represented by a body of sober, sensible

men, who would listen to reason; instead of, as now, in many cases where a complaint exists, some one or two who can talk well, and do not mind mounting a platform, carrying them away and often compelling them to strike; and, the more agitation there is in many cases, the better it answers their purpose,—forgetting the principle which is involved. Now this I wish most sincerely to see done away with, and am prepared to do all in my power to assist; and I shall be happy, if this plan is thought the right one, to co-operate with any one, and shall be most happy to hear the views of any one on the subject. I may say that, amongst the men in my employ, who number upwards of one hundred and forty, that I have spoken to upon this plan, they seem all to approve of it.”

THE BUILDING TRADES MOVEMENT.

In consequence of the public announcement that the masters had renounced the “discharge note,” the operatives’ secretary wrote to the masters’ secretary, asking for an interview between deputations from both bodies; and, that interview being granted, the meeting took place. The interview was of nearly two hours’ duration, and matters were discussed in a friendly spirit on both sides. In reply to the men, the masters gave an assurance that the “note” had been unconditionally withdrawn. After a lengthy conversation, the following conclusions were arrived at:—That the masters shall meet by themselves, to agree upon such rules for the regulation of the trade as they may deem suitable; and that the men shall meet and agree upon such rules as they may deem suitable; that early in the following week an equal number of masters and men, appointed by their respective bodies, shall meet to discuss these rules; that in case of dispute each side shall choose a referee, and that the referees so chosen shall choose an umpire whose decision shall be final; and, lastly, that the rules so agreed upon between the representatives of the masters and the representatives of the men shall be binding upon the whole trade, both masters and operatives. It seemed to be generally agreed upon that all previously existing rules were now null and void, awaiting remodelling at the hands of the forthcoming conference.

At a meeting of delegates from the various carpenters’ societies and shops in London, it has been resolved:—That, in the opinion of this meeting, it would be advisable to convene a conference of the whole of the building trades throughout the country as early as possible, for the adoption of a code of rules for regulating the trade, and the appointment of a committee to lay those rules before the representatives of the masters’ associations for mutual discussion, and with the object of having all future disputes settled by arbitration.

A meeting of the delegates of the different branches of the building trades has also been held at Nottingham, to confer with the masters for the purpose of adjusting the difference in dispute between the master and operative builders, and to decide upon the trade rules. At this meeting, Mr. Slim suggested that if on any question there was an equal number of votes for and against, that particular subject should be left for arbitration. Mr. Ellis observed, that any decision that might be arrived at that evening would not be final, as it would have to be submitted to the different societies before it could be binding upon them. A long conversation then ensued, in which the delegates took part, as to the reason that the men were still out on strike. Mr. Hicken (operative) said it was undoubtedly because the secretary did not say in his note that the shops were now open for the men to return to work as before the disagreement. At the conclusion of a lengthy discussion, the following resolution was proposed by Mr. Ellis (master), and seconded by Mr. Hicken (operative), and adopted unanimously:—

“That we, as delegates, recommend to our societies to adopt a court of arbitration, consisting of one operative and one master from each branch of the building trade; and that we communicate the same to Mr. Wheeler (the masters’ secretary); and, if accepted, that an equal number of employers and employed revise their rules if they require it. Should any dispute arise, the arbitration court to settle the same. And, further, that each town shall have its own delegates, and settle its own questions in its own court of arbitration.”

This resolution was agreed upon unanimously. At a similar meeting in Coventry the following resolution was unanimously agreed to:—

“That the masters and men connected with the building trades of Coventry in public meeting assembled

respectively and mutually agree to the following resolutions:—

1. That they will respectively appoint delegates to frame the rules under which each of the building trades of Coventry shall be carried on, the rules for each trade being framed by the masters and delegates of that trade.
2. That those delegates shall appoint a chairman, who shall have the casting vote.
3. That the masters on their part and the operatives on their part respectively and mutually promise to abide by and carry out all rules which may be agreed to by the delegates or decided by the casting vote of the chairman.
4. That the following persons be appointed delegates for the purposes above mentioned:—

A list of delegates followed. It was then suggested that the men should at once resume work; but, as some one demurred to this, it was decided that the men would consider the question, and give the masters an early answer.

While the whole of England has been ringing with the protests of the operatives against the employers in the Midland district in seeking to enforce the “discharge note” system; and the cry of “Down with Dictation” became so strong and unanimous that the employers wisely determined to abandon their intention of enforcing the note; we regret to find that a portion of the operatives have already taken such an ill-advised and childish step as to dictate to the Liverpool masters, that after the expiration of another six months they shall use no bricks made by steam power! The following is a copy of a circular sent to the employers:—“To Master Builders, Contractors, and Others.—Upon consideration we, the undersigned hereby give you notice that there will be no more bricks used made by steam power on and after the 22nd July, 1865, as the brickmakers of Birkenhead and its vicinity can supply you with as good an article, if not superior, to the ones now made by steam power, with the exception of white and blue fire-bricks. By order of the Committee of Management of the Amalgamated Bricklayers, Bricklayers’ Labourers, Brickmakers and Plasterers.” Here we have proof that no experience is of any avail in the removal of stupid errors such as that which would have prevented this country from becoming “the workshop of the world,”—which it never could have been but for the unrestricted extension of steam-power. When the cotton manufacture was in its infancy, all the foolish old women in the country railed against the use of steam in spinning and weaving because it would lead to the substitution of machinery for hand-labour, whereas it has provided labour and livings for hundreds of thousands; and of late, from war in America, thousands have been starving from the unavoidable suspension of steam-power. The foolish and impracticable dictum of the Liverpool bricklayers is just a reproduction of the absurdity which characterised the cotton operatives themselves, when they struggled against the introduction of the steam-loom, and of the folly of stage-coach drivers who opposed the construction of railways. The amalgamated bricklayers, bricklayers’ labourers, and brickmakers and plasterers are grievously mistaken if they imagine that their dictation will prevent the manufacture of bricks by steam; and in this struggle with the employers they must not count on the support of the press and the sympathy of the public.

At the last ordinary meeting of the Liverpool Architectural and Archeological Society, Mr. Wylie drew attention to the notice. He said it was important that they should at once protest most decidedly against such dictation, because the time had arrived when machine-made bricks, both moulded and plain, would be far more extensively used than they had ever yet been. They should not lose sight of the fact, that attempts were formerly made to put down machinery in all its branches of manufacture. He could quote a number of instances in which, instead of machinery having been a disadvantage to skilled labour, it had been of the greatest advantage; and he believed that without machinery we could not in the present day carry on such immense operations in trade and commerce in this country as we did: therefore, the attempt of those individuals to put down machinery in the making of bricks appeared to him to be one of the most suicidal steps in which they could be engaged. He thought that, as a society of professional men, they should immediately protest against the adoption or reception of such obsolete ideas. The dictation, if allowed, would prove very serious, and would affect a great number of buildings which were now in course of erection. He characterised the conduct of the men as most absurd.

With regard to a notice sent in to the Wigan masters of a demand of 10 per cent. increase of wages by the Wigan bricklayers, a member of

the largest firm of employers in the town—Mosses, Fanclough & Son—calls upon the trade to "set their faces against this annual nuisance of notice for a never-ending increase of wages, which the men will find eventually minims to themselves as well as the trade, as people will be driven to invest in more lucrative forms than in building."

MARSEILLES.

MARSEILLES, keeping pace with modern improvements, has opened a magnificent *Rue Impériale*, a colossal *préfecture*, a magnificent *palais de justice*, a museum which promises to be a wonder, and has organized a company of docks and warehouses worthy of the principal port in the Mediterranean. It appears, however, that the celebrated corporation of porters or *portefaïs* of Marseilles, who for centuries have had the privilege of the carriage and storage of merchandise on the principal quays, looked upon this institution of the docks with no small jealousy. The docks (described on another page) offered to commerce the advantages of celerity, security, commodiousness, and economy, which the system of portage could not give. Hence, a war broke out between the Corporation and the Dock Company; the former being called anti-progressionists, and the latter monopolists. The dock proprietors offered work to the porters, which some, foregoing the freedom of the corporation which they had possessed, accepted. These were at once deprived of all rights to municipal succour in case of old age or present infirmity, and the excitement became so great that the town garrison was obliged to be reinforced. It is plain that the Dock Company can have only a moral monopoly, such as railways now possess with regard to mail coaches; and it is still more certain that, if the inhabitants of Marseilles do not, by the proper extension of docks, keep pace with the demands of modern commerce, merchants will find it their interest to discharge their cargoes at some other port, such as Genoa or Trieste.

LIVERPOOL.

The new Municipal Offices, Dale-street.—This building is now far advanced towards completion. The style is Grecian, of the Corinthian order, and the building will have a north frontage of 222 ft. to Dale-street, which will be the principal front; while it will run back to the distance of 195 ft. in Crosshall-street and Sir Thomas's buildings. The basement floor will contain four suites of rooms, in addition to several other apartments for storage, gas-metre, lumber-room, &c. This story will have four separate entrances from the south front, and there will be an entrance east and west from Crosshall-street and Sir Thomas's buildings respectively. This floor will be lighted by windows on each side of the building. The north front to Dale-street will be the principal front of the building. The external walls are all of Miners stone, brought from Berwig quarries, near Wrexham. The principal entrance will be in the centre, and there will be a portico and six columns—three on each side of the doorway—with Corinthian capitals. Over the entrance will be cut in large letters, "*Deus Nobis hoc Otia fecit*," and immediately above a double-arched window, which will give relief to the appearance of the front. Above this will rise a circular tower, in which a large clock will be fixed. The elevation of this tower, including the spire, will be 140 ft., while the main portion of the building to the eaves will be 62 ft. high. All the offices for public business, at the Town-hall, at Cornwallis-street, at Hotham-street, &c., will be on the ground-floor in this building. Although the exterior front is of patent red brick, and will not have the advantage of such elaborations in architectural design as have been expended on the front to Dale-street. The windows all round the building will have polished granite pillars on each side, and the various entrances will be in strict keeping with the design. The walls, both inner and outer, will be from 2 ft. to 4 ft. thick, in addition to the columns, and in some places they will be 4 ft. 10 in. thick. Mr. Weightman, the borough surveyor, is the architect; and the contractors for the mason-work are Messrs. John Parker & Son; for the brickwork, Messrs. Holme & Nicol; for the joiners' work, Messrs. Haigh & Co.; and the clerk of the works is Mr. J. Crierie,

under whose superintendence the Public Library was built.

New Wesleyan Schools in Tosteth Park.—The foundation-stone of new day and Sunday schools in connexion with the Stanhope-street Wesleyan Chapel, has been laid in Windsor-street, Tosteth Park. The principal entrance will be from Windsor-street, and a prominent part of the elevation is to consist of a tower about 70 ft. high. In this tower is to be the principal staircase, and there will also be a large room, the roof of which is to be of ornamented timber, stained and varnished. All the stairs will be of stone, very wide, and free from angle treads. The size of the infant-school is to be 42 ft. by 30 ft., and of the infant class-room, 22 ft. by 18 ft. The girls' school and class-room will be of the same dimensions, both having attached to them cloak-rooms, 15 ft. by 10 ft. The boys' school will be considerably larger than the others, the size being 65 ft. by 33 ft. and the class-room 24 ft. by 18 ft. There will also be lavatories and other arrangements in connexion with each school. Behind the buildings there is to be an extensive covered playground, which will be divided, for the use of the boys and girls respectively. The walls are to consist of red brick, with coloured bands and white stone dressings. The boys' school is to be on the first floor. The amount of the contract is 3,000*l.*, exclusive of the fittings, which are to be of pitch pine; but including the fittings and the cost of the land, it is estimated that the total expenditure will be about 5,200*l.*, of which about 5,000*l.* have been already collected. Mr. C. O. Ellison, of Liverpool, is the architect; and Mr. J. Martin, the builder.

Fatal Accident by Fall of a Wall in Liverpool.—The County Palatine Loan and Discount Company are erecting a building at the corner of School-lane and Peter's-lane, Liverpool, just opposite the large block of buildings now erecting by Mr. Edward Willmer, under the direction of Mr. T. Mellard Reade, architect, and Mr. Joseph Greenwood, of Huyton, clerk of the works. For some time past excavations have been in progress for the formation of cellars underneath this building and a part of those occupied by Mr. Allsop, and it became necessary to "under-pin" the north gable end of Mr. Allsop's wall to the extent of 15 ft. deep. During the progress of this operation on Monday before last, this wall gave way and buried one poor fellow in the ruins. The man was got out after three hours, but was found dead. At the inquest the jury found that the deceased had been "accidentally killed," and accompanied their verdict with a presentment expressive of admiration of the praiseworthy manner in which a police-officer had "discharged even more than his duties."

PROVINCIAL NEWS.

East Cowes (Isle of Wight).—A new mansion has just been completed at Spring-hill, for Mr. W. G. Shelden. It is in the Early English style, the external facing being of yellow malsms, from East Cowes Park estate, with Bath stone dressings. The architect was Mr. T. W. Burrell, Fareham. Messrs. T. & J. Dashwood, of Ryde, were the builders. The cost was about 8,000*l.*

Hanley (Staffordshire).—A "Hanley Hotel Company (limited)" has been formed for the purpose of meeting the present inadequate hotel accommodation in the capital of the Staffordshire Potteries. The directors have selected an eligible site known as the Bank House Property, and have entered into a contract for the purchase of it. The property is opposite the junction of Pall-mall, Cheapside, and Albion-street, and is situate in one of the most convenient parts of Hanley. The proposed capital is 20,000*l.*, in 4,000 shares of 5*l.* each.

Hexham.—The proposed Hexham Town-hall and Corn-exchange building scheme has at length been commenced. The tenders for the different works have been selected by the directors, as follows:—Mr. T. Bulman, Hexham, mason work, 2,940*l.*; Mr. E. Herdman, Hexham, joiner work, 1,759*l.*; Mr. H. Burn, Hexham, slating, 230*l.*; Mr. Holmes, Hexham, painting and glazing, 300*l.*; Mr. Holme, Carlisle, plastering, 346*l.*; Mr. Stafford, Newcastle, plumbing, 220*l.*; Messrs. Walker & Son, Newcastle, iron work, 515*l.* It is expected that the foundation stone will be laid by Mr. Beaumont, M.P. The buildings will be in the new street, extending from the Market-place to Henccotes, and will be situate about midway between each terminus, on the side opposite the Abbey.

CHURCH-BUILDING NEWS.

Rusham (Norfolk).—A feature has recently been added to the parish church of this village. The tower has long presented an unfinished appearance, owing to the want of parapet or pinnacles, which have now been erected at a cost of about 200*l.* The new work is of stone, and consists of a moulded cornice having carved gurgoyles with parapet above, and finished with stepped and moulded coping. The parapet is ornamented with sunk quatrefoils and trefoil-headed panels, which are filled in with cut flints. Crossed keys and crossed swords (the emblems of St. Peter and St. Paul, to whom the church is dedicated), are also introduced in panels of flint and stone. At the angles are pinnacles rising to a height of about 14 ft. from the cornice, and having carved crockets and finials. The works have been executed by Mr. J. Stanley, of Yarmouth, from the designs and under the superintendence of Mr. J. T. Bottle, of Yarmouth, who has succeeded to the architectural practice of Mr. A. W. Morant.

Icklingham (Suffolk).—The Church of St. James, Icklingham, which has from time to time suffered the most wanton mutilation and defacement, is now being restored at the sole expense of Mr. C. E. Gibbs, of Icklingham Hall. The brick parapets which surmounted the nave and aisle walls have been removed; the chancel is to be re-roofed and re-seated, and the floor raised to its original level; the body of the church is to be repaired and re-seated; the window tracery, which was nearly all cut out and destroyed, will be restored in accordance with the original design; and the various pinnacles, niches, &c., formerly walled up, have been opened and repaired. The works are being carried out by Mr. Jackaman, of Bury St. Edmund's, from the designs of Messrs. Bacon & Bell, of London.

Bideford (Devon).—The church of Bideford was consecrated on the 12th of January. The original church, deformed by galleries and tasteless additions, being also ruinous, was pulled down in 1862, plans for a new edifice having been prepared by Mr. Ashworth, of Exeter. The new edifice attached to the old tower consists of nave, chancel, aisles, and chancel aisles, an organ-chamber appropriated as a corporation-aisle, vestry, and two porches. The internal dimensions are 113 ft. 6 in. by 71 ft. The Perpendicular style has been adopted, following the features of the old church. The accommodation is for about 1,150 persons. The walls are of local stone, with Forest of Dean stone quoins, and Bath stone arcades and dressing. Very little of the old work could be re-used. The roofs are of red pine. The stone and wood carving was done by Mr. Seymour, of Taunton. The rebuilding has been wholly carried out by Mr. White, of Bideford. There is a stained window by Mr. Wailes in the tower, and two by Horwood in the south chancel aisle. A warming apparatus, by Messrs. Haden & Son, has been constructed in the vaults. The outlay is about 4,500*l.*, including a restoration of the tower, not yet complete.

GRINDING MONEY.

WANDSWORTH POLICE COURT.

HENRY AUSTIN, foreman to a builder carrying on works at Battersea, was summoned by Charles Legg, a carpenter, for a quarter of a day's wages, allowed in the trade, for grinding tools.

The defendant pleaded that he was not liable to pay the amount claimed. The complainant stated, that he had been working at the rate of 5*s.* per day, the week ending at one o'clock on Saturday. At half-past twelve o'clock, on the 14th inst., the defendant gave him notice that he should not require his services any longer. He, however, continued on until one o'clock, when he was paid, minus the quarter of day allowed in the trade for grinding tools.

The defendant gave a different complexion to the case. He employed the complainant at 5*s.* for ten hours per day, with the privilege of leaving off at one o'clock on Saturday. He paid him up to half-past five o'clock, although he left off work at one o'clock, he contending that it was not compulsory only in cases in which the men were paid at the rate of 7*d.* per hour. He also said the 7*d.* per hour system had swept away the wages allowed for sharpening tools.

In reply to the magistrate, the defendant said that the money for grinding tools ought not to be given when Saturday afternoons were allowed. He believed it was not the practice in the trade. He never heard of such a custom in his life. He would swear it was not the custom in the neighbourhood in which he worked. He also said the complainant's saw was not properly sharpened when he commenced working for him.

The complainant said it was the custom in the trade when the men were discharged to be paid a quarter of a day for sharpening their tools. Mr. Igham dismissed the summons on the evidence given by the defendant. He also said, that if the complainant had a right to claim for grinding-money, he must go to work with sharp tools, as he could not have the privilege both ways.

Books Received.

ter to Lord Palmerston on the Employment of our Labour and Capital at Home. By GEORGE PRESTON WHITE. London: Cornish, High Holborn. 1865.

Immense drain of capital from this country for foreign loans, amounting to hundreds of millions, is a subject both of apprehension and of regret; and the obvious remedy would be the induction of reproductive works to develop our internal resources, instead of allowing foreigners to do this for other countries with our capital. A single measure could be so well calculated to assist in developing our material resources as the opening up of the country by cheap railways; and this is one of the chief suggestions urged by Mr. White in the pamphlet under notice. He insists especially to Ireland as requiring such assistance, and asks,—"Would it not be sound policy to devote a portion of the revenues of Ireland for such purposes, as has been done in India, but in a modified form,—as, for example, giving a guarantee, for say only twenty years, of 5 per cent. on 5,000l. per mile of such railways as were deemed of national importance as a commercial and military point of view?" A guarantee of 250,000l. per annum, being 5 per cent. interest on a capital of five millions, would ensure the execution of 1,000 miles of railway,—a outlay which might be extended over a period of five years.

Ireland, as an integral portion of the British Empire, cannot remain depressed and undeveloped without proving a continued source of weakness to England; and there seems to be no more obvious or hopeful way of removing this source of weakness than by first of all opening to the country by cheap lines of railway, and then, perhaps, by carrying out an extensive system of bog and other drainage of the soil. In the reclamation of wastes there is a vast field of operations awaiting the advent of capital towards the reproductive development of Ireland.

Amongst other measures which would confer incalculable benefit on Ireland would be the occasional residence of some member of the royal family in the country,—the Prince of Wales, perhaps, as Lord Lieutenant. It is to be regretted that no Royal residence exists in Ireland; a grant ought to be made by Parliament for the purpose, as suggested in the *Times* by Mr. Hankey.

Another great want in Ireland is industrial knowledge and industrial education: whilst there is still a superabundance of unskilled labour, notwithstanding the removal of so much of it to foreign countries as well as to their own colonies, there is as yet comparatively little skilled labour. Industrial knowledge makes all the difference between the poverty and weakness of Ireland and the rich and flourishing condition of England.

In urging the opening up of Ireland by railways, Mr. White says,—

"Having witnessed the extraordinary results introduced in India, in France, in Spain, and other parts of the globe, by the introduction of railways, I am convinced that there is no single measure which could be devised which would introduce such important benefits to Ireland, as the opening up of the country by a system of cheap railways and tramways, constructed with the utmost economy, and specially adapted for agricultural traffic; and until this be done, I fear all attempts at developing the fisheries and mineral wealth of the country, and reclaiming the waste lands, will, in a pecuniary and commercial point of view, prove a failure; cheap transit being a *sine qua non*."

Mr. White's pamphlet is a highly important one.

VARIORUM.

"Naval Armour: dedicated to Lord Palmerston." By James Chambers. London: Mitchell, Charing-cross. The author of this pamphlet is the inventor of the Chalmers target, in favour of which a good deal has been said in the public press within the last two or three years. As in so many other instances, Mr. Chambers complains of the really stupid proceedings of the Admiralty. He quotes the strange and startling dictum of their "Controller," that "relative resistance to shot has no bearing on the question" of naval armour.

"If Britannia," says Mr. Chalmers, "were prepared to lay down her proud sceptre, and bury her power and glory beneath the waves she has ruled so long, she could not desire undertakers better qualified than the present

Controller and Chief Constructor of the Navy. Nor could she find fitter *arounds* and *coffins* than the thin-sided and partially-armoured ships which the Admiralty has prepared for her. To carry out the motto, 'My Lords,' who seem willing to follow wherever their officials may lead, would make most respectable *pull-bearers*; whilst the Government and Parliament could attend as *chief mourners*, deploring the sad fate they seem unable to avert. Whatever part in the humiliating pageant may be assigned to Britain's humbler sons, I, for one, will be no *mute*. Let him chant a funeral dirge who may, my song shall be 'Rule Britannia!'"

Miscellaneous.

THE TUNNEL UNDER THE SEVERN.—We learn that this project, so far as the coming session is concerned, is abandoned, there not being sufficient funds provided to meet the requisite deposit, estimated at 6,000l.

LONDON FIRE-ENGINE ESTABLISHMENT.—Captain Shaw's "Report to the General Committee" of this establishment contains some useful observations and suggestions, and will require to be returned to.

THE LOCAL GOVERNMENT ACT.—At Guisborough, a meeting has been held, at which it has been unanimously resolved to adopt the Act for the township. The number of members to form the Local Board of Health will be twelve.

THE STRAND MUSIC-HALL COMPANY.—Three petitions have been presented in Chancery for the winding up of this company. All the amount paid on calls, together with 35,050l. borrowed on bonds, had been expended on the hall and the business. The company was unable to pay its debts, amounting to about 45,000l. One of the petitioners was of opinion that if the Music-hall were sold as a going concern, the assets would not amount to more than 20,100l. The sheriff took possession of the hall on the 14th January, and the provisional liquidator had let the hall at 65l. a week.

DISCOVERY IN WELLS CATHEDRAL.—The dean and chapter having determined to introduce gas into the choir of the cathedral for the use of the clergy and vicars choral, the workmen, under the personal superintendence of Mr. Kelway, in making an opening under the stalls on the south side of the choir, came upon a thick, massive slab of freestone, which was found to cover a stone coffin of ponderous size and weight, and of the shape in which they were usually made at an early period,—viz., wide at the head, tapering off narrower to the feet, with square corners, but without the modern widening at the shoulders. In the side or edge of the coffin, on the left side, and near the head, was found a small plate of lead, inserted in the stone, rudely engraved in the characters of the period, with the following inscription:—

"*Hi Jacet Willielmus de Buttona secundus,
Bathoniensis et Wellensis Episcopus.
Sepultus XII. die Decembris Anno Domini
MCCCLXXIII.*"

The tomb is not opposite the bishop's grave, but several feet to the east of it.

WORKING-CLASS DWELLINGS IN LEEDS.—The mayor of Leeds (Mr. Luccock) some months ago offered a prize of 5l. for the best essay on the dwellings of the working classes in the borough. Mr. W. B. Denison, Mr. T. Dawson, and Mr. J. Taylor were selected as the adjudicators, and they have awarded the prize to the essay by Mr. James Hole, the author of "Light, More Light," and the secretary of the Yorkshire Union of Mechanics' Institutes. The writer has entered into an examination of the character of the dwellings of the working classes in Leeds, and adduced ample evidence that the mass of these dwellings are of so deficient a nature and encompassed with evils that materially increase the mortality of the town, and produce great social evils. The following is a recapitulation of the measures which he believes will remedy the evils he points out:—1. The extension of the Common Lodging-house Act. 2. The vigorous enforcement of the powers already possessed by the Corporation and the Board of Guardians for the prevention of nuisances, &c. 3. Applying the Local Government Act, and also obtaining powers to regulate the laying out of streets, public improvements, &c. 4. The establishment of societies to assist in the erection of dwellings on sanitary principles; and 5. The erection of additional lodging-houses in different localities. Beyond these, by the influence of temperance and education, they might hope also to assist in checking these evils.

CLIFTON SUSPENSION BRIDGE.—The bridge has been opened for carriage traffic. It is reported that there is no perceptible oscillation in the roadway.

RADCLIFFE INFIRMARY, OXFORD.—The building committee appointed to carry out the erection of the accident ward, &c., at the Radcliffe Infirmary, which are now completed, have issued a financial statement, from which it appears that the total amount of receipts was 7,118l. The expenditure includes sums "paid for various contracts for building the new accident ward, out-patients' hall, medical officers' receiving-rooms, including warming apparatus, fittings, furniture, advertising, printing, and architect's commission, 6,628l. 11s."

SOUTH KENSINGTON MUSEUM.—A large part of the collections illustrative of building materials and construction, recently exhibited in the temporary iron building at South Kensington, has been removed to the south arcades overlooking the gardens of the Royal Horticultural Society, where it will be again exhibited to the public, and the usual facilities for study and comparison afforded as soon as the necessary arrangements can be made. The part removed comprises a collection of stone for building and architectural decorations, British and foreign marbles, cements, ornamental terra-cotta, tiles, woods, &c.; together with a number of interesting models of public buildings.

LIVERPOOL ARCHITECTURAL SOCIETY.—At the meeting on the 25th ult., Mr. Joseph Boulton, in the chair, read a letter from Mr. Ellison, in which that gentleman, after explaining that, being unable to attend, he was compelled to do by letter what he had intended to do in person, went on to say that he must protest against the reading of a paper by Mr. Rollet until the dispute concerning the construction of the roof was settled, for he thought the society had no right to mix itself up in a question of such extensive importance; and that under the circumstances the reading of the paper, or a discussion on the subject, would add very materially to the difficulties of the case. Mr. Rollet being one of the principal parties concerned on the construction of the North Haymarket roof. The chairman observed that Mr. Rollet being—according to Mr. Ellison's statement—one of the principal parties concerned, it seemed only just and right that he should choose his own time, consistently with the convenience of the society. Mr. Rollet accordingly read the paper in question.

BURSTING OF A KITCHEN BOILER.—Another of these accidents has occurred,—and in the north of England, as usual. It took place on Wednesday, at the residence of Mr. Jonathan Whitehead, cotton broker, Elmsley House, West Derby. In the kitchen there was an ordinary range, a high-pressure boiler being placed immediately behind the firegrate. It was on the circulatory principle,—one pipe conveying water from the cistern into the boiler, while by another the heated water re-ascended into the cistern. The fire-place had not been used for two or three days; but a fire was lighted in the grate, and in the evening the boiler burst with a violent explosion, inflicting dreadful injuries on a woman and scalding a man. The interior of the kitchen was a perfect wreck, as well as the windows, door-frames, and walls. The dresser also took fire. There must be something wrong in the construction of kitchen boilers in the North.

SANITARY IMPROVEMENT OF BURNLEY.—A good deal of paving and pipe-sewerage has of late been carried out at Burnley, according to the report for last year by the borough surveyor, Mr. Colbran, who says, in allusion to these matters, at the close of his report,—"It is proved, from statistical returns of the registrars, that the effects of sewerage and paving are most beneficial; for in Chorlton the mortality in the undrained streets was 4 per cent.; in the drained streets 2 per cent. only;—in Rochdale, well-conditioned localities, deaths to population 1 in 43 1-10ths; ill-conditioned localities, 1 in 22 4-10ths;—in Liverpool fifteen courts badly drained contained 307 dispensary cases, while the same number, well drained, contained only 109 cases, the population of both courts being nearly equal. Similar data were obtained in several other towns; and immediately after putting the streets in proper condition a decrease of mortality ensued. If these results follow in Burnley it is impossible to conceive that your committee could have expended the money more judiciously."

HER MAJESTY'S THEATRE.—M. Maillart's opera, *Lara*, adapted for the English stage by Mr. Oxenford, has proved a success, and will, we have little doubt, fill the house for some time to come. The music is exceedingly agreeable throughout, and Miss Louisa Pyne both acts and sings in it admirably. A *débutante*, Miss Romer, acquits herself satisfactorily, and the general getting up is good. The plot is compounded out of Byron's two poems, "*Lara*" and the "*Cor-sair*." How is it, people are beginning to ask, that Mr. William Harrison himself has not yet sung in his new house?

THE WELLINGTON CLOCK TOWER.—The clock-tower at the foot of London Bridge, narrowing the space too greatly, is to be taken down. When its erection there was determined on, we pointed out the mistake that was contemplated, and said that its removal, when up, would be but a question of time. That time has come.

OUR RAILWAY SYSTEM.—The first meeting of the Department of Economy and Trade of the National Association for the Promotion of Social Science was held on Tuesday night, at their rooms, 1, Adam-street, Adelphi. Mr. Edwin Chadwick, C.E., the president of the Department, occupied the chair, and read an interesting paper on "The Economical Principles of a Reform of the Legislation and Administration for the Conveyance of Goods and Passengers by Railways." An important discussion followed.

RAILWAYS AFFECTING THE CITY.—Mr. William Haywood's report on the projects of the railway and other companies applying for powers to construct works within the City of London, has been published. In conclusion, Mr. Haywood says, "The total area, including public ways, scheduled within the City for the several projects reported upon is 31 acres, but of this about 18 acres are already authorized to be taken under existing Acts, leaving 13 acres which are scheduled for the first time, of which about 10½ acres is property, and 2½ acres is public way." He advises, as a preliminary step, that the court should dissent from all of them.

THE WATER SUPPLY AND SEWERAGE OF BLAYDON.—Mr. Jos. Gordon, city surveyor, Carlisle, has, in compliance with a request from the local Board of Health of Blaydon, reported upon the water supply and sewerage of the Blaydon district. The result of Mr. Gordon's inspection and survey estimates the cost of the proposed additional water supply at 1,934*l.*, and the sewerage works at 3,510*l.*; making a total of 5,444*l.* These figures include the cost of superintendence of construction, and all contingencies incidental to such undertakings; and Mr. Gordon has laid before the Board a detailed report of the whole works.

ON THE PROPULSION OF TRAINS ON LINES WITH FREQUENT STATIONS.—A paper "On the Best Mode of applying Power to propel Trains on the Metropolitan and other Railway Lines having frequent Stations and in terminal Stations," was read on the 18th of January by Mr. P. W. Barlow, F.R.S., at the Society of Arts. Mr. Barlow recommends a modification of the rope traction system with stationary power to give temporary impulse in the place of locomotives. He says:—"When the duty to be performed is that of working a line in which the stations are very close together, and the stoppages frequent, it then results that all, or nearly all, the work of the engine is expended in acquiring the travelling speed; and that, in fact, it has not ceased to accelerate its speed when it becomes necessary to shut off the steam and apply the brakes, so as to stop at the next station. In fact, the same engine which in long stages would make an average speed of 35 or 40 miles per hour, is incapable, with frequent stations, of making an average speed of 13 or 14 miles, even with a greatly reduced load. In this condition of things, which is in fact the condition of metropolitan railways, a new set of circumstances has to be met, and the question arises whether, where these circumstances exist, stationary power, when applied in a manner strictly adapted to the case, is not more economical—capable of greater speed—and in all respects more suitable to the convenience and exigencies of the traffic and locomotive power?" The present system, it appears, is wasteful of power, and expensive in working. In the discussion which followed, however, the speakers were by no means unanimous as to the advantages of Mr. Barlow's proposal.

ACCIDENT AT KING'S-CROSS-ROAD.—On Wednesday afternoon, shortly after one o'clock, a small building in front of St. Philip's Church, which was in course of removal, fell down, injuring a bricklayer named Thomas Searle rather severely.

THE STAINED GLASS IN HEREFORD CATHEDRAL.—A paper on this subject, by the Rev. F. T. Havergal, was read by that gentleman at a recent *soirée* in connexion with the Herefordshire Philosophical, Antiquarian, and Natural History Society. After giving some account of the ancient use of stained glass, he said,—"We must now draw your attention to the second part of our subject, viz., 'The Ancient and Modern Stained Glass of our own Cathedral.' That this edifice was once gorgeously filled with stained glass there is every reason to believe. Historians of the Norman and Early English period are quite silent, but yet we may fairly infer that as the carving and paving, wall and ceiling decoration, were all very beautiful, so we may, I say, safely presume that the windows were filled with the highest efforts of art. The oldest specimen that remains with us, is to be seen on the south side of the Lady Chapel. Adjoining it is another, said to be Munich glass, formerly in St. Peter's Church, Hereford. The next specimens we possess belong to the Decorated period, two windows having been very successfully restored last year by Mr. Warrington. Mr. Havergal here quoted Rawlinson's description of the windows formerly in the cathedral (p. 140), and then noticed those in Bishop Audley's chapel and the Old College chapel. He then briefly noticed the modern windows, nineteen in all,—six by Castell in triforium of choir; one by Hardman, in east end of choir; five by Warrington (including three to Archbishop Musgrave, one to Canon Clutton, and one to Bishop Huntingford); one by Clayton & Bell; and five by Gibbs. Out of 100 windows admitting light to the interior of the cathedral, Mr. Havergal remarked that at present twenty-three were filled with stained glass.

TENDERS.

For warehouse, exclusive of plumber's, glazier's, painter's, and ironfounder's works (which are 139*l.*), for Navigation Company, Horncastle. Messrs. Bellamy & Hardy, architects:—

Hall & Co.	2690 0 0
Booth	210 0 0
Huddleston	898 0 0
Walls	860 0 0
Carter	860 0 0
Morley & Co.	820 0 0
Fike & Co. (accepted)	798 0 0

For completely finishing the carcasses, Nos. 5, 7, and 8, Gordon-terraces, Upper Richmond-road, Putney. Messrs. Charles & Sydney Lee, architects:—

Avis & Sons	21,302 0 0
Pain	1,288 0 0

Accepted for building new Borough Gaol at Scarborough, Yorkshire. Mr. W. B. Stewart, architect:—

Bricklayer, Mason, and Plasterer's Work.

Petch £1,880 12 0

Slater's Work.

Hardgreaves £137 10 0

Carpenter and Joiner's Work.

Kelly £1,150 0 0

Smith and Founder's Work, &c.

Waters £2,280 0 0

Painter's Work.

Ruddock £127 15 0

Plumber and Glazier's Work.

Harrison £110 0 0

Accepted for pine and peach houses at Endcliffe Hall. Messrs. Hockton & Abbott, architects:—

Contract No. 14.

Bricklayer, Joiner, Slater, and Plasterer's Work.

Craves, Brothers £738 0 0

Plumber, Painter, and Glazier's Work.

Townsend £155 0 0

Smith's Work.

Ellis £400 0 0

Contract No. 15.—Fencing-houses.

Bricklayer and Joiner's Work.

Wade £215 0 0

Plumber, Painter, and Glazier's Work.

Bissett £40 0 0

Smith's Work.

Ellis £123 10 0

For completion of ten houses at Kenilworth, for Mr. Henry Gibbon. Mr. Edward Clark, architect. Quantities supplied.

Rowe (accepted) £1,576 0 0

For Sewer.

Rowe (accepted) £150 0 0

For coal-office, stables, and coalshed, and sundry works, at Messrs. Rickett & Smith's Wharf, Grove-road, Bow. Messrs. Elliott & Chamberlain, architects:—

Cannon	21,111 0 0
Wills	1,094 0 0
Tolley, jun.	1,020 0 0
Nagle	935 0 0

For additions and alterations to premises in Church-street, Hackney, for Mr. Gidd, architect:—

Ennor £264 0 0

Salmon 460 0 0

Skinner 476 0 0

Sawyer 454 0 0

Snawin, Brothers 454 0 0

For the erection of chemical works at Hackney Marsh, for Messrs. Simpson, Manley, & Nicholson. Mr. C. Cooper, architect. Quantities supplied:—

Maidenhead, Architects £5,490 0 0

Dabbs 7,997 0 0

Hack & Son 7,653 0 0

Sawyer 7,338 0 0

Henshaw (accepted) 7,338 0 0

For water tank, and girders under ditto:—

The Regent's Canal Iron Work

Company £264 0 0

Ransomes & Sims (accepted) 338 0 0

For building warehouse in London-wall. Mr. C. Lawes, architect. Quantities not supplied:—

Patrick & Son £1,134 0 0

Brass 1,083 0 0

Dove, Brothers 1,028 0 0

Rawlin 988 0 0

Hardiman & Sandon 984 0 0

Prince 863 0 0

Cannon 848 0 0

Bostell 807 0 0

Anley 844 0 0

For building warehouse in Gun-square, Minorities, for Mr. Haynes. Mr. T. C. Clark, architect:—

Tracey £3,497 0 0

Hack & Son 3,498 0 0

Patman & Co. 3,455 0 0

Ashley & Son 3,293 0 0

Downs 3,172 0 0

Lawrence & Son 3,133 0 0

Conder 3,136 0 0

Brass 3,123 0 0

Singleton 2,948 0 0

Anley 2,913 0 0

For an inn in the Wellington-road, St. Mary Cray, Kent, for Messrs. Fox & Sons, Farnborough. Messrs. George & Vaughan, architects:—

Townsend £248 0 0

Francis & Son 640 0 0

Lees 543 0 0

Sales 533 0 0

For two houses and shops at Beccles, for Mr. W. E. Crowfoot. Mr. W. O. Chambers, architect:—

Rix & Brett £227 5 9

King & Blunderfield 799 10 0

Woodroffe 700 0 0

For two semi-detached villas on Kirtley Cliff, South Lowestoft, for Mr. Burk. Mr. W. O. Chambers, architect:—

Swatman £1,047 0 0

For a house and shop at Beccles, for Mr. G. Graham. Mr. W. O. Chambers, architect:—

Rix & Brett £316 18 0

King & Blunderfield 275 10 0

For alterations to and enlargement of St. Mark's parsonage-house, Kennington. Mr. Ewen Christian, architect. Quantities supplied by Mr. T. W. Goodman:—

Extra on Port-

land cement.

Sharpping & Cole £1,295 0 0

Rhodes & Roberts 1,177 31 0

Marland & Son 1,105 28 0

Stimpson 1,089 38 0

Lathey, Brothers 1,081 28 10

TO CORRESPONDENTS.

ST. MARK'S DRAWING.—(In setting pencil drawings, to prevent them from showing, how can the proportions be made to retain the brilliancy they had before setting?—B & H.)

W. H. & Co. (Voluntary Examinations have been organized by the Institute of Architects, whose "forms" may be obtained.—W. C. foot necessary).—R. T. A. (sent to correspondents).—Measure and Value (pb bid ret. name)—Q. (under next week).—Nues (see Mr. Vol. 2, p. 387).—H. J. (in type)—W. P. (ditto).—W. C.—W. H. V. R.—G. C.—H. D.—F. R. W.—W. B. S.—J. P.—W. H.—P. S. jun.—J. E.—R. P. F.—C. A.—B.—J. R.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

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[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

The Builder.

VOL. XXIII.—No. 1149.

*Discoveries at Cyrene.**

It is said to be England's mission to evangelize the world: it certainly seems to be her mission to explore it. Year by year, her hardy and enterprising sons voluntarily relinquish the comforts of home life to do battle with suffering and death in every form and in every part of the globe, impelled by that passion which is the characteristic and inheritance of the true Anglo-Saxon stock. To

the North Pole ("Are we going up that way again?" asks Sherard Osborn and his hardy crew),—to the South,—under the torrid zone,—over the wide expanse of the Sahara,—through the pestilential swamps of the West coast,—amid the trackless forests of America, the British explorer pursues his way, risking death in many forms, and enduring the extremes of heat, cold, hunger, thirst, and fatigue, animated by the desire of imparting information to the world, and consoled in his direst extremity by the thought that, whether he survive or perish, his name will be remembered by his countrymen, and counted amongst those of men who have suffered and bled for them in other fields and for other causes. Nor is he deceived in his hope for sympathy. Have we not gone forth into the wilds with Livingstone, journeyed to Mecca with Burton, and accompanied Speke and Grant to the Lake Nyanza, and imagined with them that we have discovered the source of the Nile? Yes; we have suffered and conquered with them, and have enshrined their names amongst our household gods. They are the pioneers of civilization, and point out the road to commerce. But there is another class of explorers who also deserve well of their country; who labour for it in other ways; who undergo as great hardships and run as great risks, and whose labours are crowned generally with more immediate and palpable results; we mean those who explore the sites of deserted cities, and exhume the buried wonders of art. These men are the benefactors of Art, as the others are the benefactors of Commerce: and though their names are not so often in our mouths, they will last as long as the world of art exists.

The name of Lord Elgin will be associated with the marbles of the Parthenon; that of Layard with the Assyrian sculptures; that of Newton with the Budrum marbles; and, lastly, those of Smith and Porcher with the Cyrene collection, as long as the statues they have rescued from oblivion endure.

Some amongst our readers may ask what are the Cyrene marbles? Where did they come

from? How were they procured? And their ignorance is pardonable; for how are they to know anything about these valuable and interesting remains of antiquity so long as they are shut up in a shed or concealed in a cellar in the British Museum. How they were acquired and whence they came they may learn from the interesting and well-illustrated volume before us, which relates how Lieutenant (now Captain) Smith, R.E., and Lieutenant (now Commander) Porcher, R.N., being stationed at Malta, obtained leave of absence, and started, upon their own responsibility, and at their own cost, on an expedition for the purpose of exploring the cities of the Cyrenaica; and how, after meeting with success in their researches, they were assisted by her Majesty's Government, and were enabled to obtain no less than 148 pieces of sculpture,—some of them of great value,—for our national museum.

These gentlemen were not tyros in the work of exploring: Captain Smith had co-operated with Mr. Newton in the excavations at Halicarnassus and Cnidus; and Captain Porcher had dug at Utica and Carthage with Mr. Davis; and both had no doubt imbibed that passion for exploration which a spice of danger and a certainty of adventure so greatly heighten. They also possessed the necessary qualifications for the task they undertook; which consist, in the first place, of a knowledge of the language of the country visited. Interpreters and dragomen are not always to be depended upon, as they are too apt to conceal the truth amidst the flowers of their eloquence, and to contrive that sundry coins shall stick to the measure with which they mete out justice between their masters and the natives. The next most important requisite to success in excavating is a ready perception of which are the best spots for digging in, acquired by practice and resulting from a sufficient acquaintance with architectural forms to enable a person to judge of the sites of temples and other public buildings. A third qualification, also essential, is a knowledge of the modes of working, and an acquaintance with the mechanical appliances necessary for moving large blocks of stone. Firmness and justice in dealing with the natives are also indispensable. To these qualifications may be added those of an experience in photographing and a talent for drawing. This last gift has, in the present instance, proved a great acquisition, as it has enabled Captain Porcher to give a series of views which make us quite familiar with Cyrene, and its rock-cut sepulchres, its gushing fountain, its ruined temples, and its well-woded wadys.

The book opens with a short history of "the parts of Lybia about Cyrene." It appears that in the year 631 B.C., Battus the Stammerer, finding, we presume, that the impediment in his speech prevented his getting on in his own country, left the island of Thera, now Santorin, one of the most southern of the islands of the Archipelago, and took ship, with a goodly company of followers, for the continent of Africa. At first he took possession of an island, but eventually settled on the main land. Finding that the higher he got in that warm climate the more comfortable he found himself, he chose the edge of a plateau about 2,000 ft. above the level of the sea, and about 12 miles distant from it, as the site of the capital of his colony. Here there was a magnificent source of water, near which he built a temple, dedicating it to Apollo, whom he believed to be his patron. King Battus I. was succeeded by other kings until the year 450 B.C., when the regal form of government was exchanged for a republic, which, going the way of all other republics, fell a prey to internal strife, and became subject to the neighbouring sovereigns of Egypt, the Ptolemies, in the year 321 B.C. These monarchs rebuilt the five cities of the Pentapolis,—as the colony was then termed,—and gave them the names of

Cyrene, Apollonia, Ptolemais, Teuchira, and Hesperia. The last king of the race left the kingdom by will, in the year 95 B.C., to the Romans, who called it the province of Cyrenaica. Up to the time of Trajan it prospered, but afterwards fell into decay, and was eventually conquered by Chosroes, king of Persia; and at last it fell into the hands of the Arabs in the seventh century, who have encamped upon its ruins ever since—fortunately for us and for our national Museum, for the Arabs are the best preservers of antiquities: they have no occasion for houses, as they are dwellers in tents; consequently they neither destroy the temples for building materials, nor do they burn the statues for lime, as some nations calling themselves more civilized have done. The Cyrenaica, then, offered a fine field to explorers, for it had not been ransacked like the provinces of Asia—indeed, few travellers had passed through it; those who had, had not opportunities for excavating.

Lieutenants Smith and Porcher accordingly left Malta, armed with a firman, for Benghazi, touching at Tripoli on the way, in the month of November, 1860. At Benghazi they assembled a caravan consisting of ten camels, riding-horses for themselves, and a few negro workmen, and started for Grennah, the site of Cyrene, on December 14th. Owing to the slippery state of the roads, they were ten days in reaching the spot, a distance of 150 miles from Benghazi. The last hours of their journey were occupied in the ascent to the plateau on which Cyrene is situate. The edge of the plateau—which is 70 miles or 80 miles in length, by many miles in breadth—is intersected by numerous ravines, which run through two other lower terraces, and descend to the sea, which is 12 miles to the north of the upper plateau.

Cyrene stands on the edge of this table-land, occupying two ridges and an intervening valley. Its necropolis, or city of the dead, which in all Greek cities is much more extensive than was the city of the living, occupies the whole north side of the range covering the hills from base to summit. The table-land has no trees, but the wadys are filled with the foliage of the myrtle and oleander. The fountain of Apollo rises between the two hills. "Here," writes Captain Smith, "a copious fountain of delicious water issues from a cavity in the face of the cliff, from which a small aqueduct, cut in the rock, runs along the side of the road for several miles. Close to the fountain it was formerly hollowed out into a series of troughs, so arranged that, by the overflow of each passing to the next, they were always full,—a slight indication of the attention paid by the Cyrenians to the wants of the horses for which their country was so celebrated. One can easily fancy the citizens of Cyrene halting in their evening drives at this beautiful spot to water their horses, and to enjoy the extensive view of the magnificent scenery around. On one hand is the high and rugged face of the cliff, overhanging the ravine below; on the other the steep hill of Cyrene rising from the beautiful valley of verdure at its base; while, far below, lies the varied surface of the plateau, stretching away for miles to the dark blue line of sea beyond."

The explorers took up their quarters in an empty tomb, cut in the face of the rock,—the most comfortable place of abode in a hot country, as it is cool in summer and warm in winter,—and devoted their time to an examination of the neighbouring sepulchres. These were of every form and variety of plan and elevation. Some had porticoes, others pilasters, chiefly of the Doric order; and others were decorated with polychrome, both inside and outside, or ornamented with busts and other sculpture, like that in the accompanying woodcut.* Captain Porcher gives no less than fifteen plates of illustrations

* See p. 106.

* "History of the recent Discoveries at Cyrene, made during an Expedition to the Cyrenaica, in 1860-61, under the Auspices of Her Majesty's Government." By Captain R. Murdoch Smith, R.E., and Commander E. A. Porcher, R.N. London: Day & Sons, 1864.

of these tombs, many of them being plans, some of which, being of the ordinary type, might well have been omitted. Finding that all these tombs had been opened and ransacked, probably centuries ago, the explorers wisely turned their attention to the more important remains of the city itself.

On New Year's Day, 1861, they abandoned the tombs and attacked the temples. There were no less than five mounds upon the site of the city, which indicated the position of as many temples. One of these was inclosed by a peribolus wall and a massive colonnade of the Doric order. The temple itself, like all other temples in Cyrene, was also Doric, but of small dimensions. The plan of it, as well as that of the Temple of Apollo, both of which were taken by Captain Smith, were unfortunately lost. There was a cella, but no peristyle. A pronaos, with two Doric columns between two half-columns engaged, in the cella wall. It is to be regretted that the authors give no drawing of the peribolus wall and gateway. Their excavations on this site were rewarded by the "find" of a noble statue of Bacchus, perfect with the exception of the right arm.

Encouraged by the result of this essay, they next turned their attention to a mound in front of the fountain, which they rightly conjectured to be that of the Temple of Apollo. The information they give about the architecture of this temple, as well as of the one just mentioned, is extremely meagre; but we must remember that they did not go to Cyrene for the purpose of examining the architectural remains, but for the discovery of sculpture: they tell us that it was unusually long in proportion to its breadth, and that its entrance was at the east end, which, notwithstanding the receipt of Vitruvius, was the case in most Greek temples—in that of Minerva Polias, at Priene; that of Apollo Branchidae, near Miletus; and in that of Bacchus, at Teos. After some days spent in digging, the suave smile of the statue of Apollo the Lute-player greeted them from under the ground. His head was detached from his body, which was broken into no less than one hundred and twenty-one fragments. These being carefully collected, there was built up from them the magnificent statue now in, or rather outside, the British Museum.

These statues of Bacchus and Apollo were with great labour moved from their places on sledges, "foot by foot," and buried or walled up to secure them from injury. Hitherto the expenses of the expedition had been defrayed by the explorers themselves, but now they had good grounds for applying for assistance to the Government. This they did in February, and pending the arrival of a reply, when their labours left them for the harvest, which begins here in April, they determined to visit the other cities of the Pentapolis. Of these Ptolemais appears to be the most perfect, and the most interesting. There are slight remains of several public buildings, and the walls of the city can be traced throughout. "The great gateway, in the western wall, is still standing, and is remarkable for the excellence of its masonry. It is built of massive ashlar work, without mortar, the stone of which is laid in alternate courses of headers and stretchers, like the rustic work of the day." This gateway, of which we give an illustration,* is built after the usual system of defence employed in Greek fortifications, being protected by a pylon on each side, as at Asso, and in some of the cities of the Peloponnese.

Soon after their return from this excursion, the ship *Assurance* arrived with letters, informing them that the trustees of the British Museum had granted 100*l.* towards defraying expenses. For an account of the ingenious method, invented by Captain Smith, for conveying the statues to the coast, and of their subsequent embarkation, we must refer our readers to the book itself. Suffice it to say, that the *Assurance* sailed for England with her valuable freight just a month after her arrival. Immediately after her departure, excavations were commenced upon the site of the largest temple of the five: though the results were not satisfactory as regards sculptures, several remarkable architectural features were brought to light. The temple was of unusually large dimensions, the cella measuring 169 ft. 6 in. by 58 ft. externally. There were eight columns at the ends and seventeen at the sides. The pronaos had two and the posticum three columns in antis. The columns were 6 ft. in diameter, and the capitals measured 9 ft.

across the abacus; they stood 14 ft. 5 in. apart, and 18 ft. from the wall of the cella. In the interior there were two ranges of small Corinthian columns, standing on pedestals, which supported the roof of the hypæthron, as at the Temple of Apollo Branchidae, and the Temple of Apollo Epicurus, at Bassæ.

There is a remarkable similarity between this temple and the Parthenon. Both were peripteral, hypæthral, octastyle, and of the Doric order; both had seventeen columns on the flanks, and the dimensions were very similar; that at Cyrene, as measured by Captain Porcher, being 223.5 ft. long by 100 ft. in breadth; whilst the Parthenon was 228.7 ft. in length by 100.8 ft. in breadth.

There is no outer step to the peristyle shown in the plan, though there must of necessity have been one, if not three, and most probably one to the pronaos and one to the posticum. It would have made the plan and the plans of other temples clearer if the walls and columns had been shaded, and the dimensions figured in the places where they were taken.

Nine days after the departure of the *Assurance*, the *Scourge* arrived at the port of Cyrene, with the welcome intelligence that the trustees of the British Museum had granted an additional 500*l.* for the expedition. This sum enabled them to complete the excavation of the Temple of Apollo, and also dig up a smaller temple situate near the stadium—in plan similar to the Temple of Bacchus. This was peripteral, measuring 150 ft. by 100 ft. on the upper step of peristyle. The columns were 4 ft. 5 in. in diameter, and the cella-floor was raised two steps above that of the peristyle. No indications of the positions of the columns of the pronaos or posticum were discovered. They also excavated a small temple to the south of the temple of Bacchus, and on a similar plan to it, having in the pronaos two columns between engaged half-columns, and no peristyle. In the interior were found several pedestals for statues, and a flight of five steps, leading to a raised platform, at the west end. This temple is presumed to be that of Venus, as several statues of that goddess were found in it.

In September, H.M.S. *Melpomene* arrived, and soon afterwards the cases containing sculpture were, with the aid of the crew, taken to the beach and safely deposited on board, notwithstanding a show of opposition on the part of the Arabs. The two members of the expedition quitted the shores of Cyrene in the *Melpomene*, after a residence there of eleven months. The marbles were conveyed to Malta, where they were transferred to the *Supply*, Captain Balleston, who had formerly taken charge of the Budroum sculptures, and conveyed to England, where they were all arranged and identified by the zealous keeper of Greek and Roman antiquities at the British Museum, Mr. Newton, to whose efforts the expedition in a great measure owed its success. The best figures have been admirably photographed by Mr. Bedford. These photographs, together with thirty excellent views by Captain Porcher well rendered in lithography, and Captain Smith's spirited description, combine to form a volume interesting to the antiquary; pleasing to the man of artistic taste; and, moreover, attractive to every one who can enjoy the perusal of a well-illustrated narrative of adventure and discovery in a territory seldom before visited, and never before thoroughly explored.

Having endeavoured to give a brief outline of the mode in which the valuable collection of sculpture has been obtained for the nation through the exertions of two talented men, and at small outlay, we may now ask how it is that similar expeditions are so frequently left to individual enterprise. In the survey of Jerusalem at present being carried on by Lieut. Wilson, R.E., and four sappers, Lieut. Wilson has to pay all expenses incurred in underground explorations out of his own pocket. It is true that this will not be a remunerative undertaking; still, as the results will be of the greatest interest to the whole Christian world, of which we consider England to be the head, we should surely consider the few hundreds that might be spent upon it by those who hold charge of the purse strings better laid out than the thousands that sometimes are expended in other ways; and we and posterity would say of the statesman who had the boldness to bear the responsibility of advocating it to his more economical colleagues,—"He deserved well of his country. Expeditions such as that to Cyrene, to use a common word, "pay" (if the Budroum or Cyrene marbles were put up for sale in the great auction mart of nations, they

would realize much more than they cost the country); and they are not only profitable, in a commercial point of view, but they are also otherwise advantageous, by tending to extend the influence of England's name amongst the nations of those countries in which they are carried on; for the presence of a ship of war exalts our prestige amongst uncivilized people, who are naturally inclined to respect "physical force" more than anything else. The moral force, and the justice of the English character, also make their impression upon people who are accustomed to misrule; and these expeditions are also beneficial to the natives themselves, for, in addition to the idea of sterling worth impressed upon their minds, they have also the benefit of the sterling gold, which in itself is a civilizing power, left in their hands. Regular pay for regular work is the best corrective of predatory habits. Such being the advantages of these expeditions, let us hope that they may be more warmly encouraged, now especially that we have amongst the members of Government two distinguished by their taste for art, and whose successful missions in Eastern countries have made their names deservedly popular.

There are various fields for enterprise, and as the undertakings can be shown to pay, we should not be at all surprised if some day they are undertaken by "limited liability" companies. A bonus for the privilege of digging, and an offer to share the proceeds, might induce an impoverished Government to consent to the disinterment of those treasures of art which probably otherwise remain for ever useless to it.

Hundreds of fine Greek statues are known to be buried in the Olympian plain. 5,000*l.* properly expended would bring most of them to light, and amongst them possibly some of the precious materials of which the statue of the Olympian Jove himself, the *chef-d'œuvre* of Phidias, were constructed, for on account of its enormous dimensions (it was 55 ft. in height) it was probably never taken to Constantinople entire, as some historians state. There would be a fine dividend in that case. The city of Rhodes abounded with works of art: a handsome *bakshesh* would be the means of obtaining permission to carry tunnels under it, and the results would no doubt well repay the outlay. These are two amongst many sites which could be mentioned where the results would most probably greatly exceed the cost of excavating, and certainly it is better that such fine works of art as the Elgin marbles, the figure of Mausolus, the Apollo of Cyrene, and the Venus of Milo, should be placed in national museums to instil a taste for the beautiful into all succeeding generations, than that they should remain for ever buried in the ground, or be destroyed by barbarian hands. What matter if they be not always appreciated as they deserve—truth and beauty are intimately allied; and we may be certain that the admiration of them will outlive all changes of taste; that however wildly the waves of fashion in art may rage around them, these dignified and graceful statues of antiquity will survive, serenely smiling at the ebbing and flowing tide at their feet, as though to say,—Ours is the domain of true beauty, and all your puny efforts to induce another belief will be for ever useless.

BRITISH INSTITUTION.

How pleasant it would be to find some new verbal system of expressing worn-out opinions of ever-recurring matters. For a long time past notice of current picture-exhibitions has involved little else than reiteration of the same judgments on the same evidence and comparisons with those of antecedent date; and if there were nothing much to be said of Messrs. So-and-So's then particular performances, a reference to something they had done formerly afforded agreeable opportunity for augmenting or qualifying praise, or the contrary, as the case might be.

It is but a poor compliment to pay to a present year's production to say that it reflects more favourably than other efforts lately have done, very old impressions of bygone circumstances and memories never allowed to be displaced by something subsequently better worth the remembering; and one with as much of the bitter as the sweet in it for those who dream and talk about progress, to be told they are getting on, because they show intermittent symptoms of becoming more like what they were some fifteen or twenty years ago. There are too many of us who have lapsed into the chimerical belief that

* See p. 100.

it is only necessary to drive on in the deeper ruts of life's road to make sure we are advancing; and would, probably, only be made conscious of even so simple a fact as of the world's being really round by waking up at our long journey's end just at the point whence we started, and with only such cold comfort as might be derived from the consolation that there are thousands yet to be deceived no earlier than we were,—so dominant is the example of habit over any consideration of its being a right or a wrong one.

Whatever advantages the present show of pictures at the British Institution may possess above the common run of them are mainly attributable to a return of some of the assistance that used to constitute its importance when more freely bestowed, and to there being a larger number than usual of agreeably pretty little works—as distinct from the disagreeably pretty—with, perhaps, an extra display of merit in the emanations of one or two of its contributors of landscape. But, unfortunately, to arrive at the conclusion of there being any favourable difference, it is requisite to ignore the greater proportion of its constituent items, and graciously accept that which is really good as compensation for so much that comes under the opposite extreme of denomination.

The leading attractions are Sir Edwin Landseer's portrait of a Sky-terrier, the property of Her Majesty, in which his power of hand and apprehensiveness of animal character are as marked as ever: (85) "Dear Old Boz," is evidently as likeness invested with all the extra value that consummate art can give: a characteristic statement of a disappointment to horse and hounds that have been turned out for a run, but are prevented by frost and a fall of snow, and that there is "No Hunting" till the weather breaks (189), appears to be as lamentable a state of things to them as it doubtless is to their owner; with a third and still more valuable exponent of his mastery application of genius, "An Event in the Forest" (204), which may be classed with the best of its precursors. A stag has fallen from a precipice, apparently shot by the stalkers, dead, and out of reach and sight of its assailants: the body has attracted the hungry attention of a fox that finds his possession of the carcass is about to be contested by an eagle looming through the misty freezing atmosphere; the snow that covers in one cold shroud the broken masses of rock and all things represented but the living and the dead creatures, serves as an auxiliary for enunciating the wonderful mastery of form and colour attained by Sir Edwin. The picture is one of those epics in which he allegorises human as well as animal instincts, and inculcates a moral. Mr. Ansell has attempted a similar aim, but has been unhappy in selecting "The Death of Cæsar" (1) for apostrophe: viewed in the abstract as a matter-of-fact specimen of animal painting its claims to be considered superlative are undeniable, though his admirably-studied dog, and the illusive appearance of accessories, are so misapplied and incongruous that the result is a burlesque of serious drama.

Mr. Dawson's splendid panoramic representation of "London from Vauxhall" (195), helps very much to raise the character of the collection. Truthfulness has in no way been sacrificed to obtain pictorial effect; and yet, by a judicious selection of influences, he has been able honestly to impart to London as much gorgeous glow of colour as even Venice can boast of. Seldom have the exquisite beauties of a morning sky, with its delicate gradations of pure colour, unsullied as yet by the black breath of busy manufactories, met with such just appreciation, and such power to record it; and few could have rendered so faithfully, and at the same time invested with so much picturesque worth, wharfs and old outbuildings that the multitude would pass by as objects unlikely to be used with profit. In its combined excellence of verisimilitude and artistic treatment, it may compete with any cognate example. Not so much can be said of Mr. Niemann's "Hamptstead Heath" (601); in spite of his forcible appeal to the eye for method of execution and immensity of canvas, it has the appearance of a small picture magnified, and its deficiency in the finer qualities of art is not to be atoned for by any amount of those more easily acquired, with such a comprehensive opportunity for their application.

Mr. W. B. Richmond has idealised his portraits of "Three Sisters" (118), by a peculiar though beautiful treatment that proves the susceptibility of the pretty costume now worn by young

ladies, especially if they be as charming as these are, to the supply of all the necessities of the painter. With the subdued richness of colour that pervades it, and the graceful attitudes of its sitters, so well supported by the appropriate landscape back-ground, the work is acceptable as a picture with a poetic charm of its own, irrespective of its more immediate interest.

Mr. H. W. Phillips's study of an Egyptian's head, "Suleiman" (174), is conspicuous for the vigour and simplicity of his style,—a very admirable one,—and for its harmonious effect, as well as for the life-like presentation of the nation typified. It is one of the most charming works in the room; and was bought by the Council of the Art Union of London at the private view. Mr. Buckner's "Brunetta" (217) and (541) "La Biondina," have the recommendations common to all of his productions: they are exceedingly pretty and most dexterously handled. "The Beauty of Valencia" (551) by Mr. J. B. Burgess, shows an increase of power in its capital representativeness, although he labours under a disadvantage in so closely following in the wake of the inimitable Spanish Phillip. This objection is still more prominent in the works of others here less capable of sustaining a comparison.

There are very few illustrations of dramatic incident to be cited as having special claims of attention above those presented by Mr. E. C. Barnes in "Vive la Gloire" (374), wherein a wounded and tired out French veteran, in the uniform of Napoleon's cherished "Old Guard," is lying asleep near the village well, where he is discovered by a peasant-girl and child, who have come to draw water. No striking originality marks the conception of this story; it is simply an enunciation from a very old source of satire very well made; and the expression of terror, mixed with compassion, depicted in the faces of his startled discoverers, as well as the utter prostration of the poor soldier, indicate talent enough to build great expectations upon, increased by consideration of the workmanship and good feeling for colour that are evident in the sound manipulation of its parts.

Mr. Pettie's "Out of an Engagement" (312), if it do not clearly elucidate its subjects at first sight, has that in it which will induce to a knowledge of it after a more deliberate examination. It may be supposed to represent a theatrical family a week or two after the last night of the best pantomime in London," left without resources or hope for a speedy profitable investment of their humble abilities, arms, and legs. The father or grandfather, with the enthusiasm of a true artist, is keeping up his practice against the time his middle may be in requisition; but the two little girls, denuded of their "fairy glory," sit like little Cinderellas after twelve o'clock, huddled, all rags and wretchedness, over the few embers that remain to them yet in the grate. Their location is in keeping with their want of allocation, squalid enough to satisfy the most morbid views of common acceptance; but wretched there is nothing in a bare garret significant enough of its inhabitants' professional calling, and nothing sufficiently pronounced to assist, beyond a surmise, the direct intention of the picture. However, this is much better in all respects than a second contribution (402), "The Wounded Despatch-bearer."

In academic proficiency Mr. C. Lucy's carefully-drawn and naturally-disposed figures of "The Sleeping Babes in the Wood" (358) fall short of little that might be wished for: overlooking the age of his children as not agreeing with their description in the ballad,—

"The one a fine and pretty boy,
Not passing three years old;
The other a girl more young than he,
And made in beauty's mould;"—

and allowing for the "twelvemonth and a day" additional, they must be allowed to be very fine-grown, and the picture to be one of the stars of the exhibition. Mr. G. D. Leslie still clothes his romantic episodes in fifteenth-century dress. "Cherries" (395), in which their analogy with ladies' lips is the sentiment conveyed, if not a very serious, is, at least, a congenial motive to all who may envy the smart young gallant perched on the lower bows of the tree, deducting from philosophical researches the most pleasing and convincing results, as he feeds, in cherry-bob fashion, the lady of his choice, and finds that,—

"Cherries and lips do well agree,
And 'twixt them is good harmony
Of colour bright and sugar sweet;
Therefore 'tis meet,
This pleasant weather,
That lips and cherries should come together.
But lips than cherries are more sweet:
What if they meet?"

But, to save space, it is necessary where mention is equally deserved, to note, when annotation is not easily possible, some others of the pictures of various merits, such as Mr. E. Crawford's satire on the legality of the law, "A Man of Straw" (3), wherein counsel is doing rather more than "nursing a witness;" "The Last Lucifer-match" (9), by Mr. J. T. Lucas; "The Coast of Normandy" (34), by Mr. D. W. Deane; "Baby's Corner" (51), by Mr. Frank Wyburd; "Innocence" (68), much more successful than "Guilt" (502), by Mr. A. F. Patten; "Travelling in Russia" (84), by Mr. A. F. De Prades, a notable painting of horses; "A Drop for Pussy" (91), by Mr. J. Morgan, the worst part of which is its title; "Composing his Love-Speech" (109), by Mr. D. Wilkie Wyndfield; "Cramming for Examination" (121), and its companion, "Cudgelling the Brains" (440), by Mr. S. Anderson; "A Stitch in Time" (134), by Mr. W. Hensley; "A Naisid" (188), by Mr. W. E. Frost, A.R.A.; "Turned out of Church" (147), by Mr. Frank Holl jun.; "The Dead Heat" (162), by M. A. Ludovici; "The Mountain Spring" (194), by Mr. W. Underhill; "Going to School" (225) by Mr. J. Clark; "Music and Dancing" (282), by Mr. D. T. White; "The Arabian Nights" (296), by Mr. L. Smythe; "The Protector" (307), by Mr. C. Rossiter; "A Dame's School" (370), by Mr. E. Davis; "Miranda" (459), by Mr. T. F. Dicksee; "Going Home" (461), by Mr. C. S. Liddell; "La Caridad" (489), by Mr. E. Long; "Une Matelotte" (by Mr. J. Haylar (447); "The Sea King's Funeral Boat" (529), by Mr. W. B. Scott; and "The Young Bohemian" (587), by Mr. T. F. Graham, that call for more than a meagre note.

To Mr. S. B. Halle we would quietly intimate that it is a great impertinence to thrust upon the public so many repetitions of one face. At the British Institution last year, at the Royal Academy, at the Pall-mall Gallery, and now again at the British Institute, this same child's face, with nothing particular either in the original or in the pictorial treatment,—has smiled out upon us from fifteen or sixteen canvases at the very least, till one naturally passes by without waiting to see if the painter's imagination had led him to colour the table-cloth red or green.

Of the landscapes nothing further need be said than that they include performances by the Messrs. Cole, Jutsum, Stark, T. & J. Danby, Percy, Williams, A. Gilbert (see "The Black Mountain"), Harry Johnson, Montague, Oakes (a poetic work), G. Stanfield, and others as well known by a speciality. The three little marine pictures of Mr. E. W. Cooke, R.A., are quite a feature in themselves, and are sure to attract the attention of all who seek for excellence.

SCHOOLS OF SCIENCE AND ART.

Lord Lyttelton and Mr. Foley, M.P., on Science and Art.—At the annual soirée of the Kinver Grammar School, Lord Lyttelton said:—As one of the Royal Commission I heartily gave my assent to the introduction of science teaching in our public schools. The evidence in its favour was most conclusive. The subject very naturally attracted some attention in the house of Commons. The Government, through the Science and Art Department, is desirous of encouraging the study of elementary science, not only in our endowed schools, but in classes during the winter months for those who have left our elementary schools. I believe the department is doing a very useful work.—Mr. Foley, M.P., said the science classes which had been established at Kinver in connexion with the Government Department of Science and Art, had been most satisfactory. The introduction of science was a new feature; but, in a district like Kinver, a knowledge of chemistry must in many ways be most valuable. From a return which had been published, he found that, of all the science classes in South Staffordshire, the Kinver and Kidderminster classes had been most successful. He was not well acquainted with the plans of the Science and Art Department, but he had no doubt the address of Mr. Backmaster would give much valuable information on this subject.—

Mr. Backmaster then addressed the meeting at considerable length. He alluded to the origin of the department, and the early votes of public money for scientific societies in Ireland, the founding of mechanics' institutes, and the educational objects which these institutes had in

view. He then dwelt on the value of natural science as a means of moral teaching.

Christ Church District School of Art.—On Wednesday evening, the 25th ult., a soirée took place of the students of the School of Art in Cannon-street-road, St. George's East, in union with the Government Schools, South Kensington, and their friends, to the number of between seventy and eighty, under the presidency of the Rev. G. H. McGill, the president of the institution. The model drawings exhibited by three of the students (Misses Sprague, Grace, and Stewart) obtained notice, both for correctness of style and delicacy of finish. The first of the above ladies gained a medal at the last national competition. The room was decorated with flags and collections of drawings kindly lent by the Science and Art Department. The students have to thank the art-master (Mr. Menzies) and the secretary (Mr. James Duke) for a very pleasant evening's entertainment. The school offers advantages to artisans and other students.

School of Science and Art at Oldham.—A school of Science and Art, presented to the trustees of the Oldham Lyceum by Mr. John Platt, of the firm of Platt, Brothers, & Co., machine-makers, has been opened at Oldham. The subjects to be taught in the institution will embrace pure mathematics, chemistry, building and constructive drawing of every kind, on the system pursued at South Kensington. The school-house consists of three spacious rooms, one of which is to be employed as a music-hall for singing-classes and concerts. Under these rooms is a gymnasium.

The Nottingham School of Art.—The first public meeting in the new School of Art has been held for the distribution of prizes. The award, which should have taken place in 1863, was postponed in consequence of the want of a suitable building. The lighting surface of the school is half the area of the ceiling, and the hanging space is limited to the height of 17 ft. 6 in. In opening the proceedings Mr. Alderman Birkin, who occupied the chair, remarked that they were at last settled, and had a permanent resting-place in a building which was one of the ornaments of the town. They hoped, also, that the influence of such a building would have a tendency to raise the character of the staple trades of Nottingham, and induce a greater love of art amongst all the varied industries of the town and neighbourhood. Great good had been done by the school; but the inhabitants would take a much greater interest in the affair now that they could see the preparations made, the accommodation afforded, and the appliances supplied, besides the assistance to be tendered by Government. With reference to the national medallion, which was amongst the prizes distributed, we may again state, for the information of those who do not already know, that the work is executed in *repoussé* by M. Vechte. A portrait of the Queen occupies the centre, and surrounding this is an allegory, which M. Vechte thus explains:—

"The principal figure at the top of the medallion is Genius, attended on his left by Justice, Truth, and Science, attributes essential to an academy of artists; and on his right by a student meditating. In the background crouches Jealousy or Ignorance; whilst Fame is proclaiming the merit of the successful student, and Time and a youthful Genius hold the shield to receive the student's name."

The medallion is awarded in the yearly national competition of the students of all the art-schools of the United Kingdom, and is the highest prize for success in art given by the Science and Art Department of the Committee of Council on Education. The examiners are,—Sir Charles L. Eastlake, P.R.A.; Daniel Maclise, R.A.; Richard Redgrave, R.A. (inspector-general for art).

At the meeting, Mr. F. Fussell, the head master, read a paper, in which he thus spoke of the working of the school:—

"In the first place, instruction is not confined within the building; instruction in art of a useful character is given by means of this school to fifteen public schools; and, according to the last report, 1,437 are being taught; 371 were selected and came up for examination; and 393 were successful, either in drawing, ornament, working a paper of problems in practical geography, or model drawing. There are besides about five other public schools that send their pupils for examination, making altogether, and exclusive of students, about 2,700 receiving instruction in drawing; 596 of these attended the examination, and 512 were successful. The students of the School of Art numbered 203 for last year, divided into fifty-seven different trades or occupations. Sixty-three of the higher-grade prizes were awarded for successful papers in free-hand, model, and mechanical drawing, geometry, and perspective; fourteen medals for advanced studies and designs; and four national medallions, a result that is more satisfactory than the preceding year, when the school obtained nineteen medals and one medallion, because at all times quality of work must be of more importance than quantity."

A School of Science for Stourbridge.—An effort is about being made to form a School of Science at Stourbridge. The manufacturers and employments in which many living around Stourbridge are engaged are intimately connected with several general branches of science, and to such the formation of a School of Science should especially commend itself. The promoters do not contemplate making it exclusively an artisans' school, but they look for its practical advantages being widely appreciated by artisans and others who have an immediate interest in the knowledge which such a school will seek to impart.

Newcastle-upon-Tyne School of Art.—The annual examination in connexion with this school has been held, and is said to have been the most successful since the foundation of the school in 1844. From the report presented by Mr. W. C. Way, the head master, it appears that the total number of students who had attended the school during the year 1864 had been 410, or fifteen more than the previous year; while the increase in the amount of fees paid by students was 261. 10s. 1½d. as compared with 1863.

Stroud and Gloucester Schools of Art.—The prizes were distributed by Mr. Gambier Parry at a meeting held last week. Mr. S. S. Dickinson presided, and his account of the school was most encouraging. Mr. Parry delivered his lecture, "The Claims of Art upon an Age of Business," and the meeting was also addressed by Mr. S. Marling, Mr. Samuel Bowly, and Dr. Paine. Three cheers were given when Mr. Parry presented the national medallion to Miss E. R. Stanton, its winner.

ORNAMENTED AND STAINED GLASS.*

I PURPOSE giving an account of the different methods now used in England of ornamenting glass, and of the mode of producing stained-glass windows in ancient and modern times.

If a window space is to be filled in the cheapest manner, merely to be seen through, and as a defence from the weather, you would use common German sheet glass, which can be bought for 1d. to 4d. per square foot.

If the glass is not required to be seen through, but only to admit light, you would use either rolled plate (say 7d. per foot) or common ground glass; the latter being, from its exceedingly cold aspect, the worst thing to be used in any case.

Now, for about 6d. per foot extra, this German sheet glass may be ornamented with any simple device or geometric form, the pattern being of transparent glass, on a semi-transparent ground formed of white enamel.

This production, and some of its varieties, are termed "enamelled glass;" their manufacture gave employment, at Messrs. Chance's and Messrs. Pilkington's works, to about fifty hands, chiefly girls.

This is the manipulation: lay the sheet of glass on two strips of wood about 3 in. high, on a bench; paint over one side with white enamel, finely ground on a glass slab with a muller, and afterwards mixed with a little weak gum-water: you must not paint it as you would a door, but put on a thin coating of the enamel with a flat camel-hair brush, and, before it is dry, make it perfectly even with a broad badger-brush, using it backwards and forwards all over the sheet, at first heavily, afterwards very lightly. Now cut your pattern out of a small sheet of tinfoil or annealed copper, the same way as letter-plates for marking linen are cut, and place it on the dry coat of enamel. Then with a nail-brush remove the enamel, until the clear glass appears in the parts not covered by the plate. Continue this all over the sheet of glass. If the enamel is not easily rubbed off, there is too much gum in it; if the pattern-plate works up the ground, there is too little. Then, after removing the metal plate, put the sheet into a glass-stainer's kiln, for the purpose of fixing the enamel.

The white enamel is thus made: take one part of oxide of tin, or any other white substance not liable to change at a red heat, such as calcined bones or china clay, and mix it with three parts of a flux composed of three parts of red lead and one of sand, melted together for one hour at a white heat. The mixture, when finely ground with water, is the white enamel in common use.

The ordinary white enamel used for watch-

faces may be bought in cakes at the Whitefriars Glass Works for 2s. per lb., and answers every purpose.

The principle of engine-turning, as applied to the backs of watches, is also sometimes adapted to the cheap production of enamelled glass.

Or, a pattern may be etched out with a stick, as in etching on copper. A piece of the wood of which butchers' skewers are made, cut to a broad point, is generally used.

Another way is this: paint the pattern with common whiting and gum-water, and, when this is dry, cover the whole surface of the glass with the white enamel, mixed with turpentine. The whiting, which has in the trade the name of "never-stick," prevents the enamel from adhering. A similar process is used in calico-printing.

Patterns are supplied in large quantities by these simple processes, and are, as a rule, very good; in many of them there is a want of simplicity, and the outside appearance of the raw white of the enamel is very disagreeable.

A tint of colour, such as pink or blue, is sometimes used, instead of the white; but the greatest improvement would be making the white of an agreeable tone by the mixture of small quantities of some coloured enamel. I offer the suggestion of a ground made by coating the glass with a dark-coloured enamel, and ruling it with lines nearly close together, made with a needle-point. This would not be discernible on the outside, and would give the inside a more brilliant surface.

I have now to speak of embossing, some specimens of which are met with in most of the large shops in London, especially in public houses. It is remarkably easy of execution, and competition has brought down the price so low as to render the production of it by itself almost worthless as a trade.

Plate glass, the contract price of which is 3s. 3d. per foot, is usually selected for this enrichment. An ordinary pattern can be embossed on this for 1s. 6d. per foot; one very elaborate for 3s. 6d. This is the way to emboss. The plate of glass, carefully cleaned with whiting, is placed over the drawing, which is usually a bit of unhealthy scroll-work; and the ground of the pattern is painted with common Brunswick black, to resist the action of the acid. When this is quite dry, a bank is built round the edges of the glass. This bank may be formed of strips of glass, made water-tight at the lower edges with hot tallow and carbonate of iron, laid on with a brush. Then pour on fluoric acid, which should be of medium strength, and let it remain for about half an hour. When the pattern is bitten in, say a sixteenth of an inch, scrape off the Brunswick black, and grind the surface of the glass with emery and a piece of plate glass about 2 in. square. A clear pattern on a frosted ground is thus produced. If the acid is too weak, the Brunswick black will come off before the pattern is sufficiently bitten in; if too strong, the engraved surface will be very rough. If, therefore, the acid is too strong, or when it bites unevenly, keep the surface of the glass stirred with an old brush. If fluoric acid of excessive strength is placed upon glass, corrosive action is instantaneous, and an appearance is given to the surface like that seen upon old glass by the action of the atmosphere for several centuries.

Any one with an ordinary knowledge of the use of the pencil, and with 20s. in his pocket, may set up as an artist in this pursuit. A bottle of Brunswick black, 1s.; one lb. of fluoric acid in a gutta-percha bottle, say 3s.; with a rest for his hand, a few pencils, and a packet of emery; these form his humble stock-in-trade. The facility and cheapness of execution, and competition, have caused embossed glass to become one of the items in builders' contracts; and although it should not from that cause become an inferior production, yet I do not believe there are a score patterns in all London equal to what ornamental drawing should be. In most cases too much is attempted; an utter want of knowledge is shown; and what would become interesting through invention, is a vile compound of unmeaning scraps, cooked up without skill or taste.

A study of the ornamentation of the early Greek vases in the British Museum, and the acquirement of knowledge generally, would have great influence in correcting these feeble and intemperate productions. In embossed glass, skillful linear ornament and invention may be hoped for, but nothing more. In Mr. Crace's office-doorways, Wigmore-street, are specimens of the highest character, and these are instances of its utmost capability.

* By Mr. C. Heston. Read at the Architectural Association.

There is also some good work in the windows of the Hero of Waterloo public-house, near Waterloo Station (Messrs. Hill, & Co., architects), but the patterns are all alike. The ceiling of the library of Orleans House is of this kind of glass, but the effect is painfully cold, and unworthy of imitation.*

We now come to the method of staining and colouring sheets of white glass, a process used principally for hall-lamp squares. The manufacture is almost confined to Messrs. Chance's glass-works. The yellows and dull reds are produced by a silver stain afterwards described; the blue is a semi-transparent enamel, made with the black oxide of cobalt, melted with a soft flux. Green is produced by painting one side blue, and staining the other side yellow; browns and flesh reds by the peroxide of iron mixed with a flux.

About thirty years ago, before the production of stained-glass windows was understood, some of our church windows were ornamented by this process. Reynolds's window, in New College, Oxford, is an instance. I lately examined this window, and found it in an excellent state of preservation. Not so the Van Ling windows in Christ Church, Oxford, also of this kind, painted in 1630 on squares of white glass, but now decaying in large patches.

The productions of the modern Munich school, which are but little more than transparent paintings, are largely indebted to this enamel system of painting. The Peterhouse Church, at Cambridge, with the exception of its fine old window at the east end, is full of these German transparencies. Occasions might arise when this system of glass ornamentation would be required, but it is an unskillful way of painting, and may be left to ornament cheap lamp squares without regret.

Both white work and embossing may be made good of their kind, and the effort to produce skilful specimens will fit the artist in some measure for work of higher import. One test for good ornamental work is the axiom advanced by the Marlborough House authorities, that "ornament must have some near or remote significance."

The art of glass painting,—that is to say, painting made of pieces of coloured glass united together with bands of lead, was invented in France about the middle of the twelfth century.

At the beginning of the thirteenth century, it became a part of the system of the decoration of French Pointed architecture, spreading at the same time all over the north-west of Europe, wherever Northern Pointed architecture became established.

During the whole of this century there was such a rage for this decoration, that not a window was constructed without inserting stained glass, or intending to insert it.

There are some few existing specimens of twelfth-century glass. They occur at the abbey church of St. Denis, and at Poissy, in France, and in the aisles of the choir of Canterbury Cathedral; but the remains of stained glass of the thirteenth century are abundant.

In the south and south-east of Europe the system of decorating the interiors of buildings with mosaic work had been long established; and the most marked examples are the coarse work at the Cathedral of Kiev, in Russia, and the more refined paintings of St. Mark's, at Venice.

There was at first much similarity between glass painting and mosaic painting. The Byzantine mosaics (of Roman origin) were made of rough cubes of coloured opaque glass, imbedded in cement; and the earliest stained windows are believed to have been made of small pieces of translucent glass, imbedded also in cement.

There are but few remains of windows of so perishable a construction. There are some specimens in England that have been brought from the Continent, but are of uncertain date; and Mr. Burges mentions that the Mosque of St. Sophia, at Constantinople,—a Byzantine building of the tenth century,—was so glazed, and that it is still a custom in the East to make the windows of glass and cement alone.

A great improvement on the use of cement was the method of fastening together the small pieces of translucent mosaic with leaden bands, having a groove on each side; and we have to

thank the inventor, whoever he may have been, but who lived somewhere about the twelfth century, for this mode of constructing stained windows, very many specimens of which have endured for seven centuries.

The construction of a stained window by means of glass and leaden bands only, must have been a very tedious work; and, in time, means were discovered of greatly accelerating the process, by making the glass in larger pieces, and by the addition of enamel painting.

Take, for instance, the head of a saint: this, before the introduction of enamel painting, would have been made up of different coloured glasses,—one colour for the hair, another for the beard, and white glass for the eyes; the lines of the eyebrows, ears, nose, &c., would have been expressed by the lines of the leaden bands, which also served to unite the different pieces of glass.

But, after enamel paintings had been invented, the process would have been this: a piece of glass as large as the head would be shaped to the required size. The features would then be painted with opaque enamel, and afterwards the glass would be exposed to a full red heat to cause the enamel to adhere.

The composition of this enamel paint is in glass painting a very important matter. The ancient enamel is in many instances perfect to this day, and occasionally has preserved from decay the glass itself; while in many modern windows, after a few years, it altogether disappears. There are many stained windows, some of them of great repute, executed within the last ten years, that have required nearly as much restoration from this cause as windows of the thirteenth and fourteenth century.

Enamel is composed of a mixture of metallic oxide, and a flux: this flux answers the same purpose as copal varnish in decorative painting; it effects the adhesion of the colour to the surface. In the decorative paintings of the Houses of Parliament, a mixture of copal varnish and turpentine was used, and I think it the best material for the purpose. In glass painting, a flux is required that shall melt at a lower temperature than the glass itself, and that shall not in course of time decay by the absorption of moisture.

Borate of soda, potash, soda, or salt, all deliquescent materials, are often used for glass-painters' colour; and they all, sooner or later, disintegrate through absorption of moisture.

A colour that you may trust is composed of red lead, sand, and oxide of iron. Melt for two hours, at a white heat, three parts of red lead and one part of white sand, and pour it into water; then pound it fine, and mix about four parts of it with one of oxide of iron (Indian red) or burnt umber, and a little manganese; grind it very fine with a muller on a glass slab, and paint the glass with it, using either a little loaf sugar or water, or turpentine mixed with old turpentine that has become thick.

Potash and soda, you are aware, are both used in conjunction with silica in the manufacture of glass; the silica and the alkali are mixed in such proportion as to neutralize any further action of the alkali. Not so in a flux composed of potash or soda. To obtain the requisite low point of fusion, the alkali must be used in excess, and, not being neutral, it very soon becomes hygroscopic. The cause of the decay of some of the ancient glass was its having been mixed with too great a proportion of alkali, which in the course of centuries has absorbed moisture enough to work the mischief.

At the earliest time in the history of glass-painting the pre-existing mosaics appear not only to have suggested the invention of stained windows, but to have been the mine whence the painters drew some of their materials. There is a striking passage bearing on this point in the treatise of Theophilus, a translation of which you will find in Winston's "Hints on Glass-staining." Theophilus was a learned and pious monk, who wrote in Greek several treatises; but when, and at what time, no one seems certainly to know; but, from his perfect knowledge of stained-glass windows, he most probably lived about the thirteenth century.

"There are found in the ancient buildings of the Pagans in Mosaic work, different kinds of glass, viz., white, black, green, yellow, sapphire, red, purple; and the glass is not transparent, but dense like marble. They are, as it were, small square stones from which are made works inlaid in gold, silver, and copper. There are also found various little vessels of the same colours, which the French, who are skilful in this manufacture,

collect: they fuse the sapphire in their furnaces, adding to it a little clear and white glass, and they make tables of sapphire, which are precious and useful in windows. They make tables of purple and green in like manner."

The supply of coloured glass by the Pagan mosaics would not have gone very far in supplying the demand for the great manufacture of thirteenth-century windows. The French, there is reason to suppose, were quite able to make all the coloured glass they wanted, and to supply the wants of others even beyond the seas.

In the seventh century they were noted for their glass-work. At the end of that century Bishop Wilford brought glass-makers from France to glaze the windows of Hexham Church, and also those of the cathedral of York. The materials necessary for the construction of a thirteenth-century window were, a flat table, the size of the window, to work upon: on this the design of the window was drawn, and most likely coloured; great care was taken in arranging their colours. Then, small sheets of glass, of about seven colours, were obtained. You will not find many more colours in any early window, and these sheets were made out of cylinders of glass split open and flattened. They were thicker than our window-glass, very uneven, and more like horn than glass.

Out of these sheets were cut to shape each separate item of the window: the heads, hands, and feet were cut out of flesh-glass, the tunic, say, out of green, the girdle brown, the legs red, and shoes blue, perhaps. When these pieces were laid down on the drawing they fitted almost close together, and would look very much like a dissected puzzle that children play with; only that the lines of junction went round the hand instead of across it; but if the hand or dress were larger than the sheets of glass they did not care much where the joints ran, excepting in large faces, when they would make lines of junction round the eyes, nose, mouth, beard, hair, &c. Each piece of glass was brought to shape with a red-hot iron and a grooving-iron. If you lay a red-hot poker on the edge of a piece of window-glass, you will soon hear and see a slight crack in it; now move on your hot iron, keeping it on the glass, and the crack will follow until you may bring it round to the place it started from. The cracks that sometimes occur in our own plate-glass windows, and which would eventually run across the square, are led round with a hot iron in a small circle, and rendered harmless. By these means the men of the thirteenth century fashioned their thousands of bits of vitreous horn in making windows. It was long before the use of the diamond in cutting glass was discovered. If the pieces were not truly fashioned with the hot iron, the workmen chipped away pieces from the edge with a piece of iron with a square notch in it. This was the *grooving-iron*.

Then followed the process of copying on the glass, with the dark-colour enamel, the features, hair, drapery lines, &c., and in all cases using a little what you may, by a stretch of imagination, call shadow, but which was only a thin film of the tracing colour, used in a very conventional manner, to assist the traced lines in giving expression to the faces and drapery. The pieces of glass painted with enamel were then placed on iron trays, over which had been sifted dry ashes, to prevent the glass sticking to the iron, and put into a close earthenware box, around which the fire played until the whole was red hot. Then the fire was withdrawn, and the box and its contents were allowed to cool gradually for the purpose of annealing the glass. The pieces were then placed in their former position on the drawing, and the workman put a band of lead round each piece. The bands of lead were cast in a mould, and had a groove on each side, into which the glass fitted.

Each joint, and wherever one lead touched another, was soldered together on both sides of the glass; and the window was completed by rubbing into the interstices some cement, to keep out the wind and rain; oil and whiting, possibly.

The completed window was then fixed in its place; and, if of moderate dimensions, had simply iron saddle-bars set into the stonework on each side, and to these the window was tied with strong strips of lead, soldered to the lead-work of the window.

If the window was large, an iron frame, an inch or two in thickness, was wrought to the leading lines of the design, and to this the window was tied, in a similar manner to the saddle-bars.

This was the construction of a thirteenth-

* There are manufactured in the glass-works sheets of white glass, veneered with thin coatings of red and blue. These coatings are easily removed with fluorid acid, and thus are produced the white patterns on red or blue grounds which border the windows of our newly-built stucco villas.

century window, and, with some few modifications, it is the construction of the windows of the present day.

These old windows presented several excellences. Firstly, of material; because the thick unven glass was the cause of what Ruskin calls "palpitation of colour," a rich jewel effect which cannot be produced by a thin material. Secondly, excellence of workmanship, because the painting was well and artistically done; it also presented great individuality, unskilful painting being a rare exception. Thirdly, excellence of construction. The division of the glass into small pieces tended to subdue the glare which stained glass, however thick, has in some degree. It also very materially strengthened the fabric, and it has been the cause of so many specimens being left to this day in such good condition. The wrought-iron frame not only gave strong leading lines to the design, but was a most workmanly way of construction. Fourthly, excellence of colour; because, with not more than about half-a-dozen colours, they were well coloured, never gaudy, but always rich. Of a series of windows, in one green, perhaps, was made to predominate; in another, blue, and so on. Just so were managed the windows in the clerestory of Sherborne Minster, by Clayton & Bell, some years ago. Fifthly, excellence of design. This, with the rare management of colour in the thirteenth-century windows, gives them their greatest value. The design is always original, and full of invention and feeling, and always suited to the place it occupies. There was no particular law as to the introduction of canopies, or medallions, or ornamental work. In the later, colour was more considered than form, which was always very severe and conventional.

But about the representation of the human figure, there has been the greatest diversity of opinion. I adhere to the opinion that has often been expressed, that the figure-drawing in this thirteenth century was of equal value with the sculptures and wall decorations of the same period; that the artist did not see the necessity of representing the human figure in any other way than as symbolical representations: as such they tell their stories well, and in the simplest manner, and they always show the qualities most valued in all other sacred illustrations, invention, feeling, and colour.

Ruskin, in his "Stones of Venice," has explained in a few words what I feel greatly at a loss to express.

"It did not take five centuries to find out the appearance of natural objects; but it took five centuries to make people care about representing them. An artist of the twelfth century did not desire to represent nature. His work was symbolical and ornamental. So long as it was intelligible and lovely, he had no care to make it like nature. As, for instance, when an old painter represented the glory round a saint's head by a burnished plate of pure gold, he had no intention of imitating an effect of light; he meant to tell the spectator that the figure so decorated was a saint, and to produce special effect by the golden circle. It was no matter to him what light was like. So soon as it entered into his intention to represent the appearance of light, he was not long in discovering the natural facts necessary for his purpose."

THE PROGRESS OF ARCHITECTURE IN THE NORTH.

NORTHERN ARCHITECTURAL ASSOCIATION.

The annual meeting of this Association was held in the Old Castle, Newcastle,—Mr. F. R. Wilson, of Alnwick, vice-president, in the chair. The secretary (Mr. Thomas Oliver) read the annual report, which said,—

"Your committee have renewed satisfaction in congratulating the Association on its increasing importance, and the number of its members and associates. We have had enrolled during the past year on our books one honorary member, thirty-one members, and nine Associates, showing an increase in our number of one member. We have, however, to lament the great loss the Association has sustained in the death of its venerable president, who, from its first establishment, has from year to year occupied the president's chair, for which his age, position, and experience so well qualified him; and who, whilst his health permitted, took the liveliest interest in all the active proceedings connected with this society."

"The financial position of the Association continues in a satisfactory state, the total expenditure being £31. 12s., and the receipts £41. 4s. 7d., thus leaving a balance of 12s. 7d. in the hands of the treasurer."

The voting for president, which office was rendered vacant by the death of the late Mr. Dobson, was then proceeded with, the result of which was that Mr. John Green was elected.

The chairman then read an excellent paper on "The History of Architecture in the Counties of

Northumberland and Durham and the Town of Newcastle-upon-Tyne, during the last six years," from which we take a few passages:—

The Prosperity of the North.—The impetus enjoyed lately by the architectural profession is due, of course, to the commercial and manufacturing prosperity of the North. This has called towns, ports, and bathing-places into existence along the north-east coast, where formerly there were but fishing villages. A few years ago, what were the Hartlepoons, Middlebros', Jarrow, Filey, Saltburn, Scarborough, Tynemouth, and Blyth, compared to their present importance. The vitality is nowhere more apparent than in Newcastle. The merchant whose representatives were content in former generations to live in charres, and subsequently in grim and prim streets, now build themselves residences in more salubrious sites. Doubtless the attention paid to the voice of sanitary science, the spread of conviction concerning the importance of plenty of fresh air, light, and pure water, has had its weight in bringing about this result; but if it were not for the commercial and manufacturing activity of the North, Newcastle would still boast the sylvan walks decked with woodbine and wild roses Mr. Dobson could recall, and its merchants be unpossessed of the princely means that enable them to line the banks of the Tyne with mansions that would not ill become the shores of the Arno or of the Tiber. Some of these new mansions, we know, are more than residences—they are storehouses of art treasure, from which the finest collection of modern art in the kingdom could be reinforced. The additions to the town-hall, under Mr. Johnson, are further evidences of well-doing; the merchants' offices are changing character, as witness the sumptuous piles upon the Quayside; and the open streets, partaking of the general enrichment, can boast of the sculpturesque Stephenson memorial.

Alnwick Castle and Wallington.—Any statement of the progress and prospects of architecture in the North would be incomplete unless it included mention of the splendid works which I had the honour of starting and of directing for five years at Alnwick Castle, and on which Signor Bullett, now of Newcastle reputation, was also engaged, under my superintendence. But I do not propose to do more now than allude to them in contrast to those still gradually growing under the hand of the artist at Wallington Hall. Utterly apart as these works may appear at first sight, a second will show that there is a peculiar affinity between them. The Duke of Northumberland has remodelled his ancient castle, to embellish it, by the hands of Italian artists, with Raffaellian decorations, with a single introduction of a Northumbrian subject. Sir Walter Trevelyan has reared a *cortile*, with surrounding loggia, to decorate them by native aid, with subjects that are purely Northumbrian. There are many persons who would prefer to have seen this order of things reversed; who would rather that the rendezvous of Border chivalry had been blazoned with pictures displaying Northumbrian deeds, and would deem the palazzo at Wallington more fit receptacle for Cinque-cento decorations. But I would hesitate before I made any comparison that would cause any one to look otherwise than admiringly both at the letter and spirit of the work and taste at Wallington. The plan of this mansion, when placed in Mr. Dobson's hands, and under the superintendence of Mr. Johnston Hogg, was that of a quadrangle encircling an open court; although originally, I think, it must have consisted only of three sides of a square, like other country-houses built at the same time, with the entrance, which was unfurnished with lobby or ante-room, opening into the middle room in the front of the house. The chief feature of the new work is the arched saloon, into which the open court in the centre of the house has been converted. This is a light, lofty hall, about 35 ft. square, and 36 ft. 4 in. high, measuring to the top of the coved ceiling. As the means to effect this end, the internal walls of the house were removed, laying bare the grand staircase and corridors on both stories that served as communications, and a series of arches on two tiers were built in their places, open to the *cortile*, like those in the famous Raffaello loggia in the Vatican. Of the two galleries thus formed, the upper one is protected by a graceful balustrade between the piers, the design for which, I believe, came from the pencil of Mr. Ruskin. All the pilasters are to be decorated with different groups of natural flowers, ferns, and forest trees. In the centre of each of the eighteen spandrels in the lower tier are placed

medallions of Northumbrian celebrities, beginning with the builder of the great Roman wall, and ending with Robert Stephenson. And I may add that a group, already finished of wheat, oats, and barley, on one of the pilasters, is the work of the same hand that gave the sketch for the balustrade above it; and that others have been painted by various friendly and skilful hands. The *cortile* is covered by a novel ceiling of the form Italians call a *schifo*. Besides being coved, it is divided by the beams into panels, in the centre of which are large hemispherical glass lights, specially cast in one piece by Messrs. Swinburne; and these being globular on the outside, are never obscured by rain or snow. They also possess the advantage of giving an equable shadowless light as long as day lasts, lighting up the glowing colours within more successfully than by lateral fenestration. The sculptor and painter are still engaged upon work that will further add to the richness of the general effect. Mr. W. B. Scott has not yet finished his series of pictures portraying the incidents of Chevy Chase; and Mr. Woodcock is completing a group in marble, which will represent the progress made in civilization since the deeds were enacted that are depicted on the walls. On the ground floor, now nearly completed, between the piers on the north and south sides, are Mr. Scott's famous pictures, in which the history of the county is chronologically set forth. The Roman *loggia* are painted with pictures, allegorical figures, flowers, animals, and ornaments, in masses of entanglement, beautiful certainly in colour and form, but of no living interest: in this scheme Northumbrian history is depicted, embodying Northumbrian men and women drawn from the life: the forms and foliage are drawn from the life; and the implements and weapons of antique and Mediæval life, are faithfully copied from local relics once in actual use, lent from private sources for this purpose. It seems to me that this *cortile*, thus rising under the creative genius of its owner and his gifted lady,—so studded with much that modern Northumbrians hold dear as relating to their fathers, and so identified with the present in containing the portraits of eminent local men, and so associated with remembrances of many cultivated minds, the fulness of whose skill has been lavished upon it,—will have an intense and special interest for all time. With a nice propriety the portrait of Dr. Charlton is introduced into the picture in which the Apostle of the North is represented endeavouring to quell the threatening outbreak among his ancestors and their rivals in Rothbury Church. The fine head of St. Cuthbert is a portrait of the Rev. George C. Abbes; and one of the ancient Romans engaged in building the great wall is a likeness of Dr. Bruce. In a word, I would that an art-patron in every county would follow the example set at Wallington.

Architects and Architecture.—I must now congratulate this Association upon the prospects of architecture in the North. The corporation of Newcastle, one of the strongest strongholds against sanitary reform, has capitulated. Several extensive works are about to be put in hand. The lightning of the Lancashire tribulations will set new influences to bear. The further enlargement of our local industries will create new sources of power. When Mr. Dobson came into the field, and found no other architect in the county, we may be sure that architecture was at a very low ebb. If a building was wanted, a builder was employed to design and erect it. But now, to the great advantage of the public, if a palace, or a house, or a shop or shop-front, or offices, or a farm, or a pitman's cottage, is wanted, an architect is instructed, who sets builder, joiner, slater, plasterer, and painter to work, in a much better fashion, and with a much more satisfactory result, than if they had no guide. But society is by no means so well regulated in this respect, yet as I hope we shall all live to see it. We have only to look at Jarrow, as an instance of the consequences of building too quickly, irrespective of a digested plan, and of inhabiting these quickly-raised fabrics too soon. The large shipping trade suddenly engrained on to this Saxon seat of learning and piety has certainly wrought a marvel of disorder. I do not envy the new Board of Health their task; nor can I see any present prospect of creating order out of the chaos of mud-holes, ballast-heaps, pits, ruts, the ground-levels of the rows of houses on one side of a street higher than those on the other, and brickfields on which bricks are being made and houses built, that mark that Balaeclavian site.

* To be continued.

THE PROFESSORSHIP OF ARCHITECTURE,
LONDON UNIVERSITY.

WE understand that Professor Donaldson has sent in his resignation as Professor of Architecture in London University. After energetically and ably discharging the important duties of the office for twenty-three years, the esteemed professor doubtless feels that he may now, fairly, retire, and afford an opening for some younger member of the profession. The professor will doubtless be willing to give for a time some assistance to his successor.

"COLSTON'S HOUSE," BRISTOL.

STROVE efforts are rightly being made to induce the Town Council of Bristol not to choose for the proposed assize courts the site of the present Guildhall, and the ground in the rear, which would necessitate the destruction of a very interesting ancient house, called,—rightly or wrongly, it is no matter,—"Colston's House." The Bristol Society of Architects have exerted themselves in the matter, and the council of the Institute of British Architects have memorialised the town council in favour of its preservation. At a meeting of the Architectural Museum Committee, on Tuesday last, it was resolved that the president should address a letter to the Town Council to the same effect.

Irrespective of the desirability of saving an ancient monument, a landmark in the history of Bristol, the site is not a good one. We have reason to believe that an opinion in favour of the great superiority of the centre of Queen-square is gaining ground amongst the members of the council.

SUBSIDENCE OF THE HERBERT
HOSPITAL, WOOLWICH.

THE new Herbert Hospital, now nearly completed, on Kidbrook Common, near Woolwich, having shown alarming symptoms of subsidence, an inquiry was instituted, and has been going on for some days. The committee consists of Capt. D. Galton, Under-Secretary of State for War; Col. J. S. Hawkins, commanding Royal Engineer at Woolwich; Capt. W. Newsome, Royal Engineers, divisional commanding officer; Mr. Monnie, Surveyor to the War Department; Mr. Ware and Mr. Tait, clerks of the works; and Mr. G. Myers, the building contractor. The committee have resolved on the necessity of recommending that the eastern pavilion and other portions of the building should be partially reconstructed, and that other measures should be taken to remedy as far as possible defects at the base of the building, many portions of which are tottering and unsafe, in consequence of the yielding of the soil. The cause of this is said to be, that the drainage was laid down below instead of above the layer of concrete and rubble forming the artificial foundation. The occurrence, for which, it is stated, the contractor is in no degree responsible, is exceedingly unfortunate, as the structure, in its present state, is said to have cost the Government upwards of 300,000. The pavilion has been needled up, with a view of under-pinning and forming a more solid foundation without delay.

The choice of the site has always been wondered at by those who were acquainted with its boggy character. If we remember rightly, we printed some objecting letters when the place was first suggested.

SCULPTURE AND THE ROYAL
HORTICULTURAL SOCIETY.

THE Council of the Society have announced the arrangements under which they are willing to receive sculpture on or before the 15th day of April. They say *inter alia*—"Out of the exhibition of 1865 the Council will make purchases to the value of 500*l.*, provided that new and original works of sufficient merit are exhibited under the conditions hereafter stated. As a general rule it is desirable that all works should be finished works in plaster. But works in marble, bronze, terra-cotta, and other materials than plaster may be sent; the price of a separate plaster copy must be stated. The Society especially desires that all works sent in should be distinctly labelled with the name of the subject, and the artist's name and address, together with the price at which copies may be sold to the public,

in marble, bronze, terra-cotta, and plaster. When a plaster model is purchased by the Council, they desire to be informed at what price the artist will supply another copy in marble, or bronze, or terra-cotta, or any other material. The copyright of making and disposing of other copies in marble, bronze, terra-cotta, &c., will remain with the artist. . . . Artists of all nations are invited to send works."

We fear that the misunderstanding between the Council and the Sculptors' Institute still exists, chiefly, if we are rightly informed, because of the supposed desire of the Council to take the reproduction of a model that might be purchased out of the hands of the author of it. The present conditions do not seem to point absolutely to such a desire. We shall be glad to find these prove satisfactory to sculptors. It is very desirable that means should be taken to popularize sculpture amongst us, and it certainly does seem to us that it ought not to be difficult for sculptors and the Council of the Horticultural Society to work usefully together with that end in view.

THE HUMAN BREATH AND THE
MICROSCOPE.

By means of what is called the pneumoscope the human breath, or rather the crystals deposited by the breath, are shown on the screen at the Polytechnic, and it is made curiously evident that these crystals differ very strikingly according to the individual. In one case they take a dagger or cross form, in another they give a series of dotted lines, and so forth. Whether this may be regulated by the saliva rather than the breath has yet to be settled, with various other similar questions. At present, in fact, no deduction of any value can be made; but the discovery seems to open a fresh field for inquiry, and many lead to important results.

THE BATH FORUM HOUSE
COMPETITION.

MORE dissatisfaction and complaints! If architects, with their eyes open, will spend their time in these speculations, they may as well make up their minds to hold their tongues when the "toss" goes against them, for no good seems to come of the constant railing that now ensues. Competitors trust implicitly in committees and corporations until the selection is made, taking the chance of the result being in their favour. The moment the decision has been pronounced against them, they point out with sharp pens and loud voices the incompetence, if not dishonesty, of the tribunal they had voluntarily submitted themselves to.

The weak place in the selection of No. 1 design for the Bath Forum House, as the new hotel there is foolishly to be called, is this,—that Mr. C. E. Davies, the successful competitor, is the architect of the corporation who required designs, and, in that capacity, prepared the instructions issued to the other architects who proposed to compete. No architect should place himself in such a position as this. If his design be selected, and even be obviously better than any of the others (as it may well be, seeing that he must know the views and wishes of the employers better than outsiders could do), the popular belief will nevertheless be that the decision was unfair,—that in examining the designs, the man, rather than the merit, had been considered. We have good reason for believing, however, that in the present instance that was not the case.

SOUTH KENSINGTON HOTEL.

In this fashionable and healthy locality a new hotel has been opened on a plan which is likely to suit the occasions of families visiting town for a lengthened *sejour*, as well as the tastes of single or more limited parties. Six fine mansions in Queen's Gate-terrace are by adaptation connected by corridors from end to end, having three portals of entrance: these are so arranged as to be divisible into larger or smaller suites, all furnished in a good style and taste, some rooms being of noble proportions, and all ventilated and lighted in a fashion that leaves little to desire.

There are billiard-rooms, coffee and smoking rooms, baths, and every other resource that may be needed by persons who visit London for a season or for a limited time; and the arrange-

ments of the kitchen include the best modern adaptations of stoves.

The peculiar characteristic of this hotel is, that families can live as in a private house, and enjoy the advantages which community only can insure, in the use of a perfect kitchen, and the discipline of a complete staff of waiters and attendants, at comparatively moderate charges. The great influx of residents into London, which increases on all sides, renders the establishment of large hotels a necessity of the time; for, as the numbers of sojourners increase, so also do temporary *voyageurs*; and the improved style of grand hotels in other countries makes it a necessity that the London system should advance also. Higher than Belgravia, and ranging with the Park, the widest open expanse of the western metropolis, this fine district, lately a suburb, but now an integral section, will soon be connected both by railway and by a direct leading route with Westminster; all which improvements will, when carried out, render the South Kensington Hotel an advantage to the public at large.

FALL OF ARCHED FLOOR, CHARTERED
GAS COMPANY'S WORKS, WESTMIN-
STER.

A FRIGHTFUL accident occurred last Saturday morning at the works of the Chartered Gas Company, Horseferry-road, Westminster. The ground-floor of one of the buildings was used by the workmen as a refreshment-room. It is called "the men's lobby," and is a large room. The ceiling was formed of brick arches, springing from iron girders supported by pillars. Just before twelve o'clock a noise was heard, and down went three of the arches, running the whole width of the building,—covering an area, judging from a glance, of, perhaps, 50 ft. by 30 ft. Four men who were below were much crushed, but, strange to say, not at once killed. In a few minutes there would have been a crowd of men there, the majority of whom must have perished. Whether a girder, or the front wall, serving as abutment, yielded, we do not know. The wall is bulged and cracked,—looks, in fact, very unsafe.

The most careful inquiry should be insisted on in this and all similar cases.

MESSRS. VICKERS & COMPANY'S NEW
DISTILLERY, VICTORIA STREET, WEST-
MINSTER.

IN our present number we give an illustration of Messrs. Vickers's new distillery, which is in course of erection in Victoria-street, Westminster. The building stands upon a large area of land, having a frontage in Victoria-street of 200 ft. and a depth of 140 ft., with frontages facing Phillips-street and the Horseferry-road. On the ground-floor (speaking as if the building were finished) are British and foreign warehouses, distillery, large counting-house, offices, waiting-halls, stables, and waggon-shed, with a dwelling-house at the north-east angle of the building. The entire basement is converted into commodious cellars.

The frontage facing Victoria-street and the return end in the Horseferry-road is faced with white Suffolk bricks: all the other frontages are faced with picked stocks with the horizontal bands, and the arches of arcades of coloured bricks. The porch-windows and portions of parapet, string-courses, and area-wall are of Combe Down stone. The columns and panels of the porch are of polished red Aberdeen granite, with foliated caps and moulded bases of stone. The main cornice and the outer arches and labels of the windows are of Portland cement.

The interior walls of the counting-house have recessed arcades, with columns of polished Devonshire marble, with foliated caps and moulded bases of Bath stone. The ceiling is divided into recessed, moulded, and enriched coffers. The height of the counting-house comprises two floors, with a light ornamental gallery all round to serve as communication for the offices on the first floor to the different warehouses.

The whole of the buildings are now being erected by Mr. William Downs, builder, from the designs and under the superintendence of Messrs. William J. Mayhew & Calder, architects, Charing-cross. The machinery, plant, and engines will be erected under the superintendence of Mr. F. J. Bramwell, C.E. Mr. Chincock is the clerk of the works.

CYRENE AND ITS NEIGHBOURHOOD.



Gateway in the Western Wall of Ptolemais.



A Tomb embellished with Figures in the Northern Necropolis of Cyrene.

[See p. 53, ante.]

MESSES. VICKERS & COMPANY'S NEW DISTILLERY VICTORIA STREET WESTMINSTER



SANITARY MATTERS.

The Sanitary Condition of Leeds.—A meeting has been held at Leeds on its sanitary condition. Mr. W. B. Denison presided, and the audience included the mayor and a considerable number of the most influential inhabitants of the borough. The causes of the high rate of mortality in the town were discussed at great length, and many suggestions were offered with the object of bringing about a more satisfactory state of things. Resolutions were also adopted calling the attention of the local authorities and the inhabitants generally to the fact that the official inspection of nuisances is not only inadequate, but that the powers possessed by the corporation are not sufficient to enable that body to deal efficiently with the various evils affecting the public health, and calling upon the town council to appoint a body of nuisance inspectors equal to the requirements of the borough, and to go to Parliament for an Act to include all the powers that may be necessary to place Leeds on a satisfactory footing as regards the health of its inhabitants. A memorial embodying these views was adopted for presentation to the town council; and an association was formed to collect information bearing upon the sanitary state of the borough, and to decide what steps ought to be taken to promote an improvement of the public health. Another topic intended for discussion by the meeting, viz., the erection of larger and more suitable dwellings for the humbler classes,—was, in consequence of the prolonged discussion, postponed to a future occasion.

Fever in Waterford.—The fever hospital is every day crowding with new patients, principally from the town and district of Mullinavat. So unexpected has been the increase, that the workhouse master had to apply for twenty new blankets, in addition to his present stock, to meet the emergency. The disease presents the features of one of the most malignant types of fever.

The Mortality of the Principal Towns in the Kingdom.—The deaths for the past week in ten of the largest in the kingdom were 3,469. The births were 3,643. The average rate of mortality was 33 in 1,000, which is nearly double the average mean rate (17 in 1,000) in healthy localities. It is remarkable, however, that, of the ten, London is the healthiest of all, except Salford and Leeds, which give a return of 29 in 1,000, while London gives 30 in 1,000. The palm in the "bad eminence" of mortality must be assigned to Liverpool, which gives 42 in 1,000; but Manchester is not far behind, which gives 40, or Dublin, which gives 39.

THE SEWAGE QUESTION.

The examiner of private bills has reported that the Metropolitan Sewage and Essex Reclamation Company have not complied with the standing orders of the House of Commons, inasmuch as they have neglected to deposit plans of four miles of their culvert.

The promoters of this bill will thus have to petition the Standing Orders Committee to set aside the standing orders in their favour, and allow them to proceed with their bill; and there appears to be some chance of the opponents of the Essex scheme endeavouring to get the bill thrown out on this ground.

The inhabitants of Woolwich have had a public meeting to consider the question of the utilization of the metropolitan sewage and the reduction of local taxation. There was a very numerous attendance in the Town-hall, and resolutions were carried against the Essex scheme, and not much in favour of the Metropolitan Board for "betraying" the ratepayers, but thanking the City Corporation for opposing the Essex scheme, and agreeing to a petition to parliament against that scheme, and for a committee of inquiry.

The sewage question seems to have become the great question of the day everywhere throughout the country. At the Society of Arts, Adelphi, a paper "On London Sewage from the Agricultural Point of View" was read last week by Mr. John C. Morton. Towards the close of it Mr. Morton said:—

"Although I have not been able to overtake, within the allotted time, all the grounds on which an opinion must be formed, yet the conclusion to which I believe that the agriculturist is led after a study of the subject is, that grass as the produce and ordinary irrigation as the method—both as involving a minimum of labour—are the proper agents by which the conversion, which we all desire, of London sewage into London milk will most profitably be obtained.

Another principal conclusion is, that the profitable conversion of the enormous addition to the grass growth of South Essex, which will follow the use of London sewage, can be expected only through a great and therefore necessarily a gradual extension of the London milk trade.

Lastly, as a help out of this—one of the main difficulties which threaten the immediate profitability of any scheme for using London sewage—I hope that experiments may be instituted as to the possibility of artificial hay making.

I have made no reference to the nuisance which may be expected from that agricultural use of this sewage that experience elsewhere seems to have recommended. I believe that the efficacy of the sewage as a manure will be dependent, to some extent, on its being already in a putrefying state; and no doubt a certain nuisance will be created. But if any alarmist here, ready charged with a denunciation of these plans on this account, be about to frighten us all with accounts either of putrid miasma and resultant fevers, or of new parasitic enemies, which through rotten sewage, rank and filthy grass, unhealthy cows and unwholesome milk, are thus to find their home in our bodies, breeding there disease and death, I hope that he and all of us will bear in mind that 400 acres of land, treated more wastefully and filthily than any of the London schemes propose, have been for a century and more under the very noses of the Edinburgh people; who have, moreover, been fed for generations on the milk of the cows which have consumed this sewage grass. If any evils of the kind alleged are in the least to be expected, they must long ago have shown themselves in the death rate of so large a town; which, however, I believe, stands as low as that of any in the country."

In the discussion which followed, Lord Robert Montagu, Mr. Walker (of Rugby), and Mr. H. Webber took part; and Mr. Webber said that, having been resident in Manchester for thirteen years previous to 1856, and his business (that of a cheese factor) having brought him into communication with farmers, he had seen the most astonishing results from the utilization of sewage. He might mention one case in particular within his own knowledge, in which the area of grass land was barely sufficient for the maintenance of seventeen cows, the average yield of which was 2½ cwt. of cheese per annum, and the same area of land was, by the application of sewage, made capable of supporting forty-seven cows, the average yield of which was 3½ cwt. of cheese per annum each. This was sufficient, he thought, to show the great fertilizing property of the sewage. Notwithstanding the great practical knowledge of Mr. Morton on this subject, there were some conclusions which that gentleman had drawn with which he (Mr. Webber) could not concur. He thought, however, that Essex, which might be said to have just been recovered from water, was not the best place for such an experiment as that about to be tried, and that a preferable district was that of Surrey, where they would find a dry parched soil, much better suited for the application of the sewage, which would convert that which was now almost an arid sand into good fertile soil. He believed that to take the sewage into Essex would be a failure, and the result of that failure would be to set aside, for centuries, perhaps, any further attempts to give an agricultural value to this product.

With reference to Mr. Morton's allusions to parasitic enemies, &c., we may here observe that he alludes to a letter addressed to the English public by Dr. Spencer Cobbold, the well-known investigator of parasitic worms, in which he cautions the public against employing sewage matter as manure. By the present system, Dr. Cobbold thinks that billions of eggs of entozoa (tape worms, &c.) are annually swept away into the ocean; but if the accumulation of our sewers be spread over the country, all the conditions favourable to the development of these ova, he thinks, will be promoted: the larvae will find their way into snails and vegetables, and into our cattle; and entozootic diseases will, from the extent to which they will range, constitute one of the greatest plagues that have ever been inflicted upon this nation.

Entomology and kindred pursuits have heretofore been rather despised than otherwise by students of a higher order of science; but as a branch of sensational science they seem to be coming out with a vengeance. Mr. Morton's remarks as to the utilization of sewage for generations at Edinburgh ought to show how dangerously false such sensational speculations may be; and as regards the question between the land-snails and the cattle on the one hand, and the sea-snails and the fishes on the other, we would suggest that the sea is quite as likely to introduce the unwelcome "guests" into our interiors as the land. If any question of a like order more especially merits attention, we should think it is whether human food produced by help of human excreta can be wholesome; but even that question has surely been settled by the market-garden produce of town suburbs.

At Edinburgh, Mr. Charles Cowan, of Valleyfield, paper manufacturer, has been reading

a paper to the Royal Scottish Society of Arts, of which he is the president, on the Sewage of Towns. So satisfied is he with the Craigentinny irrigation and its results that he proposes to extend it largely in other neighbourhoods of Edinburgh. There are hundreds of acres of sand, he remarks, on the shores of the Firth of Forth, to the east of the town of Portobello, left dry at low water, which, when embanked and reclaimed, would be well fitted to receive the sewage water; and there is a considerable extent of links at or near Musselburgh, which would give as large a result as that from Craigentinny. As ratepayers, he adds, citizens have a deep interest in the solution of this question. If even 10,000l. per annum could be obtained by a sale of a portion of the sewage-water, it would be justly hailed by the citizens as a great success, and would lighten sensibly the Edinburgh police rates.

A second portion of his subject related to the soapy water used by the soap-makers, and what ought to be done with it; but we need not enter into this subject, which he proposes as a problem to the Society of which he is president.

The superintendent of the scavenging and night-soil department of the City of Manchester, Mr. John Wallworth, has addressed a letter to the Lamp and Scavenging Committee on the subject of town sewage. Very naturally Mr. Wallworth thinks, like the shoemaker, that "there is nothing like leather." He looks with an evil eye on water-closets, if not too upon drains and sewers, and goes in for ash-pits. The night-soil has all been nefariously abstracted from the ash-pits, and what remains in these has become quite unfit for agricultural use; and what is to be done with it shortly it is hard to say; whereas with the old material back again amongst it, it would make as fine a compost as ever for the use of the farmer.

Our municipal authorities and our ratepayers are everywhere ruminating on the great question of the day. At Slough, just now, preparations are being made for a trial of the sewage-utilization system. The engineer, Mr. Curley, has reported to the local Government Board on the subject, and his report has been approved of. He says there are not many places so well situated for utilizing sewage as Slough. He proposes works to cost 5,300l. to begin with. Much discussion is going on at Bournemouth on the question of drainage and the disposal of the sewage. Of the existing houses there, it is said, more than one-third are still without drainage, except into cesspools. The Dublin people are astray on the same subject. A highly influential and numerously attended meeting of the inhabitants of Clontarf and the adjoining districts has been held for the purpose of taking measures to oppose the Bill about being introduced into Parliament for utilizing the sewage of the city. This they intend doing on the ground that the plan proposed would prove injurious to the health and comfort of the residents along the shores of Clontarf, Sutton, Baldoyle, &c. In fact, the question is one which is getting so universal in its interest, that it is literally impossible to give any record of what is everywhere being done; and we can only thus now and then pass lightly over a few of the most salient points in the news of the week relating to this all-important subject, as we now do.

OUR HOMES AND THEIR ORNAMENTS.

On the 16th ult., Mr. Davidson, head master of the Chester School of Art, gave a lecture under this heading, at the Handbridge Reading-room. After sketching a theory of the early history of building, from Cain downwards, he spoke of what was being done at the present time. "Let but the architect," said he, "feel the responsibility of his noble profession, let him be conscious that it is his glorious privilege to write a page in the history of the human family, more lasting by far than that of a Goldsmith or a Macaulay; that by his work will generations yet unborn judge of the habits and spirit of this period, as we do of the people long since passed away." (?) But even this is not the whole of the responsibility of the architect. It is his task to contribute, not only his assistance to the future, but he has the comfort, the convenience, the health, the morality—nay, the very lives of his fellow-creatures in his hands. It is to the noble spirit of our architects of the present day that we owe our widened streets and our well-ventilated dwellings. They have torn down the rookeries in which the workmen and the poor were huddled together in misery and suffoca-

and have raised commodions and healthy
for the labouring classes; and these improve-
ments alone will ever remain as a noble contrast to
period when all recorded of what was done for
workmen who built the Pyramids was that
immense amount of money was spent on
bees, onions, and garlic. But we must edu-
cate our workmen,—we must teach them that a
pledge of science and art will enable them to
take the work entrusted to their care with
their skill. Let us prove to them, the more
understand of the construction, the better
they carry out the design. Let us improve
homes, and place in each that greatest of
ornaments—the word of God; let us ameliorate
their position, and give them healthy recrea-
tion, then their spirit will be in their occupation,
it will become a labour of love.

PRODUCTION OF NATURAL FORMS IN ART AND MANUFACTURE.

The lectures which Mr. Waterhouse Haw-
kins delivering on this subject, at the Society
rooms, he has endeavoured to show that the
education of the hand, with regard to art, con-
sists to be in excess of that of the mind. To
reach to any degree of fame in the higher
branches of art, the artist must possess some
feeling; but as there were those who could
speak good English without being his-
torians or poets, so there were artists possessing
a certain amount of good sense, which, when it
acquired good taste by education, could be
more real service to manufacturers than the
most ideal powers when not submitted to a
regulated mind. But the artist who was
willing to aid manufacturers must obtain some
knowledge of the process and materials by which
works were to be multiplied. In the fourth
lecture, on the 23rd ult., he called their attention
to metal work. The various metals—iron, brass,
copper, and the precious metals—were so com-
monly used in the every-day necessities of life,
from the cottage to the palace, and in our
shops and other public buildings, that there
was a vast demand for the combination of art
with these materials. Mr. Hawkins sketched on
black canvas several instances of defective
work in metal work, pointing out the paucity
of invention which induced our artists to become
imitators. He censured the incessant use
of reproductions of flowers in every material—
in leather, gutta-percha, porcelain, and iron.
He also showed how unfit feathers, flowers, and
leaves were to form part of the decorations of
iron gates; and even when water-lilies were
induced very appropriately into a design for a
fountain, he remarked that had the
artist exercised his thinking faculties he would
have placed these flowers at the top of a high
column, or formed by tree branches, in total violation
of their natural position, which was floating
floatantly on the surface of the water. The
speaker proved the necessity for a knowledge of
the processes of casting to those who design
models for reproduction in metal, by demon-
strating the difficulties which were often thrown
in the way of the moulder by the inattention of
the artist to the requirements of the process. If
the designer had merely learnt to draw, and not
model, he would find great difficulty in adapt-
ing his designs so as to avoid "undercuts," and
render it necessary to divide the mould, in-
creasing the labour and adding to the ex-
pense without necessarily enhancing the beauty
of the work. During the lecture the observa-
tion of metal casting was illustrated by a work-
man who was making a sand-mould from a
number of anrochs. The process the lecturer
rendered intelligible by his outlines on the black-
board. At the lecture on Monday, January
10th, metal was poured into the mould, to com-
plete the demonstration of the process of metal
casting.

THE HALIFAX ARCHITECTS AND BUILDERS AND
CORPORATION.—On Wednesday, the 1st, a de-
cision from a meeting of architects, builders,
masons, and others, waited upon the Halifax
Council to express their dissatisfaction
with a number of the new building by-laws and
clauses in the Corporation Bill to be laid
before Parliament. It was urged by the de-
puty that the by-laws, &c., in question were
arbitrary, prejudicial to the rights
of property, and would increase 25 per cent. the
cost of new erections. The various objections
were referred to the improvement committee.

THE ARCHITECTURAL MUSEUM.

A course of lectures will commence early in
March. The inaugural lecture will be given by
the president, Mr. Beresford Hope, on "The
People's Share in Art," when the prizes to
the art-workmen will be presented. Papers on
the following subjects will continue the course:
—On "Ancient Christian Towns in Central
Syria," recently discovered by Count M. de
Vogüé; by the Rev. George Williams, B.D.;
on "Ornamentation as a Hand-maid to Archi-
tecture," by the Rev. Canon Rock, D.D.; on
"Bells," by the Rev. J. H. Sperling, M.A.; on
"The Precinct of a Gothic Minster," by
the Rev. Mackenzie E. C. Walcott, M.A.; and
on "Female Proficiency in Architecture and the
other Arts," by Mr. F. T. Palgrave.

RESTORATION OF TUAM CATHEDRAL.

The Vicar of Tuam, the Rev. C. H. Seymour,
has forwarded to us a copy of Mr. Thos. N.
Deane's report, with a view to direct attention
to an appeal for aid in our advertising columns.
The architect says,—“I cannot but feel regret
that it is found necessary, from want of funds,
to restrain the rapid progress of the work. It
has now arrived at a point that it is not desirable
to stop at; and I should most strongly urge
that a great effort should be made to roof the
building.”
“Surely,” writes Mr. Seymour, “the princely
example of Mr. Guinness in Ireland, and of Miss
Burdett Coutts, and a host of others, in England,
should stimulate some of the rich and prosperous
children of our Church to give us the help we
so much need. God dispose them so to do.”

SAINT MARGARET'S CHURCH, LEICESTER.

Two stained glass windows, by Mr. A. Gibbs,
have recently been placed in the west end of the
north and south aisles of this church, a bequest
of the late Mr. Highton, of Leicester. The
tracery, which is of an elaborate character, by
Mr. Scott, in Bath stone, has displaced an
abortion of the Batty Langley style, by a Mr.
Furnage, some sixty years ago an architect of
the town. The decayed ashlar surrounding has
all been cut out and replaced with Attleborough
stone, and the copings and parapets have been
taken off and restored. The north-west buttress,
which underwent some few years ago a very
indifferent restoration, has been taken wholly
down and rebuilt to harmonize with the other
parts of the work. The masonry has been ex-
ecuted by Mr. Joseph Yates, of Saint George's,
Leicester. The south porch, which is a good
specimen of the Perpendicular style, with a fan-
groined vaulted roof, now in the last stage of
decay, is to be restored by Mr. Yates, under the
superintendence of the same architect.

THE OPERA-HOUSE IN THE HAY- MARKET.—THE “QUEEN'S THEATRE.”

In our remarks last week on the destruction
of theatres by fire, we said by the merest slip of
the pen that the first Opera-house built in the
Haymarket, and burnt down in 1789, was by
Novosielski, instead of Vanbrugh. Novosielski,
as every one knows, built its successor, the
present house. Nash & Repton, however, altered
and enlarged the original building in 1819. A
correspondent on the subject (J. H. Barn) writes
as follows:—

The first opera-house in the Haymarket was
built shortly after the accession of Queen Anne,
by Sir John Vanbrugh, and named, in compli-
ment to her, the Queen's Theatre. It was de-
stroyed by fire in 1789, as you say, and I have a
large highly-finished drawing of the ruins, by
William Capon, then scene-painter at the Circus,
subsequently the Surrey Theatre. Distinguished
by his architectural excellence as a scene-painter,
he highly prized this drawing; and those who
remember his drawing-room, at his residence,
No. 4, Church-street, Westminster, will recollect
it, richly framed and pendant on one of the
doors.

Novosielski rebuilt the Opera-house with so
much skill, that it is still second to no theatre
for its superiority as to sound. He also built
the King's Concert-room, for the performance of
ancient music, in Tottenham-street, Tottenham-

court-road; and its acoustic merits were then
generally the theme of praise, till the King's
mental derangement served to repress these
attractions at Court. The concerta were discon-
tinued, and the Pic Nic, under the conduct of
Colonel Greville, established there their Amateur
Private Theatricals; but the bewitcheries of
these high-born aspirants for histrionic fame
were dispersed by the patentees of the Theatres
Royal, aided by the strong arm of the law.
Falling wholly into disuse, a pawnbroker, named
Paul, to gratify his wife's humour of reigning
supreme, as the Melpomene of the hour, con-
structed these rooms into a regular theatre; but
the lady failed to achieve all she expected, and
disappeared. Under Beverley, it opened as the
Regency Theatre; and under Chapman & Mel-
rose, as “The Theatre in Tottenham-street,” till
Mr. Macfarren, father of the now able musician,
fancied much might here be effected in estab-
lishing an English Opera. Chapman & Mel-
rose were displaced; and a new name, that of
“The Queen's Theatre,” was adopted on the sug-
gestion of the writer, simply because it lacked
a name, and the Italian Opera was designated
“The King's Theatre.” Now, Miss Marie Wilton
announces the Queen's Theatre, in Tottenham-
street, will be opened by her, at Easter, under the
appellation of “The Prince of Wales's Theatre,”
unwisely, as it seems to me. Macfarren failed
there, after having produced, in a praiseworthy
manner, Handel's “Acis and Galatea;” “Tact;”
“The French Spy,” with Madame Celeste Elliott,
disguised as the Arab boy, which ran fifty nights;
and other well-represented pieces. The walls of
the Queen's Theatre are those which Novosielski
raised.

THE FALL OF SCHOOL FLOOR, WESTMINSTER.

At the adjourned inquest on the sufferers by
this accident, held on the 6th inst., amongst other
evidence, Mr. George Valliamy said that he was
architect to the Board of Works, and had in-
spected the school. The witness then read a
report which he had drawn up for the Board.
The chief points of the document were to the
effect that the building was generally well con-
structed. The beams of the floor were of suf-
ficient size. “The one that gave way was 20 ft.
in span, 13 in. by 13 in., and supported joists
tenoned into it. Such a beam should have
borne a breaking-weight of 40 tons. The weight
on the floor, when the accident happened, was
about 7 or 8 tons, and as the next beam (which
was cracked) partly supported that weight, the
broken beam gave way at a strain of 4 tons. It
should have supported 10 tons with safety. But
it was American or yellow pine, quite dry, short
in the grain, and brittle. It had a longitudinal
fracture 5 ft. long. Baltic timber was the only
timber that should have been used in such a
position. The timber produced, he believed, was
yellow pine. In his opinion such timber should
not be used to bear any weight or in any floor-
ing. It was only fit for joiners' work. Builders
might use such timber, but an architect would
specify that Baltic timber should be used in the
flooring of such a school-house. Baltic timber
had fibre, and gave way always with a great crash.
The American timber had little or no fibre or
turbulence. For dwelling-houses, 1½ cwt. per
superficial foot was the amount which floors
were constructed to sustain. In a building like
the school the strength should bear 1½ cwt., and
in a factory the floor should sustain 2 cwt. or
2½ cwt. There was no doubt that the pushing
and standing on tip-toe to see the prizes,
exposed the beam to the greater stress. But if
the beam had been of Baltic timber, it would
have been strong enough to bear the pressure
put on it. The next beam had cracks in it, and
it would have come down if there had been a
little greater pressure. The dimensions of the
beams, 18 in. by 12½ in., were quite large enough
if the proper Baltic timber had been used.

By Mr. New: Witness had calculated for adult
weight—140 lb. He ought, perhaps, to have
allowed 150 lb. to each person. By the Building
Act all schools, &c., were to be inspected by the
district surveyor, who was to decide what was
necessary for the safety of the public, and in case
of a disagreement between him and the archi-
tect or builder, the matter should be
referred to the Board of Works.

Mr. New read the specification for the build-
ing, which stated that “no American pine must
be used, but that all joists, &c., should be of
Baltic timber.”

The Coroner: You attribute the break-down

entirely to the nature of the timber used for the beams?

Witness: Yes, entirely to that cause.

A Juror: Was it not the surveyor's business to see to the description of the timber used?

Witness said that he could hardly state. He was not lawyer enough to decide what was the construction to be put on the words of the Act as to the "manner" of building an edifice.

Mr. George Smith, South-street, Grosvenor-square, said that he was the builder.

The Coroner said that he was bound to tell Mr. Smith, as he was the contractor for the building, that he need not give any evidence that might criminate himself.

Witness said that he had nothing to evade. Mr. Foxhall—since dead—was the architect of the building. Witness had not either the specification or the drawings. In the copy of specifications put in, the timber was specified "Dantzic, Riga, or Memel." That was a very usual provision in such specifications. He had no doubt that his contract would include that provision. By some inadvertence the beams in question were at first put in of a smaller scantling, and he desired them to be taken out. They were taken out, and the present ones were put in in their place. He mentioned this to show that when his attention was directed to anything wrong, he had the matter set right. Therefore, it was not likely that he would put in American pine, which would be quite as bad as too small scantling. The timber produced was, he had no doubt, Baltic timber; but it had been artificially seasoned, apparently by the gas underground it. He could produce evidence as to his general way of carrying out his business. He had never used American timber for such work; besides it cost more than Baltic timber. He would undertake to say that the American timber he had bought for twenty years past for joiners' work cost more than Baltic timber would have cost.

By the Jury: He had no doubt that the part of a beam produced was either Memel or Riga timber. It was proper wood to put into such a building.

Mr. Richard Gill, Stanley-road, Hackney, said that he was foreman at the building during the erection. He had not a shadow of a doubt that the timber was Baltic. But he had seen cases in which Baltic timber, having been long in dock, had become very dry. There was a stove nearly under the beam, and it struck witness that it might have had the effect of drying the beam.

The inquiry was adjourned until (this) Friday.

We have little doubt but that the beam is of Baltic timber; probably Dantzic; but it has been curiously acted on.

NEW BOILER REGULATIONS IN FRANCE.

A MINISTERIAL decree has been issued in France relative to steam-boilers. The following is a *resumé* of the chief instructions issued:—

Every boiler, whether new or old, before it is delivered by the constructor, repaireur, or seller, is to undergo a proof under the direction of Mining or Ponts et Chaussées engineers. This proof consists in submitting the boiler to a pressure, double of what it is not to exceed when working, for all boilers of a working pressure between half a kilogramme and 6 kilogrammes per square centimètre (7.1 lb. and 85.3 lb. per square inch) exclusively. The surcharge of proof for pressures under these limits is to be constant and equal to half a kilogramme per square centimètre: for pressures higher than the superior limit the surcharge is to be 6 kilogrammes per square centimètre. The proof is to be made by hydraulic pressure kept up as long as is necessary for the examination of all parts of the boiler. If the proof be satisfactory, a stamp indicating in kilogrammes per square centimètre the effective pressure that the steam should not exceed, is to be affixed to the boiler in such a manner as to be visible after it has been put in place. Two safety-valves are to be provided for each boiler, to be weighted so as to allow the steam to escape before, or at least as soon as, the pressure arrives at the quantity marked on the stamp, placed in view of the fireman, showing the pressure of steam in the boiler. All boilers are to have apparatus of sufficient and effective power for supplying water to them.

No steam-boiler, to be employed in a building, is to be established without a declaration being made to the prefect of the department. Certain boilers are to be established only outside a house or workshop having an upper story where

workmen are in regular employment. No boiler of the first class is to be placed at a less distance than 3 mètres (9 ft. 10 in.) from a neighbour's habitation. All furnaces of boilers, of whatsoever class they be, are to consume their own smoke. Six months' delay is accorded to manufacturers to whom no notice was given at the time of authorisation, to execute these last dispositions. The boilers of portable engines are to be submitted to the same proofs, and furnished with the same safety-apparatus, as boilers established in a fixed place; so also are locomotive engines.

"DIRECT COMMUNICATION BETWEEN LONDON AND CALCUTTA, BY LAND, IN A FORTNIGHT."

My son has drawn my notice to the letter of Mr. Sankey, in your impression of the 21st ult., under the above heading, in which occurs the following passage:—"But the scope of this article is to draw attention to a subject which I was the first to bring under public notice, namely, *direct railway communication with India.*" My son, jealous that I should not lose what reputation belongs to the origination and promulgation of so grand an idea, suggests that I should not let the above passage in Mr. Sankey's letter pass quite without notice, and hence this letter to you, for which I respectfully ask insertion in your next number.

I have been since the year 1835 intimately connected with railways in all parts of Great Britain and Ireland; I have also had remitted to me important statistical and other investigations in respect to railways in Algeria, Canada, the United States of North America, and Denmark.

About twenty-three years ago I became personally acquainted with the late indefatigable Lieutenant Waghorn, the originator of what is called "the overland route to India." This always struck me as somewhat of a misnomer, and, at the time I mention, induced the thought suddenly to cross my brain of the practicability of constructing a railway direct from Calais, by way of Constantinople, Turkey in Asia, Persia, and Afghanistan, to Calcutta, thus having a really "overland" route, which, at the time, I said might be traversed by express trains in six days. In a few months after I added to my original scheme "an extension to Canton."

At first I was so overwhelmed by the vastness of the scheme as scarcely to dare to mention it except to a very few personal friends, who, of course, set me down as a very dreamer. In 1843-4, however, I commenced to elaborate the first sketch of my brain, and in the geographical statistics I was aided by Dr. Black and another friend, both of whom I believe are now living.

At this time our great railway mania set in, and I was for several years largely engaged, for Parliamentary purposes, on projected lines all over Great Britain and Ireland, and in course of my travels on these duties I made known my great scheme to numerous engineers and others, officially engaged in railway affairs, many of whom are now dead, but still many living. Suffice it to name two of the latter,—Mr. John Collier, C.E., and Mr. Edwin Clark.

To have an unbroken chain of communication from Calais to Calcutta, by the route I have mentioned, I found at least one great physical difficulty to be overcome, namely, the passage of the Bosphorus. This I proposed to effect, for reasons which I need not now state, a little to the north of Constantinople, at the site of the Castles of Europe and Asia. In the year 1846 I mentioned this to Mr. Edwin Clark, who was then actively engaged in the construction of the Britannia Bridge over the Menai Straits, and I and some members of my family well remember his reply, to the effect that I might rest satisfied on that head, for his experience in the great work on which he was engaged enabled him to say that a bridge across the Bosphorus was quite practicable.

Since 1842 I have taken every fitting opportunity of mentioning the project, especially to parties who, I believed, might, in one way or another, aid it. At the outbreak of the Crimean war I had the pleasure of making the acquaintance of General Chesney, under whose command the exploration of the valley of the Euphrates was conducted, by order of Government, more than thirty years since, and to whose Blue Book I am much indebted for valuable information. To this officer I gave an outline of my plan, and we have had several conversations about it since.

Again, when crossing the plains of Algeria, in 1858-9, I laid it before Mr. Eugene Caillaux, Ingénieur des Ponts et Chaussées, who expressed much interest in it.

But, sir, the best epitome of the history of this subject is, I believe, to be found in an octavo volume (published by W. H. Allen & Co., in 1857), from the pen of Mr. W. P. Andrew, the chairman of the Scinde Railway, and the early and indefatigable promoter of railways in India generally. To all who take an interest in this great project the following passages, from page 5 of that work, will be acceptable. Mr. Andrews himself extracts them from an author unknown to me, whom he calls "a recent and able writer":—

"In this country, ever since the first exploration of the Valley of the Euphrates, by General Chesney, the advantages of such a route to railway or steam communication have not ceased to press itself upon all thoughtful and intelligent minds. Indian railways, which were brought to the notice of Lord Fitzgerald, the president of the Board of Control in 1842, seem, however, to have been the basis of legitimate projects of overland routes, as contrasted with the mere visionary schemes."

The first edition of Mr. W. P. Andrews's work "Indian Railways, as connected with the Power and Stability of the British Empire in the East, the Development of its Resources, and the Civilization of its People, with an Analysis of the Projects now claiming Public Consideration," was published in 1854. This was the first great work which finally led to the project of establishing a communication between the railways of India and those of Europe. The line of Rajmahal, and by the valley of the Ganges, in Bengal, which was originally recommended by Mr. Andrews, was, it is true, for a time suspended by the Mirzapore direct project of Mr. R. M. Stephenson, but it, the Rajmahal line, was that which was ultimately adopted by the authorities, and Mr. R. M. Stephenson was ordered to carry it out. Mr. Andrews's energy was, however, only thrown thereby into a new and more important channel, and he was enabled to carry out a valuable project of a Scinde railway, from whence has arisen the still more recent scheme of a connexion between that railway, the Valley of the Euphrates, and the Mediterranean.

Not that there were any want of projectors at home. Mr. William Pore, of the Seville Iron Works, in Dublin, elaborated a scheme of a Calais, Constantinople, and Calcutta railway. This was abandoned in 1845, when Mr. Campbell, viz., from Ostend, 644 Vienna, Belgrade, Constantinople, across Asia Minor to Aleppo, and along the Valley of the Euphrates, skirting the seaboard of Persia and Beloochistan to Kurrachee, and thence to Calcutta.

And now, sir, although, so far as I am aware, the paragraph above extracted in which my name occurs is the earliest in type in which I am mentioned in connexion with this great project, it will be evident from what I have herein stated, that I by no means hid my candle under a bushel. The first publication I ever saw of heard of on the subject was in 1845 or 1846, in the shape of a small pamphlet by Mr. Baldwin, of Nant-y-Glo, in South Wales, which I regret I have not now at hand.

In Mr. Sankey's letter, which has called forth this, I perceive great earnestness, and I shall be happy to join with him and any others who have made the subject a study, in a vigorous attempt to complete the intervening links in the vast chain of direct railway communication between London and Calcutta and Canton. When I first thought on this subject there was not a single mile of railway constructed on the continents of Europe or Asia. Now we have lines stretching to not a great distance from Constantinople on the European side; from Calcutta to the north of India on the other. I believe the Sir R. M. Stephenson is now engaged on a projected line between Calcutta and Canton. I know that lines through Asia Minor have been surveyed, and I have reason to think that the Shah of Persia is desirous of having them extended through his dominions. Surely by a judicious and concentrated effort we may achieve the grand project in its integrity.

WILLIAM PORE.
Datchet Lodge, Windsor, 25th Jan., 1865.

METROPOLITAN BOARD OF WORKS REPORT.

THE REPORT of the Metropolitan Board of Works, pursuant to Act, 18th & 19th Vict., c. 120, a. 200, for 1864, has been printed. It includes, besides the chief report by the clerk of the Board, Mr. Pollard, also the report of the engineer, Mr. Bazalgette, as to the Main Drainage and Embankment works, and that of Mr. Vulliamy, the Board's superintending architect, as to metropolitan improvements. The chief report refers to what has been done, in course of the past year, as to the main and local drainage; deodorization of the river; Thames pollution;

Lancaster.—A meeting of the chief merchants, brokers, &c., of Liverpool, convened by the Mayor, has been held in the Council Chamber, for the purpose of hearing the statements of the High sheriff (Sir J. P. K. Shuttleworth) and Dr. de Vitre, relative to a projected asylum for idiots in the six northern counties, which it is proposed to erect at Lancaster. There was a very numerous and influential attendance. The chairman said that, in the six northern counties

which had been indicated as the area of the proposed institution, the number of pauper idiots alone was nearly 2,000, while the number of idiots not indigent was great in proportion to their superior position. The central committee in Lancaster had in their eye an eligible site for an asylum, embracing about 40 acres of land near the town of Lancaster. The committee had already received subscriptions to the amount of 9,000*l.*, including 2,000*l.*, a grant, the residue of the Ripley fund. The mayor then read out a list of subscriptions from Liverpool gentlemen—non-subscribers to the original fund,—amounting to upwards of 4,000*l.* The proceedings terminated with the appointment of a local committee.

LIVERPOOL.

Sanitary Matters.—The prevalence of fever, and the mortality of the town, formed a subject of conversation in the Health Committee last week. Mr. McGown stated that the deaths from zymotic diseases in the previous week were 72 above the average,—in that week, 33; from typhus, 65 above the average in the former week, 55 in the latter week; and from small-pox, 18 above the average in the former, and 28 in the latter. The chairman observed that he had seen in the *Times* that the Registrar-General reported that the mortality in Liverpool was 41 in the 1,000. Dr. Trench, the local medical officer of health, said he supplied the data to the Registrar-General, who must have made his own calculations. He did not think that in the borough last year, as far as he could see, the mortality was as high as 36 in the 1,000. There were, however, periods at the beginning of last year when he was quite convinced it was above 41; but during the summer there had been a falling off in the number of deaths. The average for the year was the proper average; the average for the week really meant nothing.—The authorities are taking measures to diminish overcrowding in the dwellings of the poor; but, with the system of sub-letting to deal with, they appear to be at a loss how best to effect the object in view.

The Fever Epidemic at Liverpool.—A report on this subject by Dr. Buchanan has been printed. In his summary as to causation he says:—To sum up the present section of the subject,—the reason why typhus is always present in Liverpool may be defined. Destitution, dirt, and intemperance, with overcrowding and bad ventilation of streets and houses, are the conditions that keep up the disease steadily from year to year. The reasons why typhus has become epidemic are not so clear. The only positive conditions that have been ascertained appear to be these—slight but steady increase in overcrowding, some increase of immigration and of distress at the end of 1861, some increase of vagrancy, and with these some influence in each autumnal season. But these causes are not sufficient to account for the epidemic. The actual mortality from the fever he reports is not great, being only about 6 per cent. of the attacks in home cases, and 14 or 15 per cent. in the worst or hospital cases. The Irish have suffered most severely. We must here remark, as to causation, that the probable increase and prevalence of fever was predicted in the *Builder* so soon as the last summer began to show itself as an unusually dry one. This also occurred on a previous occasion; and, *vice versa*, an unusually wet summer ushered in an unusually healthy winter a few years since. Typhoid fevers are well known to be produced by foul drains and sewer emanations; and though typhus is more generally attributable to foul air from overcrowding and close apartments, it must at least be greatly aggravated by the typhoid cause, where there are foul drains added to overcrowding.

New Four-wheeled Cabs.—A Liverpool "Reader" of the *Builder* says,—“We have four-wheeled cabs in Liverpool with the fronts all glass, same as the sides, and the driver sits behind, same as a hansom. These cabs are very superior, and, in fact, look more like a private brougham than a public conveyance. Of course, being public vehicles, the fares are the same as others.” He thinks ladies may prefer these to the two-wheeled hansom cabs; but why should gentlemen prefer being pitched head foremost out of a cab, as we have seen both passenger and cabman, from the stumbling of a hansom cab horse? Besides, the hansom cabs are inconvenient and draughty, as well as unsafe. A four-wheeler, with the cabman behind, is certainly an im-

provement on the hansom in respect to both safety and convenience. It was some such cab we suggested the desirability of having, as an improvement on the present forms of cab.

CHURCH-BUILDING NEWS.

Culford Heath (Suffolk).—A church, capable of accommodating from 200 to 300 persons, has been consecrated at Culford Heath, by the Bishop of Ely. The architect was Mr. A. W. Blomfield. The style of the church is Early Pointed. It consists of a nave and chancel, forming a single chamber of uniform dimensions, and a small vestry on the north side, which is only partially separated from the body of the church by the organ. The exterior is of flint rubble, with stone dressings, and bands of cut flint and stone. Under the east window a band of stone-work is inlaid with quatrefoils of cut flint and coloured tiles, and a slight inlaying of tiles also adorns the two buttresses at this end. The roof is high-pitched, and a bell-turret of ornamental timber-work rises from it immediately over the commencement of the chancel. The windows in the nave are three in number, on each side, each of two lights, with circular tracery above; those in the chancel are lancets, with trefoil heads. The east window consists of three trefoil-headed lancets, the middle being higher than the rest, each surmounted by a trefoil-shaped light, the space between the under sides of the upper lights and the tops of the lancet-windows being pierced with small triangular-shaped openings, filled with coloured glass. At the west end a simple lean-to porch of timber-work is surmounted by a rose-window of simple design. Every window is filled with stained glass. The subjects of the east window and the chancel-window are “The Agony in the Garden,” “The Last Supper,” “The Crucifixion,” “Our Lord with the Two Disciples at Emmaus,” “The Ministry of Christ,” and “The Descent of the Spirit.” The windows in the nave illustrate the life of St. Peter, to whom the church is dedicated, the different subjects being in shaded outlines of a pale brown on a white ground, after the manner of Retsch and other German artists. The rest of each window is filled in with pattern-work on a green ground. The glass is all from the workshops of Messrs. Lavers & Barrand. The heads of the three lights of the east window are supported by columns of Purbeck marble, standing clear, with carved hands and capitals, and of equal height, the head of the centre light being stilted. An inlaying of coloured marbles is also introduced in the vousoirs of the arch which surmounts the whole, and relieves the blank space above the window. The church is paved with tiles by Godwin, of Lugwardine. A barrel organ, by Corps, of Norwich, has its pipes illuminated, and forms a screen for the inclosing of the vestry. The benches are of oak, by Mr. Petch, of Culford; and the whole of the construction has been executed by the builders and workmen connected with the Culford estate. The church has been erected by the Rev. E. R. Benyon, lord of the manor.

Leyton (Essex).—The new church of All Saints here is cruciform in plan, and consists of nave, 80 ft. 4 in. by 27 ft. 6 in.; chancel, 27 ft. by 20 ft.; transept, 64 ft. by 19 ft. 9 in.; vestry on the south side of chancel; south porch and organ-chamber on north side of chancel, with archways to north transept and chancel. Over the south transept gable is a bell-turret with buttresses, brick arch and moulded and carved saddle-stone with wrought-iron cross. The height of nave to ridge is 49 ft. The style adopted is Middle Pointed Gothic. The nave is divided into three bays. In the centre bay, south side, is an open porch, with shafts of Lizard Serpentine marble, moulded bases, carved caps of the rose and lily, and moulded stone archivolts. The relieving arch is in coloured bricks rubbed and gauged. The other bays are filled in with three-light windows with tracery, the rear arches being in white brick. At the west end is a porch with arches, &c., formed in coloured bricks, and over it a rose window, 14 ft. in diameter, filled in with tracery, the cuspings representing a crown of thorns. Each transept is lighted by a three-light window of lofty proportions in the gable, with tracered heads. The chancel has a large five-light window, with tracery in the head, and two single-light windows in the side, also with tracered heads. The east window is filled in with rich stained glass by Messrs. Clayton & Bell, and is erected as a memorial to three members of the family of

the donor, Mr. G. C. Capper, of Leyton. The rose window and the small chancel window are glazed with cathedral and other windows with plain glass. The walls internally are faced with malm brick, with red and white brick bands, &c. The chancel and transept arches are formed of similar materials, the inner ring of the chancel arch being supported on carved stone corbels. The roofs are open, boarded, and stained and varnished. The seats have oak, &c., bench-ends; those to chancel, moulded, and with carved finials. The reredos was presented by Mr. W. Evans, of Walthamstow, and is painted on canvas. The chancel is paved with Minton's tiles, and nave and transept gangways with blue and red Staffordshire arranged in devices, and the porches with York. The nave and transepts are lighted by four coronas, and the chancel with two ornate brass standards. The church will seat 560 persons, and the whole of the works have been executed by Mr. Ennos, of London, for the amount of the contract, 2,147*l.* The architect was Mr. W. Wigginton, also of London.

Leighton Buzzard (Beds).—At a recent meeting of the committee appointed to carry out the arrangements in connection with the erection of a new church at North End, Leighton Buzzard, it was unanimously agreed that an architect be advertised for to erect a church, at the cost of 2,600*l.*, to hold 500 persons. Designs to be sent in to the committee.

Watford.—The rapid increase of the population around the district church at New Town, Watford, since its erection in 1857, made it necessary that the church should be considerably enlarged. It was, therefore, determined to erect a south aisle, which would not only meet the want for additional accommodation, but add to the uniformity of the church, which is a Gothic building of the Early Decorated style. The plans of Mr. Talbot Bury, of London, were adopted, by which 209 additional sittings would be provided, the sides 50 seats for the school children. The contract of Mr. G. Allen, of Watford, building was accepted, and the work has been completed at a cost of about 1,200*l.*, and the new aisle has been opened.

Bloxham (Oxon).—Plans for the restoration of the parish church have been prepared by Mr. Street, architect, and a statement calling for subscriptions has been issued by the parish authorities. The cost will be about 5,000*l.*, of which 2,825*l.* can now be reckoned on, including materials.

Southampton.—A new church is about to be built at St. Denys', Southampton, near Netley Abbey railway station, on the South-Western line; this will make the tenth church built in Southampton and its immediate neighbourhood within the last quarter of a century.

Hales Owen (Worcestershire).—The church bells have been restored. The first bell was cracked in the celebration of one of the numerous decisions of the Law Courts in the great case of *Small v. Atwood*. The inhabitants thought that the winning party ought to have presented the church with a new bell. The harmony of the peal was completely destroyed, about six years since, by the cracking of the bell in a peculiar way on Shrove Tuesday. The loss of the bells has been felt to be a great grievance by many of the parishioners, and the result has been a ready response to an appeal issued by the rector and churchwardens. The bells, to supply the place of those which had been rendered useless, have been cast by Messrs. Warner, of London, and the whole peal of eight bells has been heard again in Hales Owen.

Durham-down.—The parish church of St. John the Evangelist, Durham-down, built about twenty-five years ago, has been enlarged by the addition of transepts and by the extension of the chancel, on the north side of which has been placed an organ-chamber, and on the south side a vestry. The appearance of the interior of the church has otherwise been improved. The ceiling has been removed, showing the timber of the roof, and the church has been rescaled throughout, the high pews being replaced by open benches. The seats have also been rearranged, and the convenience of a centre aisle, as well as of two side aisles, has been afforded. The floors are of Minton's tiles, the aisles and transepts of the plain black and red, while the altar encasement tiles have been so used as to represent emblems of the four Evangelists: two on either side of the *Agnus Dei*. The chancel has been fitted up with stalls and a choir. A new heating apparatus has been provided, and

font has been recovered. The organ has been moved from the south gallery to the chamber provided for it in the chancel. By the enlargements accommodation will be found for 250 additional persons. The architect employed was (Gabriel; the mason, Mr. Case; the carpenter, Williams; and the painter and glazier, Mr. Perkins. The gas-fittings were supplied by Messrs. Hale & Sons. The enlargement has been carried out in harmony with the other parts of the Perpendicular building. The entire cost of the work has been between 2,000, and 3,000.

Barton-on-Irwell (Lancashire).—Sir Humphrey Trafford, Bart., is about to erect, at a cost of £20,000, a parish church at Barton-on-Irwell, to replace the building now used for that purpose.

Books Received.

Marshes of South Italy: A few Words bearing upon Land Speculation and Cotton Growing in Italy.—Malaria and Brigandage. By J. BAILEY DENTON, C.E. London: Chapman & Co. 1865.

RE any land on the face of the earth entitled to be called a Paradise, both morally and historically speaking, surely the very centre of papal power for nearly two thousand years is this centre the seat of true Christianity? It is to be that blissful region. With a mild climate, and an intelligent people, in an ancient and powerful origin, and with superabundance of the priestly element, their brigandage nor malaria ought to exist in this favoured land. Yet these are still, as they have from time immemorial been, the greatest parts of the country, and especially those parts of it which have been most lately and exclusively under priest-ridden rule. Their fruits ye shall know them." The present state of Christian Italy in these vital respects, instead of being an advance upon former times, is a shameful retrogression.

Mr. Bailey Denton, in drawing the attention of British capitalists to this subject at the present time, has done good service to Italy as well as England. Now that English capital is extensively engaged in Italian projects, it is to be clearly understood that an Englishman buying land in the marshes of South Italy has two enemies to contend with, which will not only live on the scene of his speculation—malaria and brigandage—the latter being likely to deprive him of his money as the result of his life.

There are and there in the low lands—where natural causes rendered the owner independent of his neighbours—science and mechanical power—may be observed in scenes of successful cultivation. In other cases may be seen efforts at improvement, such as the straightening of "canalisation" of river-courses, where they were once confined; the cutting of open drains where the waters of gravity would maintain a natural discharge; or where the rivers are charged with the detritus of hills, long beneficially carried out under the Government system of "bonifica," but nowhere is there to be seen an instance of the draining of the marshes them, in which recourse has been had either to mechanical means to lift and eject, or to under-drainage, to disperse the water that stagnates beneath the surface. In fact, *has any solid attempt been made to drain the marshes of Italy.*

On the contrary, not only no pains have been taken to keep pace with the growing wants of the world, but from the time when the State made the Campagna of Rome productive, and the Pontine Marshes habitable; when Livy, Dionysius, and Strabo showed that disease and poverty were consequences of deficient drainage; it appears that the spirit of industrial enterprise has declined in Italy, the industry and intelligence which made the low lands productive have given place to indigence and crime, the natural results of waste and disease.

It is known that the marshy lakes now existing on the coast, between Manfredonia and Barletta, were once fertile and habitable, the banks of which were the sites of Siponto and Salapia, and other flourishing and populous towns, the ruins of which are lost in the vegetation of the present marshes. Some efforts to reclaim the land have, nevertheless, been made in several periods. Peter of Toledo, in 1692, and Count di Lemos, in 1712, assisted by Domenico Fontana, partially improved the marshes of the Prince of the Princess of Sigilind, and made an attempt on the great plain of Foggia, which was owned by Ferdinand IV., who also undertook the reclamation of the Diano. The present state of these marshes is the unsatisfactory result of these efforts.

It is reflecting on the superior engineering sagacity of man, as evidenced by their works of drainage and supply, their sewers, and their aqueducts, the prediction of the plain strikes an English agriculturalist.

Denton's object is not to deter English capitalists from aiding in the regeneration of Italy, but, on the contrary, to show what must be done to that very end. Until the Italian Government give the requisite powers and incentives, no radical improvement can be made in the marshes, nor can British capital be made

remunerative, however impulsively it may be subscribed. The value of drainage, thorough and systematic, has yet to be learnt in Italy.

VARIORUM.

The *Quarterly Review* for January contains an appreciative paper on William Blake, illustrated from his works.—The leading paper in the *Gentleman's Magazine* for February is one on Aix-la-Chapelle, illustrated, in a letter from Mr. J. H. Parker, who went there for the benefit of his health,—we hope successfully.—The *Social Science Review* for February contains papers on Needlewomen, Punishment for Crimes, Children's Employment Commission, and other similar subjects.—The second issue of the *Englishman's Magazine* (February number) contains a variety of interesting matter, some of it of a semi-religious nature. One paper is on Town Churches, by Mr. G. E. Street, architect.—"Handbook and Appendix of Stations and Sidings." This is a convenient and useful alphabetical arrangement of names of places where there are railway stations and sidings throughout the country. It has been prepared by Mr. H. Oliver and Mr. J. Bockett, of the railway clearing-house. It is published by Smith & Ebbs, Tower-hill, London.

"City Sewers Commission Report on London Railways." Mr. Haywood has reported to the committee upon Improvements on the various railway projects affecting the City, in the new session of Parliament; and the report has been printed. Mr. Haywood states that the total area scheduled within the City for the several projects reported upon is about 31 acres, but of this about 18 acres are already authorised to be taken under existing Acts, leaving 13 acres scheduled for the first time, including 2½ acres of public way. For the present, the reporter says, "it seems absolutely needful that the commissioners should dissent from the whole of them." "Laxton's Builders' Price-book for 1865" is the forty-fifth edition, and is too well known to need notice. The present issue contains the whole of the "Metropolitan Building Act," and Notes of Cases and Decisions thereon. It is necessary to mention that in this price-book the charge for bricklayer per day (as for mason) is put down at 6s. 6d., labourer at 4s.; while in Mr. Burnell's, as mentioned recently, 6s. 8d. is allowed for one and 4s. 2d. for the other. This is a serious discrepancy, and should be reconciled.—The *Art-Student* for February is an interesting number, though the illustrations are scarcely up to the mark.—Amongst the illustrations of the new number of "London Society" are two very good ones. Some of the writing, too, is above its average.

Miscellaneous.

BOLTON TOWN-HALL COMPETITION.—According to a correspondent, the authors of the six selected sets of designs, named by us in our last, are Mr. Hill, Leeds; Mr. Turner, Belfast; Mr. Brodrick, Leeds; Mr. Lynn, Belfast; Mr. McCurdy, Dublin; and Mr. Woodhouse, Bolton.

THE WIMBLEDON PARK.—A crowded public meeting of the inhabitants of Putney (Colonel North, M.P., in the chair) has passed unanimous resolutions against Earl Spencer's Wimbledon Park Bill. It is rumoured that the Office of Woods and Forests, in a strongly-reasoned paper, have expressed disapproval of it. Lord Spencer will not, however, give up the enclosure; and "on that and other points" of his "scheme" would "prefer leaving the decision in the hands of Parliament."

THE SUFFERERS BY THE SURREY FIRE.—The members of the Stock Exchange, as usual with them on such occasions, have come forward most liberally. Mr. Henry Hill, F.S.A. and Mr. W. N. Rudge have collected there, up to the present time, 2351. 4s., of which they have paid to the committee 200l. They have further made special donations to Mr. Rowella, the clown; Mr. Beckingham, the pantaloon; and Mr. Vivian, the sprite, for the great and efficient services they rendered in saving life and attempting to prevent the spread of the conflagration; and whatever balance may be left will be handed over to the committee, should no other case deserving special notice come to their knowledge. We shall be glad if this mention of thoughtful liberality in one quarter should lead others to follow the example.

HOUSES OF PARLIAMENT.—Dr. Percy has been appointed by the First Commissioner of Works to succeed Sir Goldsworthy Gurney in the management of the warming and ventilation of the Houses of Parliament.

AN ARBITRATION CASE.—The builder of St. John's Church, Taunton, claimed 1,000l. more from the founder, the Rev. F. J. Smith, than the architect said he was entitled to. The case was referred to Mr. Cotterell, of Bath, and he has awarded Mr. Davis 750l., the Rev. Mr. Smith to pay all the costs of the proceeding.

BRADFORD WATERWORKS.—On Friday, Mr. Bateman, C.E., made an inspection of Doe Park Reservoir, and we are informed that the result seemed satisfactory, and calculated, when embodied in a report, as it will be in a few days, to allay any fears which may have existed with regard to the insecurity of the reservoir. The *Bradford Observer* says, the Mayor of Bradford, Mr. Ferrand, M.P., and other gentlemen representing the Bradford Waterworks Committee and the millowners in the district, were present during Mr. Bateman's examination.

LONDON AND COUNTY BANKING COMPANY.—At the annual meeting, held on the 2nd inst., the directors reported that, after payment of all charges, interest to customers, making provision for bad and doubtful debts, and presenting a gratuity to each officer, the net profits amount to 126,431l. 17s. 4d., which, with 21,726l. 16s. 2d. brought forward from last account, produces the sum of 148,158l. 13s. 6d. for appropriation. The payment of the usual dividend of 6 per cent. for the half-year was declared, together with a bonus of 12 per cent., making 18 per cent. for the six months: these payments will absorb 129,529l. 1s. 3d., and leave 18,629l. 12s. 8d. to be carried forward to profit and loss new account.

INDUSTRIAL EXHIBITIONS IN THE PROVINCES.—An exhibition of works of art and industry has been opened in Lancaster by the mayor, in presence of a large assemblage of the inhabitants. The Assembly-Rooms were chosen for the exhibition, but large temporary buildings had to be added. The title of the exhibition is comprehensive: it is "The Lancaster Exhibition of Works of Art and Industry, Floriculture, Manufactures, Specimens of Natural History, Dioramic and Panoramic Scenery, &c.," and is consequently of a most varied character.—A public meeting has been held at Hanley to promote an industrial exhibition for North Staffordshire. Appropriate resolutions were unanimously passed.

RESTORATION OF CHICHESTER CATHEDRAL.—The large assembly-room of the Town-hall has been filled with an influential assemblage to receive a report from Mr. Scott, the architect of the works, and to consider the present state and future prospects of the undertaking. The Earl of Chichester, lord-lieutenant of the county, presided, and the Duke of Richmond, the Bishops of Chichester and Oxford, Lord Henry Gordon Lennox, Mr. J. Abel Smith, and numerous other M.P.s were present. The architect in his report says,—"My suggestion is, that, after the connecting portions are carried up as far as the base of the clerestory (the height to which they are at present ordered), the next step should be to carry up the spire as high as the present scaffolding will be available; that is to say, about 40 ft., which, roughly speaking, will probably involve about one-half of its cost. . . . If we assume 9,000l. as the amount up to the commencement of Mr. Beanland's contract; 37,000l. as the amount of that contract, with a margin for contingencies; and 4,000l. as, roughly, the amount which may become due to the architects and clerk of the works for the same period, we have the sum of 50,000l. as against the sum of 38,000l., which may be taken as representing your paid and promised subscriptions, leaving a deficit of 12,000l. to complete the actual necessary work. In my first report, however, I mentioned that there would be some outlay necessary on other parts of the structure, which have been shaken, or otherwise damaged, by the fall of the tower. This is most especially the case with the north transept, which is in a very shaly state, and demands very considerable repair, not only for its own safety, but for that of the structure generally. I would, therefore, advise that the amount aimed at should be 15,000l." Appropriate resolutions were unanimously passed, approving of the report, &c.; and a sum of 6,416l. was promised and collected towards the sum required to complete the restorations.

RESTORATION OF SALISBURY CATHEDRAL.—A meeting of the Restoration Committee, held on Thursday, the Dean of Salisbury reported the progress which has been made in the preliminary works recommended by Mr. Gilbert Scott, before commencing operations in the tower. The foundations of the building have been underpinned, the basement moulding restored, and the drainage completed. Eight of the flying buttresses have had to be entirely rebuilt, while the others have been repaired. The only portion, in view of these preliminary works remaining unfinished, is the lead covering of the roof, and the restoration of the marble shafts, capitals, and bases. These were originally of Purbeck marble, but Mr. Scott has recommended the substitution of Devonshire marble, which is more equal in colour to the former, more durable, and less costly. Scott has explained the principles on which he proposes to deal with the most vital part of the whole work, —viz., the strengthening of the tower and spire. He said he hoped shortly to submit detailed plans and specifications for the work.

ILLUMINATED CHARTER ROLL OF WATERFORD
TEMP. RICHARD II.—Amongst the muniments
of Waterford, is preserved an ancient illuminated
roll, of great interest and beauty, comprising all
the early charters and grants to the City of
Waterford, from the time of Henry II. to Richard
II., including Edward III. when young, and
again at an advanced age: a full-length portrait
of each king, whose charter is given, adorns the
margin. These portraits vary from 3 in. to
9 in. in length, some in armour, and some in
robes of state. It deserves to be rescued from
oblivion, by the publication of fac-similes
of all the illuminations, and this has been de-
termined to do as soon as 400 subscribers are
obtained. It will be edited by the Rev. James
Graves.

TENDERS

For repairing, decorating, and enlarging stable house at Peckham Rye. Mr. Nicholas Luke, architect.
Colls & Co. £145 0 0
Smith (including Milton's tiles) 337 15 0
Brighton 336 5 0

For alterations and additions to the dwelling-house belonging to Mr. Moses, at Beedington Junction, Surrey. Mr. N. J. Joseph, architect. Quantities not supplied:-

Hardiman & Sandon	2740	0	0
King & Son	736	0	0
Kilby	732	0	0
Collier	723	0	0
Sturges & Mann	593	0	0

TO CORRESPONDENTS.

[illegible]

NOW READY.

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The Builder.

VOL. XXIII.—No. 1150.



Roman Antiquities
and
Modern Antiquaries
in Chester.

T the last monthly meeting of the Chester Architectural and Archaeological Society, the Rev. Canon Blomfield in the chair, Dr. Brushfield read a second paper on the Roman antiquities recently discovered in Bridge street, Chester. Our readers may remember that a year or so ago Mr. Tite, M.P., visiting through Chester, saw these remarkable remains, including the lower portions of two ranges of columns *in situ*; and not finding that one was investigating the matter, thought it very desirable that antiquaries generally should hear something about it, so took a great deal of pains to get measurements and drawings; and in January of last year laid these drawings before the Society of Antiquaries, to read a paper, wherein he ventured on a suggestion or two as to the probable purpose of the columns and the buildings.* The columns, on each side in number, occur within an archway, and on each side of which, ranging with the columns, are remains of Roman buildings, including a hypocaust: and Mr. Tite suggested that the building was a bathing establishment, and that the columns formed porticoes; or that they were the remains of a temple, or of a shrine or statues. Inclining strongly to the latter theory, he made a supposed restoration, filling in the columns at each end between the ranges, and supplying entablature and pediments, influenced to a certain extent by the temple discovered at Bath, and illustrated by Sir Robert Smirke. The evidence of the existence of a *cella*, nor any remains of an entablature, have been discovered in Chester. Dr. Brushfield, in his first lecture, fully reported in our pages at the time, without spice,† said Mr. Tite's paper was "full of inaccuracies both with regard to facts and conclusions," and promised to look further into the matter on his second address. This he did on the occasion to which we are referring, in a similar spirit of discourtesy. There was no evidence at all, he said, of columns at the ends between the columns; he had looked for evidence of arches, and, therefore, there never had been any columns, and it could not have been a temple. He did not point out that some of the side columns were absent, and that where they had stood, they were founded on the rock, there were, equally, evidences, although it was quite certain that columns had been there. He gave various reasons against the opinion of the remains having formed a temple,—some of them good as against the idea of a temple built strictly on the site, but have been laid down as Roman rules, though not as against an exceptional shrine or even for statuary, or for a covered walk for the frequenters of the baths,—if baths there were.

It might be urged as probable, that the columns formed a portico, or covered walk, in front of each range of buildings, the central space between the columns being open. Out of such discussions we get truth, or the nearest approach to it that may be reached. What we do object to, and do protest against, in the interest of science and good feeling, is the manner in which this was done, and for which it seems really difficult to account. Moreover, the rev. chairman did not improve matters; for, at the close of the lecture, he said that, since the first observations made by Dr. Brushfield had been circulated, Mr. Tite—

"Had seen reason to change his opinions. In fact, he had now come round to the views of Dr. Brushfield on the subject. He had written him (the chairman), a long letter in respect to the matter, and it would be only fair—in order to give Mr. Tite an opportunity of repentance and recovering his character—that he should read it. They would then see that Mr. Tite had come to the same views as Dr. Brushfield."

Such a statement seems to us, after reading the letter in the *Chester Chronicle*,—where, with the report of the discussion, it is printed,—quite extraordinary and indefensible. In the letter,—a very courteous one,—Mr. Tite states what led him to give some account of the remains (not knowing that others had been at work); the pains he had taken to obtain, at some cost, correct drawings of what remained; and his consequent belief in his "facts;" and thus goes on:—

"But I shall be really obliged if any inaccuracy can still be pointed out, because I will take care that it shall be announced as well as rectified in the 'Archæologia.' As to my opinion on the uses of these buildings, it is shortly this—that they were public baths, occupying two sides of an open court; that in the centre of this court was placed a small temple or shrine, supported by columns and roofed, but otherwise quite open, for I could find no trace of any cells; though most probably as at Bath (under circumstances nearly similar) there was a statue of a local god or goddess, or perhaps of some deified emperor, or the reigning emperor placed in the centre.

This portico would also furnish shelter for the visitors to the baths. The proportions and place of the opposite ranges of columns allowed of four columns at each end. At Bath there was space for six, as ascertained by the pitch of the pediment, parts of which were found, but in that case, as at Chester, the foundations of the end columns were not discovered."

There is not one word about changing his opinion, whether right or wrong, still less of "repentance." At the close, the Chairman said, "from what they had heard they could only come to the conclusion that Mr. Tite was wrong and Dr. Brushfield was right." To what extent Dr. Brushfield was right, however, except the Chairman meant, in his saying that the first inquirer was wrong, is not yet very clear. To knock down is much easier than to construct. As to the appropriation of the buildings, this is what the report of his paper says:—

"Were the remains those of a private dwelling or of a public building? We might be tolerably certain that they were those of a public edifice, gathering this from the apparently large size of the original structure. Assuming the original building to have been a public one, was it a bathing establishment? In Chester we have what is called a Roman bath, but beyond the remains of a hypocaust there is nothing whatever about it in itself to prove that it belonged to a bath at all. But did the remains in Bridge-street possess any of the attributes of a Roman bath? They did not possess a single feature by which they could be considered as such. The hypocausts, considered simply as such, proved nothing. On carefully reviewing the whole of the facts he was much inclined to the belief that they formed a portion of a Roman public bath."

Somewhat of a *non sequitur* as it reads: but so far in accordance with Mr. Tite. He ultimately comes "to the conclusion that this building, or perhaps range of buildings, comprised the public baths and *basilica* of the Roman *Deva*, with probably shops and stores." We are not called on to say this suggestion is erroneous; quite the reverse, we rather incline to it; but at present there is not sufficient evidence to confirm the belief: it would be necessary to assume very much more than Mr. Tite asks for his shrine theory. Dr. Brushfield has evidently got this notion as to the union of baths and *basilica* from Mr. Thomas Wright's papers on *Uriconium* at Wroxeter, and points to the assumed conjunction of these buildings in the discovered remains of that city.

It is curious, by the way, to note how opinions

grow and get to be received, and we have an amusing instance at hand in these very Wroxeter remains. When the conductor of this journal first urged on Mr. Wright that what were then considered three long parallel apartments were in fact a *basilica*,—the inner dividing walls being the continuous foundations of the columns forming it into central compartment and aisles,—the opinion was pooh-poohed and declared to be altogether groundless. Very soon after, however, we find it adopted, as well by our esteemed friend Mr. Wright, in his paper read at Oxford, as by others; and the building is now spoken of as the *basilica* without comment or doubt, and is pointed to, as in this case, as ground for a theory elsewhere.

Let us add briefly that the columns, in Chester, are about 2 ft. 4 in. in diameter, and that the intercolumniation varies slightly, the width from centre of column to centre ranging from 11 ft. to 12 ft. 4 in.: 11 ft. 8 in., however, may be taken as the general distance; the two extreme deviations, 12 ft. 4 in. and 11 ft., occurring together, and being perhaps intended to meet some special requirement. The cross width from centre of column to centre of column may be called 38 ft., and the width from the centre of column on one side to the parallel wall of Roman work which remains is as nearly half this dimension as may be. It is worth while noting as a coincidence, if nothing more, that the width and proportions of the three divisions of the *basilica* at *Uriconium*, if we may depend on some rough dimensions taken when the remains were first exposed, are very nearly the same as these dimensions from Chester; and so they are, too, in the *basilica* in Pompeii.

Antiquaries, especially those who are interested in Roman England, are greatly indebted to Mr. Tite, be his theory right or wrong, for bringing these most important remains to the notice of the general public; and, as it seems to us, an apology is due from Chester, not more to him than to all who desire to have such matters discussed with courtesy and candour. To the real question we may hope to return hereafter with more complete data to work on.

NOVELTY IN INVENTION.

At last the Patent Commission, which has been sitting ever since 1862, have published their report. We think that its perusal will show that Lord Stanley, Mr. Fairbairn, Mr. Hindmarch, and the other members have not missed their time. The different questions involved in patent law are so many and varied, that a brief notice would scarcely do justice to any one of them. We think, however, that the second recommendation of the Commissioners shows a proper appreciation of the main question. We allude to that of the novelty of an invention. "They are unable to recommend a preliminary investigation into the wants of an invention for which a patent is claimed, but they advise that a careful inquiry be instituted, under the direction of the law officers of the Crown, as to whether there has been any previous documentary publication of the invention, either by grant of letters patent or otherwise; and, if such publication have taken place, that the patent be refused. No evidence other than such documentary evidence should be admissible, and the reasons for the refusal to grant the patent should be certified by the law officers: an appeal from their decision should lie to the Lord Chancellor." Now, we consider that the whole success of the amended law will turn upon the way in which this question of novelty will be handled; and we hope that this point will be duly considered in the New Patent Law Amendment Act, which we hope to see passed this session.

If any political capital could be made out of discussions on the rights of inventors and the progress of invention, there is little doubt that the question of patents would have been long ago settled in Parliament. Even as it is, however, there is every probability that the matter will be debated during this year's session. A few of these results of the Commission have oozed out

* See our vol. xxiii. p. 60.

† See p. 241, vol. xxii.

amidst the regions of Chancery-lane, but coupled with the information that all the commissioners could not come to an agreement. When we remember that the majority of the Commission consists of lawyers, we do not wonder at this. As we have said, we believe that the whole success of legislation with regard to patents depends on one question,—that of novelty. If this be properly settled, the question may never be reopened; if not, these laws will have to be continually altered and re-altered till they crystallize into a form which takes this question thoroughly into account.

If the *Times*, as a patent abolitionist, only knew it, there is a line of advocacy which it could adopt as to patent rights, with a much better brief in its hand, and with a much greater chance of success in greatly diminishing the number of patents, and the abuses resulting from their mere number; but, unfortunately, its thunderbolts are for once badly aimed,—it hits out wildly,—and is totally unconscious of a certain crevice in the armour of what it strives to slay over as an abuse. The sages of Printing House-square take only one side of the question; but it need scarcely be said that this question has several sides, as in patents are involved great interests of money and influence; and, whenever great interests are involved in any matter, we may be pretty certain that some will differ, and that there will be a fight about them. At least three distinct interests are involved in the existence of patents,—in patent right or no patent right:—1st, that of the true inventor; 2nd, that of the buyer or user of the invention,—of the public, in fact; 3rd, that of the classes of patent agents, patent solicitors, and patent barristers.

The unimpassioned observer will naturally side with the true producer of the age. The interest of the inventor simply consists in getting protection for his invention as quickly, as cheaply, and as safely, as possible. In truth, the real inventor would be greatly benefited if patents were only given for perfectly sound inventions; as, while patents can be given for improved buttons or crinolines, without even a regard whether there be any novelty about these "inventions," that invention which is the fruit of deep scientific research, carried out with practical ingenuity, must be always nominally, and often actually, depreciated. The interests of patent agents, patent solicitors, patent barristers, and of the class that undoubtedly exists in this country, and in France and in Belgium, where the same system of indiscriminate patenting is in operation,—the class of fishers in the troubled waters of the present patent law,—naturally consist in increasing the number of patents and patentees as much as possible, with the resulting pleasant patent cases, with their still pleasanter crops of fees. The interest of the manufacturer lies also in encouraging true invention, and except in so far as the interest of buyer and seller, of employer and employed, often differ in detail, his interests are identical with those of the inventor. It is true that if patents were abolished to-morrow, this would be a temporary gain to manufacturers or others using other people's inventions in their work. They would be able to fall *main basse* on things for which they have now to pay,—but within a few years the resulting stagnation would more than balance this temporary gain. Upon this point, however, opinions also seem to differ, and we find the *Times*, the present Oxford professor of Political Economy, M. Michel Chevalier, and several other scientific men and distinguished civil engineers, such as Sir W. G. Armstrong, Mr. J. Scott Russell, the late Mr. Brunel the younger, and also the late Mr. J. Meadows Rendel, in opposition to patent rights. These particular doctrines of the two political economists we have mentioned are, we suppose, partly the results of mistaken notions about free trade, and are also due to the more subtle feeling of antagonism between the man of pure and the man of applied science,—between the man who discovers a principle and only gets fame for the discovery, and the man who, perhaps, afterwards practically applies the very same principle, and gets both fame and wealth. The opposition of true civil engineers proceeds from less dignified, though, perhaps, equally unconscious motives. A civil engineer generally works up the ideas of mechanical engineers. He applies machines, details, and new apparatus and means to a great *tout ensemble*. Undoubtedly it is to the interest of all mechanical and civil engineers, of true inventors, and of the public, that only sound patents should be delivered on application. The

true inventor would find his sound patent really risen in value; the manufacturer, or civil engineer, would not—for the mere sake of a quiet life, and from dislike of litigation—have as now to pay for an invention which is merely an invention in name. As to the interests of the middlemen, such as patent agents, solicitors, and barristers, such interests are of a merely parasitic kind, and a simplification and improvement of the patent law ought to reduce the number of patent agents, while a simplification and improvement of patent litigation ought to reduce the number of the patent solicitors and barristers. These classes feed upon the public and the inventor, and they batten upon both. And substantially, these classes are more powerfully represented than any other, in the press and in the British Parliament. Their voices are heard louder and oftener, both at home and abroad. While, on the one hand, we have many public admirers of patent right *per se*, and a few advocates of the total abolition of patent right, we have few advocating the interests of the true inventor.

Now, we consider that the true interests of the public and of inventors are only to be found in a practical yet strict carrying out of the stipulations as to the novelty of any invention that it is intended to patent. The discussion of this particular point of novelty has been very carefully avoided* by the different ingenious and eloquent gentlemen, more or less interested in the multiplication of patents and patent cases, who have, within a recent date, enlightened us on patent law. Wisely have they instructed us, but not too well. The business of these "*cibum quastunque ex mendacis captantes*,"† is too good to perform the "happy despatch." For to submit patents to a strict test of novelty would considerably diminish the annual crop of patents. To this it may perhaps be replied, that in America, where patents undergo a preliminary examination, the annual number is about the same as with us. But then, it must be remembered, that mechanical invention in the States is much more active than with us, and that the clearness of laws there greatly encourages inventions intended to more or less supersede labour. Here, in England, the law courts require absolute novelty in an invention; but the Patent Commissioners give a patent to any one who will ask for it, and it is probable that an enterprising experimentalist could, if he so chose, re-patent all the patents granted from the time of James I. And yet a British patent is not merely invalid if the invention has been previously patented, but also if it has been described in even a foreign book existing in our British public libraries. The mere importation of a foreign work into this country, containing a description of an invention, would not of itself be sufficient to defeat a subsequent patent for it, unless the work was actually sold and published to the public here, from the date of the patent. If, however, a single copy of a foreign work is deposited in the British Museum library, or in any other place, to which the public can resort for information, any subsequent patent is invalidated.‡ A British patent is also invalid at the expiration of the same patent in any foreign country.§

Then comes the question whether the application of what is old to a new purpose is patentable. Many decisions in courts of law are against this; and the same perplexity on this head exists in America. "The records of the [Washington] office show that hundreds of patents have been granted in defiance" of the decisions against patenting a new application of an old thing; "while an examination of the rejected department will bring to light as many

applications which have been refused with reference to these decisions."

Now, when we consider that civilized man, with all his wants and aspirations, has been fain to face with the eternal and never-changing forces of nature for at least three thousand years, it is not surprising that so much has been discovered, but rather that so much is still to be discovered. In this consideration do we find an explanation of the fact, that almost all our most important inventions—such as gunpowder, printing, and others,—are mere re-discoveries of Chinese inventions. When we further remember that human doings have been tolerably well recorded from the first dawn of civilization, and that the completeness of our means of recording facts has, stage by stage, reached its present limit, when a fact, once published, can never be absolutely lost, we again have cause to wonder that any really new thing can be still discovered. New combinations will, of course, be always made; but we should say, for instance, that very many more new mechanical movements are not to be invented. Adding up all the patent specifications in the world, we find that there are, in all, about 200,000. Some of these are, of course, repetitions (from the same thing being patented in different countries); but taking say 150,000 patents in all, we must remember that according to our law, and according to the patent laws of most foreign countries, patents for the same thing date from their first existence in any country.

But then, again, as we have seen, specifications are not the only tests of novelty. There are numberless English, French, and German works in our public libraries, full of the most ingenious mechanical arrangements. Take, for instance, the famous French work, "*Recueil des Machines approuvées par l'Académie*," and some of the supposed greatest novelties of the day will be found therein. Some curious revelations have been published within recent dates as to the supposed novelty of a great number of noted patents. To add one more instance:—Uchatius's process for making steel, which excited much attention a few years ago, will be found described in the late Mr. Mushet's papers on "Iron and Steel" (1840) as having been tried at the Cyfartha Works in 1790. The steam-hammer introduced and patented by Mr. Nasmyth, after being specified by Watt, and also more completely described by Davenport, is a well-known instance. It must also be remembered that the only set of patents in any country which is indexed is that of our own; that very few of the French patents have been published in the official "*Descriptions des Machines et Procédés pour lesquels des Brevets d'Invention ont été pris*;" that the American patents are described in a very meagre way, and according to systems which must, not many years ago, have been changed according to the fancies of every fresh commissioner; that the Belgian publication is a mere catalogue, the same being the case with the Italian patents; while the German and Russian patents cannot be said to be even catalogued. As to the different scientific and technical works published in different countries, for, in many instances, nearly a century, no complete general index yet exists. The Royal Society have only two or three indexes of their transactions. There is a collected index of the first thirty-one volumes of the *Comptes Rendus*. The *Philosophical Magazine* has a few separate indexes. The most useful work in its way for a search as to the validity of a patent is, "*Schubarth's Repertorium der Technischer Literatur*," to which Mr. B. Woodcroft has adapted his indexes. Another useful work of the kind has been published in Germany, under the title of "*Phillips's Sachregister*;" but it only refers to some eight German technical periodicals. The Patent Office, however, under the superintendence of Mr. Woodcroft, began some time ago a complete general index of all the English and foreign scientific periodicals. This had been laid aside through the mischievous obstructiveness of Mr. Edmunds, the former clerk of the Commission, but we are happy to say that the recent resignation of this gentleman has put a stop to the power for evil he exerted so long at the Patent Office library, and we may, therefore, hope that the publication of this most necessary work may be no longer delayed. Another most useful work now in abeyance, though its continuation is most greatly desired by the public, is Mr. Woodcroft's "*Abridgments of Specifications*."

* The Report of the Commissioner of Patents for 1863, Washington, 1864.

* "Journal of the Society of Arts," April 20th, 1864.
† On the Patent Laws, with Suggestions for their better Administration." By A. V. Newton. London: Tribner & Co., 1864.

‡ The Action of the Patent Laws in Promoting Invention." By C. D. Abel. London: Taylor & Francis, 1864.

§ "Patent Rights: an Inquiry into their Nature." By A. Percy Sissett. London: Ridgway, 1862.

¶ "Die Reform der Patent-Gesetzgebung," bearbeitet im Auftrage des Handels und Gewerbevereins für Rheinland und Westphalen, von F. C. Philippson. Düsseldorf, Schachtel'sche Buchhandlung. (O. Schöppingh.)

‡ "Du Régime de l'Invention: Examen des Améliorations proposées à la Législation relative aux Brevets." Par Adolphe Breuille et Ch. Descaus-Gardissal. Paris: A. Durand.

§ "Einführungs-schutz-Entwurf und Begründung eines Gesetzes zum Schutze der Erfindungen für die Deutschen Staaten." Von Joh. Carl Leuchs. Nürnberg, 1862.

† Aulus Gellius.

‡ Hindmarsh on Patents, p. 108. See also Baron Reuter's Reports, vol. 1, p. 553.

§ Par. 25, 15 & 16 Victoria.

There is nothing which is more absolutely required in the Patent Office, and yet, in the face of the enormous surplus,—in the face of princely rones paid to the law officers of the Crown by inventors,—the continuation of these works indefinitely delayed. After what we have said, one can wonder at our distinct assertion that invalidating of at least 60 per cent. of existing patents, through want of novelty, is a question of the time devoted to the search. In examination of almost every disputed patent in our courts of law, will show that the lack is mostly based on a question of novelty. An important patent is worth attacking, and those of less importance often exact an unjust black-mail. Upon this question of novelty, there has been no improvement in our existing law. There has been division in the camp of the Patent Commission, but we think we have good grounds for believing that the question of novelty is common ground for even such *outlets* partisans as those enthusiastic inventors who wish to escape infringement a felony, and that sanguine lawyer aiming at total abolition. There are many points of view from which this question may be considered. A full appreciation of the mechanical difficulties of making the thorough job, which is at present next to impossible, would seem to point to some law of limitation as to novelty. But, in the meantime more costly want a happy medium between the reckless system of indiscriminate patenting which exists in England, and the Prussian system, which consists in a patent law of despotism, tempered by bribery.

THE GENTLEMAN'S HOUSE.*

In the third Part of his volume, Mr. Kerr considers questions of the site of the house and grounds: to some of which, as he says, "the architect and his client must give diligent attention from the beginning;" whilst others must be kept in view by the architect specially as belonging to his vocation.

The first question necessarily is the approval of the site; the second the choice of a Site; thirdly comes the question of the arrangement of the Grounds and the site.

And we have been able to give a detailed abstract of the second Part of the work,—wherein the most to be desired, of each living-room office, in the general plan, is pointed out—it would have been seen how important the first two of these questions to the realization of those arrangements which are deemed best. And the reader may be disposed to think that, as it is the scheme of Mr. Kerr's treatise, the subject might have gained by a division of the questions of locality and site in the first half of the book.

In the choice of locality, there are to be considered, Climate, Shelter, Aspect, Ventilation, Water Supply, Drainage, Salubrity, Landscaping, and Local Considerations; and of these is the subject of a separate chapter. And, according to our author, may be said to be of four chief varieties: warm and cold, and either case dry or moist. With one moist atmosphere, he says, there may be apprehended malarialism, with the other malaria. An excess of cold may be ameliorated by the shelter of a wind; whilst excess of warmth may be supplied by shade. The summit of a hill may be exposed; but low localities are damp and malarial; "there is a medium, and the rule is to be to prefer within the limits of that medium an elevated site." As to shelter, it is a matter of fact, for instance, the land slopes towards the aspect of bleak winds, northward or eastward; and in some cases, wind south-westward valuable. On the sea-coast, especially the shelter must be had if possible. On the other of aspect, he says:—

"When an estate slopes very rapidly to the North it is usually so much the less presented to the influence of the rays, the course of the sun is so much lowered and cooled, the latitude is practically so much more North. On the other hand, there is a great inclination towards the South, the amount of heat is so much increased, the rays of the sun heightened and lengthened, and the land is made in a manner more South. The chief effect of the land is as regards evaporation from the soil. The slope will be the more moist as an advantage in dry years, and the same as a disadvantage in wet weather; South will be the less wet in winter, but the more moist in summer. The declivity must be very considerable before any great difference is to be perceived; but it is evident that if the climate of the locality at large be too warm, a more Northward aspect will so far improve it, and if too cold, a more Southward aspect; if moist, the South side of a hill is so far the best, and if dry the North. In any quarter, again, where the

East wind is particularly unwholesome, we should for obvious reasons prefer a Westward inclination."

The question has to be viewed, not merely as to the house, but as to the grounds and gardens. As to ventilation, or the sufficient circulation of air on an estate, it is mainly remarked that it is generally a question of shelter and level.

Nature of the soil has to be considered both as regards the farming and gardening value,—including the capabilities for the growth of timber,—and the capabilities of drainage and of economic construction of a foundation. The effects, alike, of wet weather and heat, upon clay soils have to be borne in mind.

Water may be available in various forms of supply; but in the country a well is generally required. Our author regards the well as of "these several kinds,—the surface-well, the common section-well, the deep-well, the Artesian-well, and the Artesian-fountain." He says:—

"When the superficial strata are gravel and sand, it is not unusual to find good water without going deeper, and it will also have the advantage of being of soft quality."

We should be inclined to add, here, a special recommendation that the source, or intake of the service-pipe, should not be near the house, where pollution would be likely to ensue; moreover, at a distance, the source should be carefully watched. Considering the risk, in any district of increasing population, or one where there are likely to be manufactories, we would say, preference should be given to the deep-well; although Mr. Kerr, not unreasonably, regards a depth greater than that for which a suction-pump will suffice, and at the same time where the water will not rise as in the Artesian-well, as inconvenient. He admits that there are risks attendant upon surface-wells, that "after much rain the water may become cloudy, and that in seasons of drought it may entirely disappear." He distinguishes the "Artesian-well" from the "Artesian-fountain," as, the latter, "the only 'Artesian-well' of scientific writers," and the former the case where the depth of boring and the pressure are just what will provide for a rise of water "to a level at which digging may conveniently meet" the water.

As to drainage, it may be remarked, merely, that that of the land is part of the present question, whilst that of the drainage of the immediate site of the house is referred to in the following section.

Concerning salubrity, all the points previously treated bear upon it: or it may "be very simply defined to consist in the possession of good air and good water;" but the author does not omit to note that there may be nuisances from manufactories, to interfere with it, or unwholesome exhalations from "pools, marshes, or autumnal woods."

Landscaping—gardening as an object, should, like the other points, be considered from the first, in the choice of an estate. Irregularity of surface conducing to the picturesque, which has taken the place of the perfectly symmetrical disposition of gardens supposed to be served by a dead level, will be desired. Shelter northward and eastward, and a broad panorama towards the other points of the compass will be desired. The landscape-gardener will hope to find the general position of the estate "upon a somewhat Southward slope, or if not, inclining Westward rather than Eastward." Or he will consider how to supply the needed shelter by plantation.

"If the estate be on a Northward inclination, unless it be a very slight one indeed, he will see reason for much anxiety; if it be actually on the North side of an exposed hill, the case is desperate."

And further, as to the picturesque, besides groups of trees, and larger clumps which he may cut up into groups, or a running stream whence "there will rise up before his fancy those pleasant pictures of lake and brook and fishpond, cascade, waterfall, dripping well, and grotto, which make even a ditch, if it be but well filled with clear water, a treasure to the skillful artist."

"He will not object to broken ground, rocks, wild knolls, a gravel-pit even; quite the contrary,—he will convert everything of the sort into dashing bits of art. But what he will not like is such a thing as a congeries of square flat ploughed fields, bounded by iron-hedge-tops,—every stick of timber cut away for the ventilation of dry crops,—every little excrescence pared off, and every rough place made smooth,—not a weed to be seen upon the land it may be, and not an inch of opportunity lost for making two blades of grass to grow where but one grew before,—but, nevertheless, with all its complacent material plenty, to the artist eye a barren desolation—a vacant clock-face, without a single feature upon which the ingenuity of art can hang a smile."

The "Local Considerations" are such as facility of communication with a railway, or with a town, and others, such as the society of the

neighbourhood, and "not to speak of legal points as to the existence of those indisputably good fences which all the world over make good neighbours."

Locality being decided upon, there comes the Choice of Site for the house itself. Or, rather, it is impossible to pronounce perfect satisfaction "with any general situation for the establishment at large, without having ascertained definitely that it offers an eligible spot" for what is to be the "centre and heart of all." . . . Many a fine estate possesses at the best but an inferior Site for building; and many a charming spot for a house is destroyed in value by the disadvantageous circumstances which surround it. Much of what has been said of the choice of locality for the estate, will again apply; but there are other "principles and illustrations" bearing "upon the House alone." Our author treats these in separate chapters, as Prospect and Aspect, Adjuncts of the House, Sanitary Provisions, and lastly, Position in the Landscape, and Artificial Site.

He says that the first idea in looking for a site, is to get prospect, but that "the matter is not by any means settled" by the selection of high ground: there is the rival question of Aspect. Having in the former part of his work "had occasion to point out how intimately considerations of aspect affect the comfort and convenience of almost every room," he would now apply the principles generalized.

"Aspect first, prospect second; this is the rule, and exceptions only prove its importance. Prospect is charming, aspect never thought of; this is too often the practice, and no remedy is of any avail."

Having in the previous Part, found that in nearly every instance of a dwelling-room, a South-East aspect was the most desirable, he necessarily considers it plain that a Southward and Eastward landscape is the first thing to be looked for.

"If the only wide and pleasing view were towards the Northward,—say a sea view,—with the whole Southward sweep hemmed in by wood or buildings or occupied by flat, square, farming fields, or sand-banks and back-water, or peat-bog, or what not,—then it would certainly be very doubtful whether any possible ingenuity could accomplish a compromise, whereby to save the Drawing-room from the desperate alternative of having either a sunless exposure or a desolate view. But if, with the north, as the preferable prospect, the South should be, nevertheless in any reasonable degree accessible,—the course is clear,—give to the Drawing-room Front the interior view with the favourable aspect, and make available the pleasant landscape, which is so unfortunately situated, by opening it to the Dining-room and some others. Or, even more, by some careful trick of plan give to the Boudoir, the Morning-room, perhaps the Drawing-room itself, one of those supplementary windows we have often spoken of, and let the charms of aspect and prospect be combined."

The author's object is to point out the principle that if the landscape towards the South be unfavourable, the evil must be accepted, without change of the direction of the front,—or only moderating the evil by ingenuity of the architect's own, or by that of the landscape artist. He concludes:—

"Accordingly, as has before been hinted, the best possible site is that by which from a slight eminence on the Southward side of a hill you look upon the whole expanse of Southward country beneath, having on the North, together with the shelter, the view also of higher ground; whereas, the worst possible site is that where you find yourself on the Northward side of the same hill, with the general landscape of such a hill and the whole expanse of the landscape alike shut out by the summit, and the exposure and cheerlessness of a Northern aspect together superadded."

A good standard disposition under the most favourable auspices will be this:—South-East the Drawing-room, Facade, North-West that of the Dining-room, and North-East the Offices, the South-West being left for the occupation required by necessities of plan. The Entrance may then be either North-West or South-West; or by moving the Offices to the North angle it may be obtained on the North-East, or on the East angle. The South-East as matter of aspect is best for the Entrance, as much as it else; but to place it on the Drawing-room Facade is not to be suggested.

In the chapter on Adjuncts of the House, the author treats of the artistic connexion of the house with the ground, and of the "want of foothold" often noticeable,—a want which we have ourselves repeatedly spoken of, and perhaps as often in referring to buildings in London, and to public statues, as to houses in the country. The adjuncts to which Mr. Kerr gives particular attention are those of a terrace-walk for the drawing-room facade, the lady's pavilions of flowers, and the space for the access of carriages,—this last inclusive, or not, of a regular entrance-court. A good site involves a considerable space of nearly level ground; and the chief purpose of the chapter is to show that whenever the site is irregular in surface, it is a point for inquiry whether there is a sufficient area for the house, offices, and the immediate adjuncts, all on one level. For, throughout the volume, Mr. Kerr dis-

* See pp. 2 & 53, ante.

countenances offices in a basement, unless when they are unavoidable, as in town-houses; though his book contains at least one good plan of a country-house, Messrs. Banks and Barry's Bylaugh Hall, Norfolk (from our pages), where the kitchen is in the basement; and it has also a plan, showing the offices as modernized, of Latham Hall, Lancashire, where the kitchen, of the basement, was merely moved from the main building to a new position. His objection originates partly in the going up and down stairs, and partly in the supposed difficulty of intercepting "kitchen-odours." Are these inconveniences essential to basement offices? The great distance of the kitchen, in large houses on the other principle of plan, should have some weight attached to it. The fact that the most important town-houses have their kitchens in the basement, is not unimportant in the question; and there are persons who prefer to occupy rooms which are raised one story above ground: in fact, sanitary arguments have been put forth to show there should be such a preference.

Passing over the remainder of the section, we come to the section which treats of the Arrangement of Grounds and Adjuncts. It opens with a short but interesting chapter on Style in Landscape-Gardening, wherein it is shown that there is here as elsewhere, the contrast between the Classic and Picturesque. The Italian and English styles of landscape art; the connexion between the English style and the Gothic revival, and between the Italian style and Palladianism; the features and rival merits of the two manners, the origination of the doctrine of the Picturesque, the taste for ruins and baronial architecture, and other subjects are touched upon. Mr. Kerr remarks that although a diversity of principle similar to that which exists between the Classic and Gothic in architecture, results in the fact of two corresponding styles in "the art of landscape," there is this one difference, that although the Classic style in gardening is, as in architecture, historically Italian, the picturesque style is not, as in architecture, Medieval, but modern, in fact English. The principles of this latter style are analogous to those of Medieval design. He adds,—

"Still the rise of this new style was in no way dependent upon the process of Gothic revivalism; on the contrary, as a singular and most interesting fact, it was by means of the introduction of the new principles of landscape-art that the architectural revival itself first acquired standing-ground. In a word, if we say that the origination of the 'natural' style of landscape-gardening in England gave rise to the revival of Gothic architecture and Gothic art at large in Europe, this is practically very nearly correct,—as we shall see."

The characteristics of the Italian or Classic manner may be said to turn upon what our author calls "the stateliness of symmetry":—

"The centre line of the House becomes that alike of the Garden in front and of the Garden in the rear, the basis of a plan all geometrical and all in perfect balance."

The English or Picturesque style is altogether different from first to last."

Each style may be missed; wearisome monotony may be produced in one, and eccentricity instead of the true picturesque in the other;—

"but it is equally true that some of the efforts of the old school, although now out of fashion, are of an imposing grandeur, which will never cease to attract admiration, and that on the other hand the charm of the new style, if fashion were to change to-morrow, is a thing that no considerations of deficient stateliness could ever set aside."

He says that:—

"The question how far the two styles of landscape-gardening are respectively to be identified with the two corresponding styles of architectural design takes three forms:—namely, first as regards historical connexion, secondly, as regards artistic connexion theoretically; thirdly, as regards practical adaptation."

The English manner of landscape-gardening was introduced through the influence of writers who, dissatisfied with the generally prevailing classicism, discovered in a certain sense the Picturesque. It came to be argued that ruins were useful as elements in a landscape: then, Baronial architecture was patronized by the picturesque school; and Gothic architecture as a whole, followed.

As to a connexion of an artistic kind, between the English style of landscape-gardening and Medieval design, and between the Italian style and Classic design, there is this only to a certain extent. The present custom of landscape-gardeners, is to adopt the symmetrical for the immediate adjuncts of the house; but for the more remote arrangements, the English style is exclusively employed.

Under the general heading, Arrangement of Grounds, come the heads, Carriage Approach, Entrance Court, Terrace, Lawn, Flower Gardens; Kitchen Garden and Orchard, Greenhouses, &c.;

Conservatories, &c., and Ornamental Grounds. Mr. Kerr distinguishes two varieties of the domestic Terrace, saying that "the distinction involved may be considered a question of style." One terrace is "a promenade along any facade of the house, enclosed in front by a dwarf-wall or balustrade, and elevated to the level of the Principal Story, some feet above the surrounding surface." The other species is similar, as to height, and as to its use as a promenade: but it has no balustrade; or it has at most, a stone curb, whilst it is united to the lawn by a grass-slope. What appears mainly to constitute the terrace is the broad straight walk.

Part IV. of the volume, "Notes on Architectural Style," is an inquiry into the present state of a question which somehow is raised in the majority of cases, even where the architect's client expresses himself as in want merely of "a plain, substantial, comfortable Gentleman's House." We regard Mr. Kerr's exposition of the subject as masterly: nevertheless we are not inclined to accept his description of the client's astonishment at having the question "what style" put to him. It is perfectly true that the architect will now-a-days expect a choice,—we have evidence of this in the letters sent to committees, by architects who write for "instructions;" but, as we have heretofore said, one of the first thoughts of any one of the public requiring a house to be built, is what style he will have it. Or rather, we might have said, the latter individual commences with a prejudice for or against a particular style; the prejudice against, being founded upon his observation of particular houses as having had their convenience interfered with through their decorative features. But such interference is solely the result of setting out on the line of imitation, and not on that of such use of the precedent as alone is art. Mr. Kerr, however, could not be far wrong; and he may be nearly right as to the existing practice, when, representing the architect as pressing for a decision, he makes the latter explain that "all" the styles are "comfortable." But an error, which he does not point out, is in architects specifying by name, styles as open to selection: for, it is perfectly clear that the moment a selection in that way is made, the test of ability will be the reference to the old style, and that the necessity for pleasing his client will act unfavourably upon the architect's exercise of his invention. This, happily, has begun to be not so much the case in domestic architecture as it is in ecclesiastical; but the effect is apparent notwithstanding. The omission by architects of the Medieval school,—who once reproduced merely,—of features which are the most characteristic of the original Medieval architecture, is a move in the right direction, whatever the merit of the actual productions. It is because we think Mr. Kerr's exposition of the requirements of the Gentleman's House will help in a similar direction,—to wit, that of art-architecture,—that we attach to the book a value other and additional to that which will be perceived by many, and beyond what even the author has cared to claim. We must insist, however, on that which we have been repeatedly at pains to show in these pages, that whilst the pursuit of novelty has its dangers, and has lately done considerable harm, a work of art in architecture must and ought to be a thing for the description of which the customary designations of styles, and language generally, will be insufficient. The ascription of the name must come after the formation of the style: the art cannot be fitted to the name,—failure must be the consequence of effort so inconsistent with what constitutes art.

Mr. Kerr gives an accurate explanation of what is meant by "Style." He says, the answer to a question why the different styles should be recognised, is "to be found in the unprecedented degree to which the English public has lately become imbued" "with the character of virtuosi," and that the consequence of this state of things is that the question before referred to, has to be asked.

His object, however, in this portion of the volume, is to show what are the chief accepted varieties of style in domestic architecture, and to give such explanations as may enable the reader "to discern the points of contradiction, of course historically, but practically much more form." He gives ten sketches in pairs, one simple form of exterior plan being adopted in the whole. The plates represent the Elizabethan manner of the sixteenth century, and the Palladian of the seventeenth and eighteenth; the "Elizabethan of nineteenth century adaptation,"

and "the cotemporary Rural-Italian;" the recently introduced Palladian Italian, and "the corresponding style now used by the French,"—(in the latter illustration he is not exactly accurate, as in his basement and porch; moreover, it is difficult to say what is the prevailing style of French villa-architecture,—so great is the variety;) the somewhat continental "Renaissance" wherein the roof is an important feature, and "an equivalent form of the Medieval type, likewise a new fashion;" and lastly, or supplementarily, the ordinary Cottage style, of the every-day English villa, and "the Scotch style (of the Elizabethan period), which has spread over Scotland and the North of England from the head-quarters of Edinburgh." In the subsequent chapters, he examines each style of the series under the considerations of Situation, Scale of Building, Materials, Comparative Cost, Comparative Importance, Ornamental Character, The Use of Style Internally, and Influence upon the Interior Plan. Of the purely Classical type in the series, are the Palladian, the Palladian-Italian, and the French examples; whilst of the purely picturesque are the Elizabethan, both ancient and modern, the Medieval, and the Scotch examples; "whilst the Rural-Italian is obviously Classical rendered picturesque, the new Renaissance the same, and the Cottage style, within narrow limits, still the same."

Taking a preliminary and general view of the list of considerations, he commences with situation. He observes (following out what he had remarked under Landscape-Gardening), it may be said "that Picturesque architecture suits best a picturesque site, and Classic the reverse." Now, this is a common mode of reasoning; but is it correct? We do not claim to decide the whole matter; but we would urge that it should be pondered over; for, in our opinion there hangs upon the decision, not merely a question such as that taken up by Mr. Kerr at the moment, but the whole question of art-architecture. We may, at least, venture to assert (and this also is a point which we do not advance here for the first time), that all architecture gains its chief expression by contrast with the works of nature. We do not except even street-architecture; and when we have at different times referred to the smoke-nuisance, we have not failed to include the obscuration of the sky and clouds amongst the causes of a deficient perception of such good work of art as may have been designed. Far from the Classic manner being suited best to sites the reverse of picturesque, we hold the fact to be proven by the examples, that the manner,—and by reason of the contrast and the regularity,—is suited best to the sites that are picturesque. What is to be said of the Parthenon on its rocky site, or of the Temple at Tivoli, and what of Blenheim, Castle Howard, and Chatsworth? The view of any one of these English palatial residences,—bosomed in woods, whilst foot-holding the ground with the constructed features of spreading base, and foreground of terraces,—whilst the mid-distance presents objects of minor architectural importance,—can never fade from the memory of a true architect, or from, what is just now of more importance to our argument, that of any one of the public.

As to Scale, our author considers the Classic manner as "at least the more imposing for the largest masses." With reference to materials, "the less finished their character, the greater the inducement to adopt picturesque treatment." Cost is not properly a question of style at all. The most important consideration is that of Interior Plan. To the author's previous treatment of that question, we have given attention. In the chapters descriptive of the plates, there is a happy discrimination between the new Elizabethan and the old, the latter having no intentional irregularity, whilst the former will make a distinction between gables even which are generally the same on plan. In the chapter on the Rural Italian style, there are some useful remarks under the head of the use of Style internally, touching the question,—not neglected by us, but which has received far too little attention generally,—whether a novelty, as in joiners' work or furniture, is likely to be accepted, with a view to the accordance of interior with exterior. Without saying that we adopt every word of Mr. Kerr's, let us read what he says on the result of an "attempt to introduce style—say some presently fashionable form of Continental Medievalism"—into English joiners' work.

"There are scores of instances to be referred to. The pleasing refinement of our little mouldings round the panels, is superseded by clumsy stopped-chamfers; perhaps the best paneling is superseded by the matched and beaded-boarding which has so long been identified

with the stalls of Stables; the nest simple, serviceable architecture being heavy, odd splay; it is not unlikely that the very form of the doorway must be ascribed—an ornate, perhaps, as say a three-curved flat arch, in defiance of the principle of workmanship involved; it is a mercy if the hinges and lock escape from an appeal to the dicta of authenticity; and lastly, the graining (one of the most charming species of common-sense art ever contrived in the world) is judged to be deceptive in fact and non-authentic in history; so that we must be content with the varnish alone,—with a stain underneath, to make the common deal resemble the oak we cannot afford. It is plain that not one English gentleman out of a hundred will submit to this; and we are at least happily free from all difficulty of the kind in respect of the style of design. The Italian, for the details of our favourite doors and windows, and all the rest, are exactly the details of that style. Our so-called Italian is, in reality, the varnished English style of modern house-building.

Mr. Kerr returns to this line of argument in his chapter on the "Medieval or Gothic Style." We may observe that before coming to that, he says in a chapter on the style which he calls "English Renaissance," that the term Renaissance "may be understood to indicate the modern adaptation of Classicism (primarily Italian) received, wherever it may happen to be, through a French channel." It is now, says Mr. Kerr, the term may exist; but it is common, just as it is that the "some writers" who "call the entire European School of modern Italian architecture" by the term; a practice which our author correctly says "is likely to mislead." The term English Renaissance can be correctly made to apply to no other styles than the old Elizabethan, together with the Jacobean; French Renaissance to none but such as those of Francis I. and Henry II.,—or perhaps including the work of the time of Henry IV.; and Italian Renaissance to none later than the Quattrocento, or style of the fifteenth century,—of the early part of that century more especially. The use of the term Cinque-Cento for the architecture of the period just referred to, by many writers, instead of for that of the commencement of the sixteenth century, is equally mistaken. Whatever the difficulty of finding a term, or the objection to a circumlocution, we should never use a term that is erroneous, or one already applied to something else. The designation we have usually adopted for that manner which is the subject of Mr. Kerr's Chapter, is Franco-Italian, or French-Italian; but we are by no means wedded to it; whilst we repeat, every manner that can be exactly fitted with a name, will usually have a station rather than art as its characteristic.

In the Chapter on the "Medieval or Gothic Style," our author alludes to three facts:—

"First, the practice of Gothic architecture in ecclesiastical building is passing (like all other things) through a succession of mere fashions; secondly, there is arising a claim to universal dominion for Mediævalism, and destruction for all else, which is arrogant and transcendently thirdly, there has been growing up, an incredible worship of the Ugly."

The point at which he considers the question of style has arrived in his dealing with it, may be stated thus:—the doctrine is that there are a certain number of styles equally eligible, is not to be accepted aesthetically; though certain styles will be demanded,—since the paymaster will be patternmaster.

The characteristics of the Gothic, "as at present applied to domestic building in England," he says, "are more abstract and grammatical than imitative." They are derived from many sources. But they are such as the following:—

"Intentional irregularity of plan; intentional variety in height; general verticality of features; then a combination of this primary verticality to meet a recent innovation of bands of varied colour; the use of turrets as a mark of the verticality; the essential use of the pointed arch for the same reason; then the modification of this principle by the introduction of various flat arches and vaults (which are more convenient internally); the especial use of roof-cresting, and other ornamental iron-work, such as finials and railings; the conspicuous display of all these; the use of mullions in the windows as sparingly as possible; the repetition of crockets and pinnacles as adorned with feebleness of purpose; the very sparing use of buttresses; the application of continental pierced parapets; the use of rough stone and brick in the horizontal variety of colour already alluded to, and so on; with of course, throughout the whole the acceptance of Gothic detail."

He concludes with his ordinary series of questions. As to *Situation*, he considers that the site if not picturesque, should be capable of being made so; and as to *Scale of Building*, that there is only this difficulty, than any very large domestic edifice is apt to be pronounced a college or convent, or an asylum,—whilst even a Gothic paragonage is open to the question why the Elizabethan should be superseded; that *Materials* and *Cost* are no impediments; that for *Importance*, there are no disadvantages, as a house in the Gothic manner looks smaller than it is, and also cheaper; and that as to *Ornamental Character*, the style can serve the advocate of mere muscular ugliness, or it can display grace in every de-

tail. The next question, however, that "of the use of *Interior Style*," he observes, is "especially important with regard to Gothic." The "archæological connoisseurs" he says, "cannot get the public to agree" to the proposition "that the forms and constructive data of the middle ages are perfectly suitable to our wants." The old systems of carpentry and joinery are obsolete and superseded.

"Consequently, if any practical builder, or architect, not an archæologist, will pursue this principle on constructive ground into the details of form and arrangement which constitute the ordinary style of our interiors, it will be found that our woodwork and plaster-work, our doors, windows, fireplaces, partitions, and staircases, with our chimney-pieces, plaster cornices, glazing, painting, graining, and paper-hanging, and even our chairs, tables, sideboards, carpets, and other multifarious furniture, are a system which has grown up gradually year by year, which belongs rightfully to the time, and cannot be interfered with except in defiance of natural laws."

Bare stone or brick walls, exposed joisting, unpainted woodwork, stoveless fireplaces, vaulted passages, boarded ceilings, darkness, nakedness, ugliness, public opinion in England will pronounce to be simply preposterous in theory, and unsuitable in practice."

To the view taken in the first portion of the extract, we have occasionally drawn attention, and with illustrations quoted even from the Palace of Westminster.

As to the influence of external Gothic forms upon *Internal Plan*, Mr. Kerr's tone is one of perfect satisfaction, as might be supposed from what we have already said of previous parts of his work.

We refrain from particulars of his chapters on "the Cottage Style" and "the Scotch Baronial Style," and of his "Concluding Remarks." These last are generally to the effect that the "historical and geographical variety of style" for our domestic architecture is confined in two classes of styles.

Part V., devoted to the subjects of Accommodation and Cost, gives modes of estimating. The first chapter lacks the perspicuity that characterizes the volume generally. The author states two questions as to be dealt with, namely, the progressive degrees of accommodation, and the relation of accommodation to cost; whilst he alludes to a third subject of inquiry, the proportion that outlay upon a new house should bear to the owner's income. Another preliminary question entered upon, is that of the provision to be made for servants; and this he illustrates by a tabulated statement.

The modes of estimating mentioned are four,—1. By bill of quantities of materials; 2. By cube-measurement; 3. By superficial area; and 4. By number of rooms. He gives the preference to the last of these, for his purpose,—but of course not omitting to state that, for an accurate estimate, the bill of quantities is not to be dispensed with. We may here mention that there is a chapter headed "Supplementary Expenses," which, if extensively read, would probably prevent much misunderstanding between architects and their clients on the subject of "extras."

Taking as the standard "an ordinary model of plan of whatever class," and assuming a locality near London, he starts from data per foot cube, which he puts thus:—

	Per cubic foot.
"For the Main Building or Family Department.....	8d. to 16d.
"For the Attached Offices or Servants' Department.....	6d. to 10d.
"For Stables and Farm-offices.....	4d. to 8d."

These prices, he explains, leave Fixtures, Drainage and Water-supply, Garden, Artificial Foundation, Decoration, and other "supplementary expenses" not allowed for.

Proceeding upon the data, he ascertains the prices per square, and constructs a table, or "Estimator's Ready Reckoner," wherein, after the column "Total Outlay Required," there are under "The Family Department," columns headed "Price per Cubic Foot," "Average Height of Rooms," "Price per Superficial Square," "Corresponding Number of Squares," "Cost at the Prices Given," "Number of Rooms to correspond," and "Average Price per Room," and under the "Servants' Department," columns similarly headed,—the final column of the whole table being headed "Total Outlay Resulting," and showing the same figures as the first column, or within a pound or two. In the following chapters are given tabulated statements of the accommodation of each example of house, or from one of the value of 1,250*l.* to one of 40,000*l.*—stables and farm-offices being the subject of a distinct chapter. Thus, the price per square for the family rooms of the 1,250*l.* house being stated as 40*l.*, and the price for the Servants' Rooms of the same, as 28*l.*, it is found

that the first department may have thirteen rooms, at 68*l.* per room, and a total area of 2,230 ft.; and the other department, the same number of rooms at 28*l.* per room, and a total area of 1,290 ft.—the sizes of the separate rooms being given in detail. Adding to the product 892*l.*, of 2,230 ft. at 40*l.* per square, 361*l.*, which is the product of 1,290 ft. at 28*l.* per square, the sum is 1,253*l.* for the house: only, to that must be added the cost of fences, fixtures, architect, and so forth,—besides, as a matter of prudence, 10 per cent. on cost of the house, for extra.

Respecting the concluding Part of the volume, or Appendix, giving numerous plans and critical notes upon them, we need add little to what we have said. We may mention, however, a set of plans belonging to a design for a London house by the author, wherein much skill is shown. We doubt, however, if the diminished size of the front room, in the ground story, be not too dear a price to pay for the central position of the entrance to the house. One feature in Mr. Kerr's arrangement is the provision of open areas for light in the middle of the length, on plan, of the party-wall, or the line of division of the two properties. This arrangement, universal in Paris (and in America), has been quoted by certain speakers and writers, as evidencing a want of consideration by the French, for requirements of ventilation; though when the shaft is not glazed over, it permits of ventilation, as it also affords light, to parts of the plan which could otherwise receive neither. Whether in the case of two different houses, windows opposite to, and at very short distance from, one another, as they are often in Paris, would be objectionable in London, as on the score of fire, may deserve consideration: Mr. Kerr's plans are not completed by an indication of the arrangement, in this matter, of the house adjoining.

We may also observe that the English student, taking his view of the subject of French plan from Mr. Kerr's book, must give the utmost importance to the distinction which the author drew in his first page, between the English and the French habits of life. It is not that the love of home-comfort is confined to this side the Channel; but the French plans, even of mere *apartements*, recognize that entertainments and receptions are of some importance to the cultivation of social and friendly relations. It may be that nothing would compensate for the deprivation of domestic comfort; but looking through the whole work of M. César Daly, from which our author has taken one illustration, we do not see that such deprivation would be the case. There is, however, in the small houses in France, a tendency towards an arrangement *en suite*, found only in the English houses of the present day which possess *state-rooms*. From the French point of view, the English are *une nation égoïste*; and we are inclined to think that the home-keeping of the latter, and the want of appreciation of the social intercourse which is least costly, to some extent justify the designation. The habits of life of each nation are capable of improving those of the other; and in like case, we believe, are the respective arrangements of plan.

Perhaps the portion of Mr. Kerr's work to which we have done least justice, is that which relates to the kitchen; though we have alluded to the description of the fittings as in great detail. We have been assured by a provincial architect, that a perusal of this portion of the volume, by one of his clients, has eased his labours considerably; for, the client had seen what items would be required there as well as in the offices generally, and readily assented to their being included in the specification; so that they will not swell the amount of extras, which the architect of a building is commonly held to have created by his omissions. But the whole volume, in fact, is a *catalogue raisonné*, or specification, of items to be provided in plan as well as a definition of principles, and a guide in that logical process of which planning consists. That portions of the work, those which we have indicated as already the most useful, could be improved by the suggestions of architects, is possible; and we may venture to say that all assistance that can be rendered, will be duly valued by Mr. Kerr. As the book is, and with whatever the features of it concerning which we have expressed doubt or difference of opinion, we regard it as a most valuable contribution to the literature of our profession. Already in this edition, it is a work of great importance to students; and, we venture to prophesy, it will become a text-book for those who are more advanced. And, if its demonstration of "How to Plan English

Residences" be taken to relate to only such planning as is concerned with the provision for ordinary wants in a place of habitation, or as at most is not inimical to art, instead of to relate also to external and internal decorative effect,—from the first inception, as skilful planning should,—it will through that demonstration alone, facilitate the labours of the architect, and in other respects directly aid in the production of a superior character of art in "the Gentleman's House," as in buildings for habitation of each and every class.

ALGERNON, DUKE OF NORTHUMBERLAND, K.G., IN CONNEXION WITH ART.

In the early dawn, on Sunday morning last, as the snow was falling falteringly on Alnwick Castle, and strewing deep silence in its courts and in the streets of the town without, Algernon Percy, fourth Duke of Northumberland, departed this life. One of England's mightiest nobles,—with a lineage authenticated through dim centuries, till it is found springing from Charlemagne, and through him from Caroloman, major domus to Clotharius, king of France,—various duties devolved upon him; but it is not our province to describe the several phases of his life: our limits confine us to an indication of his influence upon architecture and the arts generally. Born in 1792, the late duke lived through grand eras in our history, serving his country as a midshipman whilst *la grande armée* was parading Europe, and as an admiral in the years that the third Napoleon has ruled France, while he has seen evolutions as startling in the world of art and letters.

Early in the present century the subject of our notice, then Lord Prudhoe, devoted himself to the study of Egyptian antiquities on the banks of the Nile; and, as the readers of Sir Gardner Wilkinson's works on Ancient Egypt may remember, made several interesting discoveries. So popular did this branch of archaeology become under his auspices and those of his collaborators, that a museum of antiquities that was without a mummy or sarcophagus was considered as devoid of interest as a garden without peas or cereals raised from seed found on Egyptian tombs. One of the towers on the line of circumvallation of Alnwick Castle contains the valuable collection of ancient Egyptian relics amassed by him at this time, and these it was ever his pleasure to show to guests. Subsequently the traces left by the ancient Romans of their occupation of this country had an especial interest for him. In 1852, the Archaeological Institute held their annual meeting at Newcastle-upon-Tyne, when his Grace received a large number of the members at Alnwick Castle. For this occasion he ordered a complete investigation to be made of the station of *Bremium*, which was accordingly excavated and surveyed, and made the subject of a communication to the society by Dr. Bruce. The duke also assisted with his open purse the publication of the work on the Roman Wall, by the same hand, copiously illustrated by Mr. Mossman; and a further work on Roman Remains is approaching completion, by his liberal aid and staunch encouragement. He caused, too, a survey of the Roman wall and roads in Northumberland to be made by Mr. H. MacLauchlan, whom he afterwards deputed to make a chart of the county, showing the numerous British camps, and consequent points of occupation by our pre-historic predecessors—a task not yet completed. The late Mr. Archer, as we recently mentioned, enjoyed a permanent commission to draw other antiquities in the county. The duke had good Medieval predilections. As in an antique *lorso* restored by modern skill, there is a great gap in the periods of art with which his memory will be associated. Familiar with the household gods of the Egyptians, when Joseph presided over Pharaoh's house, and with the evidences the Roman emperors left of their dominion in our isle, his mind spanned the long interval to delight in modern knowledge and progress. This break is apparent in his disregard of the Medieval associations of Alnwick Castle, and in his wide patronage of classic art generally. But the authorization of the handsome quarto, printed for private distribution, illustrating the architecture of Alnwick, Prudhoe, and Warkworth Castles, by Jewett, Le Keux, and Delamotte, is a departure from these preferences; and the elaboration of the slight papers read by the Rev. C. H. Hartshorne at the meeting of the Archaeological Institute

referred to above, into a portly volume, "On the Military and Feudal Architecture of Northumberland," full of illustrations, showing the peculiarities of Northumbrian castles and peles, all at the cost of his Grace, is another exception. These two volumes, aiming at fulness of detail in a few edifices rather than at generalities concerning many, stand apart as the most ample authority upon castellated architecture yet issued. As an instance of his perception of the obligations of his station as Border chief, and of his acquiescence in their necessities, rather than as a specimen of his literary sympathies, we may add that the duke incurred a large outlay, about six years ago, on the publication of a gorgeous edition of the poems of Robert Story, a Northumbrian peasant.

Soon after his accession to the dukedom, the duke proposed to put one of his principal seats into the sumptuous and artistic condition befitting the residence of a noble of his rank. To this end he commissioned three architects to prepare him three designs, showing the extent of the capabilities of the seats assigned to each to reach the elegance and fitness required. He apportioned Sion House to Mr. Decimus Burton, Northumberland House to Sir Charles Barry, and Alnwick Castle to Mr. Salvin. He ultimately selected Alnwick Castle, the seat which is most completely identified with the Percy race, as the scene of his proposed building operations. His grandfather, about a century before, had made the same selection when he was created first Duke of Northumberland. The letters of Horace Walpole make frequent allusion to the progress of the works at Alnwick, which fulfilled many of the conditions observed by his own taste at Strawberry Hill. When the work then executed was pulled down in 1854, with all its intricate plaster mouldings, fan-traceries, and lace-like vagaries, from among the *debris* there spoke two voices of the Walpolian era: first, a piece of parchment was found, corked up in a bottle, on which the master-masons had written the exaggerated statement that they had "built this castle;" and, by-and-by, when the restorers moved a marble sarcophagus placed in the chapel to the memory of the wife of the first duke, there lay mouldering there a bundle of old love-letters written by the duchess to her husband; her diary too, some silver coins, silver medals struck in commemoration of the restoration of the castle, with views of it upon them, and some intaglio portraits of the duke and duchess. It was considered a difficult question how these decorations should be replaced. Professor Donaldson related in a paper read to the Institute of Architects the various considerations that arose, and how the duke's long stay in Rome made him at last decide in favour of Italian embellishments, for which the Commandatore Canina furnished him with designs moulded upon existing works of the cinque-cento period. As the works proceeded, the advice of the late Professor Cockerell and of Professor Donaldson was obtained. How the Commandatore despatched a small staff of efficient artists, Montirol, architect, Mantovani, painter, and Bullett, sculptor in wood, to Alnwick; how he ultimately journeyed to look upon this work of transmutation himself, and died on his road home, we have already told. But we may add, as an instance of the duke's kindly interest in those of his fellow men associated with him in any undertaking, that he arranged that the Italian architect, Montirol, should see our national sights in the provinces as well as in the metropolis, such as the manufactures and architectural lions of Edinburgh, Newcastle, Birmingham, Manchester, and Liverpool; and, in reverse, sent the resident architect, Mr. F. R. Wilson, to Rome, that he might have the advantage of seeing, *in situ*, the art reproduced under his care. The workmen, numbering some hundreds, were the frequent objects of his thought. On each anniversary of the day on which the duchess laid the foundation-stone of the Prudhoe keep tower they were all invited, with the other workmen employed on the estate, to a banquet. When the number of men upon the works was at the highest point nearly eight hundred mustered on these occasions.

The duke also introduced Italian art at Sion House, and at his seat of Stanwick, in Yorkshire. Where practicable, as in the carving at Alnwick Castle, he employed native workmen to work out the Italian designs; but such work as mosaics, statuary, and friezes, was executed in Rome, and conveyed to its destination ready for fixing. He further evinced his Italian art sympathies by the purchase of the Camucin

gallery. For the pictures of Northumbrian incidents depicted upon the coved ceiling of the ante-chamber leading to the new state apartments, at Alnwick Castle, he employed a German artist, Herr Gotzenberg.

Besides the architects mentioned as consulted by the duke when contemplating the enrichment of one of his seats, he employed Mr. Deason and Mr. Green to a large extent in the numerous works constantly progressing at his cost, as well as maintained, among the officers of his estate, a resident clerk of works, whose business was to keep all farm-buildings in repair. It will be fresh in the remembrance of our readers that the duke laid the foundations of five new churches, and was subsequently present at the consecration of them, only a short time ago, all of which, with their parsonages, were indebted to his means; and the parish church of Alnwick has just been restored also at his cost. He has improved the cottages on his Northumbrian estates to an extent that may be estimated at the expenditure incurred which is said to have been 100,000. Many and many a village may be seen with a crescent painted on every door, indicating that it is ducal property. When the late duke came into possession most of these consisted of picturesque but ruinous cottages such as that in which Burns was born, composed of four low walls, a door, a window a third of the size of the door, and a thatched roof spanning all. It is now difficult to point to one of these: they have been superseded by new, substantial buildings, with as large an amount of the picturesque element in them as those displaced, mostly built from designs by Mr. Deason; the only drawback being that they occupy the precise sites of the former cots with the same rears of soaked soil from piggeries.

The partial restoration of Warkworth Castle is another architectural work carried out by the late duke. This, with the restoration of Warkworth Church, to the accomplishment of which he was a liberal subscriber, has been described in these pages.

In sanitary matters the late duke lent his aid to ascertain whether it was possible to utilize the liquid sewage of Alnwick upon the grass lands around. The works constructed for this purpose were made at his cost and on his land; but owing to some mismanagement the experiment has not proved so successful as it should have done. His Grace placed Alnwick Castle in the hands of Mr. R. Rawlinson for sanitary revision, thus adding his testimony to the importance of such a precaution. The subdivision of sanitary science in which the ills of overcrowding are combated had not, however, been brought under his notice.

There are two indications of the large number of people living upon the duke's Northumbrian estate that may be quoted. On the day of the great annual fair in July, on the eve of which watch and ward are still kept against incursions of the Scots, it is the custom of all the tenants able and willing to do so to ride into one of the courtyards of the castle and there be regaled, and thence to proceed to the market-cross in procession, headed by the duke's piper, also on horseback, wrapped in a Northumbrian plaid, with the Percy badge (a silver crescent) on his arm and in his cap, playing "Chevy chase" on his pipes as he rides, and there proclaim the fair. This cavalcade of hearty, broad-shouldered Northumbrian farmers rarely consists of less than seventy or eighty mounts. The other test is that of the Percy Volunteer Artillery Corps, which musters more than 500 athletes.

Large hearted and liberal handed, the late duke, while managing his vast income with discretion, loved to do things handsomely. He liked every kind of work executed in the best possible manner; not stinting the cost of such excellence; but always requiring an estimate; and was displeased if it was exceeded. When his brother, the third duke, died, about 600*l*. were raised in subscriptions to erect a public monument to his memory. At this stage the proposal was placed in his hands to carry into effect. He commissioned Mr. Dyce to make a design for a stained glass window, to be placed in the east end of the church which it was one of the last acts of his brother to build. He then sent the cartoon to Munich, where it was executed for a sum far exceeding the subscriptions, not tolerating the restrictions which penury enforces on art. Mr. Dyce received 500*l*. for the design; and the glass, with its guards and carriage, cost 1,39*l*. 5*s*. From his earliest days, when as a midshipman he handed his superior officer a cheque upon his father for

1,000l. for a charitable purpose, to his latter days, when he founded a Sailors' Home at Shields and sent the sick sailors in the *Dreadnought* some thousands of bottles of choice wines, he exhibited the same sea-faring generosity, the same quiescent grandeur of temperament. He was deeply interested in every contrivance for the saving of human life; and, whether it was a request to assist an inventor to bring out a plan by which sash-windows could be easily turned upon a pivot, so that there was no danger incurred by standing on sills to clean them; or to promote life-saving operations upon a larger scale by presiding over and helping the Life-boat Institution, he ever lent his willing aid to every scheme.

A full-length portrait of the duke, in his robes, was painted by Grant. A choice medallion was executed of his Grace, as well as one of the duchess, during his stay in Rome. And Northumberland House possesses a portrait of him when in the hey-day of youth.

The burial-place of the Percy family is in the Chapel of St. Nicholas, Westminster Abbey. Thither will be conveyed the remains of the late representative of the most noble race of Percy, earls and dukes of Northumberland, whose shield displays the quarterings of eight hundred and ninety-two alliances.

EXPERIMENTS ON THE STRENGTH OF TIMBER.

The following particulars of experiments were carefully made by competent persons. At the present moment they have an additional value and interest:—

No. 1.—A piece of pitch-pine timber, 13 ft. bearings, 11 in. square.

Weight.	Deflexion.
3 tons	25
5 "	39
7 "	6
9 "	78
10 "	91

Permanent set .09 after weight was removed.

No. 2.—As No. 1.

Weight.	Deflexion.
3 tons	19
5 "	33
7 "	45
9 "	58
10 "	67 Set .06

These pieces (Nos. 1 and 2) were quite dry, rather shaly, but nearly free from knots. Being found sufficiently strong for the purposes intended, the experiment was not carried further.

No. 3.—A piece of Baltic timber of good quality, 20 ft. bearings, 12½ in. deep, 12½ in. in breadth.

Weight.	Deflexion.
2½ tons	5
5 "	106
7½ "	137
10 "	2
12½ "	237
15 "	312 Set .37

No. 4.—The weight applied a second time to the same beam.

Weight.	Deflexion.
2½ tons	75
5 "	138
7½ "	187
10 "	262
12½ "	337

The beam upon this trial would not sustain a greater weight than 14 tons, and would have broken with that weight, had it been continued.

No. 5.—A piece of Danzic timber, the quality very superior, 19 ft. 4 in. bearings, 14½ in. deep, 14½ in. in breadth.

Weight.	Deflexion.
2½ tons	22
5 "	45
7½ "	74
10 "	107
11 "	12
11 tons 12 cwt.	13

The permanent set, after the above weight had been removed, was hardly perceptible.

No. 6.—A piece of Meniel timber, rather coarse and knotty, 19 ft. 4 in. bearings, 13½ in. square.

Weight.	Deflexion.
2½ tons	73
5 "	136
7½ "	213
10 "	305
11 "	37

This beam would not sustain a greater weight than 11 tons. 12 cwt., and would have broken

had the weight been continued upon it, but the permanent set, after the weight was removed, did not much exceed 1.8th of an inch.

No. 7.—A wood beam, 20 ft. long, 10½ in. deep, 6 in. broad, made of two 3 in. yellow planks, bolted together.

Weight.	Deflexion.
12 cwt.	35
20 "	71
32 "	1305
40 "	137
52 "	175

A truss of iron was afterwards applied, the beam deflected nearly 6 in. without breaking.

The weight was in all cases applied to the centre of the beams by hydraulic pressure, and the deflexion given is in inches, and decimal parts of an inch.

ART IN BIRMINGHAM.

The New Permanent Art Gallery, in Birmingham, opens to the public with an exhibition of 500 pictures, on Thursday, February 23rd. By the regulations of this Society, no works are admissible but when forwarded by the artist, who has the option of exchanging them at pleasure, and to whom is remitted, on the day of sale, the price of the work, which, at the time of purchase, can be removed by the buyer. Many well-known names will be found in the list of exhibitors. The price of admission will be 6d. on Thursdays and Fridays; 2d. on other days.

THE SANITARY CONDITION OF WHITEHAVEN.

SCARCELY eighteen months have elapsed since Whitehaven was visited by an epidemic fever which ravaged the whole town, carried off numbers of its inhabitants, and for a considerable time caused it to be shunned by strangers as a place that could only be visited under the greatest risk. The authorities of the place, a corporation called "The Trustees," to whose neglect the visitation was altogether attributable, were momentarily roused to a sense of duty; sanitary measures were hastily adopted with instantaneous effect; and it was understood that such steps would be taken as would prevent the recurrence of the disease. A thorough system of sewerage was promised, the disgraceful arrangements which the absence of all drainage forced upon the residents having been one of the principal causes of the epidemic; and it was fondly hoped that within a brief period Whitehaven would enjoy some of the benefits of cleanliness. But when the immediate danger had passed, it appears they relapsed into their old state of indifference,—the sewerage was forgotten, and the town was suffered to return to its former dirty condition. The consequence is precisely what might have been expected. At a recent meeting of the Whitehaven Board of Guardians, according to our authority, the *Carlisle Journal*, Mr. John Hodgson has made some startling disclosures as to the sanitary state of the town. Within the last four months there have been fourteen fatal cases of small-pox and twenty-three of fever—ten of these fatal cases having occurred in one street, and within the space of a hundred yards. "I may tell you," said Mr. Hodgson, "that we have 193 inhabited cellars in the town, only twenty-two of which satisfy the requirements of the Local Government Act." The "trustees" still remain inactive. Not a single trench has been made for a sewer, not a by-law published, not an office provided nor a clerk appointed, as required by the Act of Parliament. Of all the nuisances which afflict this town we are of opinion that its "trustees" are the greatest, and ought to be got rid of. Should the Home Secretary send down another inspector, as we hear it rumoured he is likely to do, he will very probably recommend the establishment of a separate and independent Board, distinct altogether from the trustees, in order to carry out without further delay the provisions of the Local Government Act. As the present Board is not elected according to the intentions of the Act, Government will, no doubt, consider this an additional reason why a further official inquiry into the state of the town should be made.

INFIRMARY FOR PRESTON.—Nearly 6,000l. have been subscribed towards establishing an infirmary for Preston and its vicinity.

PICTURES AND DRAWINGS BY THE LATE DAVID ROBERTS, R.A.

THE Architectural Galleries in Conduit-street now contain 873 paintings and drawings, chiefly the latter, by David Roberts, hitherto unpublished, and a charming and instructive exhibition it is. Not water-colours, but spirits-and-water colours, might most of these admirable productions be truthfully termed, so vigorous, sparkling, and effective are they, and that too, with the slightest possible expenditure of means. Recollect his early life spent in scene-painting; that he produced about 260 pictures, now scattered over the kingdom; that his Spanish sketches, recently sold, and many others, are not here,—and what a monument we have of genius, perseverance, and industry united. His first picture sent to the Scottish Academy, and rejected, was afterwards sold by him for 30s., and never paid for: for the last picture he painted he might have had just what sum he chose to name in half-a-dozen quarters. It is noted as a coincidence and not uninteresting that the first scenes he painted for Ellistown when he came to London and was engaged at Drury Lane, were "Old St. Paul's," and "St. Paul's as it is," and that the latter was the subject of the last picture he painted on, one of his remarkable series of views on the Thames mostly executed for Mr. Charles Lucas. Two of the volumes of his extraordinary journal, in which he kept pen-and-ink sketches of all his pictures, and the prices paid for them, increase the interest of the present exhibition. It is to such an extent an architectural exhibition, offering to students hints and lessons of the greatest value, that some of the more active members of the Architectural Exhibition, *par excellence*, were actually discussing at the private view the desirability of arranging to keep it open by-and-by free to all members of the profession, in lieu of the accustomed annual collection.

POMPEII.*

I NOW come to the more interesting portion of my subject, the arrangement of plan, the architecture, and decoration of the private houses. I say more interesting, because, whilst in Greece, Italy, and elsewhere, we have abundant remains, in all states of preservation, of the public monuments and temples built by the ancients, in Pompeii and Herculaneum alone are we able to trace out their domestic dwellings; and, although various descriptions of them have been handed down to us by the Classic authors, still there were many points which remained mysteries till the discoveries of these two cities cleared them up.

The mode of life of the ancient Romans was not very different from that of the present inhabitants of the south of Italy. They rose early, and the greater part of the day was spent in the open air. A slight repast of bread and fruit was taken on getting up; the business of the day was then transacted till noon, when they had lunch, or what we should call *déjeuner à la fourchette* (only they had no forks). After lunch came a stroll down to the Forum, where all the public meetings were held, the news heard, and the courts attended to hear the trials. Then those religiously disposed might pay their devotions, either to Jupiter, Isis, Venus, or any other deity to whose worship they specially dedicated themselves. If spectacles were being held, they might go to the amphitheatre or the theatres; and, finally, taking a bath (the most important operation of the day), home to dinner or supper, after which no further business was transacted.

The Pompeian houses seem all to have been arranged on a similar plan, the size and number of the apartments varying according to the rank and means of the owner, and to local circumstances. They consisted generally of two floors only, ground and first floor. The latter, occupied by slaves and servants, was low, of little importance, and extended over a portion of the house only. There is but little architecture in the exterior of the houses, as it was invariably occupied by shops, the light being admitted to the rooms from courts in the interior. This may probably have been for the sake of privacy and protection, glass windows being a very great rarity in Pompeii, and also because a shady, sheltered spot, open to the air, in a hot climate, is the greatest luxury one can have. The shops

* By Mr. R. P. Spiers. See p. 84, ante.

were small. Some had rooms at the back; some had staircases evidently leading to an upper floor, and others communicated with the mansion or house behind. In the latter case the shop was kept by a slave (termed "dispensator") belonging to the owner of the mansion, who thus disposed of the surplus products of his farms and lands. The shops all opened to the street, as they do at the present day in the south of Italy and Sicily, and they were closed at night partly by means of wooden shutters sliding in grooves cut in the stone, and partly by a door swinging on a pivot, the whole fastened together probably by a bar of iron or wood. The grooves in which these shutters were placed are still visible in all the shop-fronts, as also the pivots in their sockets on which the door turned. In many of the shops, particularly those destined for the sale of liquors, counters of masonry, with jars fixed in them, still remain. They have their faces toward the street decorated with small slabs of marble of irregular shape, set in cement and polished.

The names of the different owners were written over the shops in red paint, and some of them had signs of their occupations in bas-reliefs of terra cotta, many of which are found now. Thus a goat indicated a milk-shop or dairy; two men carrying an amphora, a wine-shop; the phallus, a seller of amulets and love-charms; a man whipping a boy hoisted on another's back, a schoolmaster; and so on. It is difficult, of course, to find out what was sold in the greater number of the shops, their contents having perished or else been removed to the Museum at Naples. The bakers' shops are easily distinguished by their mills and ovens: these latter are similar to our own.

The mills are very curious, and consist of two stones; the lower a cone, with rounded top, somewhat of the form of an egg, with a base or pedestal, and groove cut in it to catch the flour in its descent; the upper stone, in shape like a dice-box, fits over the lower: in order to lessen the friction, a pivot is let into the upper part of the lower stone and a corresponding socket fixed in the narrow part of the upper stone, four holes being bored in it (parallel to the pivot) to let the corn pass through. The narrow part of the upper stone was hooped outside with iron, and holes cut in it into which wooden bars were inserted to turn it round; this being done sometimes by men, sometimes by asses. The corn was placed in the hollow portion of the upper stone, passed gradually through the holes in the iron socket, was ground between the surfaces of the stones, and finally fell into the groove round the base. Several loaves of bread were found in the different ovens; they are flat, about 2 in. deep and 8 in. diameter, and sometimes have had their form given to them by a mould.

The houses of the higher classes are divided into two parts, in accordance with the domestic customs of the Romans and their double life; the first being public, the second private. The public part comprised the vestibule, or prothyrium, atrium, aulæ, fauces, and tablinum; the private, the peristyle, cubicula, triclinia, pinacotheca, biblioteca, exedra, &c. The vestibule or prothyrium was a long narrow passage, about 6 ft. wide, which led between the shops on either side to the atrium or hall; sometimes, though rarely at Pompeii, a small porter's lodge was provided on one side of the vestibule. The atrium was the largest room in the public part of the house, and it was here that the owner received his clients or supporters: in the smaller houses of those who were clients themselves, and therefore waited on others, this atrium served as the common resort of the family. It was a large apartment, roofed over, with an opening in the centre called impluvium, towards which the roof sloped to throw off the rain-water into a shallow marble basin on the floor, called impluvium. Of these atria there were five kinds—

1. The Tuscanium, or Tuscan atrium, the oldest, and most commonly found in Pompeii. The roof was supported by four beams crossing at right angles, the included space forming the compluvium.

2. The tetrastyle, or four-pillared atrium, similar to the last, except that the beams of the roof were carried by columns, one at each corner of the compluvium.

3. The Corinthian atrium had a greater number of columns round the impluvium, which was in consequence larger.

4. Atrium displuvium, had its roof inclined the opposite way, so that the rain was thrown off towards the outside.

5. Atrium testudinatum, which was roofed

over entirely, without any compluvium or impluvium: this kind existed only in the poorer houses.

Of course none of the roofs exist now in Pompeii; all have perished. Such restorations as one sees of them, therefore, are made from descriptions by various authors, and from representations in painting found on the walls. The roof round the compluvium was edged with ornamental tiles called antefixæ, and at the corners lions' or dogs' heads, to carry the rain-water, and throw it into the impluvium. The open space was sometimes shaded by a veil, to diffuse the light and moderate the height. On the side of the impluvium, facing the entrance vestibule, was generally a small marble table, and in front of it a figure in bronze or marble, holding a vase or a flower, from which water poured into the impluvium, this figure carried on a pedestal or foot.

The floor was paved in mosaic, or ornamented by small squares of marble set in cement, at regular distances apart. Round this atrium were several rooms.

1. Aulæ, or wings; small recesses for conversation.

2. Cubicula, or sleeping apartments, generally set apart for visitors, or for the male portion of the family.

3. Tablinum; a large room, facing the vestibule, always opening into the atrium, and sometimes into the peristyle beyond, without any wall or separation.

Curtains were probably drawn across this room on either side: at Herculaneum have been found some iron rods, to which such curtains might probably have been suspended; this room contained the family archives, statues, pictures, &c. On one side of this tablinum was a small passage called fauces, which admitted of transit to the private portion of the house without crossing the tablinum. In the private portion of the house were,—

1. The peristyle, which resembled the atrium in plan, but was larger, and always surrounded by a colonnade, the centre space open to the sky, with flowers, shrubs, and fountains in it.

2. Cubicula, or bedchambers: these were very small and inconvenient, entirely out of keeping with our modern notions; but as the Romans spent all day in the open air, they only required sufficient room for a bed to sleep in, their ablutions being performed either at the public baths or in private ones, attached to all the larger houses.

3. Triclinium, or dining-room,—the name being derived from the three couches which encompassed the central table on three sides, leaving the fourth open to the attendants. The size of the rooms and their number, of course, depended on the wealth of the proprietor. They did not give, however, very large dinner parties, or, when doing so on special occasions, used the atrium, the impluvium being boarded over. At their feasts the guests lay with the upper part of the body reclined against the left arm, the head a little raised, and the back supported by cushions; they used knives and spoons, but picked up their food generally with the fingers of their right hand. If ladies were admitted, they generally sat on the couches. Their meals seemed to be somewhat similar to the French repasts now-a-days, beginning with the promiscuous or stimulants to the appetite; then courses of meat, fish, flesh, and fowl, and finally dessert. The wine was kept in large amphore, or jars, in earthenware, about 2 ft. 6 in. high, of which many are found now in Pompeii. The jars were inscribed with the name of the consuls in office at the time of the vintage from which the wine was made.

Æci, or halls, were large apartments, richly decorated, sometimes looking out on gardens; they constituted the ladies' drawing-room.

Pinacotheca, or picture-gallery, for easel pictures, of which, however, there were very few.

Biblioteca, or library,—a small room, very little space being required for the papyri, or rolls of manuscript, which were taken and read in the—

Exedra,—a room generally used for study or conversation.

Larenium was the chamber devoted to the Lares, or household gods.

Xystus, or garden, only found in the larger houses.

In some of the larger mansions, a special portion of the house was set apart for the female branch of the family, and termed the *vernemum*. The kitchens were very small, the cooking being done by charcoal fires, as it is now in some parts of France and Italy.

The upper floor of the house, I have said, was occupied by slaves; there was also sometimes a

solarium, or terrace, adorned with flowers and shrubs, with trellis work, where probably the evening meals were taken in the summer months. These apartments constituted therefore the various requirements of a Pompeian house. I will now take one or two examples of the more important in Pompeii, in order to note their general arrangement or peculiarities.

The house of Pansa is one of the largest and most interesting in Pompeii. Its exterior is occupied on three sides by shops, one of which communicated with the house, and therefore we may suppose was kept for the sale of the produce of Pansa's estate. Another shop (from the mills and oven) belonged to a baker. There were also three separate small houses attached to it. The principal entrance is decorated with two pilasters on either side of the doorway; the vestibule is paved with mosaic; thence follow the atrium, two aulæ, six cubicula, tablinum, fauces, peristyle, ornamented with sixteen Ionic columns, painted red one-third up, the rest fluted; four cubicula or sleeping chambers, two triclinia, a splendid æcus or hall facing the garden—this latter half the size of the mansion,—a servants' hall, and kitchen. In this latter was a curious painting, representing a sacrifice to the Lares, who are personified by two serpents near an altar; representations of different animals and fish are also painted round the room. Serpents were looked upon with great reverence, and were considered as creatures of good omen; they were of a harmless character, and thoroughly domesticated, the ladies putting them round their necks, like a boa, in hot weather. They became at last almost a nuisance, like cats, from their large increase in numbers, no one daring to kill them.

The house of the tragic poet, though small, is especially remarkable for its paintings: in the vestibule was the celebrated mosaic, of the "Cave canem," copied in the Pompeian court of the Crystal Palace. In the triclinium was the celebrated fresco of Leda presenting to her husband Castor, Pollux, and Helen, as new-born birds in a nest. The peristyle is terminated by a wall, on which was painted a view of an imaginary garden. The house of the Centaur, or of Castor and Pollux, is of considerable size, and consists of two distinct houses, separated by a peristyle common to both. This house has an atrium of the third variety, with twelve Corinthian columns round it. In it were found two highly decorated chests, lined and bound with iron, which still contained a few silver and gold coins that had escaped the attention of some individuals, who returned and made excavations after the eruption. They were unfortunate enough to miscalculate their distance, and arrived in the room by the side of the atrium, so that they had to penetrate the wall and the bulk of the chest before they could arrive at the treasure it contained.

In the house of Sallust, on one side of the vestibule, is a large shop for the sale of liquors, which opens on to it; on the other side a large hall, an unusual feature. This house has also a *vernemum*, a kind of harem, set apart for the female portion of the establishment. The house of the coloured capitals has a second peristyle, surrounded by a long range of twenty-four columns. Two other plans of newly excavated houses which I have sketched are curious, one called the house of Sircium. The irregularity of its peristyle is the chief feature about it: from each of the columns also projects a small bronze water-pipe, forming with the fountain and waterfall in the marble tank, a pretty system of ornamental waterworks. The other plan is of a small house, known as that of the "grand balcony": the upper part of the house, viz.—first floor—projects forward over the street, and is carried by wooden brackets or cantilevers. The first-floor rooms here are very richly decorated. There is one other house of importance I have not yet described, "the Villa of Diomedes." It is one of the most extensive private houses, and more especially interesting as a suburban villa or residence. The house is built on the side of a hill, so that there are as many as four different levels,—first and ground floor, basement, and cellars. It is one of the few houses in Pompeii which has a porch in front. There is no atrium; you enter the peristyle from the prothyrium; round it are triclinia, several cubicula or bedrooms, one of them elliptical in plan, with an alcove; a complete set of private baths, with court and portico, apodyterium, frigidarium, &c. Also a room in which a large collection of robes were found; a gallery lighted by windows, looking out on terraces; library and reading-room. Stairs lead to the apartments beneath, which seem

to have been used by the family; they were situate on the basement floor, and looked out on the garden at the back of the house. They are, perhaps, the only apartments in Pompeii in which the ceilings remain; they are vaulted and painted with fancy arabesque decorations. Large terraces surround the garden, under which are shady porticoes,—most delightful retreats in summer. In the centre of the garden was a piscina or fishpond, with *jets d'eau*, and a kind of arbour with columns, on which probably were trellis work and vines. Under the portico, and lighted by loopholes at the level of the ground, are galleries, probably used as cellars, from the large collection of amphore discovered there. No less than seventeen skeletons were found in this cellar, chiefly of females, who had taken refuge there during the fall of ashes over the city, whilst the men had taken to flight. Two of the skeletons were children whose blond hair and texture of dress were still apparent. By the garden-gate were found two skeletons, one presumed to be the master of the house, with a collection of coins near him, and the key of the gate in his hand; the other probably a slave, beside whom were found several silver vases.

Architecture and Decoration.

Nearly the whole of the architecture of Pompeii betrays a strong Greek feeling in its mouldings and ornament; and although, under the domination of the Romans, their architecture was gradually introduced, especially in the size and form of the public monuments and temples, still a certain refinement and beauty existing in them induces us to believe that, even if not by Greek, certainly they were not executed by Roman artists. Whilst the sections of the curved Roman mouldings were always portions of a circle, those at Pompeii seem to have been traced by hand, or approach more to the curves of conic sections; and yet, notwithstanding the resemblance in feeling to Grecian work, the results are so different that one is at a loss to account for it. To take the Doric column, for instance, which, in the latter period of Greek supremacy, reached a proportion of only 6½ diameters, here in Pompeii it falls to 8 or 9 diameters without any apparent transition. It is true that in the latter city they supported light weights, such as terraces constructed of wood only; in all other particulars the Pompeian Doric column fulfils the conditions of beauty in the Greek order, having no base mouldings, a simple capital, and ornamented with twenty flutings.

Again, the width of the volutes of the best Greek Ionic caps is equal to 1½ the lower diameter of the column, whilst in the Pompeian they are only 1¼. The Pompeian Ionic cap has also another peculiarity in the difference of the form of the echinus moulding. Now the Grecian echinus is narrow and deep in form, like an egg with its shell around, and what is usually called the tongue more like the head of a lance. In the Roman examples the egg is broader, the lower portion semicircular, the shell more spread out, and the tongue between takes the form of the barb of an arrow.

In the Pompeian echinus, however, the egg is extremely small, and the shell has an ogee form; the tongue is similar, but wider than the Greek.

The capital of the Corinthian order, like that of the Ionic, is smaller in proportion to the column, than either the Grecian or Roman varieties; its leaves resemble more those of the cabbage than the acanthus; and, as if to return to the original natural type from which it probably was copied, the volutes or spirals resemble more the natural tendrils of a plant, than the conventional form of them in the Greek and Roman caps. The temple of Vesta, at Tivoli, near Rome, has a similar capital, and it has been copied in this country in the Bank of England, designed by Sir John Soane.

There are no relics of the Classic period more interesting than the terra-cotta ornaments which are found in such abundance, and which give us an insight into the architectural decoration of the domestic and less monumental buildings. It has often been a matter of some inquiry whether this perfection of detail, these subtle proportions of the Parthenon and other buildings, only but lately discovered, and which we can scarcely now lay down by mathematical rules of the greatest complication, but which with them was instinctive and the result of highly-trained minds and eyes,—whether the smaller buildings were designed and carried out with the same care; and I think that amongst other proofs these terra-cotta relics show us that they were not; for, although they show artistic feeling and

taste in the highest degree, they are comparatively clumsy and rudely made; and I cannot help thinking, that now we have arrived at such mechanical perfection in the manufacture of these articles in terra-cotta and brick, a careful study of some of the old Pompeian and Roman work to be found in the British Museum and elsewhere will greatly assist the architect in finding out the secret of their artistic beauty and effect, in order to instil a similar feeling into our modern work with a clear distinction of that kind of ornament which is best represented in the material. Time will not permit me now to enter into further details about the architecture, as I have yet a word to say on the mosaics and fresco painting.

Of the mosaics I shall say but little: those of Pompeii generally consisted of black frets on a white ground, or white on a black ground; sometimes they were executed in colour, as in those found in the Villa of Diomedes. The formation of pictures in mosaic was originated by the Greeks, who arrived at extraordinary perfection in their manufacture; they are works of enormous labour and expense. Rougher and coarser kinds of mosaic are also to be found in Pompeii; one kind forming an ornamental covering for columns in the place of stucco and paint: a second kind consisted of irregular-shaped pieces of marble and stone, stuck in cement, and not smoothed down to an even surface, with shellwork. The great fountain is a good example of it, which latter is more remarkable for its singularity than good taste.

The fresco-painting of Pompeii is very interesting to us, having but little acquaintance with that kind of work. The Pompeian fresco-painter used some kind of resin, which he mixed with the colours in order to give them tenacity and render the imparts of their tints glutinous: wax was placed afterwards on the painting, to fix the colours and brighten their tone. The plaster consisted of seven coats, three of sand and four of marble dust, each successive coat being formed of thinner and finer stuff than the last. The several coats were laid one upon the other without allowing any one to dry. The painter then commenced by tracing with a graver or style the principal lines for ground tints. He then indicated with the same graver the figures of arabesque, and proceeded to fill them in with colour, the wall being still moist. As, however, the work proceeded, the wall would naturally be drying, and hence the amalgamation with the surface would be less complete. You will understand from this description of the system employed in painting, that the putting on of the colours had to be done with great celerity, that there was no time for study of composition or effect: in consequence, their painting must be looked upon as decorative rather than finished drawings or paintings. Of course, they had the power of cutting out the plaster in any part and forming it again, but this was rarely done.

From careful observations of the different frescoes from Pompeii and Herculaneum, I was able to perceive that there existed two or three different styles, which might, in fact, be expected from the changes of people to which the town has been subjected: hence the Etruscans, or Cumæans, and the Greeks, naturally must each have brought in their special styles; and, in later date, the Romans. To draw a clear and definite line of distinction, however, would be very difficult with so few illustrations as I have here. Without regard to style, however, I might class the paintings in three divisions:—

1st and highest. The pictorial representation of groups of figure, which I would call the ideal based on nature.

2nd. The representation of natural foliage, plants, &c., the real based on nature.

3rd. The representation of imaginary perspectives of imaginary architectural feature, the ideal based on conventionalities, fantasies, and conceits.

The first is certainly the most important because it gives us a glimpse of what the ancient Greek paintings may have been; for, judging the Grecian sculpture and architecture in comparison with the Pompeian, we may draw our conclusions as to what the Greek paintings were in comparison with those found at Pompeii; and the paintings of Greece may be fairly supposed to have been as superior to the paintings of Pompeii as the Grecian sculpture and architecture surpasses the Pompeian. The Pompeian paintings, therefore, are extremely interesting to us in that light; they rank, however, themselves as paintings of the highest class. I have, I am sorry to say, but few illustrations of them here;

I must refer you to the works of Sir W. Gell and Professor Donaldson, and also to the Pompeian Court of the Crystal Palace, in proof of what I say.

The composition of the figures, the elegance of their movements, and power of drawing, are most remarkable, especially when we take into consideration the hasty manner in which it was necessary they should be executed. The paintings under the second head are curious, as contradicting the assertions often made, that the ancients never copied nature directly, always resorting to some conventional treatment of it. Nothing can exceed the beauty and simplicity with which the natural foliage of trees and shrubs is depicted: whilst our modern artists would occupy whole hours in the painting of an apple, for instance, the Pompeian, in as many minutes, produced the same with at all events sufficient indication and power to last eighteen centuries. This kind of decoration was generally employed at the further end of the peristyle, where it was supposed to represent a garden beyond. I may mention, that near Rome, at the "Prima Porta," has been discovered a chamber painted in this style. I was fortunate enough to get access to it when in Rome last year, and was astonished at the brilliancy of the colours and wonderful execution.

To the third class of paintings I looked forward with considerable interest and curiosity, in the hopes of being able to discover in these architectural perspectives traces of a style of architecture in which metal would form the chief material; but I am sorry to say that I could discover little in it but what might have been the composition of imaginative minds; and my chief reason for disbelief in it is that it contains all those details such as architraves, friezes, with triglyphs and cornice, which belong to stone architecture, and are quite unfitted for the true use of iron. So that even supposing these compositions of attenuated columns, &c. were copies of the terraces which existed on the tops of the houses; we have nothing to learn from them more than we could do ourselves, and it is the archaeologist rather than the architect who would feel interest in them. However, be they what they may, it is impossible not to admire their wonderful execution, and the grandeur and apparent size they give to the apartments whose walls they occupy.

And now a few words on the general system of decoration. The walls appear to have been divided into three parts in height, the lowest about 3 ft. high, constituting, as it were, a dado; the second (according to the height of the room) some 9 ft. or 12 ft. above the dado; and the third up to the ceiling. The lowest was the darkest in tone, the second intermediate, and the uppermost the lightest of all, generally white: sometimes there were only two divisions.

Hence, if the dado were black, the middle portion would be red or yellow, and above white. If the dado was red, the middle portion would be yellow or blue; and if the dado was yellow all the rest of the wall would be white. The object of this was probably that the lower portions of the wall were the most likely to be soiled, and therefore the darker they were in tone the better: which may also account for the singular idea of painting the lower portions of the columns red or yellow. The colours I have given are, of course, only the grounds on which were painted various designs.

Panels or compartments were always executed in simple and unmixed colours, such as red, yellow, blue, &c. Sometimes the panels were of the same colour; sometimes varying, or relieved by borders or a white background with architectural perspectives. Nearly always the centre of the panels is occupied by single figures or groups in pale colour on the dark background, or in small frames or medallions. The number of accessory ornaments which accompanied these decorations were composed of an infinity of garlands, borders, frames, standards, panels, friezes, and other details of which it is difficult to understand the meaning, except that, esthetically speaking, they are pretty.

Towards the latter days of Pompeii, the rage for colour seems to have taken such possession of the people and their artists that they sacrificed form to it in every possible way: hence we find the beautiful mouldings of the earlier ages covered with stucco and painted, with as many broad surfaces as possible for the display of colour; and the simple and elegant columns, originally Doric, of the temples and porticoes made to lose all their elegance and beauty, being converted into pseudo-Corinthian by the addition of



THE ROYAL HOSPITAL FOR INCURABLES, WEST HILL, PUTNEY HEATH.

Mr. W. P. Griffith, Architect.

numerous coats of stucco, and then painted. Another kind of decoration is that whose origin was probably derived from the third class of paintings before alluded to. It consists in the representation in stucco relief of these architectural perspectives, and was employed in places where the rain or moisture would affect paintings: it was formed whilst the stucco was wet, partially with the plasterer's trowel, partly with moulds.

In conclusion, I think there is a great deal to be learnt from the plan of the private houses in Pompeii; for although our climate be very different, there are still certain principles which it would be well to bear in mind, such as the simplicity of their arrangements and the beautiful perspectives they give. I am not sure if in our country mansions and villas those peristyles and courts could not be well introduced, covered with glass if you will, and in the centre of them fountains and shrubs. The plans and details of the public baths are extremely interesting, because it happens that they are being introduced into England at the present time.

Our institutions, religious and civil, of course would clash somewhat with the public monuments and temples; but we cannot help, however, looking with envious eyes on those grand forums and public places, so necessary to health in a large metropolis, and affording so great an opportunity for improving the tastes of the people by the display of national monuments of a high class.

With respect to the fresco paintings,—perhaps the most interesting portion of my subject,—I may as well say that, on strict reasoning, I cannot advocate all Pompeian work as based on a healthy and true principle. Whenever reason, however, enters into the question, it is very difficult to lay down any laws. The doctors themselves do not agree; for whilst one, on strict scientific principles, advocates diaper patterns, another cries out for common sense, and suggests “as a truthful idea the painting of lovely children jumping through vine-leaves.”

The Pompeian decoration certainly arrives at great perfection in the objects its artists probably had in view, viz., that of pleasing the eye with elegance of form and beauty of colour. If we can satisfy these demands, it matters little the means by which we arrive at it. I can only recommend, therefore, to architectural

students a careful study of the principles on which such perfect harmony and contrast of colour are obtained in the fresco-paintings of Pompeii: their own hearts will dictate to them the best means of displaying it.

THE ROYAL HOSPITAL FOR INCURABLES.

A PERMANENT home for this institution has been obtained on the crown of West Hill, adjacent to Putney Heath. The freehold estate was purchased for 18,000*l.*, and consisted of a mansion, known as Melrose Hall, and 24 acres of park land. The mansion was erected by Mr. Gibson, of Hackney, for Mr. John Anthony Rucker, who died in 1804, leaving the residence to his nephew; and in 1824 it was purchased by the Marquis of Stafford, since which time it has been occupied by several noble families; and in 1862 it formed the temporary home of his Highness the late Viceroy of Egypt.

This building, with its fine hall 35 ft. 8 in. by 29 ft. 6 in., has been retained as the centre of the new hospital; and the addition of a north wing, the first stone of which was laid on the 11th of May last year, is just completed. Although the old mansion was a substantial building, still, beyond a cement pediment and a porch, it had no external architectural features: the windows were simply openings, and 2 ft. below the ceilings. An architectural character has now been imparted to it by raising the windows and adding architraves, pediments, &c. The east, or garden front, remains to be similarly treated.

The new wing is about 100 ft. long by 63 ft. in width, and comprises a basement; ground story, 15 ft. 6 in. high; one-pair story and two-pair story, with a Portland stone staircase; lift for infirm patients, and diet and coal lifts. The corridors are 10 ft. wide, and are formed with rubbed Yorkshire stone slabs, 5 in. thick, on cast-iron girders, each stone being in one length. The north front of the new wing faces the Kingston-road, and consists of a rustic basement, supporting four three-quarter Ionic columns surmounted with an entablature and a pediment, the entablature being continued along lateral or wing additions. The building is faced with white Suffolk bricks, and all the architectural

portions are of Portland stone. The whole of the site of the building has been covered with concrete, to avoid damp.

The contractor for the building was Mr. William Bird, of Kensington; the warming has been done by Mr. Perkins; the kitchen arrangements were put up by Messrs. Benham & Sons; the gas-fittings by Mr. Biggs; the arrangements for ventilation were by Mr. Watson; the fire-proof doors by Messrs. Lawrence; and the oak fences by Mr. Beale. When completed, the building will accommodate 300 inmates; and every comfort and amusement has been provided, including libraries, bowling-greens, &c. A small farm is in course of formation, with cow-houses, dairy, and so forth.

The cost, up to the present period, has been about 11,000*l.* The works have been carried out from the designs and under the superintendence of Mr. W. P. Griffith, architect.

BOMBAY CATHEDRAL.

This building, which it is proposed to restore, or rather recast, is the oldest Christian church in India, and as such it has associations connected with it which would render many loth to destroy the structure entirely. It is, however, but ill adapted to the exigencies of the climate or to its purpose as a cathedral church, and it has accordingly been determined to enclose the old building with a kind of cloister, and raise a lofty roof over its present ceiling, enlarge the chancel, and in fact modify the structure very greatly, while yet preserving its main internal features.

The illustration which we give shows the building as proposed to be restored, as it will appear when seen from the north-east.

A fountain, from the designs of Mr. Scott, R.A., is proposed to be erected opposite the western door; but the designs for the general work are by Mr. James Trubshawe, architect, Bombay. Should they be carried out in the liberal and complete spirit in which they have been conceived, they will transform Bombay Cathedral into a building worthy the great and thriving city, to which at present it can hardly be said to be an ornament.

Recently, we gave a view of the new font which was sent out to the cathedral from this country.



POWELL & COY. LONDON.

THE UTILIZATION OF SEWAGE QUESTION.

The main points of progress (if we may so call it), since our last notes were written, relate to the report of the Coal, Corn, and Finance Committee of the Corporation of London to the Court of Common Council on this subject; and to a continuation of the discussion at the Society of Arts on Mr. Morton's paper, already spoken of.

The City Committee state that—

"Having maturely considered the report of Baron Liebig, the greatest known authority upon agricultural chemistry, they are of opinion that the scheme of the Messrs. Hope & Napier, if it could be carried out, would be a glaring violation of the laws of agricultural science, from which the least possible increase to our home supplies of food would be obtained, as well as the smallest return to the ratepayers of the metropolis for their property."

In conclusion, the committee are of opinion that it is for the interest of the nation that a searching investigation into the system of economic sewage utilization should be instituted by Parliament before any steps are taken for the utilization of the sewage of London or of any other town, and that the interest of the ratepayers of the metropolis demands that the plan of Messrs. Hope & Napier should be strenuously opposed."

The report has since been adopted by the whole corporation.

In speaking of Baron Liebig's letter to the Lord Mayor, which was laid before the committee, the report says:—

"The committee find that Baron Liebig's analysis of the various fertilizing matters found in sewage and in Peruvian guano, have led him to the conclusion that in 828 tons of the London sewage, taking the total annual amount at 200,000,000 lbs., there is as much ammonia as in 1 ton of Peruvian guano; and estimating the value of the ammonia, phosphoric acid, and potash found in a ton of guano to be worth 7l. 16s. he is of opinion that the fertilizing matter contained in 1 ton of sewage is worth 18s., and the annual amount of the metropolitan sewage is worth 2,040,715l. He, however, further states,—"If the ammonia be reckoned at the present rate of the market price, it is present for in Peruvian guano, the ton of sewer water would be worth something more than the double of that price." This would give 4,081,430l. as the annual value of the metropolitan sewage—a sum somewhat larger than that arrived at by the committee, basing this estimate on the analysis of Messrs. Hofmann & Witt, and the present retail price of Peruvian guano, which price must necessarily rise that of every other manure. The committee further find that Baron Liebig points attention to the power of soils to abstract from sewage the fertilizing matters therein contained, but that of all soils pure sand possesses this power in the smallest degree; and with reference to the dilution of the sewage he states:—"A series of experiments with artificial sewer water proved that a dilution with water as great as that of the sewage of the metropolis in no wise diminishes the absorbing effect of the soil. I found, moreover, last summer, by experiments respecting the growth of plants, that a soil completely saturated with nigrating matter did not, as might be supposed, further the development of the plants' growth, for to many, on the contrary, it was prejudicial." The committee also find that Baron Liebig conclusively proves the fitness of sewage as a manure suitable for soil and land, and general farming purposes, and emphatically points attention to the error of continually applying one description of manure to land."

As regards the value of sewage, we scarcely think that it has been kept so clearly in view as it ought to be that value is relative, and that the true value of a thing is what it will sell for at the moment. Sewage may contain certain quantities of chemical ingredients which, were they in the form of guano, and as available for immediate use on the land, would be of a certain value; and in time to come that value may be realized even in the sewage form; but is the metropolitan sewage as a whole, and under present circumstances, of the value indicated? Charqui, or jerked beef, could its sale be depended on in this and other countries to a sufficient extent at 3d. per lb., might be regarded on the South American prairies as being of the value of say 1d. per lb., and in future time it may come to be of that value, but at present it is not so: it is simply worthless. Better therefore to regard it as not of one-tenth that value and sell it at this till it gets into extensive use, when its value will rise accordingly. In arguments as to the value of sewage there may thus be serious fallacies which may greatly interfere with the disposal of sewage as a positive nuisance, which at present must be got rid of at any price, and even though at a premium for taking it away. This is not merely a commercial question in short, but a sanitary one,—and primarily, indeed, a sanitary one, and only secondarily commercial.

The discussion on Mr. Morton's paper was continued last week, at the Society of Arts, by Professor Voelcker, Mr. R. Rawlinson, Mr. Mechi, Mr. Edwin Chadwick, C.B. (the chairman), and other gentlemen; and several letters on the subject were afterwards received, from Mr. J. Bailey Denton, Mr. Walker, of Rugby, and Mr. John Bethell. Into this lengthened discussion we cannot enter; but we may select a few points from the remarks of one or two of those who took part in it.

Mr. Rawlinson said he had only a few minutes ago heard it intimated, by so high an authority as Mr. Alderman Mechi, that there was a probable advantage to arise to the metropolis in applying its sewage to large areas for agricultural purposes in small dressings. He could only say that, at the present moment, all the knowledge he possessed, and all the experience that had come to him, were in a precisely contrary direction; and he also held that, if large sums of money were raised by a company, and if the large works planned were attempted for the application of the sewage of the metropolis over hundreds of thousands of acres, he thought that it would only result in bankruptcy. To carry sewage over large areas necessarily involved two things,—very expensive lifting power, and very expensive permanent plant below the surface for the so-called distribution. Where the application of sewage had been a success, he found that it was in cases where it had been applied in large dressings, in the simplest possible manner, over comparatively small areas, with no price paid for it, and with very simple apparatus. In Edinburgh there was a very limited area, about 400 acres, receiving the refuse of a considerable portion of the city, which came down without any cost, or in what way it should be used. The greatest possible results were thus produced from the land so treated; but in the town of Leith, clear-headed, calculating Scotsmen were going to expend 66,000l. in sewerage the Leith district; and, in the face of a rental of 35l. an acre on the opposite side of the city, they were spending this large amount of money to carry the pipes on to the sea, that the sewage might there be discharged. If any one thought they were wrong in this, and would like to take the sewage and make use of it, he (Mr. Rawlinson) would be happy to place him in communication with the corporation, who would be only too happy to let him have the sewage for nothing. Surely there was something in this, in spite of what Alderman Mechi had said about the necessity of taking the sewage back to the land.

Mr. Stuart Barker said he had applied sewage on a farm by means of a hose and tap, and scarcely any beneficial results had followed; but he afterwards cut an open drain, and the result was immediately perceptible in the increased quality and crop of grass. If they were to commence the work again, there was no doubt that some improvement might be made; but it must be recollected that the sewage of London was now at Barking, and that it could not be brought back, but must be dealt with under existing circumstances. If it was not allowed to go into the river as at present proposed, then it must be carried farther down the river.

The Chairman said that when he was in Paris some time ago, he had the honour to speak to the Emperor on the subject, when he submitted that his Majesty's officers ought to conduct for themselves trial works for dealing with the sewage of Paris: they did so, and impartial persons would acknowledge that these trials were the best that had been made: they were conducted by Professor Moll, of the Conservatoire des Arts-et-Métiers, assisted by Mons. Mille, ingénieur-en-chef of Paris. These gentlemen, with others, came over to this country, and examined for themselves the chief works, at Watford, Leicester, and Rugby, the liquefied manure farms, and the Edinburgh irrigated meadows. They decided against the application of sewage by the method of submersion, and adopted in preference the method by steam and pipe distribution.

Mr. Bailey Denton, in his postscript, draws attention to the necessity of regarding the water economy of the country in dealing with the sewage of towns. In allusion to the scheme of Messrs. Hope & Napier, he says:—

"Some years back I investigated the Essex Marshes, and am enabled to state that at least nine-tenths of their extent must be under-drained before they can be profitably laid out for irrigation; and I may add, as a fact capable of proof, that to irrigate the marshes of any low-lying valley is to increase its unhealthiness, though that may be greatly mitigated by under-draining. I do not lay stress upon the increased evil of irrigating with sewage instead of water, as it must be manifest to every one that misma, which is due to the deleterious matter evolved with water under the influence of the atmosphere, is more likely to arise from the putrid matter of the London sewers than from the clearer waters which are generally used for irrigation. At this time I am engaged in superintending the conversion of water meadows in a well-known valley into dry meadows, because they are found unhealthy; and it seems the reverse of discretion to make the wet meadows in the metropolitan valley still more wet by irrigation, and apply sewage for the purpose, when the neighbourhood is already known to be subject to fever and ague."

TELESCOPIC RAIN-TUBE AND TRAPS.

How frequently is the architect annoyed and disappointed at seeing a building, upon which he has bestowed considerable thought and attention, disfigured by the overflowing of the rain-water pipes.

If he has been mindful to prevent noisome smells escaping up the pipes by trapping them, he finds the traps stopped, and knows by experience that the carelessness of workmen or the neglect of servants renders useless the clever contrivances that have been adopted, and he feels the want of a ready and simple means for remedying such defects; being aware that they so annoy his client as to make him overlook considerable merit and services rendered.

Besides experiencing this, it has been brought home to me, in a forcible manner, by seeing wet making its way through the walls of the drawing-room of my own house, in which I thought I had omitted none of the most approved appliances. The usual remedies were applied, viz.:—the builder was sent for, who, with the aid of workmen, a truck, and a lofty ladder, discerned that the rain-water pipe was partially stopped, and my gardener upon digging down found the trap wholly so. In time this was remedied, and the annoyance forgotten, but will doubtless be revived when the bill comes in.

It occurred to me, after a little thought, to make a short length of the lower part of the pipe, sufficiently large to slide as a telescope tube, and to be suspended upon two additional nails, shown in the drawing; so that any one could readily remove any obstruction, and then lower it down again.

Now as to the trap. This is of brown stoneware; fixed a few inches below the surface of the ground, and into it is placed the lowest short length of pipe, the upper part resting upon two hooks; and when the telescopic length is raised, as before described, this part can be lifted off the hooks and out of the trap, which can then be cleaned out with the hand, and the pipe can be replaced.

JOHN TAYLOR, JUN.

EDINBURGH.

EDINBURGH is said to be beautiful, not on account of, but in spite of, its architecture. If that be the case, it behoves the inhabitants to keep a watchful eye on contemplated alterations and additions of its buildings, that they be such as to add to, and not detract from, that peculiar charm given to it by nature. Fortunately the manufactures are few, and their accompaniment of tall chimneys, with the usual concomitant of smoke, is seldom met with, although the grim monsters have thrust their snouts aloft in some places where they would have been better absent.

When the Government, several years ago, purchased the old Theatre Royal and Shakespeare-square, as a site for a new post-office, a vigilant look-out was kept lest the erection should be unworthy of the site, which is one of the best in the city. The design was prepared by Mr. Matheson, of Her Majesty's Office of Works, and met with general approval; and the building is now nearly completed, so far as the stone-work is concerned, and an opinion can now be formed of it as a *fait accompli*. Upon the whole, it may be looked upon as a successful effort, and worthy of ranking with the works of Adams & Elliot, which it adjoins; but it appears to us that the details have been timidly dealt with: the projections are too small, and the recesses not deep enough; the consequences being a paucity of light and shade, and an effect of monotony which would not have been the case with bolder handling. The style is Italian, and the dimensions are 140 ft. on the north and south elevations, and 180 ft. on the west. All the elevations, excepting that to the east, are visible from the street, and are treated architecturally. The façade is of two stories in the centre, and an additional story is added at the north-east and north-west angles, and along the whole of the south elevation: the centre two-storied parts are slightly recessed. The main entrance is in the centre of the north front, towards Prince's-street. It consists of a loggia, which is ornamented with Ionic pilasters, with wreaths hanging from the volutes, and is approached by three arched openings, supported on panted piers. The whole ground floor is restricted, and has arched windows; the second floor has square-headed windows, decorated with pendants; and single Corinthian columns are placed be-



TELESCOPIC RAIN-WATER TUBES.

between the windows of the centre part, and coupled columns at the pavilioned angles and along the south front. The attic third story consists of arched and moulded windows, with pilasters between, and is crowned by a balustrade, which feature is placed in front of the windows of the second and third stories. The sloping nature of the ground exposes the basement to the south, where there is no roadway; it is lighted with square-headed windows, having large key-stones. Mr. George Roberts is the contractor for the whole work; and the expense will be about 80,000*l*.

The sensational mania has spread from our literature to our architecture: an example of this is to be seen in Grove-street, the work of Mr. Frederick Pilkington. In a given space the architect seems to have striven to produce every variety of window: the pointed arch, round arch, elliptical arch, and horse-shoe arch, are in juxtaposition,—the whole being decorated with a profusion of carving of natural foliage: repose for the eye there is none, and an uneasy effect is produced upon the spectator. It is with considerable regret that we make these observations, as a step in this direction was much needed to relieve the dreary monotony of the west-end architecture; but Mr. Pilkington has outrun prudence. With less effort after novelty, and more attention to elegance of proportion and harmony of effect, Mr. Pilkington may yet do something more worthy of commendation.

Building operations have been very active at the west end during the last season, and fresh ground has been opened at East and West Coats at the Dean. None of the buildings deserve notice as architectural works: the same bald, tame, and uninteresting fronts as form the general mass of the streets of the new town are

again repeated, the only attempt at variety being that oriel windows are added to those at the Dean and at West Coats; but in each case a design, being once made, is repeated along the entire line, and the effect is even worse than where the walls were left flat. Surely a little wholesome variety would not cost the designers much trouble (it could easily be done without adding to the expense), although it would require a little thought, and employ a larger portion of the draughtsman's time; and no one deserving of the name of artist would grudge this for the sake of the result.

ART AND CONSTRUCTION IN PARLIAMENT.

The new Law Courts.—The Attorney-General has asked and got leave to introduce his bill into the House of Commons for the concentration of the courts of law. He stated that the present bill was entirely free from the objections taken to the bill of 1861. The estimates were now proved, which they were not at that time, and there was now no fear that the public should be called upon to make good any deficiency. The 200,000*l*. to be provided by the public would be covered by the value of the buildings and the sites to be vacated by the present courts, and the additional 400,000*l*. required would involve only a payment of 16,000*l*. a year in addition to the fees of suitors at present paid. Sir H. Wilmshurst, who first spoke on the question, said he had no objection to the improvement proposed, but the finance connected with it did not inspire him with much confidence. The cost, — 1,500,000*l*.—was sure to come out of the public

purse, and it would be better to face that certainty at once, or else dismiss the project. Indeed the expense would more likely amount to 2,000,000*l*. or 2,500,000*l*. Mr. Cowper then asked and obtained leave to introduce his bill to enable the Board of Works to acquire the site for the projected law courts. On another occasion Mr. Walter asked the First Commissioner of Works whether he would lay upon the table of the House a return showing the number of houses at present standing on the site of the new law courts, to which Mr. Cowper agreed.

Fires at Theatres, &c.—In reply to Mr. H. Lewis, Sir G. Grey said there was no intention at present to introduce a bill requiring that the plans of theatres and all places of public resort—for it could not be confined merely to places of amusement—should be submitted to a Government architect before those places were built; but the subject to which the question referred, namely, the construction of those buildings so as to provide security against fire, and for the safety of the public in the event of fire, was one, no doubt, of very great importance, and deserved serious and careful consideration.

The Metropolitan Streets and Bridges.—Sir William Fraser announced that on an early day he would call attention in the House of Commons to the condition of the streets of the metropolis as regards lighting, paving, cleansing, and traffic.—Mr. Locke asked the First Commissioner of Works whether it was intended to remove the obstructions erected along the centre of the carriage road over Westminster Bridge; and why heavy vehicles were now not allowed to pass along the tramways, for the convenience of which it was said they were now constructed; and why light vehicles were now compelled to pass along these tramways contrary to the original

arrangement. Mr. Cowper said that the present arrangement was part of the original design, but it was one of which he never approved. In July last he requested Mr. Page to prepare a plan for the removal of the tramways from the centre to the side of the bridge. Tramways, in accordance with that plan, would be laid down in about a month.

Protection of Rivers, and Sewage of Towns.—Lord R. Montagu obtained leave to bring in Bills to amend and better to administer the laws for the protection of waters in rivers and streams in England, and for facilitating the more useful application of town sewage in Great Britain and Ireland.—Sir G. Grey, while giving his ready assent to the introduction of these Bills, said that he doubted whether they were yet in possession of sufficiently full and accurate information to enable them to legislate effectively on the subject, and he took that to be the opinion of the noble lord himself, from the fact of his giving notice for a committee of inquiry.

The Main Drainage.—Viscount Enfield asked the hon. member for Bath (Mr. Tite), as a member of the Metropolitan Board of Works, the progress made in the main drainage of the metropolitan district, and when the same would probably be completed.—Mr. Tite said the main drainage was very nearly completed, both on the north and south sides of the Thames. The whole would come into operation by the 29th of March, with the exception of the Low-level Sewer, which was connected with the Thames Embankment. The total cost would be about 4,000,000*l.*

Dublin International Exhibition (1865).—Sir R. Peel obtained leave to introduce a Bill for the protection of inventions and designs exhibited at the Dublin International Exhibition for 1865.

COMPETITIONS.

Middlesex' New Exchange.—A meeting of the directors of the new Exchange was held on Tuesday, the 7th inst., when the various designs for the new building which had been submitted for examination were discussed. After deliberation the prizes were awarded thus:—1. "Apropos" (Mr. Swan, architect, Newcastle); 2. "Erimus" (Mr. W. H. Blessley, architect, Middlesex); 3. "Happy New Year" (Messrs. O'Donoghue and Grundy, architects, London and Glasgow). The design of "Cleveland Nota Bene" was considered by the directors to be in every way the best, but in consequence of the name of the architect having transpired it was not eligible for a premium. It is not improbable, nevertheless, that it may be selected for execution.

Christ Church Schools, Battersea.—In a limited competition for these schools for 600 children, Mr. E. C. Robins was the successful competitor; and the works are to be proceeded with immediately.

Edison Town Hall.—The town council have confirmed the award of Professor Donaldson. The names of the selected six given in our last are correct. The first three, Mr. W. Hill, Mr. Thomas Turner, and Mr. Brodricke, will receive the first, second, and third premiums in that order.

MASTERS AND MEN.

The arrangement between the Midland master builders and their workmen is proceeding in a friendly and hopeful manner towards a final settlement. A joint meeting of masters and men took place at Birmingham on the 10th inst. in the Town-hall, under the presidency of the mayor, in order "to elect delegates to attend the conference for drawing up rules for the future government of the trade."

The Chairman explained that the delegates would be formed into a committee, whose duty it should be to draw up a code of rules for the future regulation of the trade so far as concerned the relations of employers and men. It was intended either that the chairman of the committee should be asked to act as umpire in all disputes on which the committee could not agree, or that the delegates appointed by the masters should appoint one referee; that the delegates appointed by the operatives should appoint another referee; and that if they could not agree they should appoint an umpire, whose decision should be final and binding upon all parties. These were matters of detail which the committee would have to settle for themselves. In this way it was hoped that the dif-

ferences existing in the building trades might be settled in a manner honourable to both parties, and that the recurrence of strikes or similar difficulties for the future would be prevented. In conclusion he moved the first resolution, viz., "That it is desirable to appoint delegates from the masters and operatives with power to settle all trade regulations." The resolution was carried almost unanimously.

The Chairman then said it was proposed that an equal number of delegates should be appointed from the masters and from the carpenters, and from the masters and the joiners, and so on in continuation from the masters and each trade. He then called upon Mr. Bruton to name the delegates from the carpenters.

The following were appointed delegates unanimously:—Messrs. John Price, William Burgess, William Sayers, Walter Jones, Joseph Allen, and James Bruton.

The Chairman then called on the master builders to appoint their delegates to meet the carpenters. The following delegates on the part of the masters were then chosen to meet the delegates from the carpenters:—Messrs. Joseph Hardwick, J. Cresswell, William Webb, William Briggs, Charles Jones, and David Murray.

In response to the call of the mayor, Mr. Hunter, secretary to the bricklayers, stated they proposed sending six delegates to the conference. The following were appointed unanimously:—Messrs. James Lucas, J. Priest, James Stacey, John Hunter, Peter Davis, and Joe Freeman. The following were appointed on behalf of the master builders, to meet the deputation from the bricklayers:—Messrs. Hardwick, William Parker, Pritchard, Thomas Barnsley, W. Briggs, and William Webb.

Mr. Blakemore said the plasterers proposed sending three members to the conference, viz., Messrs. J. Doyle, Henry Hudson, and Charles Blakemore. These were approved.—Messrs. Hardwick, Graham, and Bassett (of the firm of Holmes & Bassett) were appointed delegates on behalf of the master builders to meet the plasterers.

Mr. Carroll, for the labourers, said they proposed sending six men to represent their interests. The following were accordingly appointed:—Messrs. Thomas Kane, Patrick Garvin, Thomas Connolly, Thomas Nerry, Patrick Carney, and William Carroll. The following master builders were appointed to meet the labourers: Messrs. Hardwick, E. Barnsley, Benjamin Smith, William Blower, Joseph Jeffrey, and J. Wilson.

A resolution, "That the employers and operatives severally agree to conform to and carry out all rules which shall be agreed to by the delegates, or decided by the casting vote of the chairman or umpire," was then unanimously carried.

The Board of Arbitration at Coventry have met several times, and, we hear, have come to a very satisfactory arrangement. The mayor presided over the meetings, but was not called upon to give a casting vote in a single instance. The masters have already agreed to give the men a considerably increased rate of wages.

The navvies and labourers engaged by Mr. Adamson, the contractor for the new reservoirs for supplying Hartlepool with soft water, have struck in consequence of a change in the mode of paying their wages. Hitherto they have received them fortnightly, but henceforth they are to be paid monthly, to which the men demur, and some of them have taken out summonses for the recovery of that which is due.

A general meeting of the operative plasterers of Newcastle, who had been on strike for the last thirteen weeks, was held on Saturday night. The cause of disaffection is a reduction, proposed by five of the masters, of 2*s.* per week for the winter quarter. The men work the same hours all the year round, namely, ten hours per day. They state that they would have submitted to the reduction if the masters had proportionately reduced the hours, so as to start at seven and give over work at five during these months. Three of the masters having sent for their men to start work on Monday morning, it was resolved that no men go to work until a proper agreement be come to as regards wages and hours of labour, namely, 2*s.* a week for nine months; 2*s.* for winter quarter; ten hours a day for summer; seven a.m. to five p.m. in winter.

We understand that after several meetings of the master builders of Carlisle, a unanimous resolution has been come to "to pay the masons and bricklayers by the hour on and after the 1st of March."

THE FALL OF SCHOOL FLOOR, WESTMINSTER.

The inquest was resumed on the 10th, when evidence was given on the part of Mr. George Smith, the builder, that the timber was Baltic. The beam had been sawn in two, and was before the jury. In course of the evidence,

Mr. Thomas Piper, a builder for twenty-three years, and at present a surveyor, said the timber on the table was Baltic timber. Attributed the accident to the imperfect construction of the building. These beams, 13 in. by 13 in., were calculated to bear 40 tons; but in the present case the joists were tenoned into the beams, and thus the latter were reduced in strength to such a degree that they could only bear 16 tons breaking weight. In answer to the coroner, the witness said that he wished to qualify the expression "imperfect construction." If the building were regarded simply as a school, the construction was sound enough, but not for a public building. 13 in. by 6 in. would carry some 16 tons. If the room were filled with adults, and they were in agitation, the weight would be about 16 tons.

Coroner: But the whole weight of the audience was not on this beam?

Witness said that he calculated that when one of the beams yielded, the weight thrown on the beam which broke amounted to some 16 tons?

Mr. New: Do you not know that the Act of Parliament expressly says that schools shall be built as "public buildings?"

Witness said that he did not consider that every public building should be made strong enough for any possible purpose to which it might be put. A school-room was not like a town-hall, intended for the meeting of masses of people.

Mr. Vulliamy was recalled, and said now that he had seen the timber cut through, he was disposed to think the timber might be Baltic.

Mr. James Howell, district surveyor of Westminster, said that Mr. Foxhall was a man of considerable ability. He (witness) met him at the schools several times, and was perfectly satisfied with the scantling of the timber. It was quite clear that the broken piece had lost all tenacity. Had it been proper timber it would have borne all the weight upon it. He treated this as a public building. Beams are usually 10 ft. apart, whereas these were only 6 ft. apart.

Mr. Rhode Hawkins, architect of the Committee of Privy Council on Education, said that the plans and specification were submitted at his office, and he approved of them. Upon his report, Government made a grant of 1,000*l.* It was no part of his duty to inspect the buildings when in progress. These beams, if intact, would bear 40 tons if distributed, or 20 tons if placed upon the centre.

The Coroner said that the evidence taken only rendered the duty of the jury a more anxious one. Here was a building purposely constructed by the clergy regardless of expense, so as to get a substantial structure; yet by some means it happened that through a defect the floor gave way, two persons were killed, and ninety injured. If it had turned out that the builder or any one else had purposely used an inferior timber to save money, the offence would be criminal; but the evidence negatived that supposition. The fact remained that timber was sold and bought as the best Baltic timber, which proved to be altogether unsound. It seemed very desirable that some test should be resorted to in order to ascertain the quality of the timber used in buildings; otherwise there was no security that any public or private building might not give way suddenly. The present inquiry would, no doubt, direct public attention to the question of the safety of buildings, for the catastrophe which had taken place had created a general feeling of consternation.

The jury returned a verdict of "Accidental Death."

UNCONSCIOUS VENTILATORS.

I NOTICE in your description of the designs for the London Meat Market, the sentence, "In the basement ventilation may be difficult." But does not the footway of a place resorted to by thousands offer a very easy means for supplying a fan? I am no mechanician, but I imagine that a number of persons passing over a floor may unconsciously set and keep at work wheels sufficient to disturb cold or foul air, so as to equalize the atmosphere. It has always appeared to me a mistake in ventilation to make it perceptible.

J. C.

LONDON HOUSES IN WHICH REMARK-
ABLE MEN HAVE LIVED.

In course of the very extensive alterations, not to say improvements, which are now going on in London, many a house made famous by its having been once inhabited by some one or other of England's worthies, will be known no more. Some, like the house of Milton, in Barbican, and that wherein poor "Goldie" lodged, in Green Arbour-court, have been swept away by the railway, and their very sites lost. Others, if not actually demolished, will be most difficult of identification, in consequence of the alteration of the names of streets and numbering of houses, now going on under the direction of the Metropolitan Board of Works. The Board, I think, should, and perhaps do, keep a record for public reference of the changes which each house undergoes in this way; and the Society of Antiquaries, or some other body which takes an interest in such matters, should record, and from time to time make public in some work, any change affecting the identity of houses which have a public and historical interest.

Can any of your readers say if anything of this kind is being done? WILL. PARK.

THE STRIKE AGAINST A MANCHESTER
ARCHITECT.

Sir,—I have reason to think that some of your readers have regarded the strike of the Manchester bricksetters against my special interest, and that they will be glad to know that the difficulty has now come to an end.

Last Wednesday, at a meeting of the Manchester Union Bricksetters, convened by placard, it was resolved, by a large majority, to "open" to the members of the Union all works under my superintendence in the neighbourhood of Manchester. The new county goal, however, was excepted, because between the contractor for this building and the bricksetters there is still a question at issue.

The cessation of the strike is the voluntary act of the bricksetters themselves. No concession was made to them, for the simple reason that there was nothing to concede. No circumstance has occurred to afford any special reason why the position the bricksetters had assumed should at this particular time be abandoned.

No pressure which they could not easily have withstood has been brought to bear upon them. The only influence from without which have been at work, so far as I know, have been a little pamphlet, in which I endeavoured, by a narrative of the strike, to show the men that their hostility could not be justified; and the expression of public opinion which that narrative has called forth.

I think, therefore, that the bricksetters have themselves virtually admitted that their determination to enter upon this strike was a mistake. And here lies the moral of the story. I point it out with no other purpose than that it may show the committees of trade-unions how desirable it is,—for the sake of their dignity, if for nothing else,—that similar mistakes should be avoided in future.

ALFRED WATERHOUSE.

THE DIMENSIONS OF LARGE
CHURCHES.

My catalogue of large churches, published last Christmas, has brought me information of some more, as I hoped it would. Some of my correspondents request that I will not publish them merely as an appendix, but an entirely new list, so that they may cut it out and keep it. I accordingly do so, and take the opportunity of correcting some figures in the former list by others from better authority.

I do not repeat the explanations which I gave before, but I notice an accidental mistake in writing Patrington among the churches with double transepts, instead of those with east and west aisles to their transepts. It is too small to appear in the list.

I now give the heights of the vaults or ceilings, and of the single or principal towers and spires of each church where I have been able to ascertain them. And I distinguish the spires by S before them, and the central steeples by C after them.

As Llandaff Cathedral is being restored, I restore it to its old dimensions. The most important additions are the two churches at Lynn

and one at Spalding. St. Nicholas's Chapel at Lynn has as many bays as King's, and nearly the same total width; and it had a tower, which is gone. St. Margaret's has two towers, and had a central lantern too. That town in former times, and not so long ago, seems to have distinguished itself by a destructiveness hardly exceeded by the great cathedral-destroyer, Wyatt. Wimborne Minster, I think, is the only church with a complete central and a single west tower, both surviving.

I find it necessary to say that I mean to express no opinion as to the architectural importance of any church by its place in the list. They must be put in some order, and, on the whole, that of the area seems the best. I just repeat that all the measures (except of course the steeples) are internal, and in feet.

E. B. DENISON.

	Area.	Greatest Length.	General Width.	Transverse Width.	Vault or Ceiling.	Tower or Spire.
York	63,800	486	106	222	101	168 c
St. Paul's (Old)	72,400	350	90	300	102	427 c
Do. (New)	50,700	460	94	240	88	436 c
Lincoln	55,550	468	80	220	92	262 c
Winchester	63,450	530	83	209	78	140 c
Ely, ex L. C.	46,000	517	78	165	72	215
Westminster	16,000	505	75	190	103	225
Durham	45,250	473	81	170	70	216 c
Salisbury	33,155	459	82	206	61	404 c
Canterbury	33,215	514	73	130	80	220
Peterborough	41,090	420	70	155	78	143 c
Sherburn	33,750	408	70	180	72	431 c
Worcester	38,750	387	72	130	61	192 c
Wells	32,130	388	69	132	67	165 c
Chester	31,680	359	74	140	73	127 c
St. Alban's, ex L. C.	31,140	425	65	175	68	144 c
Gloucester	30,600	408	83	142	67	225 c
Exeter	29,600	383	72	110	60	140
Hereford	29,600	383	64	167	63	186
Chichester	25,000	340	92	130	61	271 c
Lichfield	27,960	379	69	114	57	352 c
Hereford	26,560	325	74	114	70	144 c
Ripon	25,280	270	67	132	58	110 c
Tewkesbury	25,110	304	71	124	57	132 c
Rochester	23,200	313	65	122	55	—
Tarnmouth	23,035	225	110	118	—	—
Conventry, St. M.	22,080	312	120	0	46	330 c
St. David's	21,950	298	70	129	46	316 c
Rumsey	21,470	253	74	131	50	—
Southwell	20,340	296	63	121	49	111 c
Boston	20,270	244	60	0	263	—
Newcastle	20,110	243	74	127	46	184
Hull	20,040	272	72	96	—	—
King's Chapel	18,350	286	124	0	78	0
St. Mary's, near only	18,340	215	113	0	—	140
Christ Church	18,300	335	60	101	53	120
St. Andrew	18,280	252	61	121	—	160 c
St. John's	17,790	270	20	83	—	—
Newark	16,950	214	72	116	—	220 c
Bath	16,000	215	72	126	73	162 c
St. Andrew	16,000	215	66	106	54	0
Richfield	15,500	229	66	115	64	120
Landall	15,440	245	66	0	65	—
Grantham	15,410	198	78	0	—	274 c
Lynn, St. Mar.	15,280	235	64	76	—	92
Carlisle	15,270	211	71	124	—	127 c
Spalding	14,915	157	85	95	—	—
Louth	14,890	201	60	134	—	162 c
Bristol	14,200	171	72	119	55	130 c
Louth	14,100	152	76	0	55	204
Kendal	14,000	110	101	0	—	—
Beverley, St. M.	13,750	197	26	110	60	—
Lynn, St. Nic.	13,252	193	71	0	—	—
Cranechurch	13,150	158	104	0	55	135
Leeds	13,140	160	85	193	—	—
Wharfedale	13,110	260	60	65	61	100 c
Carlisle	12,650	169	65	110	77	91 c
Bridlington	12,580	185	68	0	75	—
Dunster	12,550	169	65	92	73	170 c
Weymouth	12,370	201	71	71	—	9 c
Walden	12,300	185	60	0	—	193 c
Credition	12,270	228	55	85	—	—
Sturford	12,090	170	61	50	80	93 c
Nottingham	12,000	206	64	93	—	—
Thuxton	11,610	183	66	87	—	163 c
St. Asaph	11,600	160	68	108	60	—
Devly	11,500	160	83	0	—	160 c
Oxford	11,342	153	91	102	44	180 c
Coventry, Trin.	11,180	176	67	80	—	237 c
Walsfield	11,080	180	66	0	—	217 c
Walsingham	10,725	185	54	108	—	—
Bangor	10,650	214	60	107	34	—
St. Peter Man.	10,467	181	60	0	—	—
St. John, Norwich	9,838	147	61	100	50	172 c
Wibsey	9,790	140	81	0	—	—
Teby	9,600	144	80	0	—	132 c
Walsingham	9,580	185	70	80	—	115 c
Taunton	9,000	181	80	0	—	150

ARCHITECTURAL ASSOCIATION.

The usual meeting of the members of the Association was held on Friday evening (the 3rd inst.), at the House, in Conduit-street. The chair was occupied by Mr. E. W. Headon.

The following new members were elected:—John James Tress, 11, Upper Cheyne-row, Chelsea; Thomas Smith, 3, Church-street, Stoke Newington; and Henry Dalrymple, Office of Director of Works, Admiralty, Somerset House. Mr. Mathews, hon. secretary, drew the attention of the meeting to the fact that an advertisement had recently appeared, offering the magnificent sum of 10*l.* for the best design for a manufactory. Contrary to his expectation, designs to the number of between thirty and forty had been sent in, and were exhibited at Messrs. Lett's, where he had inspected them. Many of them were very good indeed; others were bad, as might be expected. Now, he considered that the members of the Association, as a matter of principle, ought to be on their guard against being tempted into such a trap as that. If it were encouraged the effect would be, that a builder had only to advertise for designs, and for a paltry sum he could supply himself, and throw the profession altogether overboard. They would be standing in their own light, if, in violation of the principle on which they ought to act, they enabled a builder to execute works without reference to an architect.

The Chairman agreed with the secretary, that the matter to which he had drawn their attention was one of considerable importance. If this move on the part of the builders was not practically resisted, by the members of the Association taking no notice whatever of such invitations, contractors in want of an idea had only to advertise, offering a few pounds for it, and he had no doubt a number furnished to him to select from. He had himself been a sufferer from a matter of that sort. Having been called upon to supply designs for a church he did so, but having occasion some time afterwards to visit the church in the same locality, he was astonished to find his pulpit, altar-railing, and so forth, adopted in the building. The same builder had been engaged on both edifices, and had copied his designs without consulting him on the matter. As a matter of principle, they ought not, directly or indirectly, to countenance such a matter.

Mr. Headon then read a paper "On Stained Glass," part of which we printed last week. The remainder we shall give hereafter.

The Chairman congratulated the meeting upon the privilege they had enjoyed in having had so practical a paper. He considered that stained glass should be in hand, and looked after as well as designed by the artist, and until it was it would not have fair play.

Mr. Tress referred to the stained-glass windows of the Cathedral and Museum of Rome, as specimens worthy of study, on account of the harmony of colours which they exhibited. It was worthy of inquiry whether quarried glass afforded as good protection from the weather as large sheets. By some it was held that it did not. It was, however, in its favour, that if the glass were broken, it was more easily repaired; whereas if the large sheet was broken, the whole window should be replaced. He believed that quarried glass, if well and strongly put together, would be as much weather proof as glass in large sheets.

After some observations from Mr. Harris, on the necessity of observing a proper proportion between the size of the window and the height of the figures upon it,

Mr. Ridge, hon. secretary, said, that the effect of some of the stained-glass windows of the present day was simply rich and fine, but he held that they did not accord with the principles which ought to guide and direct them in the matter. Stained glass should be at once essentially rich, and fitted to transmit the light, and for the latter purpose should have as little shadow as possible. The glass should be fitted for the frame in which it was to be placed, and for the position which it was to occupy, and to occupy in subject and treatment. It was, he thought, a great mistake to be straining after fine paintings on glass. Glass was not the proper vehicle for fine paintings—canvases. The reason that quarries were liked was, that they were less, that they broke up the light, and prevented a flood of sunshine falling upon the congregation. He hoped, however, and believed that some other method of breaking the light would be discovered, and that large sheets of glass would come to be universally adopted.

A member said, it seemed to be considered that stained glass was altogether Gothic, and its suitability to any other kind of architecture was to be ignored. If, however, the architecture went out of fashion—and from some recent specimens, such as the Strand Music Hall, it was not improbable that the public would one day or other get sick of it—what was then to become of stained glass? How would the gentlemen who laid down such stringent rules for their guidance, be affected by the change, and how would the change affect the art? He could not agree with the view that there was not high art in painting on glass as well as in painting on canvas.

Mr. Harris observed, that he had not meant to imply that low art in painting upon canvas was high art in painting upon glass. There was, he admitted, high art in both, but they were altogether different things. In reference to what had been predicted as to the probable decline of Gothic, he had only to say, that if Classic architecture came to be adopted, stained glass could, he thought, be suited to it. At present, however, it was difficult to pursue the theory.

Mr. Blashill would ask those who desired fine pictures upon glass, what was to become of the end which windows were meant to answer, if their ideas were carried out. The light should be as little blocked out by shadows as possible, and therefore fine pictures were out of the question. They could not have perspective, or canopies, or stained glass. The material, namely, glass, and the object in view, namely, the admission of light, were always borne in mind. Wall painting and window painting were two different and distinct things, and it was not possible, even if it were desirable, to treat the wall and the window alike. He was not an advocate for the use of a large number of colours and tints. The man who could not handle six or seven effectively, would make a mess of it if he tried his hand at twenty or thirty. The paper which had been read was a valuable one, and he considered that its author was entitled to their thanks, and would accordingly propose a motion to that effect.

Mr. Lewis seconded the motion, which was unanimously adopted.

Mr. Headon, in acknowledging the compliment, expressed his opinion, that stained glass was capable of the highest art, but it was a different art from that of the many paintings. Shadow was sometimes used to subdue the light, but there were other means of subduing it, namely, by the use of heavier colours. For himself he

THE RESTORATION OF STOWMARKET CHURCH.—

On removing the gallery on the north side, the old carved oak screen of the Tyrril Chapel was fully exposed to view. Part of the panelling was there ruthlessly removed in years gone by, by some persons who could have had no taste for the beautiful. We believe that, in the specification for the restoration, no provision is made for the preservation of this piece of antiquity. It is to be hoped that it may be restored and preserved.

cent. per annum on the amount so expended. Their maximum charge for gas will be 4s. and they propose to reserve power to pay

dividend of 1 per cent. over and above 10 per cent. for every reduction of 2d. per 1,000 cubic feet from 4s. 2d. they may make. At the Plymouth or Nottingham prices for gas they would therefore be entitled to share dividends of something like 17 or 18 per cent. per annum.

The Tonbridge Wells Gas Company announce a reduction of price from 5s. 5d. to 5s., and the Canterbury a reduction to 4s. 6d. The Whitstable Company have reduced their price from 6s. 8d. to 5s. 10d. but the consumers are not satisfied. The Sutton Gas Company have made a reduction for the last quarter from 7s. to 6s. 6d.; the Shepton Mallet Company from 7s. to 6s.; and the Newcastle-under-Lyme Company announce a reduction from 4s. 6d. to 4s.: last year this company reduced their price from 5s. to 4s. 6d.: notwithstanding these successive reductions, they have just declared a dividend at the rate of 10 per cent. for the last half-year, and have to erect a new gasometer to meet their still increasing business.

The Penrith Gas Company have agreed to charge 3s. 9d. to private consumers, and 2l. per lamp per annum from the highways committee of the local Board. The Worcester Gas company have declared a dividend at the rate of 10 per cent. per annum for the last half-year. The Chester United Gas company have declared their usual dividend of 10 per cent. on ordinary stock, and 7 per cent. on preference stock, with the arrears of dividend for 1861, amounting to 13s. 1d. per cent. The Longton Gas company have announced a reduction in their price from 4s. to 3s. 8d., with discount of 5 per cent. for prompt payment.

The Chelmsford Gas Company have resolved to reduce the price of their gas to the consumers generally at Michaelmas next, from 5s. 5d. to 5s., with a discount of 5d. for cash payments, making the net charge 4s. 7d.

The Warwick Gas Company have resolved to reduce their gas 6d. per 1,000 ft. for the current year. This has brought the price down to 5s., and for speedy payments another 6d. per 1,000 is allowed.

The Crowle Gas and Coke Company have agreed to reduce the price of their gas. The chairman announced a dividend of 10 per cent., and the reserve fund exceeds that of former years.

The corporation of Stockport have given notice of a reduction of 6d. per 1,000 ft., after the 1st of July next. The price then will be 3s. 6d. per 1,000 ft., both within and beyond the borough boundary, with discounts, by which their large consumers will be supplied at 3s. per 1,000 ft. Their gas is manufactured entirely from the best Wigan canal, and is of twenty-four candles' illuminating power.

The Croft and Hurworth Gas Company (Darlington), have declared a dividend of 8 per cent., with a surplus for reserve fund.

The city of Hong Kong has been lighted with gas; but it is a mistake to state, as has been done, that this is the first use of gas in China. The Chinese have long used natural jets of gas in some parts, conducting it through bamboo cane pipes to their houses.

CANALS AND RESERVOIRS.

Bursting of a Canal in Birmingham.—A flood of a very serious nature has occurred through the bursting of an arm of the Birmingham Old Canal, which has done considerable damage to the Great Western Railway, between Hockley and Soho, and flooded an immense area of ground partially traversed by streets in the neighbourhood of Lodge-road, Hockley-place, and Icknield-street. Between Hockley and Soho stations (Great Western Company) the line of rails passes under a tunnel about 100 yards long, belonging to the Birmingham Canal; and it is through some portion of this tunnel that the water has burst. This part of the canal is not used for ordinary traffic.

Bursting of a Reservoir.—A large body of water, contained in the reservoir, situate between the two lines of railway, at Bushbury, near Wolverhampton, recently burst through the embankment, and deluged a considerable portion of the surrounding country, sweeping off immense numbers of cattle and sheep from the adjacent fields for a great distance. The accident is attributed to the great accumulation of water from the late thaw and subsequent heavy rains.

The Doe Park Reservoir.—We have received the following from Bradford:—Mr. Bateman's

report on the condition of Doe Park reservoir has been received, but, although the report in detail is satisfactory, yet it concludes, we understand, with the expression of a doubt as to the security of the reservoir. Mr. Bateman states that there is a loss—partly from a spring and partly from leakage—of 200,000 gallons per day; and, while there need be no apprehension of danger so long as the embankment remains unmoved, and there is an absence of colouring matter, yet the embankment and reservoir ought to be very narrowly watched, and steps, of course taken, if any appearance of colouring matter appear in the leakage. The reservoir, therefore, is not in a perfectly satisfactory condition.

Books Received.

Metropolitan Board of Works: Report of the Main Drainage Committee on the Evidence given before a Committee of the House of Commons on the Sewage of the Metropolis and on Statements in the Vestries, &c.

THE Main Drainage Committee report that the evidence they were called upon by their Board to examine was given in a "reckless manner," and that the charges are of a "baseless nature." At the close of the report, they say:—

"Your Committee, in conclusion, would strongly urge on your Honourable Board the propriety of now closing the controversy. Your Committee have felt the importance of fully replying to all the allegations made under cover of a Parliamentary inquiry, and have, therefore, in obedience to your reference, minutely investigated the several charges, and collected the body of documentary evidence contained in the Appendix, which, in the opinion of your Committee, completely and satisfactorily refutes the accusations against your Board and its Engineer. But your Committee feel, upon a review of the characters, objects, and associations of the witnesses examined before the Parliamentary Committee, and the course which has been pursued in other places, by other persons, that further action on your part would in no way conduce to the public service, and would occupy, needlessly, the time and energies which ought to be devoted to the practical duties of your Honourable Board."

As regards the source whence the Board contemplated getting the material for the embankment, which is spoken of in this report in connexion with Mr. Ridley's tender, the committee state that Mr. Ridley himself calculated on not only obtaining the material from the land, but on being paid for its deposit; that although the Board, on 11th November, 1864, resolved that land material was the best, but that for deepening the river a portion should be taken from it, the Thames Conservators have not threatened any legal proceedings for not taking it all from the river.

Under the head of books received, and in this connexion, we may here note that "Mr. Ridley's Testimonials" have been printed.

Priority Church of St. Mary and St. Blaise, Borough, Sussex. BY LACY W. RIDGE. 1864. Day & Son, Gate-street, London.

BOXGROVE PRIORY CHURCH, a transitional church of the eleventh and twelfth centuries, has many points of interest, and repays study. Some particulars of the building were given in our pages recently, when Mr. Lacy Ridge read a paper on the subject to the Architectural Association. A medal was given to him by the Institute of British Architects for a set of measured drawings of the church, and he has done well in now rendering them generally accessible by means of lithography. They do not pretend to be more than working drawings.

Miscellaneous.

ALARMING OCCURRENCE IN A CIRCUS AT LIVERPOOL.—In Crouset's Circus, Crosshall-street, Liverpool, while the performance was proceeding, those sitting under the gallery were alarmed by a loud cracking noise, which was immediately followed by the front of the gallery falling out, and its occupants being precipitated below. A scene of indescribable confusion followed. To make matters worse, some of the gas-piping got disconnected, and the gas blazed up, which led some to think that the building was on fire. Several children who were precipitated from the gallery were seriously hurt. The building is not very substantial, and it is said there were fewer people in the gallery than usual. Erections of this description should be supervised.

BOSSERT'S COMBINED ALBUM AND MUSICAL BOX.—The specification of this invention, just filed by Mr. Henry, the patent agent, Fleet-street, describes an album (especially for photographs) combined with a musical box, in such manner that on opening the book-cover the music will begin playing, and continue to play until the book be closed, or otherwise.

THEATRE BUILDING.—With reference to suggestions that have been offered, not now for the first time, that arrangements should be made so that the auditorium and the stage might be separated in the event of a fire, Messrs. Clark & Co., of Gate-street, ask us to repeat (what they have said elsewhere) that they have recently fitted up the New Theatre Royal, Glasgow (which was previously destroyed by fire), with their steel fire-proof revolving shutters to the proscenium, carpenters' shops, and property-rooms, and at the present time they are negotiating with other provincial managers for these fire-proof curtains, which shut off the audience from the stage.

WANTED, A DESIGN!—The Lords of the Committee of Council on Education desire to obtain a design for the decoration of one of the large lunettes at the north end of the south court of the Kensington Museum. The subject is to be an illustration (life size) of workmanship in any decorative art or manufacture. Three artists will be invited to make a suitable design, for which the Department will pay 50l. for each. In addition to the artists to be named, artists of any country not specially invited can compete if they think fit to do so. And two sums of 50l. and 25l. will be paid respectively to the two artists not named by the Department whose designs are chosen. The design ultimately adopted by the Department will be enlarged by students for execution in mosaic, life size; and the artist whose design is chosen for execution will be required to superintend the enlargement of the work and approve it, for which he will receive a further payment of 50l.

BOSTON HARBOUR TRUST: BILL FOR SURVEY.—At a recent meeting of this trust, a notice "to order payment of Mr. Hawshaw's bill for survey and report on the state and condition of the Haven and outfall" was considered. The clerk read the particulars of the bill, the total amount of which was 210l. Mr. Ald. Wren designated the bill as most exorbitant, and said that nearly the whole of the report would be found word for word published in Morton's "Compendium for 1862." They had to pay 210l., therefore, for what they could obtain at home for 6d. Mr. Morton asked,—"Was any survey really made?" The clerk said, "Yes; we were walking all day beside the river." Mr. Morton: "But that's no survey, professionally considered."—Mr. Briggs moved that, as the proposer and seconder of the engagement of Mr. Hawshaw were not present, the bill stand over till another meeting. This was agreed to.

PUDDLING BY MACHINERY.—Amongst the papers set down to be read at the annual meeting of the Institution of Mechanical Engineers in Birmingham, on the 26th ult., was one upon "machine puddling," by Mr. Menelaus. The author of the paper was accompanied by the manager of the Downais Company, who have the use of the patent. Mr. Menelaus had in the room a bloom of iron in the condition in which it left the furnace, and which weighed 5 cwt. As it lay upon the floor it looked like a huge iron egg, and near to it were specimens of the same iron in a finished state. There were also diagrams, not only of the furnace in question, but also of the various descriptions of furnaces which contemplated the stirrings of the molten iron in the ordinary puddling furnace with a "rabble" or puddler's tool moved by machinery, so as to imitate manual labour. Mr. Menelaus said that he had thoroughly satisfied himself of the practical value of the invention; and the Downais Company were then engaged in laying down works, in which eight of those rotating furnaces could be kept in operation in the production of an unexceptionable quality of finished iron. The quality of the bloom and of the iron in the finished state, which had been rolled from other blooms made in the furnace, was pronounced excellent. Every such furnace as that now used at the Downais Works can easily produce 60 tons of iron a week. It is said that by the use of the rotary furnace the expense of production will be diminished, as compared with the cost of iron made by hand labour, at the same time that the quality is improved.

HELP FOR FALLEN HORSES.—When a horse in shafts falls down, he nearly always falls with one of all his legs under one of the shafts, and his body over the other, and there is the greatest difficulty in getting him up again, in many cases the weight of the loaded cart being thrust forward, and pinning the horse to the ground. If the shafts, however, were fastened by bolts and pins to the cart, they could easily be removed, and the cart drawn back by a few bystanders, who could easily preserve its equilibrium, and then the horse could immediately get up.

SCARBOROUGH CO-OPERATIVE, INDUSTRIAL, AND PROVIDENT SOCIETY.—The members of this society (working men) are now erecting new premises in North-street, opposite to the Pantheon, from plans furnished by Messrs. J. & D. Petch, architects. The premises will comprise cellars, shop with three plate-glass windows, warehouse, show-rooms, office, committee-room, reading-room, library, store for the flour department, coal store, and other necessary conveniences; the contracts for which have been accepted by Messrs. B. Smith & Son, for brick, stone, and plaster work; Mr. W. Jowsey, joiner's work; Mr. James Hardgrave, slating; Mr. W. Waters, ironwork; and Mr. W. Prince, plumbing, glazing, &c.

OPENING OF A MODEL LODGING-HOUSE IN WARE.—A model lodging-house, erected in Kibb's-lane, Ware, under the direction of the Hertford Building Company, has been publicly opened. Kibb's-lane is a narrow thoroughfare running out of the New-road, near its termination in High-street. It is described by the *Herts Mercury* as probably the poorest and most objectionable-looking lane in the town. The lodging-house stands upon the site of nine poor cottages, which were pulled down for the purposes of its erection. The premises are entered through a gate, which opens from the lane into a tolerably wide space in front of the house, fenced off from the public way by a railing. The porch is slightly ornamental, and gives a somewhat cheerful aspect to the building, which is properly plain. Some dissatisfaction is rightly expressed as to the lowness of the ceiling of the dormitories, and as to two double-bedded divisions. Ventilation, however, has been attended to.

THE NORTH HAYMARKET ROOF, LIVERPOOL.—The Markets Committee last week presented to the Council several reports and resolutions on this subject, including reports of Mr. Alfred Waterhouse, architect, and Mr. Robson, with plans and estimates for a roof, combining iron and wood in its construction, with an estimate of cost; also tenders for the completion of the roof according to the original specification, and recommendation that the construction of the roof be proceeded with in accordance with the terms of that specification, and under the direction of the architect and surveyor; and that the tender of Messrs. Burroughs & Son, for the construction thereof, at the sum of 3,720*l.* be accepted. The committee had passed a resolution exonerating Mr. Rollet from any blame or irregularity in the matter of the late accident. The confirmation of the proceedings was agreed to after disposal of an amendment disapproving of the recommendation of the Markets Committee, which was moved by Mr. Gladstone, and seconded by Mr. Pictou, but rejected by a majority of 30 to 10.

ANOTHER NOVELTY IN CABS AND OTHER CARRIAGES.—“A Patent Carriage Company, Limited,” has been formed at Birmingham, for the purpose of bringing into use sundry novel improvements. The framework is of angle-iron, welded. By using this several inches of space are saved, and added to the accommodation. The panels, which in ordinary cabs are of wood, in these new ones are of papier mâché. The paper resembles leather, but is stiffer and very tough. Every part of a cab usually of wood, indeed, is in this instance made of paper. The springs are beneath the body, which brings the wheels 5 in. nearer than in the ordinary vehicle, and yet also gives additional room in the width. The window runs along the roof on the inside, and d-aws down like a sash; and there is a sash door, which may be pushed down, and coils itself below the body of the vehicle. The ventilation is also improved. One style of Hansom has a top which slides down, and thus an open carriage is provided. The cost of vehicles is said to be considerably reduced by the new mode of construction.

TELEGRAPHIC.—At the eighth ordinary general meeting of the Atlantic Telegraph Company, the directors, in their report, which was adopted, stated, that at present the new form of cable showed every probability of fully answering the expectations formed of it. The Hon. Mr. J. S. Wortley, the chairman of the company, observed that at present 1,120 miles of cable had been fully completed, and tested foot by foot—in fact, tested more than was necessary. It was proposed to lay the cable in the fine weather, between May and July, and by the end of that month it was hoped that the great enterprise would be successfully accomplished. The half-yearly meeting of the Electric and International Telegraph Company has been held, and a dividend of 4 per cent. for the half-year unanimously agreed to.

A GOOD RECTOR NOT NECESSARILY A GOOD CHAIRMAN.—The restoration of the parish church of Warrington has led to some slight unpleasantness between the Rev. W. Quekett, the rector, and his parishioners. It would seem that under his management the expense incurred was more than 10,000*l.*, or double the calculated cost, and on a fresh appeal for the completion of the tower and spire the subscribers “struck,” until Colonel Wilson-Patten, M.P. came forward and gave his guarantee that no money should be expended until the entire sum required for the contract was raised, so that the subscribers should know how much was required. Upon this a sum little short of 4,500*l.* was speedily subscribed, and on Monday week it was stated that the contract could be carried out for about 4,500*l.*; upon which a building committee was formed, of which Mr. R. Assheton Cross was nominated chairman, the rector holding the second place only. Upon this Mr. Quekett remonstrated, as it showed a want of confidence in him. Colonel Patten replied that, while collecting the subscriptions, he had met with no one who had expressed the least want of respect for their rector, but nearly all had expressed a great want of confidence in his judgment in conducting building operations; and he was bound to say that, as a subscriber to the fund, he felt not the slightest confidence in him in the matter. Other laymen having expressed similar opinions, the committee were unanimously elected as proposed.

RAILWAY MATTERS.—The London, Chatham, and Dover Company have arranged for “workmen's trains” between Victoria and Ludgate stations as on the Underground. The fares will be 1*s.* a week for once going to and fro each week day. A pneumatic railway is projected at Scarborough to connect the north and south sands.—The Birkenhead Commissioners have petitioned Parliament in favour of the bill for connecting the Liverpool and Birkenhead railways by a tunnel below the River Mersey.—A tunnel at Newmarket has partially fallen in. The cause of the accident was an unusual flow of water from the Warren-hill, occasioned by sudden thaw, partially washing away the earth from the abutments, and so greatly affecting the condition of the brickwork that between 50 ft. and 60 ft. of the wall gave way.—The Goring station of the Great Western Railway, between the Didcot and Reading junctions, has been destroyed by fire.—The Bickley Tunnel on the South-Eastern Railway has been completed. The tunnel forms a portion of a new route to be opened up between London and Dover and the south coast, and which will shorten the present distance by the South-Eastern lines between London and Dover, St. Leonards, Hastings, Folkestone, and the Continent, by thirteen miles. The new line leaves the Lewisham Junction of the North Kent and Mid Kent Railways, and runs in an almost perfect straight line to the present Tunbridge Station of the South-Eastern, passing on its way through Bickley, Chislehurst, and Sevenoaks. The tunnel at its greatest depth is about 40 ft. below the surface, and in others it is not more than 4 ft. or 5 ft., and might, therefore, have been much more conveniently made in open cutting through Sundridge Park, to which, however, the owner, Mr. Samuel Scott, very naturally objected. The tunnel is egg-shaped, is built of unusual strength, and is 964 yards long.—The first brick of the great tunnel of the Midland Railway intended to pass under Hampstead, and to form a portion of the Midland extension line into London has been laid. The tunnel will be 1,800 yards in length, and at its greatest depth will be 35 yards below the surface. The first brick was laid at a spot in Barham Park, near the Hampstead-road.

ST. MARY'S CHURCH, HORNSEY-RISE.—The east window of this church has been erected as an memorial of the late Mr. William Halse. In the centre light is a figure of our Lord. He stands in the act of benediction, with the globe, surmounted by the cross, in his left hand. In the triplets, on either side of the Saviour, are represented the four evangelists, with St. Mary and St. Elizabeth. The upper range of subjects comprises incidents in our Lord's life, selected from the petitions in the Litany, and arranged in the following manner:—The Annunciation, the Nativity, the Baptism, the Crucifixion, the Burial, the Resurrection, and the Ascension. The lower range of subjects exhibits incidents from Old Testament history, suggestive as types or parallels of those in the upper series. They read as follow:—The Announcement of Isaac's Birth by the Three Angels, the Birth of Isaac, the Passage of the Red Sea, the Sacrifice of Isaac, the Casting of Joseph into the Pit, the Raising of the Widow's Son, and the Translation of Elijah. The centre wheel above displays five groups of Apostles on the Day of Pentecost, with a dove in the midst: the smaller wheels contain figures of adoring angels. The window was designed and executed by Messrs. Lavers & Barrard, of London.

THE ROUND TOWERS OF IRELAND.—An interesting paper (the subject matter of which had been communicated by Mr. Caleb Palmer) was read in the lecture-room of the Dublin Athenaeum the other evening, by Mr. J. D. Darling, on “The subject of ‘The Round Towers of Ireland.’” The paper combated many of the opinions of Dr. Petrie, Walsh, and other writers on this much debated subject; and, in endeavouring to throw light on the origin of the mysterious round towers of Ireland, the lecturer stated that he would rely on sacred and profane history and tradition in support of his ideas. His theory was that the worship of Baal, as it had existed in the East, had been introduced into Ireland by the Phœnician colonists, and that these towers had been erected in connexion with the adoration of that false god. He endeavoured to show that temples erected for the service of Baal corresponded, in their essential particulars, with the round towers at present existing in Ireland. The lecturer then referred to numerous historical works to prove that the Phœnicians, who worshipped Baal and various heavenly bodies, colonised Ireland, introduced their religion into this country, and erected these round towers.

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Richards	1,062 0 0
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For workmen's cottages, Burton-on-Trent, for Messrs. Worthington & Co., brewers. Mr. James Fairclough, architect:—

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VOL. XXIII.—No. 1151.

Restorations in Northern Italy: Verona.



N. Maffei's "Verona Illustrata" (published 1732), a first-class work in Italian archaeological literature, we find the statement that, "while some hundred books have been dedicated to the subject of Roman antiquities at Verona, not one has hitherto given any report of the Christian antiquities, not less valuable in that city; nor has any writer yet even thought of publishing a separate account of those latter." Great has been the change in the direction of Italy's antiquarian studies since these words were penned, thanks to impulses given principally by savans at Rome and Florence; but we are not aware that a local theme so rich as that referred to has yet been turned to account with adequate ability in the language.

The first visit to Verona is a memorable event to the tourist imbued with love or reverence for the genius of the Christian Middle Ages; and under the present circumstances of this country, the reflective observer must find an additional source of interest in the comparison between those provinces now ruled by national and constitutional government—the States of United Italy,—and those still under the absolute power of the stranger. Austria seems in this land like a conqueror on the march, eager to extend his lines and outposts on every side, to make the most of a temporary position, and under all too strong a necessity of exciting fear to have time for thinking about such subordinate interests as the attainment of confidence or popularity. Yet this, like other comparisons, admits of exception, and may be applied in the general way, whilst at the same time one is ready to be just towards traits of more magnanimous policy, in the interests of public works and monuments, which the German ruler has occasionally exhibited in his occupation of Italy's fairest regions. The liberal furtherance of the complicated works at Milan Cathedral, whilst that city was under his sway, may class together with the restorations begun about a year ago, at the splendid mausolea of the Scaligers, among claims to gratitude on the part of Austria in Italy. But, oh! the difference! the evidences of languishing decay and stagnant inertness in the aspects of those cities where the stranger still holds invidious dominion, contrasted with the life of life, the signs unmistakable of progress on every side, where the authority of a native king is established!

Entering Verona by night, an impression of the *grandiose* is received from its vastness and situation, the unusual length and massive buildings of its streets; but, by daylight, one soon perceives how superficial is the semblance of prosperity, how mournfully apparent are the marks of decay. Wonderful indeed is the wealth of this place in scattered Medieval fragments, and details of architecture so richly characterized! One observes at almost every step some ogee arch or Gothic window with colonnettes and mouldings, some fine cor-

nice work or pointed canopy over a devotional picture, all in the warm red local marble; but these treasures are gems thrown away amidst mouldiness and neglect, and there seems reason to fear that a much longer continuance of the actual conditions in this subject city may result in the total decay, even to annihilation, of much that now contributes to invest her with such interest. The Corso and some streets lined with shops are thronged; the picturesque Piazza dell' Erba, surrounded by grand but dilapidated Medieval architecture, and lined with stalls and rich profusion of fruits, vegetables, and flowers, is in the morning hours one of the most animated as well as striking scenes of its description imaginable; while quarters more remote from the thronged centres remind us of half-deserted convents, or haunts of hopeless poverty—suburbs like wretched villages, inhabited by woe-begone tenants, whose cottages are in the state of incipient ruin. A prevailing depression seems to weigh down the life of the entire population, indicated in the lounging, aimless air of passengers in the streets, the half-shabby, half-showy style of establishments, as well as of men and women, excepting only the ever-present and dashing wearers of white uniform, whether officers or privates, alike recognizable as "masters of all they survey," and (with other characteristics) the devout attendants at churches, where females wear the graceful black veil of Spanish origin. That gloomily imposing specimen of military architecture (rebuilt, as it now stands, in 1850), known as the Castel Vecchio, whose enormous brick towers dominate over the broad river and over the majestic battlemented old bridge that here spans the Adige, rises like a stern symbol of the isolated and baleful sway beneath which Verona lies prostrate; and one statistical fact (we have mentioned it before), is sufficiently telling for comment on the blight and desolation now overshadowing her, that amid a population of 75,000, not fewer than 30,000 is the numeric force of Austria within her walls! Entering the grand old cathedral (founded 1187, the actual vaulting of the year 1402, many details renewed by Sanmichele in 1534), we were sorry to see its chancel-arches encumbered with crimson draperies, for some approaching festival of the Madonna—a theatrical decoration offensively discordant. Quite out of keeping, too, is the style in which its choir and tribunes have been altered by the modern works, among other achievements of which was the removal of the tomb of Pope Lucius III., who held a council in this church, died at Verona, and was buried in the same building, his monument placed before the high altar, whence it was taken to be deposited underground. Nothing could be more venerably characteristic than this cathedral's façade and portal, with the double piles of clustering pilasters, the quaint relief statues of prophets holding scrolls, the barbaric wild beasts, preying upon feeble quadrupeds (symbols of orthodox triumphant over heresy), and the grim figures of Roland and Oliver, in complete armour, with large diamond-shaped shields; these curious details, happily uninjured and untouched by modern hands, though the upper part has suffered from wretched repairs in brickwork, its marble cornice-lines left interrupted by the decay, restorers have not attempted to make up for by replacing what is lost. S. Stefano, the former cathedral, of the eleventh century, a small and now subordinate church, near the river, with simple gable-headed façade and octagonal tower, the exterior plain and quaint, the interior cold and gloomy, has been in part modernized with the usual bad taste.

The most remarkable church of Verona, S. Zenone, so unique and awe-striking in its dreamy grandeur, was founded by Pepin in the eighth century, rebuilt 1138-1178, the actual sculptured gates being of the year 1178, and the choir of the fifteenth century. This edifice is like an

expression of olden Catholicism in all its aspects—darker as well as brighter; and if we sought anything correspondent in the analogies of literature, we might fix on some chapter in the "Golden Legend." An ascendant mysticism, a solemn harmony, attained through complex and bizarre varieties, so impress as perfectly to overpower the mind. And yet here, too, are drawbacks in the evidences of cold neglect and unchecked decay, of paltry taste and degrading superstition. Such a spectacle as the seated statue of S. Zeno, in red marble, absolutely barbaric as to execution, with a fishing-rod to which hangs a silver fish in his clumsy hand, a money plate in front, and benches for kneeling in a circle around, shocks and insults the religious feeling excited by that noble architecture in its twilight solemnity. The frescoes of the fourteenth and fifteenth centuries once covering the walls along both aisles, are now effaced, save in a few instances; and we were told that, besides those left to fade away by natural process through exposure and damp, others had been deliberately destroyed. A "Crucifixion" of the school of Giotto, with miniature kneeling figures of Can Signorio della Scala and his confessor, a Dominican friar, is an interesting picture fortunately preserved. We again see S. Zeno fishing (of course symbolically), on one panel among the very curious bronze sculptures covering the great doors, pointed out by the custode as of the ninth century; the rest of these interesting bronze reliefs (subjects from the Old Testament) being by two artists of the twelfth century, Guglielmo and Niccolò da Figarola. An adjacent cloister of the Benedictine Abbey, whose monks used to serve this church,—one of the finest examples of similar construction in Italy,—has been converted into a magazine for military stores or provisions; and we could only enjoy a brief glimpse of its half-concealed arcades, beautiful (as even under such disadvantage could be perceived) in their still perfect details, with round arches resting on coupled columns. Near these rises an old square tower of bricks, lofty and picturesquely dismal, the sole other remnant of that monastery, said to have been once the palace of King Pepin, whose more extensive buildings were taken down, by the proprietor unfortunately possessed of them, in 1812.* The custode of S. Zenone, a man superior to the average calibre of his class, who loves and appreciates his charge with enthusiasm, talked of Ruekin and the interest taken by him in this celebrated church, leading us to understand that the critic had been on terms of sympathizing friendliness with this honest and loquacious *employé*. Others of the grand old churches at Verona, S. Anastasia, S. Fermo, S. Bernardino, retain their leading features uninjured and their characteristics of ancient dignity; though wherever renovation has been accomplished, it is at once perceived that the restoring taste here was against just principles not less than in Rome or Naples. Renaissance (in the modern sense) appeared rather early in the fifteenth century at Verona, and was first due to the architect Rivio, followed later, with the same principles, by Falconetto and Fra Giocondo; finally, by the more distinguished Sanmichele, born in this city (1484), where the church of S. Giorgio (a kind of miniature St. Peter's) is deemed his masterpiece.

In a quaint little piazza before the small church of S. Maria Antica (consecrated by Pope Alexander III. in 1177) stand within a square of iron railings those celebrated monuments of the Scaligeri, approaching which our disappointment was great, though it soon gave way to a sense of approval at seeing the finest of those tombs, that of Can Signorio, almost concealed by scaffolding.

* Maffei mentions an epigraph as extant in these cloisters, with record of the formation of the first cemetery for the monks under an abbot in the eleventh century; and another, recording the restoration of the cloistral arcades by another abbot, A.D. 1123.

folding raised for repairs, its majestic *ensemble* being thus withdrawn from appreciation, though details might still be examined, as we could pass within that modern framework in order to observe and admire. How necessary such works as those now in progress are is especially evident in this apex, one arm of which is equestrian figure at its apex, one arm of which is wanting. We need not attempt to describe again those well-known and magnificent examples of Medieval art that so admirably combine grace with solemnity, delicate lightness with elaborate richness, whilst sculpture and architecture are in such perfect accord, that, as in the marriage of words with sweet music, the mind cannot sever one from the other. We gave some particulars in our papers "Going Along" last year, when we urged on the authorities the necessity for reparation and careful support. The most ancient is a simple sarcophagus, containing the body of Mastino I., elected perpetual "Captain of the People," who was assassinated to avenge the honour of a young lady, A.D. 1272; the latest in date, that above-mentioned of Can Signorino, deceased, 1375, and last of this dynasty in power at Verona, whose ambition it was to surpass all his ancestors in the splendour of the tomb, for erecting and adorning which he spent in his lifetime 10,000 florins of gold, the artist being named in the epigraph, Boninus de Campilione, of the diocese of Milan. We may conjecture, in that vanity directed to posthumous honours, an expiatory feeling sprung from remorse in the mind of this guilt-stained potentate, the murderer of his own brother, Can Grande II., whose humbler tomb, a sarcophagus without inscription, stands on the pavement near, and who fell by fratricidal treason, the author of that crime being then only nineteen years old (1359). Three other sarcophagi, distinguished only by the sculptured crest, without epitaphs, are associated with the monumental group, but are to be removed from their actual places in order to be henceforth located according to succession of date. Bonino, the artist of that most splendid work, is considered by Italian critics to partake more of the German style than that native to Italy, and most in credit at his period,—an age when, as strikingly manifest in his case, almost all architects were (in the words of Cicognani), "at the same time sculptors, without exposing the merits of one art to conflict for the sacrifice of another."

That writer who had attained eminence at Verona *previously* to the epoch, in the thirteenth century, generally assigned as that of the revival of Christian art; the most noted among these, Brioletto, being conspicuous so early as the eleventh century, and most renowned for his extant masterpiece, the "Wheel of Fortune," in a circular window at the S. Zenone Church. No Italian city, in fact, possessed so many artists of name as did Verona within that elsewhere darkest period between the Longobardic kings and the Scaliger dominion, which commenced in the person of Mastino I., elected to dictatorial supremacy in 1261,—the date corresponding to that at which Niccolò di Pisa had just attained the zenith of his fame by his admirable sculptures on the pulpit of the baptistry in his native city.

The monument of Mastino II., father of Can Signorino, deceased 1351, is almost on a par in beauty of conception and finish, though not indeed evincing an art epoch quite so advanced as that of his son; and this former being unencumbered, we could observe its conditions, happily not such as to require any material repair.

DRAWING FOR ARTIZANS.

In consequence of some observations made by us not long ago as to the actual money value to an artizan of a knowledge of drawing, we have received within the last month a larger number of letters than usual, from masons, carpenters, and others, asking what steps they should take to acquire this power. "I hope," said one, representing several, "you will excuse the liberty I take in writing you. In the first place, you must know, I am a mason by trade, but, unfortunately, totally unacquainted with mechanical drawing, and I have been obliged to refuse two or three offers as foreman that I might have accepted had I been acquainted with lines." "I must tell you, I went once to a night-school, for a week or two, and, by the way they commenced to teach me, I saw it would be wasting my time and money, so I left. Copying houses on such a small scale that you had to put

your eyes nearly on the paper to see all the lines, and by gas-light, with a mason's heavy hand, was not the right work for a person that had never done anything of the sort before." Some asked for the name of a good school, others to be directed to an easy book, and a few complained that the course pursued in some of the schools in connexion with the Department of Art was not, in their opinion, suited to their wants.

To several of these correspondents we have written privately, giving such suggestions in their particular cases as seemed calculated to be serviceable. To continue doing this, however, is out of the question, and we would here reply to two or three inquirers, living in the western parts of the metropolis, that the best thing they can do, is to go to the Central Schools at South Kensington, and learn for themselves the course that is there pursued. An artizan class, we understand, has been formed there, meeting in the evening, and involving a payment either of 2s. or 3s. a month, according to the number of evenings in the week they desire to work. The class is already well attended, and the head master of the schools, Mr. Burchett, is so anxious that this should prove really useful to artizans, that if any of them who are in earnest will go to the school on a Monday, Wednesday, or Friday evening, about half-past seven o'clock, information will be readily afforded them, so that they may make up their minds as to entering or not. We shall be glad if we induce some, at any rate, of the younger men to avail themselves of the advantages here offered. They will find, too, in another part of the establishment an art-library of great extent and comprehensiveness, from which, when further advanced, they may obtain any amount of assistance in their studies by a merely nominal payment. Those who live at a distance should apply to the school of design in their neighbourhood, the West London School, for example, in the Portland-road, at any of which we have no doubt the masters will willingly listen to and consider any suggestions that may be made as to improvements in the course of study, with reference to their wants and opportunities.

Let us, however, say at once, that skill in drawing, especially if not sought till late in life, is not to be acquired by merely wishing to possess it. It must be worked for; the effort must be persevered in: but it is work that will become a pleasure; an effort that will bring its own reward. There are plenty of people who would willingly acquire knowledge or skill; but when they find that there is no royal road to its acquisition,—that it is not to be had without the labour of study,—at once give in and excuse their own want of application and perseverance, by complaining of want of opportunity.

We assert, as we have before asserted, that opportunities are not wanting to any one who will resolve to use them.

To some who say they are far from a school, and want to acquire skill in line-drawing at home at such odd hours as they can command, we would suggest the purchase of odd sheets of Laxton's "Examples of Building Construction" as copies. These are drawn to a large scale, and are very clear. An "Elementary Treatise on Orthographic Projection," by W. S. Binn, published by Messrs. Longman, in Gleig's School Series, may be had for a shilling, and will show them how to draw in plan, elevation, and section, geometrical forms which are continually before their eyes; while, as an introduction to free-hand drawing, Mr. Walter Smith's "Examples for First Practice" can be obtained for a shilling at Messrs. Chapman & Hall's, Piccadilly, and are well adapted for self-instruction. The same master, Mr. W. Smith, has published a "School of Art Practical Geometry" for a shilling, which will be found very useful. Some time back, we may mention too, we gave some practical hints on the self-teaching of drawing. We said then, as we say now,—go at it with a will. Do not be discouraged by a little difficulty at first; make your own opportunities; work and learn; and rest assured that whether it advance you in this world or not,—and the chances are that it will advance you,—you will never have reason to regret the effort.

POPIN TRAVELLING STUDENTSHIP.—The first election for the Popin Travelling Studentship has been decided in favour of Mr. J. Tavenor Perry, of Sloane-street.

* 19, Arundel-street, Strand.

ARCHITECTURAL NOTES IN FRANCE.

NOYON.—LAON.*

PERHAPS in commencing my paper I may be allowed to enter very briefly into a few general remarks on the church architecture of France. In the great architectural revival in the twelfth and thirteenth centuries, church architecture was divided into five grand divisions,—cathedral, monastic, conventual, collegiate, and parochial. Until the end of the twelfth century the cathedrals of France did not begin to assume those vast dimensions which are so grandly exemplified in Beauvais, Noyon, Laon, and Rheims; until this time the internal disputes of the different communities were against that great combination of strength between the ecclesiastic and civil bodies, which at the end of the twelfth century started that noble competition amongst so many cities in France, as to which should erect the grandest and most splendid building. It was about this time that the priests made common cause with monarchy against the remnants of the old feudal system; and the results of that alliance was the raising of those magnificent cathedrals at Laon, Rheims, Noyon, Chartres, Amiens, and Beauvais, which as far surpasses in grandeur the old monasteries and abbeys as they themselves surpassed the smaller churches.

From the time when Philip Augustus came to the throne of France, in the latter end of the twelfth century, until the death of Charles V., in 1380, there seemed to be a grand rivalry in cathedral and church building: priests and laymen united against all parties. In this brief century and a half, France became covered, as it were, with buildings, which at this day are the wonder and admiration of us all: in these two generations flourished hosts of artists of all kinds, whose works live still as everlasting monuments of their great power and genius.

At the same period, too, were built many of the old regal and episcopal palaces which still exist in nearly every cathedral town.

These palaces were added to from time to time as the wealth and possessions of their owners increased, and in them were held the courts and various local parliaments; for which purposes, as well as for the gathering together of the vassals, and for giving large banquets and other entertainments, was the great hall, which in all these early palaces, whether regal or ecclesiastical, forms one of the principal features. In addition to the hall, were the chapel and the apartments of the lord or bishop, and offices thereto; chambers for the treasure and archives and other valuable documents; rooms for the retainers of the house, and also guard-rooms and dungeons; and generally the only entrance was through a strongly fortified gateway or keep.

The Royal Palace was the palace *par excellence*, and often the other palaces took the title of the noblemen who possessed them, as that of the Comtes de Beauvais.

The episcopal palaces were always situate close to the cathedrals, and generally also immediately contiguous to the walls of the city, so as to contribute to the defence thereof if necessary, and for the purpose, as will be noticed at Laon, they were originally fortified. These palaces probably often determined the position of the cathedrals. M. Guizot, in his history of France, tells us that formerly the bishops were the natural lords of the towns, and that they governed the people, being their magistrates within and their protectors without.

The palace was often connected by a gallery or cloister with the cathedral, by which the bishop and his friends entered.

It is well for the art student to note the various developments of the different parts of the ecclesiastical edifices of the Middle Ages; the different forms of the buttresses and windows, and the gradual refining, so to speak, of the mouldings; for by them one can see the expanding, as it were, of the thoughts and feelings of the early builders: the variety of design, in some of the parts is most curious and interesting. The earliest types of buttresses that I have seen are those in the church of St. Remi, at Rheims, which are circular on plan, and probably date from the end of the tenth, or beginning of the eleventh, century. The next form seemed to be those which, while being square on plan, had but a very small projection in comparison with their height, and which often ran square

* By Mr. Edis. From a paper read at the Architectural Association, as elsewhere mentioned.

up into the cornice, without slope or moulding of any kind, as in the transepts of the small church at Rots, near Caen; or sometimes diminishing on the face and sides, about two-thirds of the way up, with very small plays, and the top play being sometimes finished with a small piece of carving or rude sculpture. It is also well to note how carefully these old architects always sought to design their buttresses, not only to be strong as counter thrusts, but to appear so, and to show clearly what they were intended for.

In the church of St. Martin, at Laon, which is about the date of the middle of the twelfth century, the buttresses are very massive, and brought well out from the faces of the walls, so as to give an appearance of extreme strength; the slopes are long, and are finished at the bases with heavy projecting mouldings, being in reality part of the string courses returned.

Towards the middle of the thirteenth century, the buttresses were made to project much further; and about this time, too, they began to be decorated either with niches for statues, or with columns at the angles, and with crocketed pinnacles as terminations running up above the cornice. The later ones are all kinds of shapes, the bases being square; the next stage perhaps also square; and then the plan would be reversed and the face would be angular; and at the junction between the square and the angular faces there would perhaps be small pannelled pinnacles. The weathering tables of these later buttresses were also much deeper, and the mouldings much coarser.

As regards the windows, until the end of the eleventh century the windows of the churches were rarely filled with glass of any kind, but had gratings of either wood, stone, or iron, some of which were made to open and shut; but in general they were, I believe, built into the played sides. The very early windows were always small, and with the external angles played off to a less degree than the internal ones, to admit of free egress of light and air; but soon the discovery of stained glass compelled the enlargement of the window-spaces; and from this time they began to assume all the varieties of form and size which the mind of man could invent, from the simple lancet, with plain trefoil head, to the magnificent rose windows, such as those at Laon and Rheims; until later the architects seemed to wreath their masonry like garlands, and to form it into endless graceful designs of flowing tracery.

The walk from Ourcamp to Noyon is along a straight dreary road, amid long rows of weid-looking poplar trees, and is by no means a pleasant one, for the road is, for the most part, paved with stones, and very hilly; and the traveller will be right glad when at last the tall chimneys of Noyon come in sight, and he is able, after perhaps a long day's march, to rest himself after his labours at the little inn or hotel which faces the south front of the cathedral.

In Murray's Handbook of France you are told that the cathedral at Noyon "is of interest to the antiquary and the architect;" and a short paragraph tells you that "it is a fine Romanesque edifice, begun in the twelfth and completed early in the thirteenth century;" and informs you, also, that "it presents an interesting example of the transition of the Round to the Pointed style;" and in about a dozen short lines does the writer dispose of what is undoubtedly one of the first and purest of all French cathedrals: essentially religious in its character, and beautiful in its charming simplicity of outline and detail, this cathedral furnishes enough for study and examination for a whole fortnight's holiday, and one, too, which will amply repay the architectural student who will quietly settle down in the comfortable little inn close at hand, and make up his mind for a week or fortnight's sketching and study. In 1180, the town of Noyon and its cathedral were destroyed by fire. The bishop of that date had almost entirely exhausted his means in building the neighbouring Abbey of Ourcamp, and was unable to restore the cathedral. His successor commenced that imposing edifice which now remains; a building in which is almost entirely abandoned the old Basilica form.

The plan of the cathedral is cruciform, the transepts and choir having circular ends, and the latter having also five circular eastern chapels, and four square north and south chapels, two on each side. It may be, perhaps, that the essentially religious character of the plan, and the absence of any approach to the old Basilica, or, if I may so call it, civil form, is owing to its having been

commenced before the grand revival movement set in; a revival in which the clergy and the laity joined hands, and became as one. The two grand square western towers were commenced after the building of the choir and transepts, but were never completed; and although the simple low pyramidal timber roofs, with the quaint spirelets at each angle, are exceedingly picturesque, the building seems to want the spires, which no doubt were intended to have crowned the towers,—and the effect which their grand skyline would have given. The plan of the vaulting is similar to that at Laon, that is to say, hexa-part; the mouldings of the vaulting-ribs are very simple and beautiful, and those to the choir are ornamented with small rosettes, which give an exquisitely charming appearance. On the north side of the nave is a chapter-house of later date, and part of the old cloister still remains. The arch mouldings of the windows of the chapter-house next the cloisters on the east side are very richly carved with foliage. The porch, which extends across the whole of the west front of the cathedral, is all open, with a pierced arcade or balustrading running along the whole top; this is probably a century later than the rest of the building, and although beautiful in its way, does not add to the simple magnificence of the *tout ensemble*.

The doorway in the east end of the south transept is a charming little bit of Romanesque work; it has a projecting pediment, with a pointed barrel vault, resting on exquisitely-carved capitals.

The next town that I propose to draw your attention to is Laon. I know of no town which impresses at first sight the beholder more than this, situated as it is on the summit of a lofty and almost isolated hill on the borders of the vast valley of Champagne, with the roads winding round and round till they gradually enter through and pass behind the old fortified walls; the picturesquely wooded slopes of the hill, and the whole crowned at its summit by the magnificent cathedral, gives an appearance of strength and grandeur that I have never seen equalled. If you choose to walk from the station, which is in the lower town at the foot of the hill, there is a short cut up a series of steps out of the hill, from the top of which you have a most magnificent view of the surrounding country. The walk round the walls beneath the old and new fortifications gives you many charming views over the vine-clad plain below; and, looking up at the masses of ancient masonry which mingle with the natural fortification of the rock itself, the place seems as though it would be almost impregnable to an enemy. It was here that Napoleon, in 1814, first fought and lost a battle with the allied army under Blücher.

One of the old gates, the Porte d'Ardon, still remains, but is now little more than a picturesque ruin, with its low-pointed entrance-arch and guard chamber over, and the two quaint circular turrets which flank the gateway right and left.

Laon was another of those towns which, like other wealthy towns in France, was at one time perpetually engaged in feudal strife; but from the time when Philip Augustus, in 1191, allowed or confirmed their corporation rights, for which they had been fighting, these worthy burghers joined heart and soul with the priesthood in vying with the other large towns in building a cathedral which should surpass in grandeur and magnificence anything that had been before; and as Laon was one of the most democratic of all French cities at that time, it would seem that a sort of concession was made, so as to design a building which should be capable of purposes both civil and religious, for M. Marion, in his archaeological history of this cathedral, tells us, that at times most extraordinary scenes of buffoonery were enacted therein, and suggests that it was probable that the wily bishops and priests, with whom the good people of Laon had for more than a century been perpetually wrangling, thought, by giving in a little at first, and by not insisting all at once upon having a building entirely for religious purposes, that they contrived thus to gain the means and assistance, without which it would have been entirely impossible to carry out their grand scheme.

It will be noticed that the plan of the cathedral gives the appearance of an immense hall or basilica with aisles.

The choir is finished square, and the transepts are very shallow, being literally, if we except the two flanking towers and porches between

them, only the length of two bays of the nave or body of the church; and, with the exception of the two small square chapels on the north and south sides of the choir next the transepts, there are none, whereas at Noyon the whole of the choir is surrounded by chapels; but Noyon was built probably forty or fifty years before Laon, when the priest rule was stronger, and could therefore, as it were, throw more religious element into its plan.

Murray, in his guide-book, gives the date of the present cathedral as 1114; but this is evidently wrong,—at least the architecture of the present building is certainly not twelfth century work, and M. Marion tells us that it was probably commenced after the peace of 1191; the old cathedral having been damaged, and in great part destroyed during the disturbances of the preceding three-quarters of a century. In the original cathedral the apse was circular, and had circular chapels, somewhat similar to those at Noyon, as has been ascertained without doubt by the discovery of the old foundations, by M. Boeswillwald, the architect.

The present edifice is probably of the early part of the thirteenth century. There is a charming unity throughout the whole building, as if it had been carried out at once and without any lapse of time intervening between any portion of it, as is the case in so many of the Continental churches. The view down the nave and choir from the west entrance looking east is grand in the extreme; its immense length, over 400 ft., giving a marvellous perspective vista. The cathedral is peculiar, as having a double triforium, making it four stories in height. The top triforium consists of a long arcade, opening into a narrow gallery behind; the clerestory windows are quite plain, and sufficiently wide to fill up the spaces between the vaulting. The vaulting shafts are small and clustered, and finish with bases on the top of the abaci of the columns of the nave arcade. The main columns of the nave arcade, which carry the clustered shafts, which take the transverse vaulting ribs, are much larger than the alternate columns, and have five small detached shafts upon their faces, one at each angle of the square, and one in the centre on the faces next the nave. The alternate columns are circular, with octagon bases. The seven towers, when first erected, must have formed a grand and imposing sight. M. Viollet-le-Duc says, they were originally surmounted with spires, which are now destroyed. The large central tower has now a plain wooden roof, hipped all ways to a point. The arrangement of the buttresses to the top stage of this tower is very good. The western towers, as well as the parts of those at the four angles of the transepts which remain, are all open, the windows not being filled with glass, and the effect of the immense open lancets, and the open angle buttresses or turrets, seen from a distance, is very impressive; but to my mind I cannot think them so charming as the two western towers of Noyon Cathedral, which in their very simplicity and squareness seem so beautiful and noble.

There is one thing in Laon Cathedral which every one who first sees it will marvel at,—I mean the immense figures of horses and oxen which stand staring out into space from the recesses of the open angle buttresses of the northwest tower, which seem anything but religious or beautiful, and certainly out of place so high above ground. It seems as though these strong, hardy, and enterprising people of Laon meant to do something that should outvie their neighbours, and carried up these said animals and then caged them, and they, in their very fright at being in so celestial a region, had fossilized.

In early days certain birds and beasts had symbolic qualities, such as the lion, the symbol of force and courage; the pelican, of charity; and the basilisk and the dragon, of the devil.

The battlements of the cathedrals of Notre Dame, at Paris and Rheims, are surmounted with enormous elephants and other fantastic figures, either of beasts or birds, which stand like grim sentinels watching over the buildings they adorn; and perhaps these Laon burghers put up these immense horses and oxen as symbols of their faithfulness and docility. At all events, these masses of stone, which were doubtless constructionally necessary, have had a life and character given to them by the sculptor.

One thing these sturdy builders did not do as well as the rest of their work, in this cathedral at least: they scamped the concrete, or forgot it altogether; for the two western towers bade fair to fall altogether, and cracked from the summit almost to the base, so much so that a great part

of them has been obliged to be taken down and rebuilt; as also a part of the west end of the nave; and the patchy appearance which the restoration of those parts in which the new stones have had to replace the old is anything but agreeable to the eye. There are three enormous rose windows in this cathedral, one in the east end of the choir, and one in each transept. That in the north transept is a singularly beautiful one, and is filled up with a series of smaller roses. The one in the east end of the choir is more to be wondered at for its size than admired for its beauty. There is a curious old thirteenth century figure bearing a sun-dial on the wall at the east end of the old covered cloisters adjoining the south transept, an angel, the size of life, standing on a carved corbel about 14 ft. from the ground, and, with wings crossed, carries the dial. The figure is much mutilated, and the old dial has been destroyed. The present one is supported in front of the figure by iron brackets fixed into the wall, the arms of the figure which carried the original one having been broken off. The cloisters are exceedingly beautiful, the arcades being divided into two by low single shafts, from which spring pointed arches. The space above, and between the vaulting, is filled up, and pierced with plain circular openings with quatrefoil tracery therein; and around these inner circles or openings are a row of small plain holes, about 6 in. in diameter, moulded on the edges. The vaulting ribs spring from a cluster of low shafts, alternately octagon and circular, the octagon ones being of marble. In the south transept there is a very fine old font, the bowl of which is black marble, resting on a circular stone shaft and base.

The only other church in Laon is that of St. Martin, at the east end of the town,—a thirteenth-century building very similar in detail to the cathedral, but with much coarser detail. The west façade is a very good specimen of fourteenth-century work.

The only other building that offers much interest to the architectural student is the old Bishop's Palace which adjoins the cathedral on the north side.

The present episcopal palace, now used as the Palace of Justice, was rebuilt after the fire, which, in the beginning of the twelfth century, destroyed the old palace as well as the greater part of the old cathedral. The sketch which I have taken is from the old wall of the town, and represents the ancient grand hall: this is ascribed to Bishop Garnier in 1245. This view presents a long façade running parallel to the old wall, and is one of the most interesting parts of the building, but sadly mutilated. The three picturesque circular turrets which are corbelled out from the wall-face with exquisitely moulded corbels, into which the flat square buttresses of the ground story run up, and help to carry the superstructure, had originally pointed or spirelet roofs, but these, as well as the battlements, which ran along the whole front, have long since been destroyed. Between these turrets are beautifully moulded pointed windows arranged in groups of three, each of which shows traces of having been filled up with mullions and tracery, so as to form two lights somewhat similar to the windows in the sacristy of Rouen Cathedral. The ground or lower story is almost plain, and of great strength, pierced only by a few small narrow-pointed windows, and gives the idea that the building was originally used, or intended to be used, as a means of defence. This would also seem to be implied by the battlements, which, as I have before stated, originally finished the top of the walls.

I notice in a sketch that M. Viollet-le-Duc has of this building, taken from about the same point as my own, that he has made the windows in the east end of the great hall pointed, similar to the others; whereas, in the present building, these windows, which certainly have every appearance of being part of the original structure, the mouldings being very similar, as well as the other details, are square-headed. The heads are beautifully moulded; the same moulding returns part of the way down the jambs, the lower portion of which, as well as the mullions, are formed of small clustered shafts, with delicately carved caps and moulded bases. The heads which fill up the angles under the moulded springer stones or corbels of the circular turrets, are very curious, and the whole of this building is most interesting. The cloister on the south side, immediately facing the cathedral, has a very good arcade, with large circular columns and deep flatly-carved capitals, these latter being for the most part in three tiers of stories, with a band of flat leaf foliage running round

each. Above this cloister was probably a gallery, which served as a promenade from the great hall, while the front of the building is admirably sited for defence in case of need.

GENERAL EXHIBITION OF WATER-COLOUR DRAWINGS.

EGYPTIAN HALL, PICCADILLY.

THE collection of drawings to be seen now at the Egyptian Hall is only part of the proof that the establishment of a gallery devoted exclusively to water-colour as distinguished from oil paintings, was indeed a requirement of very many artists; for, with the great space at their disposal, the Committee of Selection were ultimately obliged to reject a large number of acceptable works. The promoters of the exhibition have reason for congratulating themselves on the success of their inceptive experiment; and the present result of it will probably be to astonish those who have hitherto imagined that the two Water-colour Societies, and such opportunities as other institutions may have been able to offer for the purpose, had been nearly sufficient to represent the extent and prevalence of the art.

Although the established societies have in a great measure absorbed the *élite* of the profession,—those who are universally acknowledged to be its ablest exponents,—water-colour painting may be considered the vernacular of British artists generally, and unrestricted by any necessity for becoming a member of, or sharing the abilities attached to, a sect,—for here no obligation of the kind is involved. It may be supposed that this beginning is but the promise of something even better hereafter, and that many well-known contributors to other exhibitions who do not confine themselves to one medium, may adopt water-colour occasionally, or be induced to practise it more frequently than they yet have done.

Landscape and marine subjects claim the most attention as usual, or even more than is usually the case, for there is little else to divide it; the figure drawings and composed incidents are too few and far between to break the monotony, evenly good as it is. But in this abstract worth of its numerous constituent items exists attraction enough for any but those who look for leading instances to cause it, or deprecate the overwhelming ascendancy of one department over the other.

In the scarcity of such production, Mr. S. Solomon's *Bacchanalian youth*, ("Antinous Dionysiacus" (239)), is very conspicuous, though it is hard to understand why the upper part of the figure should be so very beautiful, adumbrating recollections of the antique, whilst the legs and lower half of the drawing are so inferior in every respect to it. There is no such drawback to his "Hebrew Woman carrying an Offering to Jerusalem" (175), which emulates the most admirable characteristics of the old masters; and, with another charming study of a head, "Glance" (369), shares such qualities as few modern painters could endow them with. Of similar excellence are Miss Solomon's "Hypatia" (221), and "A Study" (262).

There is much to commend in M. Jose Tapiro's group of Italian peasants (32), "It domum venit Hesperus," which, though disagreeably black in colour, looks real and animated; and in Mr. J. A. Pasquier's more brilliant "Escort" (87); while Mr. G. H. Thomas's "Girl in chase of a Butterfly" (210) is charming in its way, and Mr. Poynter's "Legend of the Fan" (364), and his "Young Lady catching Gold Fish" (376), if not charming in theirs, are very forcibly drawn and elaborated; but, with Mr. Cave Thomas's "Students of Padua" (462), and Mr. Walter Field's pretty "Water-lilies" (517), are not significant enough to contend with the greater strength of the landscape delineators. Nor, on the other side, is there as much claim for prominent position as would establish a right of precedence; for some of the most satisfactory examples make but a modest appeal in regard to size or striking effect, whilst the more immediately attractive in some cases are the least likely to occupy the attention very long. There would, indeed, be some difficulty in specifying particular works to account for the interest that belongs to a total of more than 500 assistants; and yet we do but justice in epitomising them as a most encouraging and laudable evidence of the correctness of the views of the promoters of the undertaking.

THE MANCHESTER ART-WORKMEN'S INDUSTRIAL EXHIBITION.

THIS exhibition was opened on Monday with a very numerous assemblage of friends of the movement, and Sir John Kay Shuttleworth made an interesting and valuable address.

The first suggestion to hold such an exhibition was made by the grainers and decorators of Manchester, and they applied to the Council of the Royal Institution for permission to hold the exhibition in that building. The council at once gave the use of their large and well-lighted picture-galleries gratuitously, desiring to promote any spontaneous movement of this kind in the direction of art production. As the rooms are capable of displaying a considerable number of objects, the original intention of the promoters was enlarged, and they have requested friends to lend their drawings, models, photographs, and other works of the class so as to give additional interest to the collection. The council of the institution have also placed the collection of sculpture and paintings at the disposal of the committee of the present exhibition. This collection contains some of the finest works of Etty, Flaxman, Chantrey, and some good specimens of the old and modern masters.

The grainers and decorators, who were the first promoters, are also the chief exhibitors, and some of the specimens of graining and imitations of inlaid marble are excellent specimens of manipulative skill. Some of the best works of this class are by Mr. W. Sutherland, the secretary to the exhibition, embracing a large number of panels in imitation of various woods and marbles, &c.; also some arabesques of good design. Two doors (324 and 325 in the catalogue), by James Dean, W. Beverley, and J. Aspinwall, in the employ of Best, Brothers, of Rochdale, and another door (86), by R. Pollett, in the employ of Mr. Robertson, Manchester, are admirably executed works; and a panel (85) by the latter artist, is an exceedingly beautiful specimen, not only of excellence of skill, but also of design of a high order. Messrs. Greig, Dow, Lomas, Welsh, Robertson, Simmons & Son, also exhibit some good works in graining and decorative painting, and H. Graham contributes some very excellent specimens of polishing. Some carved flowers and fruit, by W. Green, and some wood carvings by J. Barker, of birds, are executed with great taste and skill. A statuette, carved from a block of hard india-rubber, by P. Bohanna, is quite a work of art, and has the effect of bronze.

Some good specimens of parquetry and encaustic tiles are contributed by Mr. Oakley; and some panels and capitals in carton-pierre, of considerable merit, by J. W. Hindshaw.

An interesting collection of marbles is exhibited by Messrs. Patteson, Latham, Macdonald, Greig, Gregory, and Sutherland. There are also specimens of ecclesiastical decorations, Medieval metal work, impressed bricks; a large number of very pretty models of villas and other buildings by Mr. Thwaite; and a remarkably good model of a triple window at Sir Benjamin Heywood's Bank, by W. Palmer.

Many of the objects exhibited have been executed in leisure hours, which might otherwise have been less profitably employed.

Besides those specially named there are many other works of merit which it is impossible for us to notice; but a glance is sufficient to show that there is, within a radius of twenty-five miles from Manchester, a large amount of talent in works of the character above referred to, and there is ample encouragement to those who have come forward to promote, and who have so satisfactorily opened, this exhibition, to repeat the experiment in future years, when no doubt a wider interest will be felt in its success among the art-workmen of the district.

THE CONCENTRATION OF COURTS OF JUSTICE BILL.—RETURNS.—In the House of Lords last week, the Earl of Longford said he wished to call attention to the return of the houses to be removed and the persons who would be displaced. The return only gave the owners and lessees and omitted all notice of the lodgers. He should like to know how many of the working classes would be removed out of their houses. The Lord Chancellor said, he would direct further inquiries to be made relative to the whole of the persons who would be displaced, and obtain an accurate return. The Earl of Shaftesbury said the return was not in accordance with the standing order of the House. It was a perfect mockery.

**"THE COLLECTANEA ANTIQUA,"—
ARCHÆOLOGY OF HORTICULTURE,
AND RECENT ANTIQUARIAN DIS-
COVERIES.**

The sixth volume of Mr. C. Roach Smith's "Collectanea Antiqua," as far as it is published, fully maintains the high character of its predecessors as a contribution to our archaeological literature. Part the Second, now just issued, not only from the variety of its contents, but from the extensive researches displayed therein respecting the subjects discussed, yields a more than usual interest. The article entitled the "Archæology of Horticulture" is brought to a close, and our indifference in these later times to the culture of the vine in England, Wales, and Ireland, as an out-door plant, is fairly rebuked by the overwhelming evidence the author produces of its successful growth, and the extensive manufacture of its produce into wine, within almost a century of our own times.

The Romans, we are informed, under licence from their emperors, extensively cultivated the vine in Britain and elsewhere, especially when Probus had removed the narrow-minded restrictions imposed by Diocletian. There is no doubt but that this people cultivated the "*genus fœvus*" in their gardens, and beside their villas, in England; and the fig-trees still shadowing the old walls at Reculver, in Kent, ignoring, as we do, the absurd legend which attributes their first cultivation to Julius Cæsar, are most probably the product of some parent trees introduced by the Roman system of horticulture. Sir Robert Atkyn's suggestion that "*vineæ*" meant nothing more than apple orchards, and that the only native vine ever made in England, was cider and perry, seems now completely refuted. Much documentary evidence has been introduced by Mr. Roach Smith from Sir Henry Ellis's "Introduction to Domesday," of entries in that record relating to vineyards, and the amount of their produce.

To the numerous examples therein given, we add another, which has reference to the manor of Chisle, in Kent, once in the possession of the great Monastery of Saint Austin, at Canterbury, and which is set down in Domesday Book as producing annually "*tres arpeni vinca*." The descriptive paper on Babylon, the old Cairo of Egypt, is a contribution from Mr. Fairholt. This, with the editor's articles on "Roman Leadens Seals," "The Villa at Carlsbrook," the "Coins of Carausius," and "Remains of Roman Poteries on the Medway," will well repay the attention of the general reader, as well as that of the antiquary.

The field, however, of recent Anglo-Saxon discoveries in Kent, Cambridgeshire, and in other parts of England, opens up a series of interesting inquiries; and in this part of his "Collectanea," Mr. C. Roach Smith has given us, for the first time, a description of many rare and curious relics now added to our archaeological stores. The Saxon remains not very long since brought to light at Faversham, and in the possession of Mr. Gibbs, have lent increased interest to similar discoveries, and some of the most interesting of these relics have been engraved in the present work.

Golden pendants, carbuncles, some of large size set in gold and silver, highly elaborated fibulae, mostly of the circular type, ornamented with garnets, lapis lazuli, ivory, and mother-of-pearl, and quaintly incised on their gold-washed surfaces, have lately been found in various localities, together with numerous necklaces of beads of various materials, colours, and devices. Some of these ornaments exhibit considerable skill in their manufacture, and the various rare and beautiful vessels of glass which have lately been discovered have attested, if not a higher civilization than has generally been attributed to the northern nations, a complete mastery of the most delicate manipulation in their production and ornaments. A series of papers are contributed in respect to these and similar objects, and Mr. Roach Smith gives, Plate 31, Fig. 6, an engraving of an iron implement found in a cemetery near Orwell, in Cambridgeshire, the exact use of which the editor confesses himself at a loss to define.

In the absence of the object itself, however, incorrectly it may have been drawn, it is somewhat hazardous to throw out a suggestion as to the purpose for which it was made; still I think when I assert that this implement was constructed for the purpose of grasping the head of the pieces of metal which complete the structure of those mysterious objects called "clinch-bolts,"

I am not far from a correct solution of its application. With such an implement, the Anglo-Saxon mechanic might hold the square iron rivet, whilst he clinched it with a blow of his hammer on the bolt.

The upper part of the implement might be first used to hold the bolt itself, especially if it were worked, when in a heated state, from the forge. The object itself would thus be a sort of pincers or holder. This opportunity may be taken to say a few words relative to the clinch-bolts themselves, especially as Mr. C. Roach Smith rightly throws some doubt over the idea that they belonged in any way to the warriors' shields, more especially to those found in this country.

In a grave at Sarr, more than seventy of these objects were found. They lay pretty nearly in equal numbers on each side of the interment. Wood adhered to their entire length between the nut at each end. The heads of the bolts were in most cases strained one way; many, both ways, outwards, as if they had riveted together their planks of wood, which, when stretched apart, had warped the heads of the bolts out of a parallel. There were, however, no decisive proofs of the existence of these planks, under the supposition that the body had been inserted between them. If so, all remains of this sort of coffin had disappeared.

The opinion that I have arrived at is, that these clinch-bolts were the rivets of two sides of a stretcher, upon which the corpse had been carried to the grave, and either accidentally or designally left behind, when the earth was thrown in. In most cases I found about eight or ten clinch-bolts on each side of the skeleton. Each bolt would represent a cross piece of wood, perhaps a thin batten, which connected the rods or shafts of the stretcher, and kept them apart; and upon this bed the corpse was borne to the grave. Traces of such cross-pieces might easily have disappeared, when the only evidence that ever remained of the wood of the more solid arms was the small portion preserved, in immediate connexion with the bolts. In some cases, two cross-pieces would suffice, the other rivets, connecting a mattress of linen, or canvas cloth, stretched out between them.

As the cemeteries of the Anglo-Saxon population were always at some distance from their settlements, and not unfrequently on a wide down or upland, a contrivance like the one suggested must have been used to convey the corpse to the grave. A few of the bodies might have been borne in cars, perhaps those of the rich and influential; but even then, these stretchers would be required for the last offices of interment. The stretcher might in most cases be taken back for future uses, especially where economy was necessary, or when in a shallow grave the corpse could be lowered down by hand, with little difficulty.

In a paper contributed by Mr. Wylie to the "Archæologia," vol. xxvi, part 1, an account is given of the interments of the Alemanni, at Oberflacht, in Suabia. In some instances given, the dead were deposited on a species of wooden bedstead, or "death couch," which had also a gabled roof over it. The stretchers alluded to would form somewhat analogous "death couches," especially if blocks or bars of wood at each end raised them but a few inches above the floor of the grave.

In more than one of the graves at Sarr I distinctly noticed the evidences of transverse bars or blocks of wood, beneath the head and feet of the skeleton.

Many small rectangular rivets, about 1 in. or 1½ in. long, were also found, sometimes with and sometimes without clinch-bolts. I am inclined to think these were in some way connected with the contrivance here suggested, the more especially if canvas have been partially used for the bed of the bier.

A brief notice of a "Medical Seal set with an Ancient Gem," concludes part ii. of the "Collectanea Antiqua." The previous paper was on "Remains of Roman Poteries on the Banks of the Medway." The extent of these works appears to have been very considerable. Remains of the red polished ware, commonly called Samian, have been found at Upchurch and Hailow, and what has been discovered has by most antiquaries been considered to have been imported, and to have been used by the potters and their families, or the population they drew around them.

Great quantities, however, of this red ware have for many years been dredged up from the Fan Shoal, nearly opposite Reculver. A vessel

approaching the British shores, laden with this manufacture, is generally supposed to have been wrecked on this bank. Some ingenious arguments, however, may be adduced to show that this shoal was the site of submerged potteries, probably a continuance of the land remaining from Warden Point, in Sheppy, the inroads of the sea on the north-eastern coast of Kent having been constant since the earliest historic period. J. BRENT, JUN., F.S.A.

CONTINENTAL NEWS.

Cologne.—On the 1st of April of last year the works were resumed upon the Northern Tower of the Dom, after remaining untouched for a long time. From that date to the end of the year 21 ft. in height were added, so that the tower at present reaches up to 63 (Rhenish) feet. The walls are here 20 ft. thick, and about 4,000 cubic feet of stone are necessary for every foot in height, which costs nearly 4,500 dollars, or 675l. This enormous thickness will not be reduced until the work is up the third stage of the tower. Great efforts have recently been made to rid the surrounding neighbourhood of a number of old and ugly houses which entirely mar the sight of the splendid pile. The "Colonia" Insurance Company and the Cologne-Minden Railway Company have just set a good example in this respect: they have given up two very large houses immediately under the shadow of the Dom as a free gift to the city, on condition that the site be left free and unencumbered in perpetuity. The corporation is now negotiating for the purchase of some five or six more houses equally "in the way," and when these too shall have been pulled down, no cathedral in Europe will have a grander or more open space around it. In the mean time internal decoration has not been neglected. Freiherr von Waldbott-Bornheim, the representative of one of the oldest noble families on the Rhine, has appealed to the aristocracy of Rhenish Prussia and Westphalia to fill in the remaining windows of the transepts and nave with stained glass; and in answer to this appeal seven windows have lately been filled in at a cost of 210l. per window.

Vienna.—In the Sternberg there is an old nunnery which has been used for years as a police-station. Here a very ancient underground chapel has been discovered: it is circular on plan, having an altar in a niche. On examination the altar was found to stand over a vault from which a coffin had evidently been removed. Subsequent research has elicited that Eleonore, wife of the Emperor Ferdinand II., was buried here, but removed to the cathedral of St. Stephen in 1782, when the sisterhood dispersed. Frescoes cover the walls, and there are several statues of the Virgin, Joseph, &c. Mr. Joseph Lipert, architect, of this city, has just been intrusted with the restoration of the Cathedral Church of Freising, where for centuries the kings of Hungary were crowned. The choir, with its chapels, will be restored first; the walls will be painted and picked out in colour, and the windows, nine in number, will receive some very rich stained glass.

Wartburg.—Even the most hurried traveller, rushing on to Leipzig after crossing the Rhine, must have noticed Eisenach, at the entrance to the Thuringian Forest, with the Wartburg towering above. It was at Eisenach where Martin Luther begged his bread from door to door, singing carols and ballads; it was, whilst hidden in the Wartburg in after years, where he translated the Bible, that he threw the inkstand at the devil! But it was long before this, in the days of the Minnesingers, that Lohengrin and Wolfram von Eschenbach competed for the laurel-wreath. Since the extension of the old castle, in the twelfth century, little or nothing was done until three years ago, since which time the work of restoration has been steadily progressing. The fine old hall, with its round-arched windows,—the identical place where the competitive trials of the skill of the Troubadours were held,—is now thoroughly restored; and the walls under the windows, which are high up, have been covered with frescoes by artists from Dresden and Düsseldorf. The subjects represent a variety of incidents of Mediaeval local interest. From the top of a barbacan at the angle of the hall, one of the most lovely views over the Thuringian Forest is gained. In crossing the yard in order to reach the cell of Luther, we pass the bear-garden; and there, sure enough, a live bear is kept to this very day. The lower part of the house once occupied by Luther was, until lately,

a small restaurant. This has now been removed to a building especially raised for that purpose, and thus the old house will be once more worthy of the memory of the great man who lived there under the protection of the Count Palatine. The chamber occupied by the Defender is *in statu quo* to this day,—table, bed, and all, even the ink-spot on the wall.

FROM FRANCE.

Names of Boulevards.—A sweeping change has taken place, by an order of the Prefect of the Seine, in the nomenclature of many of the Paris boulevards. In the twelfth arrondissement the boulevards De la Rapée, Charenton, and Saint Mandé are to be absorbed by the extensions of those of Bercy, Reuilly, and Pigues. Between the twentieth and eleventh arrondissements the boulevards Montreuil, Fontarabie, and Des Trois Couronnes are all to be under the denomination of the boulevards De Charonne and Belleville; also the boulevard Montmartre will absorb the names of boulevards d'Amandiers and d'Aulny; and so throughout a long list. The rage for change may go too far.

Lime Bricks.—At Lyons, on the left bank of the Rhone, are the several brick and lime kilns of La Guilloière, Saint Fond, Charpenne, and Vanx-en-Velin, where bricks called those of "Les Rivières" are made of a sandy clay containing thirty-one to thirty-two per cent. of carbonate of lime finely disseminated through the mass. These bricks have, as the ancient Lyonnese buildings testify, considerable durability—that this should be the case is extraordinary when the amount of lime is taken into consideration; but the process, as explained by the *Annales de la Société des Sciences Industrielles de Lyon*, by which the bricks are hardened, fully accounts for this durability. This consists in drawing the bricks from the kiln as soon as they are burned, and before they are quite cooled, and throwing water over them by sprinkling. They harden and set immediately as soon as wetted, whereas if left to cool alone they would crumble to powder. The calcined lime has absorbed the water, and the brick has become one of cement.

Vincal Railways.—Several projects of vicinal railways have been lately surveyed in France. In the department of the Somme two lines are proposed bifurcating at Frévent; one is to run to Doullens and Amiens, and another to Abbeville by Auxi-le-Château and Saint Riquier; a third branch is to start from Hesdin to Crotoy, passing through Crécy and Rne. Surveys for several other lines have been authorized by the Minister of Public Works.

The Sun a Motive Power.—M. Mouchot having called the attention of the Academy of Science to the effects of confined air heated by the sun as a motive power, Captain Deliaucourt, commandant of the garrison of Salda, in Algeria, writes to the *Science pour Tous*, saying that he invented and set to work a solar pump in 1860. It consisted of a box hermetically sealed, with the exception of two pipes,—one leading down a well, and fitted with a valve opening inwards; and another, with a valve leading outwards, through which the water flowed whenever it was required. A thin sheet of metal blackened surmounted the solar pump. When the air in the reservoirs became heated and rarefaction took place, the air escaped freely by the second pipe. On cold supervening contraction of the air took place, and the water rose in the first tube from the well into the chamber. This was expelled by the second pipe on application of heat again, and so on alternately.

THE PARIS CIRCULAR RAILWAY.

In our number for the 31st of December last, p. 950, we described the works of the Paris Circular Railway, from the Quai de Javel to the Route de Chatillon, the portion not yet commenced. The remaining section, from the Route de Chatillon as far as the bridge over the Seine at Bercy, is in hand, and will complete the circle of this great work. Between the Route de Chatillon and the Avenue d'Orleans, the line is in cutting, passing under the latter by a bridge, 29ft. 6 in. span, which will carry the station building, with a frontage of 65 ft. 7 in. The sides of this cutting are faced with retaining walls, in mosaic masonry, carefully pointed. In some places these walls pass through ancient quarries, and it is necessary to build up piers from the

solid to support them. On each side of these subterranean works of consolidation, a gallery of inspection, a metre wide, has been provided for the service of the quarries.* Beyond the Avenue d'Orleans the line continues in cutting as far as the *Chemin Vert*, at a depth of 36 ft. In this cutting a loop-line branches off to the Sceaux Railway, just before the commencement of the Montrouge Tunnel, at the *Chemin Vert*. This tunnel, the longest on the circular railway, is 987½ yards long, and is carried under the heights of Montsouris, sometimes on solid ground, but oftener over chasms, requiring vast substructures. It passes at a level of 69 ft. under the Sceaux Railway, beyond which it ends, and a cutting, in curve, 52½ ft. deep, succeeds, over which the Arcueil aqueduct is carried by a light series of arches.† The Valley of the Bièvre is next passed by a long embankment, extending to the Rue de Bel-Air, under which are two semicircular arches, one for the *Chemin de la Poterie-des-Fempiers*, together with the lowest branch of the Bièvre stream, and the other for the east branch. Beyond this valley an excavation cuts through the ancient hamlet of Bel-Air, and over which two bridges, 29 ft. 6 in. span, carry the Rue de Bel-Air and du Moulin-de-la-Pointe. Further on, the line passes under the Route d'Italie, 147 ft. 8 in. wide, by a bridge 42 ft. 8 in. span. Here will be the Maison-Blanche Station, the platforms being arranged between the Routes d'Italie and de Choisy-le-Roi. The Route d'Ivry passes over the cutting by a bridge, the superstructure of which is 36 ft. over the rails. Beyond the Butte des Moulins, the ground descending rapidly towards the Seine, a considerable embankment follows the cutting, and the Boulevard de Vitry is crossed by a girder-bridge, of which the abutments have been terminated. Farther on, the line crosses over the Orleans Railway, by a bridge, 147 ft. 8 in. span. From this point to the Pont Napoléon, or compound bridge, on which it crosses the Seine to join the northern half-circle, the line is supported on heavy retaining-walls of considerable height.

THE MANAGEMENT OF SEWAGE.‡

The system for the management and utilization of sewage recommended in Mr. Menzies's work, he states, has been to him a matter of long and serious study. It comprises details applicable to cottages, dwelling-houses, public buildings, and towns; with suggestions relative to the arterial drainage of the country, and the water supply of rivers. Mr. Menzies is deputy surveyor of Windsor Forest and Park; and has made many experiments during fifteen years that the Crown property at Windsor has been under his care; and during the last few years of the Prince Consort's life Mr. Menzies had frequent opportunities of hearing the Prince express his views on this subject, to which his Royal Highness had given earnest attention. Readers of the *Builder* will recollect what was said in our pages as to the Prince's plan of sewage filtration by an upward process. Mr. Menzies's system comprises this process as the best possible mode of preparing the sewage, either of towns or of private establishments, for use upon the land, both as a liquid and as a solid, or compost.

The author seeks to show that, when properly carried out, the conveying of sewage by suspension in water is the cleanest and probably the cheapest for the occupants of buildings, and the most beneficial for utilization in the country; that all the portions of houses set aside for closets and foul water should be on the cold or north side; that the families should live on the warmest side; that from a sanitary point of view both these arrangements are best; that there is no better filtering or mixing material than house-ashes, which are always abundant in the neighbourhood of human dwellings; that the

filtering process, which simplifies the application of the liquid overflow, separates the solid matter, which can so much more easily be removed into the interior of the country, where the want of manure is every day more felt; while the filtered liquid, which is much less portable, can be applied more beneficially near the towns; that there is no better purpose to which this liquid can be applied than growing grass and vegetables, and that these are the most desirable crops to obtain; that the kind of grass grown with this liquid is best adapted for milch-cows, which again are so valuable near a town; that the exclusion of the rainwater from the sewage-drains is healthiest for the towns and essential to the perfect utilization of the sewage in the fields; and also that, as many of our towns now draw great part of their water-supply from the rivers, the rainwater of the lands lying in the upper portions of those rivers should be allowed to pass into the stream unpolluted by a mixture of what is not only nauseous but very injurious to health.

Mr. Menzies, for various reasons, strenuously advises the separation of the rain-fall from the sewage, both in towns and in separate establishments; and he believes that if the plans he is advocating are studied and carried out from the beginning in the case of any town or large building, this separation of the rain-water from the sewage will be the most economical, because, at a short distance from a house, rainwater may be discharged into an open ditch or water-course of any kind; whereas, if it be mixed with the sewage, the whole must be conducted to a greater distance from the house in larger pipes than would be required for the sewage alone, and consequently at greater expense.

Finishing of the drains, as he observes, is essential, as the water used for the ordinary purposes of water-closets is not sufficient thoroughly to sweep out everything that is in the pipes. Ventilation of the drains is elaborately considered in his book with reference to rain-water pipes, closet apparatus, house-windows, &c. The water-closet system is preferred by him to earth-closets, iron pans, &c.

The author's reasons for making upward filtration a feature in his system we may give in his own words:—

"The sewage of any building, unmixing with rain or surface-water, having been conducted away from the house in the manner I have described, the next step is to deal with it; and here we must note some of its peculiarities.

For the first three days after sewage is deposited in water, the solid parts are lighter than water, and float on the surface apparently in their original state. After that time they gradually dissolve, a considerable part of their ingredients becoming embodied in the water, and the residue falling to the bottom, where it remains about a fortnight; after which period a portion of what has sunk rises again, having formed some new combination, and floats in the shape of a white, or very pale, pasty substance. This double action has presented no ordinary difficulty, and made all deposit-tanks quite useless. It is essential to deal both with the solid and liquid parts during that fortnight.

Little need be said about cesspools, as they are universally acknowledged to be highly dangerous, and should on sanitary grounds be done away with at once.

It is not prudent to attempt to reduce the sewage to a pulpy mass by agitators, as this involves machinery and risk of nuisance, and some of the ingredients I have mentioned cannot be broken up.

The solid parts of sewage in dry weather, if allowed to discharge into a river, will float along and be little changed in their character after being conveyed three miles in a running stream which has a smooth bottom, and travelling at the rate of two or three miles an hour. This is important in a legal aspect, as bearing on the subject of nuisance.

The advisable method, therefore, is to pass the sewage through filters or straining tanks acting upon the upward or ascending system; so that when, after the third day, the solid parts fall to the bottom, they may get in below something which will prevent them from rising the second time. No filtration acting by a downward or side process will continue to act, because the very sort of filtering clogs the pores through which the liquid has to pass. In the upward process, however, we have two forces acting in opposite directions,—namely, the solid matter descending under the power of gravitation, and by the force of the current; the liquid ascending through the beds to the level of the incoming pipe. The construction of these filters requires much consideration in detail.

Every engineer adhering to the principle of upward filtration must work out the remainder for himself. It is also essential that the filter should be water-tight.

To the Prince Consort belongs the entire merit of first perceiving the principle of upward filtration, and designing such a tank as would come to seek. I had before he pointed it out made many attempts at filtering sewage-matter, but all had failed. In the spring of 1853 the Prince Consort sketched in my note-book the only plan upon which he was satisfied these tanks would remain efficient; and much subsequent experience has proved that he was right, and had opened the way for a great public benefit, for nothing satisfactory can be done without them. The first was built at Osborne about eight or ten years ago. Since then they have been much improved, and five or six are now in regular operation, not one of which has failed.

The general expense of one for a family, such as I have shown, would be from 122. to 151., according to the loca-

* On the 4th and 5th ult., a general visit, under the direction of M. Lem-Fleury, mining engineer, in the service of the department of the Seine, to the Catacombs took place. Many strangers, admitted by ticket, accompanied the authorities. The rendezvous was in the courtyard of the octroi building, near the ancient Barrière d'Enfer, at 2:30 p.m., when the company, provided with lights, descended. They emerged after a visit of rather more than an hour to this ancient bone-house, at the entrance of La Tombe-Issoire, near the route d'Orleans.

† This conduit was constructed under the Emperor Julien, to supply the Thermes palace, but was destroyed during the Norman invasion. It was rebuilt in the reign of Henri IV.

‡ "A Treatise on the Sanitary Management and Utilization of Sewage." By William Menzies. Illustrated. London: Longman & Co. 1865.

ity. I would here also remark that unless the rain and surface water are kept apart from the sewage, filtration is in most cases impracticable. For large towns it is absolutely so."

Mr. Monies is of opinion that the course to be followed in regard to the disposal of sewage is no longer a matter of doubt or discussion;—that the time has come to go to work in earnest;—and that the whole of this subject, not less than the Smoke-prevention Bill, the Chemical Nuisances Bill, and many others of a similar class, deserves to be dealt with not as a local but as a great national question.

THE BUILDING TRADES.

It is to be hoped the Midland arrangement between the masters and the men will be long extended to other districts throughout the country. Meantime, disputes are still going on, as at Leeds, Sheffield, Bristol, and elsewhere. At Leeds, a meeting of the operative joiners and carpenters has been held, in consequence of the West Riding Association of Master Builders having refused the terms proposed by the men, namely, an advance in the wages from 54d. to 6d. an hour, 56 hours to constitute a week's work; and an alteration in one of the present rules, by which men working out of doors would be enabled to reach the pay-table on Saturday at twelve o'clock, and on other days at half-past five. The meeting resolved that both society and non-society men should co-operate to negotiate uncompromisingly with the employers. At Sheffield, a numerously attended meeting of operative joiners has been held, to determine what steps should be taken to secure an advance of wages. After considerable discussion, it was unanimously resolved to ask for an advance of 3s. per week during the summer months, and 1s. during winter, the latter period to begin with November and end with February. It was also resolved to forward copies of the resolutions to the employers, and to express the willingness of the operatives to confer with them on the subject at any convenient time. Last year a similar movement was made, which resulted in a strike. A similar movement is likely to be made by the journeymen painters. At Bristol, the demand of a rise in wages from 54d. to 6d. an hour has been renewed by the carpenters and joiners, and a strike threatened if the terms be not agreed to by the 6th of March.

We are glad, however, to learn that the desire for arbitration between masters and men is extending. On the 22nd, a meeting of the Stour-bridge and district branch of the General Builders' Association, met the operatives of each branch of the building trade, at the lecture-room of the Mechanics' and Working Men's Institute. The chair was taken by Mr. William Akroyd. The object of the meeting, as set forth by advertisement, was to appoint delegates from masters and operatives of the district, in equal numbers, who shall meet together at an early day, to endeavour to come to an agreement to settle all local trade disputes by local arbitration, instead of unhappy and disastrous strikes, and to discuss and arrange local rules for the better guidance of masters and men.

The Chairman having opened the meeting, it was resolved,—

"That arbitration is the best mode of settling disputes between masters and men."

For the carpenters there were appointed Messrs. Thomas Preece & Shirley Hall, and for the Masters, Messrs. Joseph Chapman & J. W. Iff.

Mr. Pagett said the bricklayers, for the present, declined to take any part in the proposed account. For the bricklayers' labourers, Martin Macale and Patrick Calligan were appointed by the operatives, and Messrs. C. Harris & William Brettle on behalf of the employers. For the painters and plumbers, Messrs J. Allsop, sen., and Mr. Clare were appointed for employers, and Messrs. Joseph Buter & R. Meredith for the men.

The Chairman said that the formal business was nearly over, and he must remind them that the persons they had appointed they must regard as a ministry, and abide by the decisions given, and they might be assured that good would result. He trusted that a good feeling would spring up and continue, and that all would work for the public good. He thought before separating they should agree to a general rule, and who had drawn one, which he trusted they would give in their unanimous adhesion to. The following was then put and carried:—

"All trade disputes shall be settled by an arbitration account, composed of delegates appointed by masters and

men in equal numbers, with a chairman not engaged in the building trade, whose vote on any question in which the vote of the delegates shall be even, shall be final.

Sir,—The statement respecting the plasterers' strike in Newcastle is not correct. The masters referred to asked their men to accept the same wages and work the same hours as in previous winters, which they refused to do. No new conditions whatever were attempted to be imposed, and they were offered summer wages again in twelve weeks. The advance takes place on Monday next, and as their resolution not to go to work, &c., has been wisely rescinded, the strike will then be at an end.

W. B. WILKINSON & Co.

THE NUMBERING OF HOUSES IN LONDON.

In reply to "An Antiquary," who lately addressed to us some queries respecting the numbering of London houses (vol. 23, p. 69), a correspondent, J. H., reminds us that Mr. Cunningham, in his *Handbook*, fixes the date at which houses were first numbered in London as June, 1764, and mentions Burlington-street as the first, and Lincoln's-inn-fields as the second place where numbering was introduced. This, however, is scarcely correct, because, in Hutton's "New View of London," 1708, it is pointed out, when speaking of Prescot-street, Goodman's Fields, that, "instead of signs, the houses there are distinguished by numbers, as the staircases in the Inns of Court, and Chancery." J. H. mentions the following advertisement in the *Spectator*, April 29, 1718:—"In George-street, in York-buildings, in the Strand, the third house on the right hand, No. 3 being over the door," &c.

MANCHESTER ASSIZE COURTS.

The great hall in the new Manchester Assize Courts, represented by the accompanying engraving, is a remarkably fine apartment, similar in character to Westminster Hall, though much less in size. Its length, from north to south, is 100 ft.; its breadth, 48½ ft.; and its height, 75 ft. to the apex of the roof. The flooring is formed of tiles, stone, and marble, well designed by the architect. The hall is lighted at each end by a large window. That on the north has seven lights, is 32 ft. high and 18 ft. wide; that on the south side has six lights, and is 30 ft. by 16 ft. The heads of the windows are filled with rich tracery. Both windows are filled with stained glass. The north window contains in the centre light a colossal figure, representing King John holding in his hand the great charter; the other compartments have also reference to the same great era in English history, and the window has at the bottom these words, extracted from the Charter:—"To none will we sell, to none will we deny, to none will we delay, right or justice." The south window contains the arms of England, Ireland, and Scotland, the Duchy of Lancaster, and the several towns in the Salford hundred. Below the north window is a spacious recess, used as a book-stall, a telegraph office, and as a station for messengers. Three handsome moulded and pointed doorways, with richly-tracery heads, situate exactly opposite the doorways from the portico, lead to a vestibule giving access to the judges' retiring rooms. The arched entrance to this vestibule is flanked by passages, also arched, leading to the tower and to the civil and criminal courts. The passages are lighted by three windows filled with stained glass, representing some mysteries in heraldry. On the right and left of the west or main entrance are staircases, communicating with the grand jury-room, the barristers' refreshment-room; and at the ends of the western side of the hall there are communications with the refreshment-room in the basement.

The roof of the hall is of open timber work, of massive construction, and high pitched. It rises from wooden wall-brackets, the feet of which rest on stone-moulded corbels, springing from the wall in boldly-relieved carved foliage. The spandrels of these wall-brackets are filled in with plate-pierced tracery, of geometric design. Grotesques are carved on the projecting ends of the brackets, from which hang coronæ of rich design. The timbers of the roof have been decorated successfully in colours, by Mr. Crace, of London.

The wall-brackets, already mentioned, support lattice timber trusses, 16½ ft. in depth, running the whole length of the hall on each side; these trusses again carrying principals of the ordinary king-post-truss kind, which support the upper part of the roof.

Mr. Waterhouse, we may remind our readers, is the architect of the building; and when his design was selected for execution, we gave an

exterior view of the proposed buildings and plans. In carrying out the designs, the arrangements have been somewhat altered, and we have thought it desirable to give plans of the building as it now stands. Admission to the Courts, it will be seen, can be obtained from the Great Hall, by a direct entrance or by the corridors which run round them. The Crown Court is on the right, or at the south end, and the Nisi Prius Court to the left, or the north end. The courts are similar in size and in their general arrangements. The walls are panelled with oak to a certain height. Each court is 59 ft. by 45 ft., and lofty. The Crown Court is lighted by single lancet windows, with cusped heads, divided by piers and shafts of blue stone. The Nisi Prius Court is lighted by eight triplet lights, with tracery heads. The ceilings are of oak, and nearly flat. The benches are under canopies, and in the wall over the canopies are niches for statuary. The judges, as they sit in their respective courts, are *dos-à-dos*. Between the two courts is a consulting-room for the judges. We have pointed out, however, by references, the appropriation of all the apartments. To go from one court to the other, the judges pass under a groined vestibule, the piers of which support the tower. In each court, directly opposite the judge's bench, is a gallery for ladies. That in the Crown Court is in six bays, and the arcade is supported by coupled granite shafts, 8 in. in diameter. The arcade in the Nisi Prius Court is of five arches, supported on granite pillars, 16 in. in diameter, having sculptured capitals.

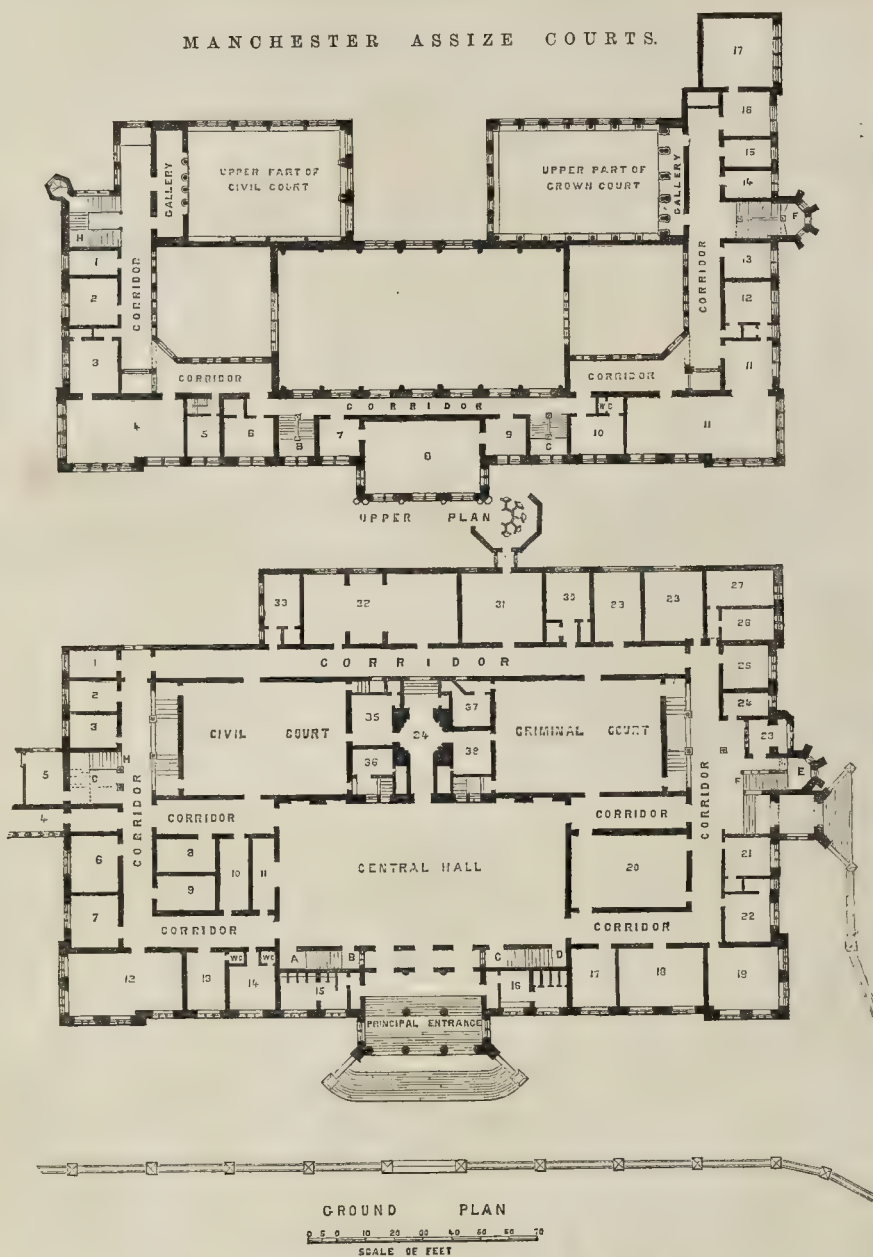
The Sheriff's Court is on the south side of the hall, opposite the Criminal Court, from which it is only separated by a corridor. It is much smaller than the other courts, being only 40 ft. by 26 ft. The walls are surmounted by a string course and cornice, between which, and forming the frieze, are encaustic tiles. This court is lighted from the roof, which is of open timbers, and supported on moulded stone corbels.

The arrangements of the courts have been found remarkably satisfactory in actual use.

Our engravings give also two views of the "Judges' Lodgings," placed between the north side of the courts and Cotham-street, the principal front being towards Great Ducie-street. This building covers an area of 92 ft. by 90 ft., and is three stories high in front, and four at the back. The architecture is in keeping with that of the courts, and the ornamentation is also on a similar scale of elegance. Between the two buildings is a screened wall, in which is a massive entrance gateway. In the panel over this gateway is to be placed a bas-relief, representing the pageant of Solomon. There is a corridor of communication with the courts, lighted from the courtyard by eight beautiful lancet windows. The interior arrangements of the lodgings are handsome. From the courtyard there is an entrance through a vestibule to a spacious hall, in which is a stone screen in four bays at the bottom of the main staircase. The shafts of the screen are of serpentine marble, and the capitals and spandrels are splendidly carved. The staircase is wide, is constructed of pitch pine and a pierced balustrade of geometrical design. The dining, drawing, and breakfast rooms are on the first floor, where are also the offices of the house-keeper and butler, and the judges' associates. The drawing-room is a splendid apartment, 40 ft. by 20 ft., and has an oriel window, and a three-light tracery window, both looking towards Great Ducie-street. The dining-room is 35 ft. by 20 ft., the ceiling being of timber beams on carved stone corbels.

We may add, as all concerned may be proud of having been connected with this work, that the contractor for the foundations was Mr. R. Neill; for the superstructure, Mr. Bramall; statuary, Mr. Woolner; decorative ironwork was by Messrs. Skidmore & Co., Coventry; stained glass, by Edmundson & Son; Heaton, Butler, & Bayne; and Lavers & Barrand; tiles were supplied by T. Oakden, Manchester; wood carving, by Banks; stone carving, by Herr Imhoff, O'Shea, Whelan, and Green; ventilating and heating, by Messrs. Haden & Son, Trowbridge; asphalt, by Walters; the clerk of the works was Mr. Littler. The materials used in the building are, for the exterior, Darley Dale stone and grey Dalbeattie granite; for the interior, Yorkshire stone, magnesian limestone, Steelley stone, grey freestone from the Forest of Dean, and red granite (for columns) from Peterhead.*

* We may use this opportunity to mention that Mr. Heywood (Jennings, Manchester) has published a very clear and sensible little "Handbook to the Assize Courts," by Mr. Pockwell.



REFERENCES TO GROUND PLAN.

1. Barristers' Clerks.
2. Under Sheriff.
3. Consultation-room.
4. Vestibule leading to Judges' Lodgings.
5. Consultation-room.
6. Attorneys.
7. Consultation-room.
8. Attorneys' Clerks.
9. Attorneys.
10. Jurors' Waiting-room.
11. Newspaper, Telegraph, and Inquiry Office.
12. Witnesses generally } Civil Court.
13. Female Witnesses }
14. Ladies' Cloak-room.
15. Gentlemen's Retiring-rooms.
16. Public Lavatory.

17. Female Witnesses } Crown Court.
18. Witnesses for Defence }
19. Witnesses for Prosecution }
20. Sheriff's Court.
21. Governor of New Bailey Prison.
22. Sheriff's Private Room.
23. Room for Stolen Property.
24. Chief Officer of Police.
25. Mr. Austin.
26. Consultation-room.
27. Consultation-room.
28. Attorneys.
29. Indictment Office.
30. Private Room for Clerk of Crown.
31. Barristers' Robing-room.
32. Barristers' Library.
33. Prothonotary.
34. Judges' Vestibule.
35. Judges' Retiring-room.

36. Jury's Retiring-room.
37. Jury's ditto ditto.
38. Judges' ditto ditto.
39. Urinals, Water-closets, and Lavatories.

REFERENCES TO UPPER PLAN.

1. Consultation-room.
2. Ditto ditto.
3. Judges' Retiring-room.
4. Chancery Court.
5. Waiting-room.
6. Witnesses before Grand Jury.
7. Witnesses' Entrance.
8. Grand Jury-room.
9. Ante-room (Grand Jury).
10. Retiring-room (Grand Jury).
11. Barristers' Dining and Refreshment Rooms.

12. Serving-room.
13. Barristers' Mess Master.
14. Reporters' Room.
15. Consultation-room.
16. Ante-room.
17. Board-room for County Magistrates.

REFERENCES TO STAIRCASES.

- A Leading to 1st-class Refreshment-room.
- B Grand Jury-room and Chancery Court.
- C Grand Jury-room and Barristers' Refreshment-room.
- D Second-class Refreshment-room.
- E Basement.
- F Board-room, Gallery in Crown Court, and Barristers' Refreshment-room.
- G Gallery in Civil Court and Chancery Court.



and well-coloured Third-Pointed window in the Beauchamp Chapel, Warwick, but it is an exceptional work. It was in this, the fifteenth century, that Gothic architecture, after living in strength for ten centuries, began its decline, and towards the commencement of the sixteenth century altogether disappeared; and stained glass, as a decorative art, shared, like a faithful servant, its decline of fortune.

Perhaps some may think I wish to claim for ourselves too high a place; but I state a simple fact when I say that ours is the most public of all decorative arts; and that, is, therefore, the most potent reason why we should have every means of instruction thrown open to us. The wood-carver, the gem engraver, the enameller and silver-chaser, may produce most skillful and beautiful works; but, for the most part, they are no sooner executed than they are lost to view,—hurried to that “bourse from which no traveller returns,” a private collection. Of them it may be truly said,—

"Full many a gem of purest ray serene,
Our deep unfathom'd country mansions bear,
And many a flower is carved to hide unseen,
And waste its beauty on an easy-chair."

But I fear I am trespassing too much upon your valuable space; and, in conclusion, I humbly venture to hope that we may yet fall into the good graces of those who so generously offer their patronage and aid to others, and trust that we may not see another competition for prizes at South Kensington that shall leave out architectural sculpture as an "unconsidered trifle."

* * Prizes were offered for stone-carving by the Society of Arts recently; but the response was small.—ED.

THE stained windows of the Decorated or Second-Pointed churches retain in some measure the mosaic character of those of the thirteenth century; but, as there is a tendency in all manufactures to economize labour, so it was in the fourteenth century. The glass was used in much larger pieces, and was not quite so thick as before; and, in the early part of the century, the invention of staining white glass yellow very much simplified the manipulation, and gave it an unmistakable character of its own to the productions of the fourteenth century, which gradually partook more of the character of recent imitations than of mosaics.

I am not aware of any account of the first introduction of yellow stain. It produced a most striking result, and was easy of application, and it has been freely used to the present day. It appears that the silver, or any combination of silver, is in contact with glass, and exposed to a full red heat, the silver enters the minute pores of the surface, changing the white glass to yellow and blue glass to green; the surface of the glass being, to all appearance, unaltered. We do not know how the ancients applied the silver, but the fact that silver would stain glass being known, many ways of applying it would suggest themselves.

The union of stained glass with architecture has always been most close; the alterations in the one have been accompanied by alterations in the other. The greater freedom of design and approach to naturalism in the sculptures and wall decorations of the fourteenth century may also be traced in the stained glass of that period.

There is no finer example of Second-Pointed glass than that in the chapel of Merton College, Oxford. A range of subjects under short canopies are placed upon white glass, on which is traced the most exquisite linear ornament; and this range of highly-coloured subjects is carried entirely round the building, forming a glorious string-course of jewelry.

During the period of Third-Pointed architecture, stained windows were still retained as the most necessary enrichment. A new style of design, however, more in character with the alteration in the style of architecture, was introduced. The mosaic system of construction, and the rich colouring of the two preceding centuries, was laid aside, to be reproduced in our own day. The system of firing and leading the glass was of course retained; but the whole effort of the fifteenth century artists was to produce a silvery effect of colouring. There was an excessive proportion of white glass in all their windows, and the use of yellow stain on white glass was the principal aim of their colourists. We must do them the justice to say that the manipulation was most painstaking, amounting in many instances, especially in the early part of the century, to a scrupulous care. There is a fine

In the sixteenth century there arose in Germany a new style of glass-painting, named by Winston the Cinque-cento style, from the introduction of Italian or Renaissance feeling into the ornamental parts of the windows. The Italians, although loving colour, always preferred it to the opaque sort, mosaics and frescoes, and rarely, if ever, filled their windows with stained glass. They, however, set the fashion to the world, and in the sixteenth century, of Palladian architecture; and their ornamentation materially influenced the designs of northern windows. The church of Saint Jacques, at Liège, and the chapel of the Miraculous Sacrament at Brussels, contain the most marked and best-known painted windows of foreign sixteenth century work. They both seem to be the work of the same hands, the ornamental work, at least, bearing the same detestable character. The windows of King's College, Cambridge, are the best English productions of the sixteenth century; and those in the apse of Lichfield Cathedral, the east windows of St. George's, Hanover-square, and of Fairfield Church, Gloucestershire, are the best known foreign works in England. However good the drawing, and however skillful in manipulation the work of the sixteenth century may be, there is but little, if any, consistency between them and the architecture, which was treated as a mere framework for their exhibition.

The productions of the seventeenth and part of the eighteenth century were clumsy attempts at picture-making, and are not worth speaking of. The dawn of the revival of the art of glass-painting in England was about 1750. Sir Joshua Reynolds's window in New College, Oxford, painted by Jarvis, of York, in 1780, is the type of eighteenth century work: it is painted with semi-transparent enamel, on squares of white glass. There is a little yellow stain, but no coloured glass, if I remember rightly. For nearly seventy years this attempt at transparent picture-making prevailed; the introduction of raw pot-metal blue, and a little ruby glass, being an occasional improvement.

Ruby glass in 1820 was so prized that in some shops it was wrapped up in flannel for careful keeping: it can now be bought for 1s. a foot.

The introduction of stained-glass windows similar in character to those of the thirteenth and fourteenth century is due to Pugin, who stirred up the few glass-painters who, previous to this time, were engaged in the production of coloured windows for staircases, hall-lamps, and, as an occasional higher flight, a church window. He gave commissions for windows to each of them in turn, but eventually induced Mr. Hardman, of Birmingham, then a metal-worker, to establish a business of glass-painting in connexion with his metal-works. I need scarcely add that from small beginnings a most extensive business has for a long time been carried on there.

It is due to Pugin's memory to state, that his great energy and liberal dealing are now frequently spoken of among the surviving glass-painters of his time. Mr. Willement was engaged upon the same pursuit at the same period, but his works were principally heraldic.

The manufacture of stained windows, as now practised, resembles that of the fourteenth more than of the thirteenth century; but it has been greatly facilitated by the use of the diamond for cutting the glass, and by the use of iron kilns in place of those of clay.

This is the history of the production of a modern stained window, and it will apply to ninety cases out of a hundred. The person who wants one usually goes about as he would for a tomb-stone, and for a similar purpose. The best advice is obtained as to where it can be had, or he has seen some window that has met his fancy, and he goes to the place where similar work can be supplied. In course of time, a coloured drawing on a small scale is made, embodying his ideas: if approved, and the order given, the glass-painter commences his work. Instead of a board the size of the window, used by the ancient glass-painters (large sheets of paper not then being invented), a full-sized drawing is made on thick paper: this is called a cartoon. A length of common glazed lining-

* See p. 96, *ante*.

muslin, the same as ladies' dresses are lined with, is laid all over it, and the outside shapes of the hands, head, feet, drapery-lines, &c. are marked on it in black ink: each of the shapes thus marked out represents a separate piece of glass, which with the diamond are cut out of sheets of coloured glass, coloured all through when the glass itself was made, not stained afterwards. There is only one stain, and that is yellow. There are 140 different tints of colour now made to select from, instead of six or eight, as in the thirteenth century. The pieces of glass are then fitted together on the lining-muslin, and the features and lines of the drapery are then painted on the glass with opaque enamel.

There are now made large sheets of thick white glass, and on these the pieces of coloured glass forming the picture are fastened, by dropping from a pallet-knife a few drops of melted bees-wax and rosin round each. The painting in progress can then be held up to the light, and alterations made if necessary. In this state the shadowing is done: it is not really shadowing, as understood in ordinary painting, for coloured glass is too beautiful a material to be obscured with shadow, but consists in toning down the too prominent parts and giving value to others. For instance, if the hair of the head, expressed by lines traced in the glass, has not sufficient force, a film of enamel colour, either grey or brown, is painted all over it; and force is given to drapery folds, which are expressed by strong black lines only, by indicating their form in a similar manner.

This so-called "shadow" is always found in good work: I believe it to be necessary to new. But in good work it never materially interferes with the flatness of the painting, or the transparency of the glass. It may be done by stippling; or, by smearing over the surface a coat of enamel, and removing what is not wanted with a hard brush: it is really immaterial which plan is used, each artist having his own favourite method. Shadowing is a necessary evil, and its excessive use has been one of the faults of modern work. After the glass is shadowed, it is taken down, and placed piece by piece upon beds of dry whiting on iron plates; then put in an oven kiln. There is no mystery in these kilns: they are simply iron boxes, around which play the flames of a fire beneath; a slab of fire-clay being interposed to prevent the direct action of the fire upon the bottom of the kiln.

The object is to obtain a regular and high degree of heat, and to prevent the entrance of the carburetted hydrogen from the fire, which would reduce the oxide of lead in the flux to a metallic state, and so cause its disintegration. These kilns are usually made much too short; a good size is 4 ft. long, 14 in. wide, and 14 in. high, open in front. It will admit six or seven flat plates, resting on ledges at the sides. The brickwork should be the best that can be obtained; the bricks set close together, and grouted with fire-clay.

The pieces of glass, when properly fired and annealed, are put back, piece by piece, in their places in the muslin, stretched on a flat bench. The painter joins the pieces together with leaden bands, riveting grooves on each side, as the ancients did; but the modern use lead, instead of being cast in a mould, like the clumsy stuff formerly used, is forced through dies to the exact gauge required. The work is then soldered, and, when cemented, is fixed in its place, is preserved from injury by iron wire guards: copper guards are more lasting, more costly, and liable to be stolen.

There can be no objection to memorial windows, but the present custom of placing the works of different artists in the same church, without regard to architectural fitness, is an evil. Fancy the feelings of an architect, who, after the completion of his carefully-studied work, finds it to be considered merely as a frame for independent paintings on glass. I think it would conduce to the ornamentation of the interior, if, at the erection of a church, a scheme of the whole of the painted windows were drawn out, and no departure from that scheme allowed.

The whole should be, if possible, the work of one artist, whose style was thought to be the most suitable. Many schemes for a series of windows in a church may be thought of. Take, for instance, the Power, Wisdom, and Goodness of God, which was Dr. Buckland's mission in his *Edgewater Treatise*; the Doctrine of Atonement; the Te Deum; Illustrations of the three dispensations, the Patriarchal, the Mosaic, and the Christian; the Ministry of Angels; the Acts of Mercy; the Parables; the Beatitudes; or the Miracles; all afford grand series of subjects

which would be of far greater interest than an ill-considered mixture of subjects from various sources.

There is some probability that the two systems of decoration, stained glass and mosaic work, will, in England, become general; they have never, that I am aware of, been united to any great extent in the same building. It has been contended that the use of one does away with the necessity of the other. Cheverul takes this view, giving as instances, St. Peter's at Rome of coloured walls, and Cologne Cathedral of coloured windows. The free use at the Wolsey Chapel, Windsor, of mosaics and stained glass, will, when the work is completed, set this point at rest. I fear that the gold-ground mosaics, which already suffer from the glaring gilding of the principals, will be further damaged in effect by the contrast of the stained glass.

The Exhibition of 1851 was a landmark in the history of glass-painting, as of most other industrial productions. The works of Hardman, and the French windows of Lussow, Gerente, Capronier, and others, took the conceit out of most English glass-painters. Then commenced a demand for a natural representation of the human figure, instead of the symbolical treatment of the thirteenth century; also, for sheets of glass of similar texture to the old; this has been responded to by Messrs. Powell, of Whitefriars, and Messrs. Hartley, of Sunderland. There is still a want of circular ruby like that of the thirteenth century, and at a reasonable price; but this is likely to be supplied by Dr. Salvati, of Venice.

The short-comings of the English glass-painters were amply redeemed in the Exhibition of 1862. No French work came up to either Clayton's glorious St. Cecilia, or Jones's glass for Waltham Abbey. The efforts of the French artists consisted of close imitations of ancient glass, or of semi-transparent paintings. Their attempts in the former were as a Chinaman's would be. You may remember a work of Coffetier, a reproduction of old glass: the subject was a Virgin and Child. The sinking of the surface of the glass below the traced lines, the effect of great age, was produced by the use of fluoric acid. This is on a par with the representation of decayed teeth in Ruskin's Renaissance Lion. The French artists have not yet given that attention to material that has been an Englishman's care. The productions of Gerente are about the best of the modern French school, and his works have been fashionable in England; but compare his great staring window in Christ Church, Oxford, with the one in honour of the founder, a portion of which was in the Exhibition of 1862. In Harrow School chapel there are a most instructive series of windows by Gerente, Wailes, and Clayton & Bell: the advance in the art shown by the works of the last firm is unmistakable. The new Gothic Church of Sainte Clothilde, in Paris, is filled with the best efforts of the modern French school of glass and wall painting, and in both there is an entire absence of Gothic feeling; for, although the figures are well drawn, they appear more like coloured German prints, than what figures in stained glass should be.

The exportation of painted windows should be to France, not of French work to England, for the English school of glass-painting is as much in advance of the French school as the illustrations of our own *Punch* are superior to those of their *Charivari*. It is customary to produce stained-glass windows, or painted glass (the terms are synonymous), by the square foot. The best English work varies from 30s. to 40s. per foot. The pretty picture glass of the Munich school is rarely supplied under 5s. per foot. That price was paid for the glass in Peterhouse Chapel, Cambridge. The new window that embellishes the east end of the church in Star-street, Paddington, cost 6s. each square foot; and the cartoons were afterwards bought for a very high price, said to be 500l.

The plainest glazed work has shared in the improvement of the higher branches. Quarries, formed by horizontal and perpendicular lines, and of many tints of white glass, mixed, or German circles, each about 4 in. diameter, and glazed together, frequently take the place of the old 6 in. by 4 in. quarry of bilious cathedral glass. At the building of the University Union, at Oxford, the glazing with German circles was absurdly objected to, as looking like frog-spawn, or bottle bottoms. The upper parts of the Oxford Museum have since been glazed in this way; and when the sun shines on them, they are as bright and beautiful as clusters of diamonds.

A clever modification of circular glazing has been introduced by Mr. Norman Shaw, architect. It is the use of the centres of crown tables of glass, usually called "bulls' eyes." They are of the most trifling value, and answer the purpose of the expensive German circles. It is an improvement partially to stain a few of them.

It is a step in the wrong direction to use the sheets of rolled glass in which imitation lead lines are produced by indentations. The ancients were compelled to lead together their small pieces of glass; and the needless imitation of this has always a cheap-and-nasty appearance.

The press has hitherto taken but little part in educating the public in the knowledge of glass painting. An occasional honest and learned criticism on completed windows would prevent, in great measure, the selection of the trumpery works that sometimes disgrace our churches.

CLEMENT HEATON.

THE RELATION OF THE PUBLIC TO ARCHITECTURE.

SIR,—The architect is often met by many of his clients who may object to the style or to certain features of a design, saying that they are "going to pay for its execution, and, therefore, they can have what they like; and that, although they do not know how to design for themselves, they fancy they know what is in correct taste;" and, indeed, ninety-nine persons out of a hundred will declare that they know a good design when they see it.

Now, although it may be urged that architecture is an art which ought to appeal to the mind of every one, and that all ought to know when a design looks well or neat (to use a meaningless term frequently applied to the style of a building); and further it is urged that all have a right to judge and correct a design produced for them, because it was produced for them, it should be borne in mind that a house is not like a painting, to be shut up in a room and only gazed at and admired by those who pay their shillings to see the productions of their favourite painter; but is visible by all, and all fancy they have a right to criticise it. It will be found on examination that this right is maintained on two erroneous grounds, namely, a false estimate of their own competency to give an opinion, and a wrong conception of the art of designing,—which grounds we shall proceed to examine.

It is often assumed that architecture is an inferior kind of art, because its main object is of a utilitarian nature, and, as such, is brought in contact with every one in daily life; and, therefore, on account of a familiarity with its externals, it is thought it may be the more easily judged of.

This is a mistake. Architecture, like all other arts, can only be criticised by what is termed a connoisseur,—a person unhappily rarely met with in architecture, chiefly owing, no doubt, to the self-conceit arising from the notions just described extensively prevailing. None can plead ignorance of the general principles of design on account of the difficulty of obtaining a knowledge of them, as the articles published in this paper from time to time, if not sufficient to enable them to attain an entire mastery of the rules of the art, will at least cause them considerably to modify their views. It is admitted, however, that the supposed competency of every one to judge of the merits and demerits of a design, and the assurance with which this competency is asserted, arises from the preconceived and vague notions of design which each has imbibed through the medium of the eye, without any mental guidance or reflection. The buildings which the eye has been accustomed to look at for years become fixed in the mind, and should any new ones exhibit a change in any parts or ruling forms, they are stigmatized as being in bad taste. No pains are taken to assign any motives resting on the principles of art-criticism to support the opinion; for the criticism is instinctively suggested by his badly-educated eye. When such instinct is deeply rooted, there will be a struggle ere the eye is convinced of what the mind, by arguments, may be made to assent to.

It has been said that the eye only sees what the mind sees. Now, applying this theory to architecture, there are many proportions and beauties of form which escape the ordinary observer, and which the mere experience of having seen a great many buildings will not enable such a one to discover, unless he has made a comparison of them with his mental

vision also. Since it has now been made apparent that the ordinary observer cannot distinguish which is true and correct taste, and that no instinct will guide him in this art as in other arts (because the mind, rather than the feelings, is appealed to), how many, then, must be the bad forms and ugly shapes which he must register on his brain, having dwelt upon them with admiring gaze in passing along the streets of a great city?

Fugate and others have told us that "the eye should never be suffered to dwell for a moment on a bad form;" for, as we find it is far easier to fall into a bad habit than to get out of it, so the impression of a bad form once left with us is not easily eradicated. The erroneous views entertained by the public—or rather, that portion of the public who think themselves competent to criticise designs,—seem to be that each modern design is only a composition of parts taken from old buildings,—in short, that architects' offices are little better than furniture manufactories.

Now, if copying the details and parts of buildings alone were certain to secure a good design, all designs made by putting together such parts would be equally meritorious. This, we know, is not the case. There is a great inequality amongst buildings in point of merit which even the ordinary observer will note. It requires more than a bare application of the principles to produce a good design: it requires a correct eye to determine the proportions of the various parts, and a kind of mechanical perception of the suitability of each part to perform the task allotted to it.

Again, supposing the views entertained by the public relative to design be correct, the best examples from the best buildings would, when associated, produce a building which ought to equal if not surpass those from which they are taken. This is not the case, because it is found that it requires talent to select examples which, in a modern building, will be in good taste. Supposing the copying from old buildings to be the true principle of design, a building made up of the best parts of other buildings, although it may not equal them, ought not at least to produce a bad effect; and yet how many outrages on bad taste are there which, doubtless, please the public, because they meet within them familiar forms, but such fail to please the connoisseur because they want some leading idea to bind the whole harmoniously together. Such ill-composed buildings can only be compared to the incoherent expression of a madman, who, although he may employ the choicest language, may fail to make himself understood, because he does not know what he wishes to express.

To those who deny the architect any art beyond that of putting together cribbed pieces of design, we would say the really most ill-designed buildings which appear to have been put together by one who could not possess the ingenuity of placing a child's puzzle, show by their eccentricities that there is a ruling genius which has affected the whole design. It is not so much by the absence of any law as by the existence of some eccentric law (if it may so be termed), that it is shown there must be a law regulating even the composition of a design. Is then, it may be asked, architecture to be an exclusive art, on which only an initiated few are to pronounce an opinion? No; the influence of true architecture will ever be felt by all, but only the initiated will fully appreciate it, and be qualified to judge of its merits.

The charms of a really beautiful building will not be lessened when the self-conceit in which we are flattered, and the agreeable feelings of superior knowledge sustained by the dictation of the ignorant to the professional man, who, it is falsely imagined, is paid to sacrifice every true principle of design in pandering to an uneducated and often vicious taste.

H. J.

ACTION FOR WRONG QUANTITIES.

Srs.—The notice in your paper of the 18th instant of a trial which took place a few days before, in which we were plaintiffs, does not rightly state our case. We in no wise employed Mr. Peice, but unfortunately were one of five builders to whom he sent lithographed bills of quantities, asking for a tender. We made a tender, "as per quantities furnished," which was accepted; but they turned out so very false that we only went on with the work upon receiving a letter from him as Mr. Peak's architect, acknowledging the quantities were short, and promising that, at completion, the whole matter should be set right. As nothing was offered, we were advised to proceed by action against the man who was in enjoyment of the proceeds of the error. The Judge who tried the case held the point of agency so important, that thought he resorted to for the consideration of the Judges, still giving us leave to move for a new trial, should the decision be against us.

SCHEFFER & WHITE.

COMPETITIONS.

Proposed Schools for Leicester Workhouse.—The committee appointed to consider the plans sent in by the different architects for the approval of the Board, met on Thursday in last week, to examine the same. The designs are eight in number. The following are the mottoes and estimates:—S—, 4,300l.; Prudentia, 6,189l.; Experimental, 6,191l.; Shield, 7,000l.; Experience, 7,137l.; Leicester, 7,150l.; Sigma, 8,950l.; and Non Quam, 9,000l. The designs selected by the committee for the final decision of the Board are Prudentia, Experimental, and Shield.

Penalton Town Hall.—The Penalton Finance and Town Hall Committee invited six architects of Manchester to furnish them with designs for their proposed new town-hall, and at their meeting, on Monday evening last, it was decided to adopt the Italian design furnished by Mr. Alfred Darbyshire, and the works are to proceed forthwith, under his superintendence. The estimated cost is 9,000l. The committee also give to each of the unsuccessful competitors the sum of 20l., towards defraying the cost of preparing their designs.

Exchange, Middlesborough.—The author of the design marked "Cleveland Nota Bene" is Mr. C. J. Adams, and the works are to be carried out under his superintendence. Instead of O'Donoghue & Grundy in our last amongst successful competitors, read Gundry & O'Donoghue.

"COMPETITIONS AND THE 'ALLIANCE'."

TAKING it for granted that the object of the circular issued by the "Architectural Alliance" is to secure, as far as possible, honesty in architectural competitions, I would wish to offer some remarks upon two of the suggestions as to the drawings that should be submitted, coloured, to show the different materials proposed; no shading to be used, except flat shadows in the windows. "The perspective drawings should be either in outline, or shaded in black or brown ink, or shaded with Indian ink or sepia; no colour to be used."

Now the first rule virtually says, "You may show colour, but not form;" as a geometrical elevation, without shading, unless the building consists of a flat facade, cannot give any idea (excepting to an architect) of the actual form; and the second says, "You may show form, but not colour." I must confess that I cannot see the reason for this, unless it is to guard committees being captivated by smart or meretricious drawings; but I put it to any architectural artist, whether he cannot, or whether he will, to shade, or even with etching, produce an equally, if not more meretricious drawing, than he could do in colours. I fancy no architect would confess to designing a building without reference to materials or colour; and to preclude him from honestly representing his design as it would appear if executed, is, I think, not only unjust to him, but would deprive committees of the only means of judging of the actual effect of the proposed building, or leave them the difficult process of combining, in a sort of mental camera, the colour of the elevation with the form of the perspective view. If the Architectural Alliance had denounced accidental shadows, and other tricks that are resorted to to disguise, instead of illustrating, form; or had warned committees against blank windows, or have even in some of our important buildings, have elaborate stonework, or have available to adventurous cats; or had suggested that in warehouses and insurance offices features, as a rule, are not appropriate and good services, not only to conscientious members of the profession, but likewise to those seeking their services. They may say that in recommending that in all work involving an outlay of 2,000l. and upwards, the matter should be referred "to one or two architects," they would guard committees against being misled by either meretricious drawings or inappropriate ornament; but "quis custodiet ipsos custodes?" When we find architects putting highly elaborate cornices where they can only be seen by a man lying on his back, we naturally feel some want of confidence even in such a precaution.

There is one matter in which a strong protest should be entered by the profession, or the Alliance on their behalf; and that is, the limited time given in many important competitions. I need, I am sure, only refer to the competition for the Museum of Natural History, the time given for which was, if I remember rightly, barely a couple of months. Unless an architect was satisfied to take the block plan, prepared by Mr. Hunt from suggestions by Professor Owen, as the basis of his design, it was utterly impossible, excepting to those who were in the secret of the proposed competition, to give the subject sufficient consideration and to have the drawings prepared, unless to one who fortunately possessed quick powers of study and design, and a powerful staff to carry them out. When we compare, in that as well as other instances, the hurry in procuring designs with the delay in taking any practical steps to carry them out, we cannot but wonder at the little importance that seems to be given to the intellectual ingredient in competitions; as I will not imagine that, in contemplating the erection of a building which is intended for a permanent national institution, any set of men could be influenced by other than the desire to obtain the best possible design.

W.

A NEW FRENCH MUSICAL INVENTION.—The "light fantastic toe" may now trip along to its own peculiar music, in the form of musical pumps, a pair of which, or at least of musical boots, has been exhibited to the Emperor. The pressure of the foot itself in dancing or walking evolves the music to which the foot keeps time!

HER MAJESTY'S LETTER TO THE RAILWAY DIRECTORS.

It is greatly to be desired that the Queen's letter to the railway boards, combined with the heavy amount of compensation for damages by accidents, which the past year must have exacted from many of them, may have the effect of removing the official blindness which appears to have universally affected them, and for which their preponderating influence in the House forbids us to hope for any compulsory cure. It would appear that the directors always proceed on the grounds that they are administering the funds of the shareholders with the view of a dividend, the convenience of the public being but a secondary consideration. Would it not be more satisfactory if they would try the plan of considering that they are administering the funds of the travelling public contributed in the shape of fares, and that their first duty is to return a *quid pro quo* in the shape of convenient and safe means of transit. If they can also manage to pay a dividend to the shareholders so much the better for them; but always the public first, the shareholders afterwards.

A consideration of the circumstances attending the many accidents which have occurred within the last few years will, I think, entitle any one, without presumptuously trenching on the functions of engineer or traffic manager, to arrive at the conclusion that there are only some three or four fundamental errors to which almost all such accidents may be traced, and, with all humility, I take these to be:—

1. Ill-placed economy in the matter of signalmen, pointsmen, and porters.
2. Want of sufficient traction-power to cope with the greatest amount of work that can be any accumulation of traffic be thrown upon the engine.
3. Total disregard in the time-tables of the agreement of nominal time required for the performance of a journey and the time actually occupied.

The reports of the engineers into the causes of the greater portion of the accidents referred to, testify to the fact that, either through overwork, or deficiency in intelligence or nerve, the signalmen have failed just at that critical time when perfect acquaintance with their duties, and ability to perform them, were required. Surely, the saving effected by setting some half-instructed porter, remunerated at the rate of from 18s. to 25s. a week, for twelve or fourteen hours' work a day, to perform a duty in which the greatest care and intelligence, and activity of observation, are required, must be more than balanced by the large amount of damages which must have been incurred through such accidents as that in the Clayton Tunnel, and that on the Ascot Cup day. Perhaps, however, the greatest blot on the system is the want of punctuality in the time of the trains.

A daily traveller for twenty years past, from a much frequented station, I know numbers of passengers who always, as the saying is, run it close. They know that the train seldom or never keeps its time, and they prefer the chance of being occasionally late, to the nuisance of having to wait from five to ten, or twenty minutes, on an exposed platform. The system induces a looseness of punctuality in passengers, guards, and porters all alike. It is ludicrous to contrast the starting of a train from the London terminus, with the porter, being in hand, waiting for the stroke of the clock, ready to cut off your nose in the gate if you are a moment behind, with the arrival of the same conveyance, more or less in arrear at all the stations on the line.

Suppose, for the experiment, this plan were tried.—Let the train start as now at the appointed time, and let there be an engine to draw it of such power that it,—by any combination of an unusual flood of luggage, accompanied by an unusually large number of old women of either sex, who are somewhat slow at comprehending the little details of getting their tickets, finding their money, and knowing exactly by what class they mean to travel,—if by such a state of affairs the train loses two, three, or five minutes at the station, it may make up for the delay by the time it arrives at the next station, and let the time be such as it may not be unreasonable or dangerous to expect to be kept. It is perfectly certain that to the majority of travellers it would be far more satisfactory to expend a considerably larger percentage of time on every journey, knowing that the time named would be kept to a minute, than to have the present total want of faith in any time-table, making it quite impossible, where it

is necessary to go from one railway to another, to count with any confidence on reaching the station at the proper time.

If such a reform of the system were carried out, it may be fairly expected that a large increase of traffic would be produced, of what may be termed a voluntary kind, such as excursion and holiday trips, on which occasions the most serious accidents have happened; and this, with the amount saved by avoiding the destruction of life and limb, and to mention the rolling stock of the company, would go very far to compensate for the increased cost of officers and of engine power; but whether it do so or not is not the question which interests the public at large; the railways monopolise the traffic, and the companies should be compelled to do the work with punctuality and safety.

AN OLD TRAVELLER.

KNIGHTSBRIDGE BARRACKS.

SIR.—Various reports are in circulation respecting this magnificent position: some that the present building is to be abated, and that new and more appropriate quarters are to be erected for the Guards; again, that the barracks are to be transferred thence to another place; and, lastly, that the site is to be sold! Surely so great a spoliation of Hyde Park, the glory of London, cannot be meditated for a moment; there are already intrusions enough upon this fair expanse.

Whatever may be the intention, it is devoutly to be wished that the noblest causeway of the West-end, if it is to be overshadowed in the narrowest part, just opposite the barracks, may be widened by at least 15 ft., so as to give it a more direct and equable aspect. On all sides improvements of the parks have been carried out by the Chief Commissioner, and none with greater effect, than by the enlargement of the arterial roads, by withdrawing the boundary railways for both park and roadway appear to be expanded by the change—as, for instance, in Kingsdawn-ways.

The abatement of the barracks, and addition of the site to the park, would be the greatest improvement, and the most estimable concession to public convenience and taste. If this, however, be impracticable, let us hope that the strip required from the area to enlarge this leading thoroughfare may be spared from a plot of 2200 ft. in length, which has latitude enough remaining for the construction of a barrack and dining-hall larger and more capacious and healthy than the present antiquated caserne; but to build a range of mansions or a lofty barrack here would be sacrilege.

Q.

PLAIN-TILING.

SIR.—I was much surprised to see your correspondent, who signs himself "Practice," recommends the bedding and jointing of tiles, especially bedding them at the bottom end of the tile. It is quite clear that tiles so bedded must be very liable to render the roof damp, as any water that got in at the top of the tile, either by percolation or flaws in the tiles, must be blocked up by the mortar at the bottom of the tile, and, independently of the water which falls outside the roof, there is always a considerable quantity of damp in the inside of the tile, which condenses and hangs in beads on the underside of the tile, especially in damp weather. These beads increase in size, they are attracted into the other, and run down in small streams on the underside of the tile, until they come in contact with the mortar at the bottom of the tile, which prevents the water running out at the end of the tile, and copying itself outside on the tile underneath, which would be the case if the bottom of the tiles were open and clear; and this water, blocked up, must of necessity drop off on the ceilings below. Indeed, I have known roofs so tiled in where they have been intended to spread a layer of sawdust on the top of the ceiling to absorb the damp which comes from the roof and stained the ceiling underneath. Your correspondent complains of the London bricklayers not being careful in filling cross joints with mortar, in which he says is all the mischief. But the mischief is, that mortar should be in the cross joints at all; for never carefully the cross joints are filled and bedded together with mortar, it is impossible to get them water-tight, as the continued action and shrinkage of the roof, and the deflection of

the laths when they become tender, will always break up the cross joints and let the wet in, which is very likely to spread through, as the beds of mortar prevent it running off with the same facility as though they were all clear. The system proposed by your correspondent is as old as Ben Jonson, but has become obsolete years ago.

HENRY PRICE.

I know, quite well, a church in Sussex that underwent certain repairs—new rippings, as it is commonly called by bricklayers, that is, the tile-work taken off the roof straightened, related, and tiled. The tiles were laid in mortar; and, when finished, I may venture to say, the wet came in in a hundred places. The architect was astonished, the bricklayer more so. One said the gauge was too long; another said the pitch was too flat; but how could that be, when the roof had not been altered any more than made straight? The bricklayer was then ordered to get a thin instrument, and thoroughly clean out every cross joint, which, when done, had the desired effect.

My experience tells me, the best way to do plain-tiling is to use good heart-oak laths, cleft as straight as possible secured by center-hooks at the bottom edge, and flat-head from tile-pin; bed the first two eaves courses in mortar, then cover the roof with damaged bay or soft barley-straw, then place a sufficient number of tiles regularly over to do the roof. The use of the hay is to give the bricklayers greater facility to make the tiles lie more even at the bottom end. As the tiles often vary in length from the pin-holes as much as $\frac{1}{2}$ in., the bricklayers, in that case, can take a small quantity of the hay, and place it under the pin, making the tile lie straight with the tile already laid. Should there be a straight tile come next a hollow one, it can be made level, or nearly so, with the hay. My impression is, that is the only advantage in using hay. There should then be a list of haired mortar carefully pointed along each course of tiles at the heads, the underside of roof, to prevent snow or wet dripping up. The pointing is not required along on the lath.

HOW HOUSES ARE BURNT.

If the enclosed rough sketch of an actual appearance after a fire, in a new house in a rising seaport town, is worth anything to open the eyes of Insurance Offices, and of the tenants of new houses, please to insert it in your journal. Here the joints of the first-floor run into the chimney and close under the grate, only sunk out for the thickness of the 1-in. slate hearth. The joinder plugs into the basement flue, without hesitation, for his skirtings and angle beads. Now, all this is so easily obviated if the officers would insist upon trimmer arches and the use of cement, instead of wood to the skirtings around the chimney breasts, that I wonder how they suffer such a barefaced premium to fraudulent firing for one moment longer. "If we will not take the risk other officers will," is the reply of the officials; but I cannot help thinking the public have considerable interest in this matter, and for that reason I trouble you with this letter. In this particular case the builder professes himself to be "proud of doing his work well." He is not a slop builder,—borrows money from the office, which also insures. Two years, and the house is alight. Would any sane man insure the house for a week? The thing is made to burn.

A COUNTRY SURVEYOR.

* The letter is sufficiently explanatory of a constantly occurring state of things without the sketch. The Deanery, at Windsor Castle, was nearly burnt down on the 17th, through the presence of joists under the hearthstone, and which became ignited.

CASES UNDER METROPOLIS LOCAL MANAGEMENT ACT.

RATE FOR PAVING.

At the Clerkenwell Police Court, Mr. Henry Bickerton, as the representative of owners in the same position as himself, in the Seven Sisters-road, was summoned before Mr. D'Eyncourt to answer the following complaint made by the vestry of the parish of St. Mary, Islington:—

"For that you, being the occupier of the house numbered 2, in Montague-place, which said house abuts on and forms part of the said Seven Sisters-road, the footway of which has been flagged by the vestry of the said parish of St. Mary, Islington, pursuant to the provisions of the 18th section of a certain Act of Parliament of the 25th of Victoria, c. 102, and also being within the jurisdiction of the said vestry, have not paid to the said vestry the sum of 16s. 14d. 7g., being the proportion of the estimated expense as determined by the surveyor for the time being of the said vestry, to be paid by you for providing and laying flagging in the said street called Seven Sisters-road, and which said footpath the said vestry deemed it necessary and expedient should be flagged."

Mr. D'Eyncourt decided that there has been no such repair as would make the occupiers liable under section 7 of the second Act.

Mr. D'Eyncourt's judgment will be found in full in the *Morning Advertiser* of Friday, the 17th instant, should any of our readers desire to refer to it.

NEW EXCHANGE, HULL.

The first stone of the new exchange was laid on the 15th inst., by Mr. T. W. Flint, chairman of the Hull Exchange Company, in the presence of the mayor and sheriff of Hull, and a numerous assemblage of merchants and other leading inhabitants. The site is at the corner of Lowgate and Bowlalley-lane, in which stood, in the fourteenth century, Suffolk Palace and its dependencies, the residence of the De la Poles, a name imperishably connected with the town of Hull. The building will be in the Italian style, three stories in height, exclusive of basement, the elevations towards the streets being principally of Hare Hill stone. It will comprise an exchange-hall, 70 ft. by 40 ft., with an arched ceiling; stations for three telegraph companies; several suites of offices, refreshment-rooms, vaults, &c. The architect is Mr. W. Botterill, of Hull, and the contractor, Mr. R. Weatherley, of York, whose contract is 6,560l. Mr. W. Lewis is clerk of the works.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the meeting on January 25th, Mr. G. Vere Irving, V.P., in the chair, Mr. Powell exhibited two finely-sculptured marble busts of Jupiter and Cleopatra, recently obtained from Pompeii. Mr. Edward Roberts, F.S.A., exhibited a part of a wooden window-frame from Framingham Church, entrusted to his care by the Rev. Mr. Mannissy, of Diss. It is of Early Norman date, circular, about 10 in. diameter, with perforations round the edges for lacing. Mr. Roberts accompanied the exhibition with remarks upon the earliest lattice-windows referred to in the Old Testament, and the continuance to this day of similar lattices in the East, and to the modes of carving and lacing windows prior to the introduction of glass. Mr. Augustus Goldsmith, F.S.A., exhibited a bronze miniature figure of a Caryatide, found at Herculaneum. It is in the form of a semi-nude dancing-girl, with legs crossed, and in elegant pose.

Mr. Charles Faulkner, F.S.A., exhibited rubbings of two diminutive coffin-lids, found upon digging a grave last summer in Deddington Church, Oxon, measuring only 20 in. by 1 ft., and $\frac{1}{2}$ in. in thickness. They are of local marl stone, sculptured, and represent a floriated cross. The edge of one is also sculptured. They belong to the end of the thirteenth or beginning of the fourteenth century. Mr. Carmichael said he had met with one $\frac{1}{2}$ ft. in length, by 1 ft. 3 in. Mr. Planché suspected they were memorials of children.

Dr. John Harker, of Lancaster, forwarded drawings and a paper, on the discovery of a number of British funeral urns. Lord Boston forwarded some elegant card-purses belonging to the reign of the Stuarts. Mr. Cuming read some notes on purses, in continuation of a previous communication printed in the Journal.

WIDTH OF STREETS UNDER THE LOCAL MANAGEMENT ACT.

Our attention has been called to a plaint instituted by the Metropolitan Board of Works against Mr. Cox, of Chelsea, builder, respecting some houses lately erected by him in a place called Hob-lane, in that locality, and heard before Mr. Arnold, at the Westminster Police-court, on the 2nd of February, and finally adjudicated upon on the 9th instant.

Mr. Raymond represented the Board, and Mr. Day attended for Mr. Cox.

After having heard counsel at considerable length, Mr. Arnold pronounced judgment in favour of Mr. Cox; and as the nature of the summons is fully set forth in it, an extract from the judgment is all that it will be necessary to refer to:—

"The summons in this case recites a by-law, which was made under the provisions of the first Metropolitan Local Management Act, and also the 98th section of the Metropolitan Local Management Amendment Act, and alleges that Mr. Cox has received notice of its existence, and notwithstanding it forbids his erecting certain buildings a road of less width than 40 ft., as prescribed by the Act of Parliament, that he had done so on the southern and eastern side of Hob-lane, Chelsea, which was within the limits of the Acts relied on. On the part of the complainant, Mr. Pollard, a preliminary objection, but not pressed by Mr. Day, had been taken, that the proceedings ought to have been instituted within six months; and, if really any offence had been committed, the objection must have prevailed, irrespective of the wishes of either party, as my jurisdiction as a magistrate would have been at an end."

Mr. Raymond having, however, contended that, putting aside the statutory period of six months, there is a penalty in the case of a continuing offence, and this imposes upon me the necessity of stating my opinion, differing as it does from that of Mr. Selfe, with whom I have communicated, and by whom the original summons was issued.

The question, then, is, what is the offence complained of? In the words of the summons, that the defendant had erected certain buildings, whereby a certain road had been formed and laid out for building as a street for carriage traffic. The first question is, when was the building erected? It is admitted it was commenced on the 12th of May last, and on the 14th, two days afterwards, the district surveyor examined it, and the complaint was not made until the 30th of December.

If the commencement of the foundation was to be taken as the erection of the wall, the alleged offence was discovered six months ago. I could not interfere, but I am of opinion that the wall or building cannot be said to be erected till completed. If the wall was completed before the 30th of June, I should be reluctantly compelled to hold that the complaint comes too late. Mr. Cox, against his own interest, has admitted that it was finished on the 12th of November, which brings it within the six months.

The facts of the case, I think, are these. There is an existing road called Hob-lane, used at present for carriage traffic, which is not of the width required by the statute. Over this road the defendant has no rights, except those he holds in common with other subjects. The land on one side of this road does not belong to him, but a large piece on the other side has become his by purchase, though not bought from the owner of the road or the land on the other side.

On the piece of land he has purchased, he has built houses and laid out streets in conformity with the by-law relating to new streets. The backs of one of these rows of houses abut on Hob-lane. He has brought the outer walls of the yards at the rear of these houses so close to the boundary wall of Hob-lane, as not to leave a width of 40 ft. between those walls and the boundary wall on the other side of the lane, namely, the wall of Cromorne Gardens.

Two questions arise on this state of things: first, whether the existing road called Hob-lane has been formed or laid out for building as a street for the purposes of carriage traffic by the defendant. I am of opinion that it has not, that he has not in any way interfered with the existing road, and had, in fact, no right or power to do so. This, of course, is decisive, as far as my jurisdiction is concerned.

Mr. Day, his counsel, said that the parish had acted with bad faith to him. This Mr. Crompton denies, saying it was a question between Mr. Cox and the Vestry.

The Board and Vestry are so mixed up together that it is difficult to distinguish between the two.

Mr. Cox has done all that is required to do. There was a strip of land reserved for the Vestry of Chelsea, with a right to purchase it within twelve months. Mr. Cox was allowed to run up his buildings, the Vestry not having chosen to purchase it. Mr. Cox is proceeded against.

I certainly do not think that the Board were justified in turning round on Mr. Cox, and, if I were to grant a case for the Queen's Bench, which the Board has called for, it would be a very strong ingredient in it.

I must give Mr. Cox his costs.

This terminated the proceedings.

PROVINCIAL NEWS.

Brighton.—From the surveyor's report on the projected new Music Hall, we find that the leading feature of the design submitted is the large hall, the dimensions of which are,—length, including the orchestra, 138 ft.; ditto, measured from the front of the orchestra to the south wall, 104 ft.; width, 71 ft.; height, 50 ft. It will seat 2,420 people. The large room at the Town-hall is 84 ft. long, by 36 ft. wide, by 31 ft. high; and the Music-room at the Pavilion is about 58 ft. by 40 ft. The question of considering this report, and also another for a room with offices, to "be used by the School of Design, or for similar purposes," 49 ft. by 33 ft., and 20 ft. high, was deferred.

Maidenhead (Berks).—In this town, of late years, many villas have been built, which have been quickly occupied, and the erection of many more is about to be commenced. The rapidly-increasing population has caused several of our public buildings to be insufficient for the wants of the town, and the town-hall is amongst the number. The town council, seeing this, at their last council meeting, appointed a committee for enlarging or in some way adding to the present building; and there is a probability that a lecture-hall and a corn exchange will be built, and an extensive hotel also erected.

Wantage (Berks).—The new corn exchange here has been inaugurated. The building was originally intended to have been erected on the site of the present town-hall, and designs were supplied by the architect for that purpose, but ultimately it was decided to change the site to that of the old Red Lion. Only part of the scheme has been carried out. The building at present erected comprehends the exchange-room and rooms for the residence of a clerk at the south end. The exchange is 90 ft. long, 31 ft. 6 in. wide, and 24 ft. high. Internally, the walls are composed of red and white bricks, with plaster panels. From the piers spring plaster ribs, occurring every 12 ft., and between these ribs is a ground-glass ceiling. Encaustic tiles also relieve the monotony of the red and white brick walls. It is hoped that at some

future period the frontage towards the town-hall will be taken down, and some other building substituted. The cost of the building was about 1,400l., and the site 900l. Mr. Dover, of Oxford, was the builder, and the architect was Mr. Wheeler, of London.

Bradwell-on-Sea (Essex).—The parish church of St. Thomas has been re-opened for divine service, after a partial restoration. In the nave new windows of Bath stone have been inserted of decorative character. The old square high pews have been replaced by low seats of oak. The pavement throughout is of tiles. The sacristy is laid with Minion's encaustic tiles. The pulpit is hexagonal, of Caen stone, and a pillar of alabaster on each of the faces, and a pillar of green Irish marble at the angles. The carving was by a block of red serpentine. The font is executed by Mr. Earp, of Lambeth. The font is also of Caen stone. The chancel has been almost rebuilt, and is fitted up with oak stalls, ornamented with poppy-heads. The work in the nave was executed by Mr. Saunders, of Maldon.

CHURCH-BUILDING NEWS.

Winford (near Bristol).—The foundation-stone of a new church (to be dedicated to St. Katharine) has been laid by Miss Katharine Alethea Hardman, at Broadfield Down, in the parish of Winford. The church will be built of local limestone, with Bath stone dressings, &c., and will consist of a nave, apsidal chancel, porch, and vestry. All the seats will be free. The site has been given by the lord of the manor.

Ridwell (South Wales).—Mr. Owen Bowen, secretary to the Carmarthen and Cardigan Railway Company, has presented to the parish church a brass turret clock, showing the time on two dials 5 ft. in diameter, striking the hours on a bell of 12 cwt.; and the quarters on 2 bells, 8 cwt. and 5 cwt. respectively. Mr. Benson, of London, was the maker.

Tarporley (Cheshire).—The partial restoration of, and erection of an additional chapel to, the church are approaching completion. The restorations comprise the redressing of all the windows and the tracery in the north chapel, and the erection of an additional window and new doorway or approach thereto. A new timbered open roof has also been constructed, as well as a new arch to the north aisle. The new chapel is named the Monumental North Chapel. The Ardern Chapel was recently restored by Lord Binning, who is largely contributing to the present restoration of the church. The architect is Mr. John S. Crowther, of Manchester, and the general contractor for the works, Mr. R. Beckett, of Hartford. The contractor for the masonry is Mr. J. Holland, and the clerk of the works, Mr. G. Holland. A new tower or steeple to the church is contemplated, but the restoration is to be completed in four years, and three of these have already elapsed.

Horningslow.—The foundation stone of St. John's Church was laid on St. John's Day. The building is in the Geometrical style, and consists of a nave 70 ft. 3 in. long, and 21 ft. wide; north and south aisles, each 10 ft. wide; a chancel, 28 ft. 6 in. long, and 18 ft. 9 in. wide, with vestry and organ-chamber on the north side. The tower will occupy the western bay of south aisle, and will be surmounted by a spire, the top of which will be about 120 ft. above the ground level. The church will be divided into bays by five arches and columns between the nave and aisles, and will be lighted by a large west window and windows in the sides and end of aisles. The caps to piers and the keys to arches will be carved. The chancel arch will be moulded and carved, supported by marble corbel shafts. At the east end a five-light window will throw light into the chancel. The church will have two entrances—one at the west end, another on the south side of the tower. The walls will be built of bricks, faced with Coxcomb stone, and the windows, doors, arches, and ornamental work will be executed in Bath stone, with blue York and red Mansfield stone in bands and arches. The roofs will be open timbered, plastered between the rafters, and ornamental ridge cresting. Sitting accommodation is provided for 386 adults, and 72 children. Mr. E. Holmes, of Birmingham, is the architect, and Messrs. Lilley & Elliott, of Ashby-de-la-Zouch, are the builders.

Manchester.—St. Alban's Church, Waterloo-road, long closed in consequence of hindrances and difficulties, has now been opened under

license from the Bishop of Manchester. The church has been erected solely by voluntary donations. The seats will all be free. The building, up to the present time, has cost upwards of 7,500l. The edifice is designed in the Early Geometric Pointed style. The tower at present is only carried up to the level of the ringing-rooms, and is temporarily roofed in. When finished, together with its spire, the entire structure will rise to the height of 255 ft. The nave is seated with open seats of simple character, and the aisle with chairs. The church is warmed on the hot-water principle, and lighted by gas coronas suspended from the roofs. The whole of the roofs are of open timber framing of simple character. The architect is Mr. Crowther, of this city; and the contractors are Messrs. Ellis & Hinchliffe, for masons' and brick work, and Mr. Forgett for the remaining works. Mr. Skidmore, of Coventry, supplied the gas-fittings and chancel screen, and Mr. Walker the heating apparatus. The church will accommodate 800 on the ground-floor.

Kegworth.—At a cost of about 1,900l., and under the management of Mr. Mitchell, of Sheffield, architect, the church here has been restored.

Sheffield.—The subject of church extension in Sheffield has been practically dealt with by a numerous and influential meeting, over which the Archbishop of York presided. The scheme is to erect, within five years from this period seven additional churches within the town of Sheffield. To effect this object it is proposed to raise a sum of 31,200l., the subscription to which will be spread over the like period of five years. At a preliminary meeting, a sum of 3,800l. was promised. Mr. John Brown has given 5,000l. for the erection of a church in Brightside, near to his works; the Church-Building Aid Society gives 4,000l.; and at the meeting upwards of 3,000l. more were promised; so that about 16,000l. have already been subscribed for the work.

RAILWAY MATTERS.

Railway Reform.—Now that the vigorous mind of Mr. Edwin Chadwick, C.B., is at work on this great question, the hope which we lost, after years of pioneering endeavours in the *Builder*, revives, in full force, that something will at last be done to clear the country of a multitude of railway abuses and defects. Mr. Chadwick's "Address on Railway Reform," delivered before the Social Science Association, has been printed (1, Adam-street, Adelphi). In this address, agreeing with such men as Robert Stephenson and the best authorities on railway interests, that railway management by directors elected from shareholders has been fully tried and found inefficient, Mr. Chadwick proposes a unity of management, with reduced rates, throughout the whole country, somewhat on the principle of the Post-office department, for the joint interests of shareholders and the public; and he maintains that foreign countries are far ahead of us in respect to railway management, in which especially we, above all other nations, ought to be foremost. We are glad to observe that the Chancellor of the Exchequer, in reply to Mr. Roebuck, states that Government intend to advise the appointment of a Royal Commission to inquire into the costs of railway conveyance and the charges made for it on the public.

Proportion of Railways to Population.—The amount of railway accommodation, in proportion to population, in various countries affords some curious subjects for speculation. We might have reasonably expected that England and Wales, with their rich mineral resources, their manufacturing skill and mercantile enterprise, would have taken the lead in the matter of railway accommodation, but the official returns do not show this to be the case. According to the *Railway News*, Scotland, whose sons are to be met with on almost every green spot on the earth's surface, seems to retain a spirited remnant of her population at home, seeing that she has for her 3,062,294 inhabitants above 2,000 miles of railway, or about 660 miles for every million persons. England and Wales, with above 20,000,000 inhabitants, have about 8,600 miles of railway, or about 430 miles to the million. Ireland, with nearly six millions inhabitants, has about 1,750 miles of railway, or nearly 290 miles per million. Next in their order among European countries as regards railway accommodation are Switzerland, Belgium, Sax-

ony, Prussia, and France, which have just about half the extent of miles of railways open that England has per million inhabitants of the respective countries.

Miscellaneous.—The traffic receipts of railways in the United Kingdom amounted, for the week ending the 11th of February, on 11,796 miles, to 571,400l.; and for the corresponding week of last year, on 11,460 miles, to 542,082l.; showing an increase of 336 miles, and of 29,318l. in the receipts.—The directors of the London and North-Western Railway Company have resolved to recommend to the proprietors a dividend for the past half-year at the rate of 7 per cent. per annum, carrying forward a balance of 25,848l.—At the half-yearly meeting of the London and Blackwall Company, the proposal to lease the line for 999 years to the Great Eastern Railway Company, at 4½ per cent. per annum, was carried by a large majority.—The dividend proposed by the directors of the Caledonian Railway is at the rate of 7½ per cent. per annum. The dividend for the corresponding half of 1863, was at the rate of 6½ per cent. per annum.—Upwards of a twelvemonth since Mr. Roush Smith wrote a pamphlet, proposing, among other means, to give the poorer classes cheaper fruit, the planting of Government waste lands, and the banks or sides of railways with apple-trees. Mr. Smith, it seems, circulated his pamphlet extensively in France, where it excited much attention, and to good effect, for at the present moment the planting of railways with apple-trees is going on extensively.

GAS.

A PUBLIC MEETING of ratepayers and gas consumers of St. Pancras has taken place in the Vestry-hall, at Camden-town, for the purpose of considering the question of the supply of gas, and to take measures to secure a reduction in its price. Statements were made condemning the attempt of the Imperial Gas Company to introduce a Bill in the present session to increase their capital, so as to prevent the consumers having the benefit of a reduction under the provisions of the Metropolis Gas Act, so soon as a certain percentage on the existing capital was obtained, and which was now nearly, if not quite arrived at, by the Imperial Company. A resolution calling upon that company to reduce their price to 2s. 9d. per 1,000 ft. was adopted, and it was resolved to petition Parliament against their Bill for increase of capital, and also for the abolition of the Gas Act, which, by allowing the districting, gave the gas companies of the metropolis a complete monopoly.

The supply of gas is a monopoly, not only in the metropolis, but in most parts of the country. A new company now and then starts up and obtains an Act, but the new directors have to choose between war to the knife and a quiet 10 per cent.; and it is easy to see how the matter ends. The Legislature allows the gas companies to divide 10 per cent. When they have done that, it allows them to look back and see whether, in any one or more years during the last six years they have divided less than 10 per cent.: if so, they may apply the surplus to making up that deficiency. When every shareholder has received 10 per cent. on everything, the surplus is to go in reducing the charge per cubic foot to the consumers. But Parliament has taken no security for the economical administration and expenditure of the companies. They are obliged to publish their accounts, certainly; but, if they disclosed ten times as much extravagance and maladministration as they do, there is no machinery for obliging them to keep down expenditure, and do justice to the consumers. The consequence is that gas a great deal better than is got could be made, even in London, for less than 3s. per 1,000 ft., at a saving of 600,000l. a year. It is said the 1,000 ft. of the Cannel gas supplied at a much cheaper rate in Manchester and Liverpool will burn as long, and give about as much light, as 2,000 ft. of the wretched coal gas charged in London at 4s. 6d. per 1,000 ft.

The gas movement is exciting considerable attention at Gravesend. The consumers are now paying 5s. per 1,000 ft.; and when it is considered that the company get their coals cheaper there than in many other towns, and that gas-tar is sold at 3d. per gallon, and coke at 14s. per chaldron on delivery from the gas-works, it is clear that the price ought to be greatly reduced. A deputation is to wait upon the directors of the Gravesend Company; and, if they refuse to reduce their price, a public

meeting will be immediately held by the gas consumers of the town.

The directors of the Sandwich Gas Company have just issued a notice, stating that on and after the 1st of April next the price of their gas will be reduced to 6s. per 1,000 ft.; and that there will also be a further reduction of 6d. per quarter for the hire of meters.

A fearful and fatal explosion of gas has occurred at Liverpool. A warehouseman named Bowen, in order to discover whether a strong smell of gas or foul air coming from a sewer in the adjacent yard arose from escape of the gas supplying the warehouse, went with a lamp to the yard, and applied it to the iron plate covering the entrance of the sewer. An explosion took place, and an immense sheet of flame shot up to the height of 15 ft. or 16 ft., and blazed for a few seconds. The iron plate or covering was blown into fragments, one of which struck Mr. Bowen on the back part of the head, inflicting a fatal wound. Several other persons were also injured. The pavement was blown for a distance of 60 or 70 yards, the boulders composing it being scattered about in all directions. It is a singular and scarcely credible circumstance, in connexion with this accident, that Mr. Bowen not only lectured on chemistry, in his leisure evenings, but had made arrangements to deliver a lecture on gas, with illustrative experiments, at Birkenhead, the same evening! His conduct was just about as sensible as if a dealer in gunpowder were to thrust a red-hot poker into a barrel to see whether it contained gunpowder.

A company has been introduced by gentlemen intimately connected with Brazil, called the "Rio de Janeiro Gas Company," for the purpose of acquiring two concessions for lighting that capital with gas. These concessions, which grant a monopoly until 1879, have been worked by a Brazilian company, which is said to have realised good profits. In 1863 the net profit was 64,500l., and in 1864, 65,000l. It is proposed to purchase the privilege for the remainder of the term, with all the works and contracts; and for this purpose subscriptions are invited for the capital required, which is 600,000l., divided into 30,000 shares of 20l. each, all to be paid up by the end of June.

Books Received.

"BENEFICENCE in Disease" is the title under which Mr. Joseph Toynebee publishes (through Churchhill), his introductory address, delivered at the opening of the St. Mary's Hospital Medical School. In opposition to Sir John Forbes, who states the object of diseases to be to arrest or destroy life, Mr. Toynebee holds that disease is for the most part a reparative process, implying some antecedent injury, and works out his view in a way calculated to induce useful thought. Even without at once accepting Mr. Toynebee's theory, we would urge that disease is not to be regarded as a scourge from the Creator, but is a result of man's ignorance of, or inattention to, the Creator's laws.—The Grammar of French Grammars, by Dr. V. de Fivas. Lockwood & Co. The twenty-fifth edition of this work, just now published, is before us. We commend the book sufficiently when we say that we are not surprised. It is concise and precise; two valuable qualities in a grammar.—A paper on Agricultural Fairs and Markets, by Mr. Fyfe, in the journal of the "Bath and West of England Society for the encouragement of Agriculture," has some observations on the want of space in new Corn Exchanges for the exhibition of proper samples, which architects may usefully bear in mind. The complaint against dealing on pocket samples, dried by being carried about the person, is becoming general.—"The Past, Present, and Future Almanac," published by Day & Son, London, consists of two tables, neatly mounted for the pocket, by means of which the day of the week for any date in any month of any year, and the date for any day in any month of any year, may be found without any trouble. It is a very clever and useful arrangement.—Amongst the reading-books that have reached us comes "Nelly Nowlan" (Nelson & Sons), a story by Mrs. S. C. Hall, illustrated, but not quite so well as it deserves to be, though one of the engravings, "Nelly and the Blind Girl," has considerable merit. Nelly Nowlan is a brave little Irish girl, with good common sense, and a better education than those about her, who comes to get

service in England, rather than make a marriage at home she *thinks* she shall not like. Her opinions on what she sees (the rights-of-woman women do not escape) and the adventures she meets with make up the book. It is a vigorous and amusing story, and, like everything Mrs. Hall writes, cannot be read without advantage.

Miscellanea.

LIVERPOOL ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.—An entertainment was given on the 17th, by the Liverpool Architectural and Archaeological Society, in aid of the funds of the Architects' Benevolent Society, at the Philharmonic Hall, Liverpool, and is described as a great success. Drawings and models were displayed, and dancing closed the evening.

NORTHAMPTONSHIRE ARCHITECTURAL SOCIETY. THE annual meeting of the Northamptonshire Architectural Society was held in the Lecture-hall, Gold-street, on Monday, the 13th, Mr. H. Thornton in the chair. The report read by the hon. secretary described the progress made with various churches in the county. From the treasurer's statement, it appeared that the gross receipts for the year, September 29th, 1863, to September 22nd, 1864, including Mr. Botfield's legacy of 10l., amounted to 106l. 1s. 10d. The gross payments amounted to 78l. 11s. 6d., leaving a balance in hand of 27l. 10s. 4d.

"OUR DOMESTIC FIRE-PLACES."—We have received a letter from Mr. Edwards, in reply to Mr. Taylor's challenge in our last number, stating that his information was derived from copies of Mr. Taylor's specifications, rather than from observations in buildings where the grates have been erected; and that he "could not distinguish between Mr. Taylor's announced schemes and his practice." On submitting this statement to Mr. Taylor, that gentleman asserts that "*it is not correct*," and says,—"Mr. Edwards has given as false a description of the book of my patent as he has of the construction and working of my grates." The challenge is therefore unanswered, and the public must draw their own inferences. Here the inquiry must end with us: we cannot carry the correspondence farther.

SOUTH LONDON WORKING CLASSES EXHIBITION. The attendance at the Lambeth Baths has been very satisfactory, notwithstanding the cruel weather to which we have been subjected. We contemplated giving a notice of the principal objects exhibited; but, going through the collection again, came to the conclusion it was not desirable. We have specially marked the cases of some of the potters (pottery belongs to the district), such as W. Parsons (53); Hopkinson, sen. and jun. (54 and 125); and R. Edge (99); J. Mabey, modeller (74); E. James, mason (29); J. G. Rose, house painter (66), for some pictures; C. Burgess, wood-carver (153); W. Mynott, bricklayer; inlaid tables (266); W. Kennedy, plasterer, a mirror frame (545); Lovett, some small iron hinges (639); and a few others. There is very much that, although interesting under the circumstances, showing indeed great cleverness under difficulties, is awfully bad, and not calculated to raise public taste.

LONDON ASSOCIATION OF FOREMEN ENGINEERS. The twelfth anniversary dinner of this association was celebrated at the Bridge House Hotel, London Bridge, on Saturday evening last, the 18th inst. The society, which was founded in 1852 with the object of supplying the want of co-operation that had long existed among foremen of the engineering trade, and affording them an opportunity of friendly intercourse, intellectual cultivation, and physical good, comprises amongst its members not only working foremen, but many of the principal master engineers of London; and its success and practical usefulness were satisfactorily evidenced by the fact that, on the present occasion, the assembly numbered upwards of 250 gentlemen connected with the trade. Mr. John Penn occupied the chair, and Mr. Wm. Naylor the vice-chair. Mr. Newton, in responding to "Prosperity to the Association," adverted to the practical excellence of the mechanical and scientific subjects discussed by the association, and expressed his belief that, in the future, the institution, so valuable in diffusing scientific information throughout the profession, would become one of the greatest associations of its kind in the world. The contributions amounted to 500l.

CARLISLE CASTLE.—The Secretary for War "has determined upon retaining the Castle in the hands of the Department, and not letting any portion of it, as originally contemplated."

GUY FAWKES REDIVIVUS.—Mr. A. Gordon, C.E., has published a letter written to the Hon. Mr. Cowper, in which he states that there are twenty steam-boilers under the floor of the Houses of Parliament, many of them working at high pressure, and some of them not tested for ten or twelve years. Unless matters are carefully managed he anticipates a Guy Fawkes explosion.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—This society held its second *conversations* of the season, at the Architectural Gallery, in Conduit-street, on the 16th instant, amidst a collection of pictures and drawings by the late David Roberts, R.A., of which we have already spoken. The proceedings of the evening, as is usual at these *réunions*, included a performance of miscellaneous music.

METROPOLITAN BOARD OF WORKS.—The Main Drainage committee reported in support of Mr. Bazalgette's proposition to refer the examination of Mr. Farness's claim for extras to an independent engineer. This view was not, however, taken by the Board. After a long discussion, it was resolved, by a majority of twenty-three to five, that the matter should be left in Mr. Bazalgette's hands, and it was expressly understood that this was to be a vote of confidence in him.

THE NEW HOTEL AT FALMOUTH.—This new building is nearly completed, so far as relates to the portion which it is intended at present to build. The plans were drawn for a central block with two lengthy wings; but the centre building and western wing are not yet to be constructed. It is the eastern wing which is almost finished. As already constructed, the hotel is 244 ft. in length by about 90 ft. in height, and the main body of the building is 48 ft. in width.

SCIENCE OF SEAMANSHIP.—The Astronomer Royal is to deliver a course of three lectures on "Magnetical Errors, Compositions, and Corrections, with special reference to Iron Ships and their Compasses," at the South Kensington Museum, on the Thursdays in March, in connexion with the Royal School of Naval Architecture. Though single lectures may have been given previously, this is probably the first course of lectures on this important subject which has been delivered in the country, and should have the attention of those who are interested in the matter.

THE BRITISH LAND COMPANY, LIMITED.—The ninth annual report states that the sales for the year have amounted to 142,335l. 3s. 6d. The annual statement shows a balance of profit in favour of the company of 26,339l., and out of this sum the directors recommend a dividend of 10 per cent., and a bonus of 5 per cent., free of income-tax, which will amount to 16,656l., leaving 9,683l. to be carried forward. The amount of capital paid up has been increased from 100,000l. to 120,000l., by the issue of 10,000 new shares, on which 2l. per share have been paid.

THE OLD WORKHOUSE SITE, OXFORD.—This site, which consists of 5½ acres, was sold by the guardians to the late Mr. Ambrose Smith for the sum of 8,000l. Subsequently negotiations were opened with some of the leading Roman Catholics, who conceived the idea of erecting a college on the site, which is well adapted for a public building. It was accordingly bought by Dr. Newman for 8,400l., but the proposal encountered so much opposition from some leading Roman Catholics that the design was abandoned, and negotiations were then opened with the University, who have resolved on becoming the purchasers for 9,000l.

THE ENGINEER AND RAILWAY VOLUNTEER STAFF CORPS.—The following appointments have lately been made by the War Office:—To be Lieutenant-Colonels, George Parker Bidder, C.E.; John Hawkshaw, C.E.; John Robinson McClean, C.E.; John Fowler, C.E.; Charles Hutton Gregory, C.E.; Joseph Cubitt, C.E.; Thomas Elliot Harrison, C.E.; George Wilmshurst Hemans, C.E.; George Robert Stephenson, C.E.; Charles Vignoles, C.E.; William Henry Barlow, C.E.; Charles Manby, C.E.; James Allport, William Cawkwell, Seymour Clarke, Cornelius Wiles Eborall, James Stewart Forbes, James Grierson, George Hawkin, Robert Moseley, and Archibald Scott.

FALL OF MARSDEN ROCK.—A favourite and well-known marine summer resort of Newcastle and Gateshead people, called Marsden Rock, lately gave way, and fell through the dwelling beneath it, smashing every article of furniture within reach. Upwards of five tons of rock fell. All the members of the resident family were fortunately in a small kitchen at the side of the house and escaped injury.

THE WATER SUPPLY AT ROTHERHAM.—AWARD OF THE ARBITRATORS.—The circumstances which led to arbitration will be remembered. The guardians of Sir George Sitwell claimed 20,000l. as compensation, and the Board offered 1,000l. They therefore refused to negotiate. After hearing the whole of the evidence adduced, the arbitrators—Mr. T. Hawksley, C.E., and Mr. C. E. Cawley, C.E.—took time to consider their award. They were unable to agree upon the amount that should be paid, and the matter was therefore left in the hands of the umpire, Major Blackburn, C.E., of Oldham. His decision was received on Tuesday night. The total sum he awards to Sir George is 1,104l. 5s. 3d., or 18,897l. 14s. 9d. less than the sum claimed. As the Board have to pay about 100l. more than they offered, the costs of the arbitration, amounting to 174l. 11s. 1d., fall upon them.

THE EARLY ENGLISH GATEWAY, SMITHFIELD. A correspondent wishes, very properly, to call attention to the old entrance-gate to St. Bartholomew's-cloose from Smithfield. This specimen of the Early English style has been for many years, in a great measure, concealed by an adjoining house,—one side of the gate being, in fact, snugly inclosed in a tailor's shop, whilst the top part of the gate, sculptured with its characteristic mouldings, serves as a support to the flooring of the tailor's bed-chamber. The tailor's and the three adjoining houses have now bills stuck upon the walls, announcing that the whole property will be sold by auction in March, the Early English entrance-gate perhaps included. It is the opinion of some persons that the gate is the property of the city of London: if so, it is to be hoped that it will be cared for. However that may be, it would seem desirable to say a word in time in order that measures may be taken to preserve and repair the old gateway.

SCHOOLS OF ART.—A correspondence has recently passed between Mr. Beresford Hope, as chairman of a committee of officers and masters of schools of art, on the one hand, and the Committee of the Privy Council on Education on the other, relative to the various recommendations of the Committee of the House of Commons of last session on art schools. In Mr. Hope's letter, the points on which his constituents concur and do not concur are stated with some detail; and on the part of the Committee of the Privy Council careful consideration is promised. Their lordships, however, say that they cannot return to payment of masters by certificate. A preliminary meeting has been held with the view of establishing, by subscriptions and donations, a School of Art in Oxford. The mayor presided, and there was a numerous attendance of members of the University and city. Appropriate resolutions were passed, and a provisional committee appointed.

OPENING OF A NEW TEMPERANCE HOTEL IN MANCHESTER.—The Trevelyan Temperance Hotel, situate in Corporation-street, has been opened. The total cost of the building, including furniture, is 17,000l. The ground-floor contains the restaurant and café, 46 ft. by 26 ft., and 18 ft. high, lighted by eight large windows, and with a separate entrance at the corner of the building independent of the hotel. It is heated by steam from the basement. A gallery at the end of the room affords an arrangement for an orchestra. A serving-room, with hoist from basement, immediately adjoins the restaurant. A large commercial-room is provided on the left-hand side of the entrance; and beyond this, on the same side, are offices for the manager. This floor also contains a lofty smoke-room, a tea-room, lavatory, closets, &c. The first-floor consists of the coffee-room, ladies' coffee-room, billiard-room, private sitting-rooms, bath-room, &c. All the other floors are appropriated to bed-rooms with bath-rooms, &c., on each story. The principal staircase is of stone, and all the corridors have stone floors carried on brick arches, to render them as nearly fire-proof as practicable. The design, selected by competition, was by Messrs. Clegg & Knowles, architects, under whose superintendence the works have been carried out.

A NEW BUILDING SPECULATION.—The Regent's Park Estate and Pantechnicon Company, with a capital of 200,000l., in 20,000 shares of 10l. each, only one-half of which are to be issued in the first instance, propose to purchase the site, buildings, and contents of the Colosseum, to erect a terrace of houses fronting the park, and a Pantechnicon for general storage at the rear in Albany-street. The plans are said to have the sanction of the Treasury and the Woods and Forests.

DECORATIONS IN ELY CATHEDRAL.—Readers will have observed the statement that the paintings on the ceiling of the nave of Ely Cathedral commenced in 1858, by Mr. Le Strange, of Norfolk, are now completed. It will be remembered Le Strange only lived to finish one half the work, which was commenced in 1858, his death taking place in 1862. He painted the six bays at the west end, and at his death the work was committed to Mr. T. G. Barry, of Gloucester, who has now completed the six easternmost bays. The twelve bays of nave are painted with a series of sacred subjects from the west to the east, commencing at the west end, with the Creation of Adam, and ending with Our Lord in Glory, in the bay nearest the Octagon. We shall shortly give a view of the whole piece of work from east to west, with a detailed account of the various subjects that make up the general design.

PATENT RIGHTS AND INDUSTRIAL EXHIBITIONS. A paper was lately read by Mr. Webster, Q.C., F.R.S., at the Society of Arts, "On the Claims to Protection of Inventors and Authors of Designs first published at Industrial Exhibitions," in which he urged that provisional protection, free of charge, ought to be accorded to new inventions and designs exhibited in industrial exhibitions. Mr. Campin coincided in Mr. Webster's views, and directed attention to the fact that if, as had been the case, some of the exhibitors produced original paintings, drawings, or photographs, they had under the Art Copyright Act, protection for forty-two years for a fee of one shilling; whereas, if they turned their attention to mechanical or chemical pursuits, and originated any novelties in those departments, they would have to take out patents, and pay 25l., 50l., and 100l. He considered that the poor inventor would be ensured unless the Patent Law were amended, as well as provisional protection given.

TENDERS.

For sundry alterations and additions to the Guildhall Coffee-house, for the Guildhall Tavern Company, Limited. Mr. W. Sabine, architect:—

Mansfield & Son	212 180 0 0
Perry & Jackson	12 173 0 0
Brown & Robinson	11 950 0 0
G. Myers & Son	11 763 0 0
Brass	11 753 0 0
Hill & Kiddle	11 728 0 0
Ashby & Sons	11 691 0 0
King & Sons	11 216 0 0

For building a new house at Maidenhead, for Mr. Wm. Nicholson. Mr. Charles Cooper, architect:—

Lamb	5571 12 0
Vickery	565 4 10
Cooper	559 15 0
Silver & Son (accepted)	559 0 0

For erecting the Railway Inn, Baldock, for Messrs. Simpson, Baldock. Messrs. Nash & Son, architects:—

Twelve trees	2487 0 0
Warren	460 0 0
Davis	458 10 0
Williamson	447 0 0
Lumm	447 0 0

TO CORRESPONDENTS.

W.B.W.—W.B.—A.D.—H.H.—J.C.—D.H.W.—C.J.A.—E.T.—Mr. W.—Mr. E.—J.L.—W.V.—S.—J.—D.—B.—C.—G.—J.—A.—W.—G.—S.—E.—H.—F. (cancelled; having appeared elsewhere).—C.S.R. (shall have attention).—G. G. L. (look to a proper book).—J.R. Blackhead (will appear).—Capt. L. W. (ditto).—F. W. (ditto).—R. G. R. (ditto).—J. T. (ditto).—A. B. G. (were we to insert his letter we should have half the stove-makers in England on our back).—J. R. (it is split both ways, but curb has most in its favour).—A. & P.—A. Common place Observer.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

NOW READY.

THE TWENTY-SECOND VOLUME OF "THE BUILDER" (1864), neatly bound in green cloth, price TWENTY-ONE SHILLINGS.

CLOTH CASES, price TWO SHILLINGS and NINEPENCE (it is necessary, when ordering these, to state whether the Advertisements are, or are not, to be included in the Volume).

A COLOURED TITLE-PAGE GRATIS.

The Builder.

VOL. XXIII.—No. 1152.

Farm Homesteads of England.



THIN the time during which the *Builder* has been running its course, a great change has been made in England in respect of the arrangement and design of farm buildings. A parcel of scattered hovels, wasteful of labour, wasteful of life, and of course, therefore, wasteful of money, have given place, in most quarters, to buildings more or less well arranged, united, and suitable. The fact has been recognised that a farm is a manufactory, and that, to carry it on successfully and economically, there must be proper buildings and appliances. Moreover, it has been seen that in this direction, as in others, taste is not costly; in fact, that

"Taste, never idly working, saves expense."

We might take some credit to ourselves for contributing to bring about this improved state of opinion, designers and constructors of farm buildings on several occasions having avowed the influence exercised by observations in our pages, much as more recently the designers of hospitals have been doing. There is a large field yet open for improvement, and in some cases where the desire existed, want of knowledge,—want of proper advice,—has led to wasteful expenditure. It was a good thought, therefore, on the part of Mr. Bailey Denton, to collect a number of plans by various hands adapted to farms for different purposes, feeding, breeding, and dairying.* We have on more than one occasion mentioned his work with commendation, but our readers will thank us for making more completely known to them its contents and worth. Mr. Denton has given twenty-four specimens of homesteads, the plans being accompanied with descriptive matter not only concerning the buildings, but also the farms upon which they are situated, and the mode of husbandry to which they apply. They embrace covered homesteads, and homesteads distinguished by special accommodation for the rearing and feeding of all descriptions of stock; and it is claimed that care has been taken to select examples from farms of various sizes as well as from those characteristic of different localities, in order that persons concerned may study precedents analogous to their particular requirements.

There are also views of existing farmhouses, plans and elevations of labourers' cottages, and various illustrations of roofs, doors, and windows; details of cow-house arrangements, sections, and so on. Concise descriptions are given of the various homesteads as they follow one another; and the Flemish Farm, Windsor, designed by Mr.

Turnbull; Thorney Farm, Cambridge, by Mr. R. Mein; Buckland new Farm, by Messrs. Pickering & Smith; Postland Farm, Lincolnshire, by Mr. E. Browning; Northbrook Farm, Oxfordshire, by Mr. W. Wilkinson; Haines-hill Farm, Berkshire, by Mr. F. Chancellor; Netherhampton Farm, Wiltshire, by Mr. Robson; Uphampton Farm, Shobden, by Mr. Alexander Milne; Tattenhall Hall Farm, Cheshire, Mr. George Jackson; Long-leat Home Farm, Wiltshire; and so on. The designer of the last one, Mr. W. Wilkinson, says in a letter,—

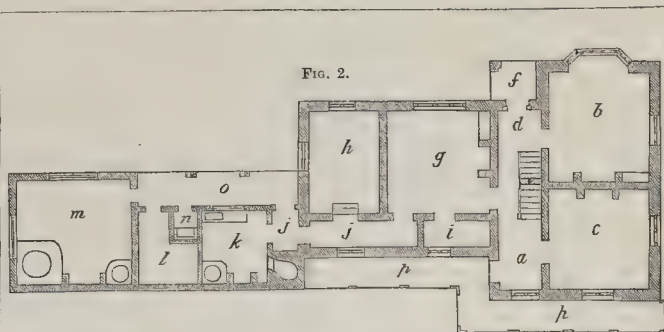
"I consider farm homesteads, with well-arranged covered yards, possess many advantages over those with ordinary open yards. In the first place, the manure is made and kept without being prejudicially exposed to the atmosphere, nor to the rain, which is known to deteriorate its properties; next, the manure becomes in a fit state to be removed direct to the land when it is required; again, the saving of labour in the removal of the dung, from the various buildings which about upon the yard, the cleanly appearance of the roads round the buildings, the non-requirement of underground drainage and manure-

tanks, and the comfortable lodging the yards afford to all stock, are points which are much worthy of consideration."

No doubt of it. The great point in such an arrangement is to ensure good and even ventilation.

Several specimen arrangements of farm machinery are given, and form a valuable chapter. This is a matter to which attention will be more and more directed. We see in the increased application of steam power to agriculture the great means by which produce will be increased, and the condition of the agricultural labourer raised. The present position of the thousands born into "that state of life" is not creditable to the age.

In speaking of farmhouses and the evil effect of putting small houses upon small farms, Mr. Denton lays down the rule that "No farm should be so small that it cannot support a house above the pretensions of a bailiff's cottage." It is



- a. Hall.
- b. Living-room.
- c. Parlour.
- d. Passage.
- e. Stairs.
- f. Porch.
- g. Kitchen.
- h. Dairy.
- i. Larder.
- j. Passage.
- k. Scullery.
- l. Coals.
- m. Brew-house.
- n. Privy.
- o. Covered passage.

FIG. 3.



- a. Passage.
- b. Living-room or office.
- c. Living-room.
- d. Front stairs.
- e. Kitchen.
- f. Larder.
- g. Store closet.
- h. Wash-house.
- i. Dairy.
- j. Scullery.
- k. Passage.
- l. Coals.
- m. Passage.
- n. Ashes.
- o. Privy.
- p. Back stairs.
- q. Porch.
- r. Courtyard.

- a. Porch.
- b. Hall.
- c. Dining-room.
- d. Drawing-room.
- e. Breakfast-room.
- f. Office.
- g. Kitchen.
- h. Pastry.
- i. Store closet.
- j. Front staircase.
- k. Scullery and back staircase.
- l. Larder.
- m. Privies.
- n. Ash-pits.
- o. Coals.
- p. Passage.
- q. Covered way.
- r. Courtyard.
- s. Gig-house.
- t. Nag stable.

Plans of Farm Houses.

* The Farm Homesteads of England. A Collection of Plans of English Homesteads, to illustrate the Accommodation required under various Modes of Husbandry. Edited by J. Bailey Denton, C.E. London: Chapman & Hall.

found better for both owners and tenants, as well as for the community at large, that where the tenure of land has been in small holdings two or more should be thrown into one good farm; and one of the criteria is the test prescribed, namely, the capability of maintaining a farmhouse of the proper character.

In order more clearly to express his meaning, the editor has appended the following data of house-accommodation for farms of different size and character, illustrated by existing examples:

I. For a farm of 200 acres of dairy or mixed husbandry. The farmhouse should contain the following accommodation:—

Ground-floor, Basement, and attached Out-buildings.—One or two sitting or "living" rooms (in the latter case the second room will be used for an office); kitchen; back kitchen or scullery; pantry; larder; cellarage, and apple-chamber; dairy, and dairy offices; wood and coal houses; ash-pit and privy; and on the upper or chamber floor, five bedrooms.

Plan No. 1 represents a farmhouse which may be taken as a specimen of this class. It was erected by the editor for Viscount Palmerston, at Toothill Farm, near Romsey.

II. For a farm of 500 acres, of tillage or mixed husbandry:—

Ground Floor, Basement, and attached Out-buildings.—Parlour; "living" room; store-room; kitchen; back kitchen or scullery; dairy offices; larder; cellarage, and apple chamber; ash-pit, and privy. On the Upper or Chamber Floor.—Six bed-rooms of larger size, to include one spare room; linen closet; and water-closet.

The specimen of this class of farm-house (2) was designed by Mr. John Hawkins, of Hitchin, for Mr. Dashwood, at Little Almshoe, near Hitchin, Herts.

III. For a farm of a thousand acres, of tillage or mixed husbandry.

Ground Floor, Basement, and attached Out-buildings.—Parlour, sitting-room, and office; store-room; china closet and water-closet; kitchen; back kitchen or scullery; pantry and larder; cellarage, and apple chamber; dairy offices; brew-house, bakehouse, wood and coal-houses, ash-pit, and privy. Chamber Floor.—Seven bed-rooms of superior character, including two spare rooms, one dressing-room; a linen closet, and a water-closet.

An example of this class of farmhouse (3) is given in the following plan, representing a house near Wisbeach, erected by Mr. John Beasley, for Lord Overstone.

Of the architecture of the farmhouses given we cannot say much in praise.

Mr. Denton sets himself to combat the belief that a labourer's cottage of five rooms,—that is, with three bedrooms, and with the necessary living-rooms and outbuildings,—can be erected for such sums as have been named by competing architects in submitting designs; and he has done well in removing misconception on the subject. After giving the results of various inquiries on it, he says,—

"Reduced to figures, we shall find that three-bed-room cottages will cost from 130*l.* to 150*l.*, each; those with two bed-rooms, from 90*l.* to 130*l.*, each; and those with one bed-room only, from 70*l.* to 100*l.*. The mean return required to repay principal and interest in thirty years may be taken at 6*l.* a year for the first, 6*l.* 12*s.* for the second, and 6*l.* for the last description of cottage."

The asserted cost may be here a little overstated, but not much; and it must be remembered that, in some localities and under particular circumstances, savings may be effected.

Admit, however, Mr. Denton's figures, and we still assert, as doubtless he would, that proper cottages must be provided for the labourers. If intermittent labour in the cultivation of the land for six days out of the seven will not provide for the workman a shelter where health and decency can be maintained, the sooner the workman applies his labour in a more productive field, or walks off to a country where the land will maintain him, the better for the human race. There is reason to hope that the inquiries which are now being made may result in such changes in the law of settlement and rating, such remission of taxation under certain circumstances, such cheapening in the cost of building, and other steps, as may admit of the provision of proper homes for the labouring classes in place of the unsanitary dog-holes that now disgrace too many parts of the country, destructive alike of health and morality.

The digest with which Mr. Denton's book is concluded is "a concise description of the principles recognised in the construction and arrangement of approved farm-buildings," and

will be found valuable. Early in it he gives numerous facts and opinions touching the value or otherwise of the covered yard system. His practical deductions from these are, that science and practice point, 1st, to increased shelter for stock; 2nd, to the better preservation of manure; 3rd, to a better appreciation of straw as an element of food; and 4th, and consequently, to the designing of new homesteads in such a manner as to admit of part, if not the whole, being covered when circumstances render it expedient. A study of the plans given shows that the nearer the homestead approaches the form of a square the better will it admit of this optional adaptation. The reasons for this are specially obvious in tillage and mixed farms, inasmuch as the straw barn is always a central building, and the food-preparing arrangements are necessarily connected with it; and the more compactly the stock can be placed in connexion with them, the less costly will be the structure itself, and the greater the saving in manual labour.

From the rules which he finds most generally recognised we may condense the following:—

The whole of the homestead should be within range of the master's eye, and as few outlets or backways as possible should be allowed for the egress of idlers.

In open-yard arrangements, all the higher buildings should, if practicable, occupy the north side or back range, in order that they may afford the greatest amount of protection from the cold winds. This rule coincides with the plan of having the granary and food-preparing chambers in a line with the thrashing-larn, as they, being double-floored buildings, admit of a considerable range of high buildings in one line. The range of buildings thus connected should be of one uniform width. The outside width must vary according to the materials used; but the best width, measured from the internal walls, is 24 ft.

All animals thrive in the presence of sun and light in winter; stock-yards should consequently have a southern aspect. In stalled buildings and boxes for fattening, a means of regulating the admission of light in summer should be retained, as the fly ceases to irritate stock when light is excluded, and repose is best secured by a modified light resembling twilight.

All lateral single-storied buildings should, if possible, be made of one breadth, say 20 ft., outside measurement (brickwork). The advantage of a uniform width is found to consist in the capability of conversion from one purpose to another, as necessity for alteration or extension arises.

The windows of the stable should have an eastern aspect, and the stables themselves should be as cheerful as possible. They should, moreover, be adjacent to the cart and implement sheds.

Food should not be stored in lofts over stock, standing in closed stalls or boxes, as the heat and effluvia are pernicious to it.

All buildings should be spouted, and the water from the roofs should be conveyed to an underground tank, near the motive power by which it will be raised for use.

All yards, except sheep-yards, should be "dished," and the drainage therefrom conveyed to a tank, from which it may be pumped over and mixed with the burnt earth and other refuse collected under a compost shed built for the purpose, whenever it would be unprofitable to convey it direct to the land in its liquid form.

The materials used should not only secure durability to the buildings, but should also be of suitable strength; and the superior skill of an architect will be shown in the selection of materials to secure these objects with the best effect.

We may not, however, now carry the matter further, and must content ourselves with recommending such of our readers as are interested in, or desire to be interested in, the planning, construction, or use of farm-buildings, to obtain for themselves Mr. Denton's book. To architects we say, there is still much to be done in the way of improvement in this direction: why not help to do it?

EXHIBITION OF PORTRAIT MINIATURES.—It is proposed to open, at South Kensington, in June next, as complete an exhibition as possible of the works of the miniature painters of the present and the three previous centuries, both in this and in other countries. A committee of connoisseurs is to be invited to assist in the formation of the exhibition.

ARCHITECTURAL REVERIES.

THE FLORAL DECORATIONS OF CHURCHES.

Few, with any love for art, and who feel an interest in our church architecture, can have failed to remark the gradually increasing skill which has been displayed during the last eight or ten years in the Christmas and Easter decoration of churches. It has indeed become so remarkable, that a visit on the last occasion to some of the metropolitan churches in which such decorations have been made a well-studied feature of the great annual festival could not fail to prove highly instructive to the student of any branch of decorative art. The effects attempted and the results achieved have been in many cases so bold, and at the same time so successful, that one feels irresistibly tempted to follow to its source the custom of architectural decoration, and endeavour to trace its possible influence on the general public taste in art, and even on the eventual formation, or modification, of some of the integral features of the permanent architecture.

The decoration of public buildings on festive occasions with flowers, fruit, foliage, and draperies, is as old as the art of architecture itself. Indeed, some of the best defined features of many different styles of architecture have arisen out of, or been suggested by, the temporary ornamentation of religious and other public buildings on the occasion of great national festivals. The supports of the excavated temples of Egypt were at first simply reserved masses, vast and rugged. These rude columns, as successive generations of workmen became more and more skilful at their work, were made smoother and more symmetrical; but the first palm-leaves or lotus flowers that formed their capitals were not sculptured ones,—not the result of the intuitive taste and graceful design of the rock-cutter. The first wreaths of palm and lotus at the tops of these massive columnar supports were leaves freshly plucked from neighbouring palm-trees, or floating flowers snatched from the waters of the Nile; and when at last it occurred to some bolder and more tasteful artisan to carve more permanent flowers while hewing out his column from the solid rock, he did not deem his sculpture complete until he had, by the aid of suitable pigments, imparted to his leaves and flowers of stone their natural colours. This was possibly the first step in polychrome architecture; and there is the more inducement to suppose that this was really the case, inasmuch as there was a natural reason for the use of certain colours; while, a merely arbitrary application of red, blue, or green can scarcely be imagined to have been the first step in that direction. The date-palm and the lotus were both sacred plants among the early Egyptians; the palm-tree was, indeed, of vast importance to the population; the fruit was the staple food of a large portion of the people, and the leaves and wood were made to serve many important purposes. This tree formed, in fact, a leading feature in Egyptian daily life, and its habits and forms of growth were consequently so well and generally known that they were made the basis of many of those symbolic signs used by the priests, which preceded the use of writing, as we now understand that term. For instance, it was well known that a full-grown tree generally put forth twelve new leaves in the course of the year,—and a palm-leaf was therefore used to signify a year in the hieroglyphic system of writing. The lotus-flower had many mystic significations, on account of its growing on the surface of the water, which caused it to become a striking feature in both Indian and Egyptian mythology, while from its seed a kind of bread was made, which formed almost the only food of a portion of the population; so that we may easily account for the use of the leaves, flowers, and fruits of these plants in forming the festoons, garlands, and other decorations of the columns and entrances of the public temples; and we may conceive that, being also associated with the religious faith of the nation, it would eventually occur to the temple-builders to make such ornaments permanent, in the forms of carved stone, as soon as they had acquired sufficient skill to do so.

If we turn from the hoar antiquity of Egyptian temple-work to the somewhat more recent architecture of Greece, we shall still find the same influences at work. Those festal decorations of Grecian temples which arose out of the performance of sacrificial offerings were eventually reproduced in stone by those sculptor-architects,

who first felt themselves equal to the task; and in this way the gilded horns of sacrificed rams, which were attached to the highest part of the rude columns, as a natural and at the same time ornamental record of the sacrifice, came in due time to be considered as essential additions to the column; and in erecting new ones, marble horns were at once supplied by the sculptor, and so originated the graceful Ionic capital. In other cases the skulls of sacrificed bulls were, in like manner, affixed to the beam, or fascia, immediately supported by the columns, as a convenient position for their display; in which situation, when richly gilt, they form a striking and appropriate ornament. On special festivals, when the temples were decorated with flowers, the golden horns would naturally present themselves as inviting the suspension of garlands, or of intermediate festoons of woven flowers (like the "gold and silver hooks" of the columns which we read of in the Mosaic account of the building of the Tabernacle), and the appropriate combination, presenting images of material existence and its decay, forming, as it were, symbols, both of the opening end of the end of life, was afterwards reproduced in the more enduring marble, as we see it on the Roman tomb of Cecilia Metella, on the Appian Way, the remains of which are still so beautiful, and in some parts so sharp and perfect, and so purely white, that one might fancy them freshly left by the hand of their sculptor.

That the symbol of plants is closely interwoven with the architectural and other decorations of Greece and other early nations, may, indeed, be easily proved from many existing monuments. For instance, on the south coast of Sicily, a band of Greek colonists founded a city on a beautiful spot rendered fertile by the course of the small river Selinus, so named from the abundance of wild pansy which grew along its borders, and which the Greeks called *Edraones*, a name which was appropriately given to the new city. This herb was probably made sacred to the tutelary nymph of the stream, and was doubtless offered up in the probationary sacrifices which were periodically made. That the herb was considered a sacred symbol we know from its being adopted as the badge or seal with which the State stamped its coinage, on specimens of which, preserved in our numismatic cabinets, we find a very excellent, though roughly executed, representation of the leaf of this plant. The plant itself was, no doubt, used in the peridental decoration of the temples, and became eventually a sculptured ornament in friezes and other architectural features, of which no remains now exist. The same might be said of the silphium, a beautiful and valuable plant which forms the device of the coins of Cyrene, an African colony of the Spartans. The plant had been made sacred, from some peculiar association, to the founder of the colony, and naturally became a leading feature in the decorative sculpture of the place. But the most remarkable example of decorative foliage first used as a temporary ornament, and afterwards becoming a permanent architectural feature, is that of the acanthus plant, which, by successful artistic treatment in its transmission to marble, became the exquisite Corinthian capital. The precise associations which first led to the use of the picturesque leaves of this plant as a temple decoration, are now unknown, and their place has been supplied by a graceful fable, with which, however, rigid archaeologists have necessarily very little sympathy.

In Jewish architecture, the symbol of plants also formed an essential feature, as we learn from the description of the building of the Tabernacle, in the Pentateuch, in which both the embroidery and sculpture of such emblems are commanded. These emblems had, no doubt, been first used simply in their natural forms; but having become closely associated with certain religious observances, were incorporated in the permanent decorations of the patriarchal temple. It is thus that we read of the bell-flowers and pomegranates being used as the chief features of ornamental bordering in the priestly garments; and we may imagine that similar objects were made to form part of the ornamentation of the "hangings" of the gate of the court, which were of "needle-work of blue and purple and scarlet and fine-twined linen;" as also for the "curtains" of the court that were suspended to the "silver hooks" of the pillars of Shittim wood, which fitted into sockets of brass. At the corners of the altar, made of Shittim wood, and plated with brass, were "horns," just as we see them in Roman altars that are still perfect, the sculptured horns

taking the place of the real horns of the sacrificed rams, just as on the columns of Greek temples, when under the artistic chisel of the Hellenic sculptor, they were moulded into the beautiful device which we know as the Ionic capital. In the Temple of Solomon, the first permanent Jewish temple, constructed in part of real masonry, many of the ornamental details of the tabernacle appear to have been scrupulously followed and reproduced, while the more solid nature of the building naturally suggested many new features. For instance, we read of solid brass columns of 18 cubits in height, which were cast by Hiram the widow's son, a man of Tyro, "well filled with wisdom and understanding and cunning in all kinds of work in brass." To surmount these columns, Hiram cast two bowls, or capitals, which were 5 cubits high, being a third of the height of the column itself. These bowls were covered with a net-work decoration, also of brass, which appears to have been separately made, and was ornamented with four hundred pomegranate flowers, or fruits; "and upon the top of the pillars was lily work, so was the work of the pillars finished."

The pomegranates, and bell-flowers, and lilies of the early decorations had become, as we find, a solid part of the building. The sculptured cone of the cedar, in consequence, perhaps, of the cedars of Lebanon having formed the leading material in the construction of the temple, also formed a principal feature in Jewish ornament. It had originally played its part only in its natural state, as in some festivals it continued to do to the end of Jewish nationality. For instance, we learn from Josephus, in his "Antiquities of the Jews," that on the Feast of the Tabernacle, an ornamental bunch or bouquet of flowers and branches, called *Loulab*, was carried by the priests in their procession to the temple. This *Loulab* is represented on the coins of Barcochbas, issued during the revolt in the reign of Hadrian, and appears to consist of foliage and cones of the cedar, mingled with flowers, possibly pomegranate-flowers.* In fragments of decorative sculpture, discovered near the tombs of the Jewish kings by recent travellers, the cedar-cone and pomegranate-flower are frequently found playing a very ornamental part in the floral patterns wrought by the chisel of the ancient Judaean sculptors.

In the Gothic architecture of Mediæval Europe, similar adaptations of natural decorations to sculptured ornamentation may be traced. This kind of application and distribution of imitations of natural foliage in Gothic architecture may, however, be distinctly traced to Roman models, as when we find the ivy-leaf, the vine-leaf, or the rose forming the foliage of Gothic capitals of Christian churches, in which position its arrangement is precisely founded on that of the acanthus in the Corinthian capital, though it must be observed that its treatment may be said to be entirely original, and springing from the peculiar artistic spirit of the age. The occasional decorative devices of these Christian temples on the numerous festivals observed in the early Church were also founded on those of Pagan origin, and had positively been first used to symbolize Hellenic or Druidic myths; and in this way the garlands and wreaths, votive offerings to Pagan deities, and the mystic virtues symbolized by the mistletoe, or the holly, were transferred from the Pagan temple or the Druidic forest cave to the Gothic aisles of the Christian church, and were purified and sanctified by the new purposes to which they were assigned. As the marble columns and gilded vaultings of numberless Pagan temples were consecrated to the uses of a purer faith, so, in a similar manner, were their less permanent decorations; and this, in fact, is a sufficient answer to those who would abolish the Christmas decorations of our churches, because, forsooth, such decorations were of Pagan origin. It would seem that we might as well destroy our Christian temples themselves, because similar temples, archaeologically speaking, were undoubtedly the invention of Pagan priests. However this may be, it appears pretty certain that the advocates of decoration in honour of the great annual festival of our Church have prevailed over their adversaries in an overwhelming majority of cases, and all real discussion appears now to concentrate itself on the question how such decorations can be rendered most effective and most appropriate.

* Some numismatists assign these coins to Simon Maccabeus himself.

Only very few years ago nearly all our national attempts at church decoration were of the rudest kind. Sprigs of holly were stuck about at hazard, according to the inspiration of the clerk or pew-openers, and with no more artistic meaning than the Christmas sprigs which are stuck into the fat joints that form the leading features of our festive display of butcher's meat, or as we see the holly and mistletoe stuck up about kitchens by John and the cook, with a big bunch containing the requisite mistletoe suspended in the middle of the ceiling, or, in default of a hook at that desirable spot, from the upper part of the door-frame. In other kinds of festive decorations, our attempts were not much more felicitous. At that period, a time still very recent, our occasional trips to the Continent revealed to us an entirely different state of things. We found there that decorations on the occasion of national festivities were made quite a seriously artistic matter, of which the governments themselves often assumed the immediate direction, calling to their aid the greatest artists of the time, who felt in such opportunities a wonderful field for the exercise of theories of taste on a large scale. In this manner the taste of the artist class was expanded, and healthily trained to breadth of effect and vast continuity of design, in which an infinite number of judicious combinations resolved themselves into long vistas of ornament—vast avenues of design, which received value and impressiveness from the repeated occurrence of the same forms at fixed distances, producing by mere reiteration an impression of grandeur and spaciousness, which no ingenuity of device could realise within a confined space. In devices composed either of greenery, of draperies, or of night illuminations, the special forms of existing edifices or of existing lines of trees were skillfully made the basis of the general design, and in this way the unartistic spottiness and isolated patch-work of an inferior system, or rather that arising from the non-existence of any system at all, was successfully avoided. As examples of this kind of well-considered festive decoration, that of the Fête de St. Louis, at Paris, may be mentioned, at the time when, in the reign of Louis Philippe, vast batts of wine were placed at equal distances between the trees of the Champs Elysees, surmounted by flags and other decorations along the whole line of that noble avenue, till the farthestmost butts and flags became mere coloured specks in the distance, the effect produced being of that grandly continuous character which has, even in works on a smaller scale, an artistic value that nothing else can supply. The entirely architectural character of continental illuminations never failed to rouse the admiration of the artistic tourist at a time when we had not yet attained our present perfection in that class of festive demonstration, and a tourist of that class never fails to recall them to mind when discussing such subjects. The sudden and simultaneous illumination of the entire dome of St. Peter's at Rome at the hour of twilight of Easter Monday might be named as a splendid example of this kind of illumination. The draperies of the balconies of the Corso on the last day of the Carnival may be cited as another illustration of continental taste in such matters; but, in regard to draperies, it cannot fail to strike the critical observer that those used in the Italian churches on the great festivals, or during the performance of especial *funerarie*, are often in the worst possible taste. On these occasions the interesting architecture of the finest Mediæval churches of Italy may be seen entirely covered with gaudy strips of scarlet or purple cloth, made still more gaudy with stripes of yellow worsted, in vulgar imitation of gold lace. The custom is doubtless founded on antique practice, when the pagan temples were similarly clothed on solemn occasions, when even the public statues were clothed with real draperies above the folds of their robes of bronze or marble—just as at the present day the statues of the Virgin Mary are similarly attired on *fête* days,—a special and often very various and extensive wardrobe being kept for this purpose. The church hangings above referred to are also of a permanent character, all fitted to their special columns, pilasters, &c., with complete tie-strings, loops, hooks and eyes, &c.

One can scarcely conceive that such vulgar trappings should be made to conceal on festive occasions the rich and various marbles, the matchless sculptures, inlayings, mosaics, paintings, and other decorations of the pilasters of St. Peter's, the works of the greatest artists of the greatest artistic age of Italy; yet, inconceivable as it may appear, such is the case, and

nearly the whole of the beauties of the superb interior of St. Peter's disappear under the vulgar and monotonous trappings of red and yellow that are then made to cover its marvels of art. We may imagine that in the analogous decorations of Greek temples upon which these dressings founded that a better taste prevailed, and that the decorations were made to aid, and not to conceal, the more permanent beauties of the building. Something worth exhibiting was no doubt shown on such occasions, as sometimes we see even in modern Rome, when, as an exception to the vulgar dressings of scarlet and yellow, the magnificent tapestries designed by Raffaele, and wrought in the celebrated looms of Arras are suspended round the piazza San Pietro on the festival known as that of the *Corpus Domini*, which unfortunately occurs in the summer, when few, if any, foreign travellers are in Rome. In decorations of greenery, especially on the occasion of festivals occurring in the winter, the southern nations of Europe have never been so profuse or so successful as those of the north, because, most of the plants being evergreen in those climates, green foliage has not the attraction that it has with us, where most of our native trees are deciduous, and present but bare branches during the winter season; thus rendering our few evergreens doubly valuable both as garden favourites and as offering an attractive means of decoration at a time when green leaves are a rarity.

From the earliest Christian times, the holly, the yew, and other native evergreens have been used in church decoration at Christmas, the holly being an especial favourite on account of its bright scarlet berries, with which its branches are often very profusely covered, and its crisp, bright leaves, bright as though they had just received a coat of brilliant varnish. The use made of these means of decoration was, however, till within the last few years, of a very rude character, and exhibited no attempt at artistic arrangement,—especially in the disposition of the decorations in such a way as to be in accordance with the architectural style of the building, and in unison with its principal lines and leading ornamental features. Our more frequent intercourse with the Continent has, however, given us some useful hints in this respect, and vast progress has been made; inasmuch that our church dressing, with native evergreens, during the present season, may challenge comparison with any kind of occasional decoration that artistic ingenuity has ever devised. The ornamentation of some of the churches in the Tyburnian, Belgravian, and Westbournian districts, has been undertaken this season, as on some previous ones, by well-organized committees of ladies, assisted by the advice of artistic friends, either professional or amateur, and the results have been in many instances quite admirable. The trace of female fingers in the graceful and delicate borderings composed of leaves and berries may everywhere be noticed; and the judgment with which such borderings have been adapted to the architectural moulding of the buildings is not less worthy of praise. The pointed arches springing from the columns of the aisles and nave, and which are generally bare of decorative sculpture, have had its absence supplied by natural foliage, with a grace and propriety that a designer of architectural ornament might envy. The famous dog-tooth ornament has been far outdone in effectiveness by borderings of crimped laurel leaves, held in their symmetrically projecting forms by cunning and invisible needlework. While other borders, entirely new in character, composed of alternate leaf and berry work, have been introduced in hollow mouldings in various positions with very charming effect. Corbels of real foliage have been devised at the springing of arches, where no sculptured corbel existed, and, not only supplied its place, but provided an ornament more fresh and beautiful in character than any mechanical reproduction of Mediæval stone-work could possibly be.

The decoration of a pulpit, in one of the Bayswater churches, is brought to our recollection as we are attempting to describe these graceful works, which struck us as peculiarly elegant and successful. Not one inch of its sculpture is concealed, and not the slightest portion of any really salient and important feature is interfered with; and, in fact, the general richness and absolute beauty of the work have been most materially aided. The bare bevil of a plain projecting moulding below the eye has been so successfully enriched with a device composed of projecting masses of holly-berries, sym-

metrically surrounded by leaves of the same plant,—the device repeating itself at intervals, after breaks filled with a rich pattern formed of sprigs of yew,—that the best of our carvers might envy the design and execution of that charming border, while panellings and tracery of suitable character have been made to enrich the bare parts of the work with equal success. This piece of successful decoration was put to a severe test in being shown to the architect who designed the pulpit; and his verdict was delivered as follows: "If I could have had that laurel border actually executed in green Galway marble, that ivy tracery in malachite, that holly in verd antique, and the berries in rosso-antico, with the white snow-berries in transparent alabaster, I might have called my work the finest piece of pulpit sculpture that was ever executed in any country."

The reading-desk in the same church has also been adorned with equal success. It is of deep brown oak, and consequently the dark foliage of the common holly would not have told out against it; but the variegated variety has been substituted, and by its means all the fine outlines which were entirely without carved ornament have been enriched with such judicious effect that at the first glance a spectator might fancy that the decoration was produced by delicate sculpture in various coloured woods, of which the structure might be composed. It will look sadly bald and shorn of its charms when these fragile and soon-fading Christmas decorations are removed.

The fonts have formed favourite features for decoration in all the churches, and their detached position and generally picturesque form lend themselves very readily to this kind of adornment. In some cases, especially in a church in Birmingham, visited for the express purpose of examining its Christmas decorations, the system of ornamentation we have been attempting to describe has been very successfully applied to the windows. The windows in question are without stained glass, and the tracery, though good in style, is of extreme simplicity; but both painting and a rich subordinate tracery have been supplied by means of gracefully-disposed runners of ivy. The ivy selected for the purpose is entirely confined to those young shoots from the ground that cling closely to a wall or paling, with the leaves spreading out flatly to right and left, in symmetrical succession. These long pliable shoots are tastefully conducted over certain portions of the glass, here forming tracery close and lace-like, and there leaving broad open spaces in striking contrast, the whole arrangement producing the effect of a combination of tracery and painting intermingling, which, while of purely Gothic character, has yet a freshness of style and a piquant originality that no slavish reproduction of the artistic devices of a long-past age could ever produce, however skilfully rendered. And this remark brings us to the main gist of the present article,—the advantage that may be artistically gained by the study of decorations of this kind when really managed with taste and discrimination. It is quite evident that a whole series of borderings, bosses, corbels, spandrel ornaments, tracery, and other features appropriate to the enrichments of our modern church architecture, might be struck out from a study of these mere hints, if the student were both willing and able to learn. We should thus impart a new character, and one entirely coincident with the spirit of the age, to our modern churches; and while preserving the noble traditional forms upon which their main lines and features are based, give to architectural compositions of that class an entirely original freshness, much more in accordance with our artistic dignity than the mere reproduction of established forms. The honest and vigorous carrying out of such a plan in devising new decorations, would culminate in the gradual production of a new phase of Gothic, as distinct from any former style as Early English from Tudor, and yet as pure and orthodox in art as either of those styles or any other phase of our national church architecture.

It was by a closely analogous course that the cinquecentisti of Italy made the style of the Renaissance (so distinct and beautiful in itself) to grow out of the Italian Gothic of the fourteenth century. Ghiberti's sculptured bordering on the architrave of the doors of the famous Florentine baptistery is, in fact, a close copy of a temporary decoration of flowers and fruits artificially connected by knotted bands, just as such decorations were applied to the doors of public buildings at festive seasons; and the re-

sult of Ghiberti's experiment, which suddenly transformed Gothic decoration into a new phase of ornamental design, resulted in producing an entrance to the celebrated baptistery which made the greatest artist of that day exclaim that the doors of Ghiberti were worthy to be doors of Paradise.

HAMILTON PLACE, PICCADILLY, LONDON.

EVER-GROWING Tyburnia is naturally impatient to get to still-increasing Belgravia without passing and encountering the straits and terrors of the Park-lane end of Piccadilly. The life of the great Duke of Wellington was more than once endangered at the Gloucester House corner of Park-lane; the poet of the "Pleasures of Memory" who enjoyed his daily walks in and about the Green Park and Piccadilly, dreaded the same terrible crossing, with its cross-fire of carriages, cabs, heavy waggons, and butchers' carts. It is now worse than it was when, compelled by my daily occupation, I shot the crossing with a ready step. What "shooting the bridge" in a boat at Old London Bridge was to our forefathers, shooting the Park-lane crossing of Piccadilly is to their great grandchildren of the year 1865.

The Hon. William Cowper has a Cowper's task before him in endeavouring to satisfy the requests,—nay, demands,—that are made upon him to relieve Park-lane of some of its ceaseless traffic. Hack cabs, it is thought, might be allowed to diverge from the lane into the park at Stanhope Gate, and lessen the traffic the other way by entering Hyde Park at Hyde Park-corner, and making their exit at Stanhope Gate. But the Chief Commissioner turns a deaf ear to their arguments and entreaties, and insists on keeping the park as it is,—a private, not a public carriage thoroughfare.

It was said, sarcastically, and in some respects truly enough, by Gifford, the editor of the *Quarterly*, that Old London Bridge would not be taken down until either an alderman or a cargo of turtle were lost beneath it.

Caroline, queen of George II., spoke of shutting up St. James's Park, and converting it into a noble garden for the palace of that name. "She asked my father" (Horace Walpole used to relate) "what it would probably cost." "Only three crowns," was the reply.

What, we will ask and reply, will her Majesty Queen Victoria gain by opening to public carriages a part of Hyde Park? Our Lady the Queen will save the lives and limbs of many of her subjects, and endear herself additionally to all of them.

I have already had occasion to refer to the great Duke of Wellington, and the dangers of the Park-lane crossing, and in doing so, have had thus pleasantly produced to recollection an anecdote of the Iron Duke truly characteristic of the man. The principal records of England were stored for security in the Norman Chapel of the great White Tower of the Tower of London, and in the vaults of the White Tower were deposited a Waterloo-sized supply of "villanous" gunpowder. We may fairly assume that no sane man with an addiction to field sports would keep his title-deeds in his gun-room; but what was the Field-marshal and Constable's reply,— "Oh, if the powder is in danger, I must see to that; you can possibly afford to lose your records, but I cannot afford to lose my powder,"—a reply at once sensible and humorous.

After this prelude and, I trust, not unpleasant digression, I shall rush into the middle of my subject.

In the House of Commons (a week but since), on the second reading of the "Piccadilly and Park-lane (New Roads) Bill,"

Sir J. Ferguson, on rising to ask for some explanation from the representatives of the Metropolitan Board of Works, said, "There were two questions which he should like to have answered. Some years ago a bill was introduced by Lord Llanover, then Chief Commissioner of Works, for this purpose, but it was abandoned in consequence of the law officers of the Crown, the present Lord Chancellor and Lord Chief Justice of England, having given their opinion that its provisions would violate the rights of the Crown tenants. He should like to ask the Chief Commissioner how it was that this measure was better worthy of support than that which was then abandoned. It was true that since that time Parliament had sanctioned an interference with the rights of Crown lessees in the case of the

Thames Embankment, but in that instance great concessions of land were in return made to the Crown tenants; and, even if that had not been the case, it could hardly have been argued that because the rights of such persons had been interfered with in one case they were ever afterwards to be entirely disregarded. He should further like to know why the Chief Commissioner of Works had since last year changed his mind upon this subject. In a letter, dated July 2, 1864, and addressed to the Metropolitan Board, the right hon. gentleman objected to the transformation of Hamilton-place into a thoroughfare on the ground that it was not wide enough to accommodate the traffic which it was intended to carry through it, and that the alteration would be an expensive and uneconomical measure. He should like to know whether Hamilton-place had grown wider since last year, or why the right hon. gentleman had changed his mind.

Our only M.P. architect (and he is always in his place when architecture is asked about, and up to the question before the House) spoke, in the course of his remarks, as follows:—

Mr. Tite did not wish to enter into a discussion of estimates, which he admitted were matters of considerable uncertainty, but he appealed to the plain sense of the House whether it was not obvious that the alteration of Hamilton-place, with its six houses on one side and two [?] on the other, must be a cheaper operation than the destruction of Gloucester House and others behind it. Four plans had been suggested for meeting the evil which the Bill sought to remedy. One was that the Chief Commissioner of Works should, with the authority of the Crown, permit carriages to pass through the park, but that the right hon. gentlemen had refused, and he thought, properly refused, to permit. The second was the extension of South Audley-street into Piccadilly. But if any one looked at the map he would see that the line of South Audley-street directly impinged upon Gloucester House, and, therefore, such an alteration could not be made at a cost of less than 300,000*l.* or 400,000*l.* besides which, the northern entrance to Audley-street was a quarter of a mile from the Edgware-road, the direct access to the Paddington Station, from which came the great bulk of the traffic which now crowded Park-lane. On these and other grounds, therefore, the Metropolitan Board abandoned the idea of prolonging South Audley-street. There remained, then, two plans, one for the opening up of Hamilton-place, and the other for the widening of the south end of Park-lane. It was true that Hamilton-place was narrow at the upper end, but by the purchase and rebuilding of two houses it might be enlarged without great expense; while, according to the estimates which had been made, the widening of Park-lane would involve a sacrifice of at least 100,000*l.* of public money.

Mr. Cowper, with his hearty Hertfordshire air, was heard in reply. Park-lane was the only direct thoroughfare which lay between the north and south of the district which extended from Church-lane, Kensington, on the west, to Berkeley-street on the east. The traffic which passed through it was to a great extent that of two great railways, which was forced through a passage not more than 18 ft. wide, so that one or two heavily-laden vans were sufficient to block it up completely, while it was exceedingly difficult for three ordinary vehicles to proceed along in a parallel line. Now, his opinion was, that the best course to adopt with a view to remedy that state of things, was to widen Park-lane; but the Metropolitan Board, who seemed to have only lately awakened to a sense of their duty in the matter, were of opinion that the enlargement of the southern end would involve a larger expenditure than they ought to undertake. He himself thought the Board were rather too timid in this matter; but the majority having decided against the adoption of the plan which he had just mentioned, the alternative lay between doing nothing at all and accepting the proposal contained in the Bill under discussion. He would not oppose the introduction or second reading of the Bill.

After others had spoken, the Bill was read a second time.

The "We are seven" houses in Hamilton-place, Piccadilly, were, when first erected, thus inhabited:—

No. 1 (west side, end of Piccadilly),—

Dr. Smallbrooke,

Lord Montgomery (also "Coilsfield, Ayrshire." Burns's "Ye banks and braes and streams around the Castle of Montgomery").

In 1813 this house was inhabited by Lady Catherine Tylnay Long:—

"Long may Long Tylnay Wellesey Long Pole live,"

but long she did not live here; and No. 1 is dropped by Mr. P. Boyle, "Fashionable Court and Country Guide Office, Vine-street, Piccadilly," made "for the use of Porters in the Hall, Servants, &c.," and, let me add, whose now scarce Guides of fifty or sixty years since supply very pleasant reading for lovers of the past in the present day.

This No. 1 passed to Lord Foley in 1814, and in 1818 to Lord High Chancellor Eldon, great-grandfather of the present earl, and Crown tenant of No. 1.

No. 2. The first owner I can find of No. 2 is Francis Russell, Duke of Bedford.—Charles James Fox's and Sir Richard Westmacott's Duke of Bedford. Strange—that owning so large a portion of West-end London as the Russell or Bedford family owned and owns, our dual Russell should have his London house not on his own property. From Hamilton-place the Duke of Bedford of 1819 removed to No. 13, St. James's-square, still away from his own vast London property. And who was the Duke of Bedford's successor in No. 2? Why, Earl Gower, the first Marquis of Stafford and the first Duke of Sutherland. The duke died in 1833, and the dowager Duchess of Sutherland and the Countess of Sutherland in her own right retired from stately Stafford House, and passed the remainder of her London life in pleasant No. 2. This countess in her own right was, I may observe, an accomplished artist.

No. 3 was first inhabited by Boyle Earl of Cork and Orrery, from 1810 to 1816 or 1817, when Lord Foley, of Witley Court, in Worcestershire, "came into possession."

No. 4 was first inhabited by Bingham, Earl of Lucan, from whom it passed, in 1814, to the great Duke of Wellington, whose London house it was when the Battle of Waterloo was won by his fine genius for war. I wish I had been aware of this fact when compiling my "Handbook of London." From the duke No. 4 passed to Lord Grenville; next to Mr. Labouchere, the father of Lord Taunton; next to Mr. Bevan, the banker; next to the bibliophile, Mr. Grenville, whose fine library, bequeathed by him to the British Museum, was well taken care of—at classic No. 4.

No. 5 was the residence of the Marquis and Marchioness of Conyngham. The marchioness, the influential favourite of George IV., was living here in her dowager days, when the first gentleman in Europe, and the last of the Georges, was in his grave. How different the retiring thoughts of the Dowager Marchioness, in No. 5, from those of the Dowager Duchess in No. 2.

No. 6 belonged to the Earl of Belmore, a Lowry-Corry by birth, and an earl in the Irish peerage. The Earl of Belmore, of 1865, lives in Eaton-place.

No. 7 was the residence of another Boyle, Richard Boyle, Earl of Shannon, from whom it passed to Mr. Philip John Miles, of Leigh Court, near Bristol, whose collection of pictures of the Italian school, was and is widely and deservedly famous. This same No. 7 was afterwards inhabited by the late Mr. H. A. J. Munro, of Novar, and the rooms refitted with another fine collection of pictures. Here were to be seen the celebrated "Madonna dei Candelabri" of Raffaele, some noble landscapes by Turner, and a View of Venice, by Bonington,—a masterpiece in every sense of the word. No one house, that I can call to mind, has held two private collections of pictures equally famous as were once to be seen in noisy, yet secluded, Hamilton-place, Piccadilly.—

And have I not proved, I will ask, that this quiet little "place" of seven houses, through which it is now proposed to turn the traffic running to and from Tyburnia and Belgravia, is one very rich indeed in pleasant and "perhaps" undisturbed associations?

PETER CUNNINGHAM.

COST OF THE SHEFFIELD INUNDATION COMMISSION.—The cost of the inundation commission now sitting in Sheffield, is declared by a local paper to be at the rate of one guinea per minute, exclusive of the large sums paid by sufferers and others who are acting in opposition to the Water Company. It is estimated that the commission will, by the time it has finished its labours, have cost the company 50,000*l.*

ON THE MUNICIPAL ORGANISATION OF PARIS, PARTICULARLY WITH REGARD TO THE PUBLIC WORKS.

On this subject Mr. G. R. Barnell read a paper at the Society of Arts, on the 22nd ult., Mr. W. Hawes in the chair, giving some valuable particulars of the present system under which such remarkable changes in Paris have been effected. It will be found in full in "the Journal" of the society. Mr. Barnell, while admiring the results, thinks the system would prove eminently a failure if applied in our own country. Towards the close of the paper, the writer says:—"But it remains for us to ascertain how the prefect manages to provide funds for the total change that he is effecting in the plan of Paris, and in the improvements there carrying out under his energetic management. In the first place, the revenues of the town are of themselves very large, and they have been pledged long since to meet such of the expenses as are authorised by the government; and in the second place, the city of Paris has entered upon the abuse of its credit, by the creation of a species of floating debt, that I think will end in bankruptcy. The yearly receipts of the town of Paris are (or were last year) 155,590,040 francs, or 6,223,600*l.* nearly, which are raised from a population of not more than 1,667,841; and this, it must be understood, only represents the sums that the inhabitants pay for their local taxation, for the government taxes, that are levied directly from the payer, are quoted at the sum of 33,411,718 francs, or the additional sum of about 1,335,468*l.* This sum of about six millions and a quarter would amount to an annual payment of about 3*l.* 15*s.* per head of the population, and it cannot be a matter of surprise that the expense of living in Paris is becoming rapidly unbearable. The incidence of the taxation is no doubt disguised by reason of its indirectness, but this only makes it more heavily felt by those who do consume the articles taxed. A man pays in Paris according to his consumption, not according to his means; and thus the rich man escapes contributing to the state. The poor man is forced to pay more in proportion than his neighbour. Of course Englishmen have nothing to do with the manner in which the French may levy the revenue that they may require, but it is right to call attention to the radical unfairness of the system, when so many people here are clamouring for the introduction of a similar one amongst ourselves. As it is, however, the rate of local taxation may be taken at nearly 50 per cent. on the rental of the inhabitants of Paris, including, however, all the relief of the poor, the expenses of the hospitals, the schools, &c., which with us are left to the care and charity of private individuals.

But it is to the creation of a description of municipal floating debt that the most impartial people look with the greatest dread. The city of Paris, even now, has a funded debt that gives rise to the payment of 13,428,746 francs, to defray the interest, and 10,314,892 francs, for sinking fund, or nearly a million a year is thus absorbed out of the 6½ millions raised by the town. This is not all, however. The prefect has been allowed to issue obligations in the name of the city, and for the *Caisse des Travaux de Paris*, to the extent of 80 millions of francs, or for 3,400,000*l.*; and, if reports are to be credited, so far from his being contented with that enormous sum, he has extended it to the amount of 38 millions of francs (or 1,500,000*l.* nearly) in the case of the works undertaken in the Boulevard Magenta. It is precisely the danger of this abuse of the credit of the town that is to be feared, and it is in this respect that the absence of anything like a controlling power in the municipal council of Paris is to be deplored. As the members of this body are all of them merely government nominees, and hold their places only as long as they vote the budget that is presented to them, the conseil municipal of Paris becomes nothing more nor less than a body chosen to give a semblance of legality to the proceedings of the prefect; it is utterly powerless to resist or to oppose any measure that he may have determined. Hitherto there has been no such result as was to be expected from this ignoble parody on municipal government, and Paris has gained in healthiness, in beauty, in convenience; in fact, in everything that tends to make life valuable in large towns. The administration of the city funds is confided to a series of officers, who conduct their business with singular skill and attention to the public interests, though it must be confessed that they have allowed the spirit of

red-tapeism, in the conduct of it, to gain the ascendancy; but these officers are not empowered to resist the will of the prefect if he should venture to step beyond the limits of his duty. They are only to discharge their functions; they have no deliberative voice, and they must carry into effect the orders that they receive from higher powers than their own. There is no kind of check upon the fancies or the caprices of the prefect of Paris, in fact, and it cannot therefore be a matter of surprise that he should have been misled in many cases, and should have made the mistake of confounding straight streets with good lines of communication, and broad boulevards with efficient means of ventilation. I fear that much of what has been lately executed in Paris, especially in the neighbourhood of the Madeleine and the Parc Monceau, is liable to this reproach; and certainly it would have been long before the town would have been thus modified, if the conseil municipal had been freely chosen, or if it had correctly represented the wishes of the inhabitants. There is, moreover, this danger about the course that our neighbours have entered upon, that they have created a fictitious demand for labour of the highest and most dangerous class, which they must go on employing; and thus the necessity of always continuing the works at the expense of the town is a constant source of pre-occupation to them. The true remedy to this state of things, to the danger of the gradual increase of the debt of the city, and the creation of the fictitious demand for labour, would be, in my opinion, to restore to the municipal council some sort of control over the money of which they are supposed to regulate the application.

In the course of the discussion that followed, Sir Thomas Phillips, Q.C., said, in looking at the vast improvements that had been carried out in Paris, there was one subject which had been greatly neglected, and that was the effect of these improvements upon the great masses of the working people. In making a new street, large numbers of the working classes were displaced, without any means being taken to provide them with dwellings elsewhere. He knew that the inconveniences in this respect were very great in London at the present time. He had had occasion to sit for some of the local judges, and many occasions occurred of applications for warrants for the ejection of tenants from their habitations, which he was bound to grant; but no one could witness the extent of suffering occasioned by the inability of the poor man to provide himself with another lodging, without feeling that a great evil had been created by turning these people out of their dwellings—bad as these often were, and wanting in all proper sanitary arrangements—without any provision being made for their accommodation elsewhere. With regard to the great works executed in Paris, Mr. Burnell had spoken of their great architectural beauty, but there were differences of opinion on this point. Many people, like himself, might regret that the picturesque features of the city, and the old historic associations connected with it, had been swept away.

Mr. Lavanchy thought the impression conveyed in the paper was that the prefect was the leading, if not the sole, authority in all those matters of public improvement involving so large an expenditure of money. He was quite sure that an error of that kind had not been intentionally made; but the fact was, that any great public work of the nature described must be accepted and approved by at least three separate bodies or commissioners prior to its being laid before the Conseil d'Etat; and if approved by that body, it was finally submitted to the Emperor; and, if sanctioned by his Majesty, was referred back to the prefect to be carried into execution. With regard to the cost of many of these great improvements, it was well known that this was not borne exclusively by the municipality. The sites having been purchased by the prefect, they were re-sold by tender to companies or individuals, by whom they were disposed of to the different parties who built upon them. He thought it was much to be regretted that some such plan as this was not adopted by the Board of Works in regard to the public improvements in London.

Mr. Beloe regretted to hear that the water supply of Paris was at present only on a limited scale; but that regret was modified by the statement that an augmented supply might shortly be expected. The water supply of Liverpool and Manchester was happily of the most ample and satisfactory kind, and had been carried out

by the municipalities of those towns irrespective of the cost to the public. He regretted that the endeavours made by the Government some eight years ago to effect an arrangement with the water companies of London, by which, under the Board of Works, a general supply of water to London could have been obtained, had been defeated.

Mr. Dalton defended at some length the Board of Works. With respect to the great improvements carried out in Paris they had been told that a taxation of 3*l.* 15*s.* per head of the population had been the result; whereas the whole rates in respect of the main drainage and improvements of London did not amount to more than 9*d.* in the pound on the local assessment, or about 10*s.* per head of the population. The Board was asked to make larger public improvements. Where was the money to come from? Would the inhabitants like to submit to octroi duties, as they did in Paris? There was an outcry the moment an increase of the rates was spoken of. With respect to the Vestry, which was said to have been elected solely by the publicans of the parish, that arose entirely from the other parishioners not taking the trouble to look after their own affairs. It had been urged that the Board of Works ought to decide upon a comprehensive and definite plan of public improvements, but he might state that the Board had plans already before them involving an outlay of not less than 26,000,000*l.* The present generation were called upon to bear the burden of the neglect of their forefathers. London had grown to a great extent without the thoroughfares being commensurately increased.

The chairman, in closing the discussion, urged that the health of the poorer classes was cared for in a higher degree in London than in Paris. Whatever might be the beauty of Paris, it was obtained by a heavy burden of taxation—enormously greater than in London—so great as to excite our surprise that it could be borne by the people. Although, however, the cost was enormous, the indirect return obtained by making Paris the centre of attraction for all the world ought not to be lost sight of. Then the question came, could we so beautifully London as to make it a greater centre of attraction than Paris, and whether an equal expenditure in London would produce results equal to those of Paris? They must look to the matter of climate in the first place. London was subject to changes of climate and weather which were unknown in Paris. In the latter city the winter was cold, but dry and clear; in summer the heat was greater, but there were fewer wet days. In the matter of the cleanliness of the streets, the continuance of fine dry weather, both in summer and winter, was a great element. Then, again, there were questions involved as to the difference in the habits of the people. Would our population consent to be concentrated in flats, as was the case in Paris, with scarcely a house occupied by an independent family? Could the habits of the people be so altered as to forego that domestic isolation which was so characteristic of the English? While we continued to have separate dwellings, London must necessarily be spread over a very large district, and its roads and drains must be of such great extent, compared with Paris, that the difficulties were increased in proportion.

ROYAL HORTICULTURAL SOCIETY.

VARIOUS extra prizes are offered, including several gold medals, with reference to the Saturday weekly shows, and money prizes by the president. A late vice-president offers special prizes—gold medal, or 10*l.* 10*s.*; large silver medal, or 7*l.* 7*s.*; small silver medal, or 3*l.* 3*s.*, for the most tastefully decorated dinner-table. Beautiful arrangement of the fruit, flowers, and china will be the test of merit in this exhibition; valuable fruit, or flowers, or china, are therefore not required. Each table is to be laid as if for a dinner, "à la Russe," of ten persons.

Another special set of prizes is to be offered for Window or House Gardening by the working classes, and an exhibition of flowers so grown is to be held. The financial position, so far as we can deduce from the accounts submitted at the last general meeting, held on the 14th, is not quite so satisfactory as we should desire, and makes us a little nervous for the future. The revenue account for the year 1864 shows a balance due to treasurer (overpaid, therefore, we presume), of 2,784*l.*, and liabilities to the amount of 3,546*l.* We shall be glad if our deduction be wrong.

ST. PATRICK'S CATHEDRAL, DUBLIN.

This building, now completely restored, through the munificence of Mr. B. L. Guinness, at a cost of about 150,000*l.*, was handed over by him to the ecclesiastical authorities, and publicly opened with an imposing ceremony, on Friday, the 24th of February.

Although it is called a restoration, the term does not properly express what has been done; for the building is now presented to the city of Dublin in a state of grandeur in which it never before existed. It was a labour of love. The work, commenced with the original intention of spending about 80,000*l.*, is not left unfinished, although nearly twice that amount was found necessary. A knotty problem has been solved, and though critics will discover some irregularities of detail at which to level a shaft, all honour is due to the taste of the beneficent gentleman who has saved this truly national monument for the admiration of generations yet to come. Around this old fane hangs an interesting history, stretching back to the middle of the fifth century of the Christian era.

Founded in or about A.D. 1190, by Archbishop Comyn, first of the Norman Archbishops of Dublin, it occupies the site of a former structure, one of those small and unpretending churches, which, scattered so numerously through Ireland, have almost justified its name as the "Isle of Saints." This original edifice was raised in commemoration of the national saint, who had given his name and blessing to a well which exists close by, and has shared now this renovation. The church erected by Comyn was burnt in 1362, and rebuilt, in 1364, by Archbishop Minot, with the addition of a tower, but having no spire.

Portions of these venerable relics of antiquity are preserved in the walls. There is a vaulted chamber at the extremity of the south aisle, which is assumed, with some reason, to be a part of the early church. In it are the three oldest monuments in the church—one of them, an effigy of Comyn, cut in granite, and characteristic of the period; another, considerably mutilated, supposed to be that of De Sandford, an immediate successor of Comyn; the third is in a better state of preservation, and a perfectly legible Latin inscription gives the name of Michael Tregruy and the grounds of the prelate's hope.

St. Patrick's not only did duty as a house of worship, but for many years sheltered the chief seat of learning in Ireland: for a university, originally projected by Comyn, terminated its existence only in the time of Henry VIII. This building has been by turns a church and a court, a barrack and a hall of council. It has suffered from time to time from revolutionary wars. Soldiers of the Commonwealth took up their quarters in it; and here lingered the loyal veterans of James II. until the cause of their master was irretrievably lost. Here are memories, too, of the unfortunate Strafford, Boyle, Earl of Cork, &c. Through its aisles once marched in triumph the conquering William of Orange; and later still, in connexion with it we have the names of Jeremy Taylor, Fuller, Swift, Berkeley, with others too numerous to mention.

Through all these years, with their various changes in taste or fashion, it must be expected that continued and repeated repairs resulted in partial mutilation of the building as it had passed from the care of Minot. Then it was, in all probability, a fair specimen of the Early English period. Some of the details are now in a good state of preservation: from these Mr. Guinness has taken his cue; and, in replacing many of the innovations of the Perpendicular and Decorated Gothic periods which had crept in, he has endeavoured to reproduce the building in a form such as may have been the aim and design of Archbishop Minot, or his architect. For instance, the windows above the magnificent western entrance, which had been displaced for a five-light Perpendicular window, are restored to their original character—three single lights, with banded shafts, in harmony with the triforium, of which there is here a fine example.

No doubt, some of the flying buttresses and pinnacles which surround the eastern end of the Cathedral belong not to the fourteenth century; they are later additions. In their removal Mr. Guinness would not have been justified.

The materials used, too, at different periods, have varied. In one part was the old moulding, Caen stone, now replaced by the hard and durable Tullamore limestone, in tint a very

light blue; in another a red sandstone formed the window dressings.

A spire of granite was erected (we had almost said perpetrated), in 1750, in accordance with the will of Bishop Sterne, once dean of the cathedral, who bequeathed the sum of 1,000*l.* for the purpose.

This, surmounted as it was by a huge stone ball of more than a ton weight, had a most ungraceful appearance. The summit was blown down in the great storm of 1839, and the trunk remained in that forlorn condition until Mr. Guinness formed a point to it, and surmounted it with a handsome gilt cross, 7 ft. in height. The elevation of the span is 103 ft., and Minto's steeple measures 123 ft. from its parapet to the ground, making in all a total of 226 ft. The tower stands at the north-west angle of the cathedral, and has a fine old spiral staircase in its massive walls, and is provided with a peal of eight bells, which have always been celebrated for their volume and purity of tone. Some of them are marked with interesting inscriptions. Two of the bells had been rendered defective. These were given to Mr. John Murphy, of Thomas-street, Dublin, to recast. This arduous and critical trial of splicing has been attended with complete success. Two new bells have been added to supplement the peal. In this tower also is a turret clock, manufactured by Mr. Benson, of Ludgate-hill, and a magnificent specimen of artistic ingenuity and perfect workmanship: its cost will be about 1,000*l.* It possesses the novelty of being a chime-clock: it will play four tunes, simple and well marked: these, selected and arranged by Dr. Stewart, the present organist and musical director of the choir, will be played at intervals by day and night. The tunes are,—*"Adeste Fideles,"* at 3 a.m. and p.m.; at noon and midnight, *"Martyrdom,"* at 6 a.m. and p.m., *"Rousseau's Dream,"* at 9 a.m. and p.m., *"The Sicilian Mariner's Hymn."* In all cases these will be repeated twice, with an interval of one bar between the parts. The dials of the clock, two in number, are 8 ft. in diameter.

It is to be regretted that this cathedral lies in a district of the city of Dublin low in level, both physical and social. For the remedy of the former a vast deal has been done; and from the restoration of the building itself may probably be drawn the remedy of the latter. Under the cathedral flows an old tributary stream of the river Liffey: this is called the Fiddle; and it is to the repeated overflows of the stream after heavy floods that the hastening of decay is attributed. It was at one time no uncommon occurrence that the floor of the building should be several feet under water.

Mr. Guinness saw that one of the first steps to be taken in preventing the destruction of the church, was to effect a thorough drainage of the ground upon which it stood; accordingly he commenced by removing the floor. Large drainage-pipes were laid, the soil was thoroughly dried, and a layer of rubble deposited, over this a stratum of shingle, completely impervious to moisture. The floor was lowered 2 ft., and is now reached by a flight of steps down from the street-level, its original position, as marked by the bases to the nave-piers.

These works have been performed by Mr. Murphy, contractor (without) and we are forced to say more's the pity) the superintendence of an architect.

Of the new stained-glass windows,—of which some have been contributed by Wailes, of New-castle; Clayton & Bell, Ballantine, Barff,—their painted windows,—and a few by local artists,—some are memorial windows; much room remains, however, to commemorate worthies yet to come. We hope to see in one portion of the building, ere long, a mark of recognition of the splendid gift which the Irish metropolis has received at the hands of an illustrious citizen, in the form of either a magnificent window or a statue, for which there is plenty of room. The building already contains some good specimens of sculpture, and these by hands not unknown to fame; we may mention that of Capt. Boyd. Shortly we may hope to see here an effigy of the late Archbishop Whately, by the same artist. Another commemorative project is at present being agitated, namely, the opening of a new street, to be called Guinness-street, from St. Stephen's Green, where is a residence of Mr. Guinness, to the cathedral, for which would be necessary the demolition of the most filthy purlieus of the city. By this, for which a company is in process of formation, two great objects would therefore be obtained.

The stalls of the Knights of St. Patrick, an order instituted in 1783, and who are here installed, have been entirely renewed. Above the canopies are placed the helmets and swords, the latter having sheaths of crimson velvet and gilded hilts; the upholstery is of Utrecht velvet. In the stalls are the armorial bearings, and high above, from the sills of the triforium, hang the twenty-three banners of the knights in their legitimate brilliant hues.

The pulpit, altar-screen, the bishop's seats, and other details are executed in Caen stone,—having Irish marbles introduced as shafts,—and reflect credit on Mr. Lane, architectural sculptor. The pulpit is erected as a memorial to the late Dean Pakenham.

The new organ was built for this cathedral by Messrs. Bevington & Sons, of London, and is fixed behind the stalls on the north side of the choir. The instrument shows two faces; one over the key-board, filling an arch in the choir with gilt diapason pipes; the other, looking west, into the north transept, containing the large 16-ft. pedal diapason. The organist is well placed for hearing the choir; great mechanical skill was exercised to accomplish what has been done. About 300 of the old pipes have been used again, including those of the stops by Renatus Harris, making up the total of 2,750 pipes. The tone is powerful without harshness. An interesting story belongs to the old organ, a portion of which is worked up in the new. It is said to have been presented by the Duke of Ormonde, who captured it at the siege of Vigo.

The gas-fittings were supplied by Mr. Mooney. The heating adopted is by means of argand stoves consuming gas. These are so constructed that there is no disagreeable effluvia whatever; and twelve of these stoves are sufficient to warm the cathedral.

It is expected that many good changes will follow the example set by Mr. Guinness, who has given quite a new impetus to the improvement of the city.

THE DISPOSAL OF SEWAGE QUESTION.

BARON LIEBIG is evidently deeply interested in this question. Not satisfied with what he had already written to the Lord Mayor of London and others on the subject, he has since addressed to his lordship another very long letter, specially decrying Messrs. Napier & Hope's scheme, and with as strong an animus as if he intended being himself a competitor for the disposal of the metropolitan sewage could the City Corporation only succeed in undoing what the Metropolitan Board of Works have already done. The Baron's tone is not pleasant, however chimerical he may conceive Messrs. Napier & Hope's scheme to be. And, besides, he takes a one-sided and false view of that scheme, as we,—though merely sanitary reformers, and no special advocates of any agricultural scheme in the midst of the present Babel of views,—will easily show. But first as to the Baron's objections:—

"If London was situate on a hill, the Maplin Sands forming the slope of that hill ending in a plain bound by the sea; if, furthermore, the Maplin Sands, instead of being perfectly pure sand, as is stated, consisted in their upper part of foam and clay, like the Edinburgh meadow, we should then be justified in concluding that those slopes would be converted by means of the sewage of the metropolis into fertile meadows, the rental of which, varying with the character of the soil, would be from 20*l.* to 30*l.*, while a small portion of them would bring 40*l.*, and the sandy meadows near the shore, when covered with a black deposit, half an inch in thickness, would then acquire a worth of 22*l.*, an acre."

But,—

"It is vain to think of transforming the Maplin Sands into a fertile soil producing luxuriant vegetation; as, in order to do so, more than two millions of tons of clay would be necessary to form the requisite superficies 1 in. in thickness."

In short,—

"The project of Messrs. Napier & Hope is one of the most curious. It is in the fullest sense of the word baseless, for the land to be experimented on does not as yet exist, being covered at high-water by the sea. All calculations, therefore, as to crops, returns, and percentage of capital, are absolutely fabulous. It appears to me like a soap-bubble, glistening with bright colours, but inside hollow and empty. There is not the slightest doubt that every penny expended in that frivolous undertaking would irrevocably be lost."

The carrying out of this scheme would not only be a squandering of an enormous amount of money, but before long would also be looked on as a national calamity."

Let us hasten to explain that this "national calamity" does not seem to have anything to do with sanitary evils. The question Baron Liebig here views exclusively as an agricultural one; and accordingly, in alluding to national calamity,

he immediately expatiates on the lessons of history to which he long since called attention.

The disposal of the metropolitan sewage on the Maplin Sands, then, would be mere waste of valuable material, since the Maplin Sands are pure and mere sand, and can never be converted into meadows by any quantity of sewage wasted on them for any length of time. Therefore Messrs. Napier & Hope's scheme is baseless, fabulous, frivolous, calamitous, hollow, and empty like a soap-bubble.

But Messrs. Napier & Hope's scheme is something more than the conversion of Maplin Sands into meadows. It is the conversion of either meadows or arable land into tenfold greater fruitfulness, as the sewage goes along the whole length of Essex,—a district with comparatively few residents,—to disembogue its surplus waste (even if that should turn out to be mere waste) into the Maplin Sands and the ocean. And is not this Baron Liebig's own very view of what ought to be done with the metropolitan sewage? Or does he contemplate the formation of some great inland lake of sewage, to be retained till farmers can be induced to use the whole of it, leaving none at all to be otherwise disposed of? Is it not clear to the commonest sense, that for some years to come an ocean outfall, directly or indirectly, that will not contaminate any river, must be provided for the surplus of the perpetual stream of metropolitan sewage? And if Messrs. Hope & Napier cannot make it pay by supplying the Essex farmers, how is Baron Liebig or anybody else able to do so by supplying Bedfordshire or Middlesex, or any other farmers? And even though they could, still, must they not find an ocean exit, whether with Maplin Sands or not with Maplin Sands as the save-all? If the Maplin Sands be made of such material as can never be converted into meadows by sewage, that is Messrs. Napier & Hope's look-out; and we do not see how even the Metropolitan Board could better themselves even in a pecuniary (far less a sanitary) sense, by turning their sewage river inland, always taking it for granted that they have made as good a bargain with Messrs. Napier & Hope for the supply of the Essex farmers as they were likely to be able to do with any one else (providing for the requisite surplus exit) who meant to supply the farmers of any other county. If the Board have not made a close enough bargain with Messrs. Napier & Hope for this purpose, that is another question, but it does not affect the feasibility of their scheme as a whole, either agriculturally or sanitarily; and that scheme appears to us to comprise all that Baron Liebig himself seems to be fighting for, although he either does not see it, or affects not to see it. Moreover, time presses, in a sanitary sense, and the re-opening of the whole subject is likely to lead to great delay and serious evils, with probably little of either agricultural or pecuniary advantage, either to town or country.

The value of town-sewage to the farmer has been brought before the notice of the Royal Agricultural Society of England by Mr. Lawes (Baron Liebig's special opponent on some points in this country, by the way), whose views were supported by most of the speakers who took part in the discussion which followed upon the reading of his brief paper. As far as experience in this country furnishes data for forming an opinion on the subject, it would appear to be decidedly opposed to the statement of Baron Liebig, that "the full value of sewage and its separate constituents can only be got at when it is employed on arable land." Mr. Lawes remarked that "the parties whose opinions may be regarded as having some weight have almost all declared that the (practical) difficulties attending the application of sewage to arable land are so great, that grass land is the only land to which it can profitably be applied."

The Bill prepared and brought into the House of Commons by Lord Robert Montagu, Sir Fitzroy Kelly, Mr. Ferrand, and Mr. Hibbert, for facilitating the more useful application of town sewage in Great Britain and Ireland, has been printed. It proposes, amongst its other provisions, to give power to local sewer authorities to acquire waste lands, sandbanks, and other lands improvable by the application of sewage under the Lands Clauses Act, on a provisional order granted by the Secretary of State, and confirmed by Parliament. Power is also given to local sewer authorities to contract with landholders for the application of sewage to their lands,—the term of such contract in no case to exceed ten years; and landholders may form associations to take such concessions of sewage.

The corporation of London have presented their petition to the House of Commons, and copies of the same, together with Baron Liebig's report on the utilization of the metropolitan sewage, and the second report of the corporation, have been forwarded to each member of both Houses of Parliament. The petitioners pray that before appointing a private Bill committee to inquire into the Metropolitan Sewage and Essex Reclamation Bill, the House will appoint a select committee to take into consideration the best mode of utilising the sewage of the metropolis and other towns of the kingdom, and to inquire into all the plans for dealing with the sewage, and specially to report upon each of such plans for the information of the country, with a view to secure for the ratepayer the greatest amount of profit from the utilisation of this property.

The Metropolitan Sewage and Essex Reclamation Bill has been read a second time, and been referred to a select committee of ten, as proposed by Mr. Ayrton. And very rightly, too.

THE O'CONNELL MONUMENT COMPETITION, DUBLIN.

IN response to the advertisement for designs for a monument to O'Connell numerous designs have been sent in. These form a collection of the usual kind,—the good and the bad intermixed,—and we might almost say, in studying some of them, that the chief impression made on the observer is as to the widely different views which are entertained of the essential properties and character of a national monument, as it is proposed this should be considered.

They are now exhibited in the City Hall, Dublin. The models, of which there are eight, are conspicuously placed in the magnificent hall of this building. Around, on screens, are arranged the drawings, made to almost every conceivable scale; contributed chiefly by Irish, but, happily, not entirely neglected by English artists of good reputation. Of the latter, however incongruous the design may seem, when considering the purpose of the structure, we cannot speak in two high terms of one specimen of Decorated English Gothic, with an infinite variety of detail, twisted and moulded through innumerable permutations. It is the work of Mr. Gibbs, of Oxford.

On another screen is an admirable specimen, exquisitely drawn and coloured, of a classical temple, containing and sheltering a colossal statue. At the four sides, apparently from tastefully-designed fountains, gush copious streams of the refreshing water, probably from the Vartry, so long promised to the city. Attached to this is the name of Mr. Heffer, Liverpool.

The majority of the designs are architectural, but in most there is a fair sprinkling of sculpture, such combination being seemingly acknowledged as the most legitimate treatment of a monument.

Amongst the sculptors from whom designs might have been expected, we find MacDowell and Foley conspicuous by their absence. It is not, however, to be inferred from this that mediocrity reigns. Although it may be said of the architectural compositions here exhibited that they are comparative failures, those only being suitable which are beyond the means at the disposal of the committee, it must in justice be said of some, if not all of the models exhibited, that they would form groups creditable as such to the British nation, while their authors will guarantee their execution for the sum named. If the more successful of these should have been suggested by the acknowledged success of the Nelson monument in Liverpool, no one should blame the authors.

Amongst these, foremost are the designs of "Derrynane," James Farrell, Joseph Farrell, Thomas Farrell, John Farrell, and John Cahill, all of whom have already won distinction; the first perhaps not so much a sculptor as an architect, his design is admired for its symmetry and grouping.

The works of Mr. Thomas Farrell are not unknown, and in this instance he has proved true to the reputation which he has framed for himself. His panel for the Wellington Testimonial in the Phoenix Park has before now been noticed in terms of praise; and of his recent statue of Capt. Boyd, in St. Patrick's Cathedral, it has justly been expressed by one who has visited the principal cities in Europe, including Rome, that he "has seen few statues to equal, but none to surpass it."

Mr. James Farrell is known as the author of that extensively pirated work, "La Colombe Retrouvée;" also of the group, "The Orphans," exhibited in the London Exhibition of 1851. The Society of Arts in New York now possess an original model named "The Hunter," also from his studio.

Mr. Cahill submits a design, in which sculpture and architecture appear to be well balanced; but it is questionable whether so much as he proposes could be executed for anything like the amount named in the conditions. Moreover, the sculpture would require much thought yet properly to express the ideas—suitable enough—of the author.

LEADING THOROUGHFARES OF THE WEST.

FROM the programme of improvements as passed by Parliament last week, some ray of hope is held forth that not only the public buildings of this city will be suitable to its population and great commercial wealth, but that its boulevards and grand thoroughfares may sustain comparison with those of Paris.

The River Embankment—the most effective of all our modernizations — will necessitate several traverse lines of communication; and the Law Courts occupying the *juste milieu* between Town and City, and situate in the blocked-up space between our two greatest leading thoroughfares Holborn and the Strand, will also impose the necessity of wide and intercommunicating streets.

Concurrent with these two innovations of marvellous embellishment, a small beginning is made in the amendment of our ways by the continuation of Park-lane, in direction to Piccadilly, which it is to enter at right angles. This is truly an improvement, and a concession to public necessities, long needed and demanded, although some opposition was made, and diversity of opinion exhibited, as respects the two latter projects; the sanction of the Legislature was deliberately given as to the best and most feasible measures, which in the initiative give assurance of better things to come.

To widen the tortuous end of Park-lane, as suggested by others, would be a work of time and of heavy expense; whereas the continuation in a straight line by Hamilton-place is complete by only cutting open a road from Holborn House (the old lane remaining the same), in aid of the new issue into Piccadilly.

It is by no means necessary to abate the portions now to arch over the areas of Hamilton-place mansions, for the roadway is 37 ft. wide at the narrowest part, and 42 ft. wide from area to area, at the entrance to Piccadilly; when, however, it was recommended to substitute for this great leading duct from *Edgware-road* to *Grosvenor-place*, a less direct line by Audley-street, which would debouche into Piccadilly at Cambridge House (actually impinging upon it), the enormous cost of the buildings to be demolished could hardly have been considered; besides that the delay of carrying out such wholesale demolition must have extended from session to session; and at same time the width of Audley-street in some parts is no greater than that of Clarges-street. For a main arterial duct this last street would be wholly inadequate, its mean width being only 32 ft. from area to area, the average width of the Park-lane gorge being only 24 ft. from house to house!

It is quite clear that openings and clearances through Mayfair are much needed for the wide ranges of modern West London, which have been superadded since this was the only aristocratic quarter *cité* Hyde Park; but for commercial and passenger traffic, what is really needed is a direct thoroughfare between the widest and most densely populated quarters of the metropolis: the existing zigzags, mazy though they be, are as yet sufficient for retired residents, and the carriages of their guests and visitors; therefore innovations such as these ought rather to be left to the discretion of agents concerned in the management of the Berkeley and Sutton estates, which share the whole district between them: to disturb their slumber is useless.

On the Grosvenor estate, the most extensive of all, the system of management is very different. A clearance has been made of several streets, and Grosvenor-place has been extended in a straight line to the Victoria Hotel; this whole district being now laid out with direct routes leading to the Palace and to Westminster, by Victoria-street, an open space being reserved for plantation, and the projected buildings

planned by the architect in a style to correspond with Belgravie, so as to form a suitable connecting link with the Westminster improvements. Again, on this estate, between Audley-street and Park-lane, a range of noble mansions in Horseford-street has been removed to make way for improvements on a grand scale. Such changes, made at the seeming sacrifice of large rentals, when carried out, as in this instance, with skill and judgment, are sure to pay in increased returns, and the interests of owners and occupiers are both served; but this can happen only on large estates. The great obstruction to improvements in the ancient portions of the metropolis, is the minute and interminable subdivision of property and of interests; therefore, the only plea for the opening of any strait or barrier is public convenience and imperious necessity; and the power and action of the corporation, and of Parliament, the only resource and authority. So it is that the City has stood so long disfigured by obstructions to traffic, and blots so palpable as Middle-row, Holborn; the gorge of Chancery-lane; Temple Bar; the sealed thoroughfare north of St. Paul's, invidiously blocked only by the ecclesiastical and ironical fence; as well as by numberless other barriers in the busiest quarters of trade, which, if managed as in the estates referred to, would be promptly amended, and made to return a doubled rental to the owner, and at the same time to facilitate traffic and trade for the whole community.

It is the province of the Chief Commissioner, as of the *Adèle* of old, to have regard for public interests in this respect; and most certainly much is due to Sir B. Hall (Lord Llanover) for his commencement in improving our leading public thoroughfares. The opening and railing in of Piccadilly, and the removal of the old Ringer's House (Lady Gordon) were due to him. The Hon. Mr. Cowper has meritoriously followed in his steps, and has opened Bird-cage Walk,—and planted the park borders. To every passenger along Piccadilly the removal of the old wall and gateway with its stage, and the floral embellishment of the borders, are a solace. But, as the teeming city has since extended a mile and a-half to Kensington, there are still fouler blots to erase. The unsightly and ill-placed barracks at Knightsbridge stand now in the way, and stop all improvement in this the most healthy, fashionable, and picturesque portion of the line, which ought to be the noblest boulevard of West London. A narrow strip of 1,200 ft. in length is covered by stables and an ill-constructed and unhealthy barrack. Being in a densely-peopled quarter, it is the worst for troops; whilst the position, elevated, open, and fashionable, is most valuable for the aristocracy. Six public-houses and music-halls, built close to it, exclude first-class mansions, and depreciate the whole vicinity. Surely a site distant two or even three miles from the Horse Guards would not be too far for cavalry, as we find that Chelsea and Kensington suit the infantry for quarters. Such a removal would be beneficial to the troops and a boon to the public.

QUONDAM.

MODERN LONDON BURGLARS.

OF late, robberies of valuable goods have been so frequent in the metropolis, that it has become a question to be put to architects and builders whether it be not possible to construct business premises not only *fire-proof*, but also *thief-proof*. These robberies, which have astonished the merchants and traders of London, show in a marked degree the ability and activity of the thieves, and the adroitness and cunning so remarkable in the system of receiving and getting rid of valuable goods. At the same time, the want of sufficient preventive and detective manning on the part of the police shows some fault in the present organization, and calls loudly for a speedy remedy.

The planning of all the more recent great robberies shows a remarkable similarity, which would lead persons to believe that the mischief has been done by one daring and dangerous gang. But however this may be, when we consider the concentration of the police in the City, it is difficult to imagine how the plunder of many thousands of pounds value can be carried off without question through the streets in the night time, unless it be that the heavy footstep of the police in the silent streets give but too sufficient warning to the thieves. Besides the police who are visible, however, there is also a considerable staff of detective police who are always on duty.

In one instance, the robbery was effected by means of a side passage, on a Saturday night or on Sunday, into the premises of a watch-maker and jeweller. The house above the shop was used as offices, which, as well as the shop, appear to have been left unoccupied from the Saturday till the Monday morning; so that the cracksmen were left without interruption to break through walls and panels, and into safes and other strong places. In this case, as it has been in others, there was a strong light in the shop during both night and day; and in the shutters were loopholes through which the police could look into the shop and discover intruders or any disturbance of the arrangements of the property.

In another instance, access was obtained into an adjoining cellar, through the wall of which a hole was cut in a most scientific manner into the adjoining vault, in which was the safe of a bullion and jewel dealer, the chief part of whose stock was taken away, and, so far as we know, nothing has since been heard of it. In connexion with this robbery, it is to be noted that there were not only persons living on the premises, but also a watchful little dog; yet no alarm was given, and the policeman on the beat heard no disturbance on the night of the robbery.

In the Strand, in another case, three men engaged the top room of a lodging-house, from which they made their way to the outside of the roof; and after proceeding a short distance, they opened a mode of admission into the premises of a watchmaker, where they collected a quantity of valuable property, returned with the booty to the lodging-house, and left with it in a carpet-bag between three and four o'clock in the morning.

Another extensive robbery was successfully effected in the premises of Mr. Walker, at the corner of Sun-court, Cornhill. The upper part of this house was occupied as offices; and into one of these, which was rented by Sir John Crossley, the thieves entered, and there they took about 20l. from an old-fashioned safe. Afterwards an attempt seems to have been made to force the sides of Mr. Walker's shop, but this was so thickly plated with iron that the burglars were foiled. They next seem to have made their way into an apartment below the shop, and drilled the ceiling and upper flooring with numerous holes very close together around a space large enough to admit the body of a man. This being done, the piece of flooring was knocked upwards by a sharp blow, and then with ease watches and jewelry were seized and carried away, the value of which is said to be between 5,000l. and 6,000l. In this case there were lights in the shop, and the opportunity for police inspection through the holes in the shutters; and yet no discovery of the burglary was made until some of Mr. Walker's people went to business on Monday morning. Three if not more persons seem to have been engaged in this work.

Such events as these following in such rapid succession have caused much uneasiness, and prove that more is needed than there is in use at present to protect property from the burglar's skill; and when we find that walls with iron plates have offered successful resistance, it becomes a question whether, if the floor or ceiling had been so protected, safety would not have been ensured. A due regard to safety is not only needful in connexion with shops, but it is also requisite in connexion with chambers in banks in which treasure to an immense extent is laid away. The loss of the bullion, &c., in the Bank of England would be a national disaster, and an audacious attempt by tunnelling was at one time made to effect such a robbery.

Some years ago, as we remember, a gentleman who went to a north of England town to manage a branch of the Bank of England there, was in constant fear that thieves would tunnel from the sewers or elsewhere into the underground chamber in which the treasure was kept; and this fear was not altogether groundless. It may be worth while to inquire if there be no risk in this way in other quarters.

At night, the Bank of England is carefully guarded, not only by certain officials of the Bank, but also by a detachment of soldiers; and in most other banks there are clerks and other responsible persons who sleep on the premises. It might be worth consideration if the same precaution should not be taken in other places where a large amount of valuable property is kept. Several persons having charge in this way would prevent collisions, and also deter offenders. In many provincial towns, alarm-bells have been used to a considerable extent in warehouses, manufactories, &c. Why

should not this plan be brought more extensively into practice? Wires laid properly, and communicating with a powerful alarm-bell, which would continue ringing for a considerable time, would often save property. But, above all, we need increased vigilance on the part of the police; for through the trust which is reposed in them, the public are liable to be more lax than they should be in their precautions.

Instances of the careless way in which gold is sent from the jewellers of Clerkenwell to the flitting-mills constantly occur. Boys are entrusted in the winter nights with gold worth 100l., and even more; and there is such a perfect system of receiving, that matters of this kind may be bought and paid for at a small rate, without question, and in a few hours the melting-pot will have effectually rendered the material unrecognizable. Surely, with all our police appliances, the present arrangements of the receivers should be prevented, and then we should have a large diminution of crimes of this description.

People are inquiring, How is it that such daring deeds are effected under the very eyes of the police? During a number of years we have had opportunities, in various ways, of marking the working of both the City and the metropolitan police, and we cannot agree with some of the speakers at the ward meeting that they are a set of ignorant bores; for, before admission can be obtained into the force, the men have to show that they have received a fair amount of education. Their character must also bear careful inquiry; but we believe, as many others do, that the police have, during the last few years, deteriorated; and the cause of this is evident; for, in various directions, there has been increased demand for labour, and the wages of several trades have materially increased, while the sum paid to the police has remained stationary. The amount of salary of the greater part of the force is certainly not sufficient for the proper support of those who have families; and, when we consider the large trust and confidence placed in the police, it is of importance that they should be properly paid. There can be no doubt, too, that, in many parts of the metropolis, the numbers of the police are insufficient for useful service. In the Caledonian-road, which has now become a bustling and important thoroughfare, robberies are of frequent occurrence. Other instances might be mentioned. Enough, however, has been shown to prove that the present system of police requires consideration and improvement; and, in case any inquiry should be made, the detective police should not be overlooked, nor the advantages or disadvantages of the system of rewards, without which it is not easy to get them actively to work.

BEAUTY IN COMMON THINGS.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

At the last meeting, Mr. Jas. Gowans read a paper on "Beauty in Common Things," urging, at starting, that beauty in shape or form must rest on true geometric principles. He agreed with those who maintain that both the Greeks and the Christians determined the plans of their buildings by geometric figures, and went on to say,—Much has been done to increase the comfort of the lower classes of this country, and no doubt the interior of a house is of the first consequence; but, while this is so, the exterior should be designed so as to have true shape, however plain and unpretending it may be; for it is quite possible to develop beauty in the cottage of the poor as well as in the mansion of the rich. Ugliness, which stands in the same relation to beauty in the material world as beauty does to goodness in the spiritual world, does a great deal more than merely offend the eye. It has its effect in lowering the moral tone of those whose senses are habituated to it. Beauty, again, being akin to goodness, has the opposite effect,—that is, of reforming and elevating the moral sense of those who are constantly under its influence. Having said so much as to the exterior of our buildings, I wish now to notice how the same principles which give grace to the exterior should be carried to the interior, not only in determining the exact proportions of the rooms, but also in producing the furnishings, so that each and all may harmonize, and produce that unity of effect without which nothing can be perfect. How often do we find that, while some portion of the furnishings may be all that the

eye could wish, the feeling, on the whole, is marred by some incongruous article designed without reference to any law either in shape or colour. How diverse, for instance, are the articles which are brought to our table; and how few of them partake of those simple lines which not only please the eye, but are so well adapted to the uses for which they are required. Why should our tea-kettles, teapots, and the commonest articles that we use, not be designed upon those fixed laws which I have already so often referred to? If the silversmith, founder, and potter, who produce those articles were trained upon a system, instead of leaving them to use their intuitive perception of what was either ugly or beautiful, we should have articles which would not only give pleasure to those who use them, but would, besides, influence the taste in judging what was perfect or imperfect—whether in those things which man made with his own hands, or in Nature herself. I am aware that since the London Exhibition of 1861 there is a very marked difference in the shape of the articles to which I refer; but this desire in the public for that which is simple and shapely in itself is not matured so rapidly as it should be, from the fact that in our schools of design no such laws as I hold by are laid down for the primary instruction of pupils. Nothing, in my opinion, can be more simple than the use of those lines for beginners; and if the article goes no further than the mere skeleton of the figure there will be true shape, and a pleasing proportion. And if the skeleton requires to be clothed over, the elaboration should flow from the same lines, which will always give a harmony and repose to the finished design. Our exhibitions, agricultural meetings, flower shows, and such like, are all tending in the same direction; and although the severe geometric test which I have laid down is not brought forward in a distinctive way, you will find that the judges at those meetings always give the prize to that which is the most perfect in geometric form and colour. Mr. Gowans concluded by showing that the same principles applied to colour.

Professor Blackie said there were one or two points on which he differed from Mr. Gowans. He thought Greek architecture had nothing whatever to do with religion, except in the outer decoration of it,—namely, in the sculptural decoration. Then he thought Roman architecture, again, had nothing to do with Roman religion, but was merely the natural tendency of the human mind to improve. The same remark applied to Christian architecture. No doubt, Christianity mounted to heaven, and so it was natural that in their architecture they should desire to bring things up to the highest degree of perfection. He could not see that architecture had anything to do with religion one way or another. He could not understand at all how that because the Greeks worshipped an unknown God they should take the circle as the base of all architecture. He should like to understand the connexion between the circle and the unknown God.

Mr. J. D. Peddie said, that geometric principles had much to do with material beauty of all kinds thereof could be no doubt whatever; and, especially in the art of the architect, it was impossible for any man to deny the importance of the observance of geometric principles. But he had not been able to understand to what extent those who upheld similar theories to those Mr. Gowans had proposed, considered the beauty of architectural works to depend upon the observance of geometric principles—whether they maintained that this was a condition of the beauty of architectural works, or whether they meant that if a man was merely sitting down like a machine and working by geometric rules he could thereby produce a great architectural work. He was very much inclined to doubt this doctrine altogether. He believed geometric principles had very much to do with architectural beauty. They probably had as much to do with beauty of architecture as the laws of harmony had with music; but as no man by merely observing the laws of harmony could produce a great musical composition, so no man could produce a great architectural work merely by observing geometric rules.

ARCHEOLOGICAL DISCOVERY AT COLCHESTER. Some workmen, while employed in the garden of Mr. Robert Halls, fruiterer, Colchester, have discovered within and near the Roman wall on Balkerne-hill, a fine specimen of Roman tessellated pavement, the most elaborate and ornamental in design of any yet found in this town.



INNS OF COURT HOTEL. FRONT IN LINCOLN'S INN FIELDS.

MESSRS. LOCKWOOD & MAWSON, ARCHITECTS.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening, the 17th ult., at the house in Conduit-street.

The chair was occupied by the president (Mr. Christian).

Mr. William Downal, of 15, Tavistock-square; Mr. Andrew Murray, of 4, Alfred-place, Islington; Mr. William Frederick Potter, of 29, Elnore-place, Lower-road, Islington; and Mr. Gilbert R. Redgrave, of 18, Hyde Park Gate, South Kensington, were elected members of the Association.

Mr. Blashill proposed, and Mr. R. P. Spiers seconded, a vote of thanks to the Royal Institute of British Architects for opening the voluntary examination class lectures to the members of the Architectural Association.

Mr. Blashill expressed his regret that there were no examinations this year, and that the four gentlemen who had presented themselves would consequently be disappointed.

The vote was unanimously accorded.

Mr. R. W. Edis then read a paper entitled "Architectural Notes from Bouvais to Rheims," including sketches of Noyon, Laon, and the towns and villages along the route, part of which we have printed.

At the conclusion Mr. Ridge observed that architectural travellers often lost a treat by not carefully examining the pretty little buildings so frequently to be found along the high roads of France, and which in their design and arrangement were so widely different from those observed in England.

Mr. R. P. Spiers observed, that of Rheims Cathedral especially, the portion round the choir had an extremely fine effect. There was, however, one feature in the cathedrals of France which he had noticed, and that was, that the length was not so great compared with the width. It had always struck him, on entering Westminster Abbey, that much of the effect of so grand a structure was lost in consequence of the building being so narrow in comparison with the great height from the floor to the pitch of the roof. With regard to the cathedral at St. Etienne, he thought it bore evidence of having been patched up in a remarkable manner. The Town Hall at Rheims was extremely well planned, and there was an old aisle in it which was especially curious and worthy of notice. When, in 1861, he visited the place, he saw some interesting mosaics which had been recently discovered, and which it was proposed to deposit in a museum about to be formed. Referring to the portion of the paper read by Mr. Edis, which treated of Christian iconography, Mr. Spiers observed, that he believed the nimbus was of very early (Pagan) origin; and as an illustration, he mentioned that a statue of Diana had been excavated at Lunel, which had the ornament or emblem so frequently found in the works of the early Christian period.

Mr. Blashill said he quite approved of the plan adopted by Mr. Edis, in his expedition, of examining the village churches of France. The practice was, he thought, much to be commended, as students of architecture were too much addicted to studying and copying cathedrals only. It was more profitable for them, as young architects, to visit the churches, and to become thoroughly conversant with them, than to occupy so large a period of their time in cathedral research, as few of them would ever have the chance of building a cathedral, although he hoped that he himself might have that privilege before he died. With respect to students, which was every now and then given to students, not to study foreign works, all he could say was, that he thought such advice would generally be traced either to amateurs or to architects who had never themselves designed anything good. He moved a vote of thanks to Mr. Edis for his very interesting paper.

Mr. John Hayward defended the Puritans from the charge of iconoclasm, which had been preferred against them by Mr. Edis, and also by Mr. Spiers, and contended that they ought to be judged, not according to our views of art or of toleration, but with relation to the feeling of the age in which they lived. The object which they had in view was not so much to destroy objects of high art, as to prevent what they imagined to be idolatry.

The Chairman spoke in favour of visiting the small churches of France, and deprecated the idea that they were not to study French architecture.

Mr. Edis, in acknowledging the vote of thanks,

referred to the so-called "restorations" now going on so vigorously in France, and observed that there were no greater iconoclasts than the French sculptors, who would chip off the most delicate foliage, or the most elaborate and beautiful ornament, if it happened to be a little cracked.

COMPETITIONS.

Belfast.—In a recent limited competition for a Wesleyan college, proposed to be erected at Belfast, four architects, distinguished for their success in public buildings, were invited to compete: these were, Mr. Jones, Dublin; Mr. Hill, Leeds; Messrs. Lanyon, Lynn, & Lanyon, Belfast; and Mr. Fogarty, Dublin. After considerable examination the committee selected the design No. 2, submitted by Mr. Fogarty, as that best suited for their purpose. He has accordingly been instructed to prepare the working drawings. The cost, as at present arranged, is not to exceed 10,000l. It may be well to mention that the committee presented the unsuccessful firms each with 40l., as some compensation for their trouble in the preparation of designs.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the meeting held February 22nd, Mr. G. Godwin, V.P., in the chair, a letter from the treasurer, Mr. Pettigrew, accompanying some presents to the library, made by the late Duke of Northumberland, laid upon the table, was read by the chairman, lamenting the decease of a nobleman so distinguished and beloved. His Grace had given his assistance to the next congress of the Association, at Durham, in the month of August. Mr. Pettigrew concluded his letter in the following terms:—"In his Grace's decease, science has lost an ardent student, antiquities and the arts a most enlightened cultivator, letters and literature in general a zealous friend and supporter; but in that which more especially regards the moral individual and his perpetual exercises as the friend of the poor and needy, it were difficult to employ terms sufficiently cogent to express what we must all so sensibly feel." The chairman from his own knowledge described several services rendered to archaeology by this most excellent man.

Mr. Wilton Rex communicated a paper, "On the Customs and Privileges belonging to the Town of Glemsford, in Suffolk, with the Antiquities of the same," which was read by Mr. Levison, and gave rise to an interesting conversation. Mr. J. T. Irvine sent drawings of remains in the churches of Bradford-on-Avon and Ashton Steeple. The former were very curious, representing some ancient pieces of stone built into the church and singularly sculptured, presenting interlaced strap works in panels, with a chequered or diaper design, resembling the arrangement of some early tessellated pavements. There was likewise half a recumbent figure of a lady in the costume of Edward I., or beginning of Edward II., coloured.

Mr. George Vere Irving read a paper "On the Swords of Andrea Ferrara," illustrating his subject by many examples and rubbings, with varied characteristics.

Mr. Halliwell exhibited a beautiful seal of the Guild of Holy Cross at Stratford-on-Avon, which he had never met with before. It is very elegant, and belongs to the fifteenth century.

A paper on the finding of a large collection of Saxon coins at Ipswich, by Mr. Francis, was read.

BRADFORD WATER-SUPPLY.
THE DOE PARK RESERVOIR.

An important inquiry has been held at Bradford respecting the security of one of the reservoirs connected with the waterworks of that town, and as attention has been frequently called to this reservoir by Mr. Ferrand, M.P., in the House of Commons (in consequence of whose complaints Mr. Rawlinson, C.E., was sent down by Government), and much uneasiness occasioned to the inhabitants in the valley below when the reservoir has been filled for testing purposes, the following account will no doubt be read with interest.

The Doe Park Reservoir is one of three reservoirs which have been constructed for the purpose of compensating millowners for water which the Corporation of Bradford has ab-

stracted from the tributaries of the rivers Wharfe and Aire. These reservoirs together have an area of about 160 acres. The expense of making these three reservoirs has, however, secured to the people of Bradford valuable drainage grounds amounting to above 10,000 acres, the water from which is said to be remarkably pure and soft. The reservoirs for collecting the waters from these districts cover about 150 acres, and the conduits for bringing the same to the town are upwards of thirty miles in length, and include about five miles of tunnelling.

These important works have cost above half a million, and have been carried out by Mr. Leather and Mr. Rooke, civil engineers, Leeds.

Mr. Goh, C.E., of Bradford, is now in charge of the works, and acting as waterworks manager in addition to his duties as borough surveyor.

On applying to the magistrates for certificate of completion, Mr. Bateman, who has made a special examination for the Bradford Waterworks Committee read an elaborate report, in conclusion of which he said:—

"On the whole, therefore, although I cannot pronounce the reservoir to be in a perfectly satisfactory state, I believe the embankment to be secure, and the work free from danger, the provision for passing the flood waters sufficient, the arrangements for discharging the water well designed and executed, and the reservoir capable of holding the quantity of water required by the 51st section of the Bradford Waterworks Act, 1854.

I consider it, however, necessary that there should be a resident watchman, and that the quantity and character of a leakage and all the circumstances of the reservoir and works should be narrowly and carefully observed and recorded. Any change which indicates waste or danger should be immediately attended to; but so long as the leakage remains stationary in quantity and free from colour or matter in suspension, and the embankment retains its proper shape, I believe it is far better to leave the work alone than to endeavour to reduce the leakage by any method which would disturb the grounds."

The magistrates agreed, after consideration, to adjourn the decision of the question until the 18th April next.

ROMAN ANTIQUITIES AND MODERN ANTIQUARIES OF CHESTER.

Although the following communication repeats some of the particulars already given in our pages we might lay ourselves open to the charge of unfairness if we did not print the whole of it.

My attention has been directed to the number of the *Builder* for February 18, containing a leader headed "Roman Antiquities and Modern Antiquaries in Chester," commenting upon a newspaper account of two lectures which I recently delivered in Chester upon some Roman remains discovered within the limits of the city in June, 1863, the same subject having been brought under the notice of the Society of Antiquaries in a paper read by Mr. Tito in January, 1864; and I rely upon your sense of justice to afford me an opportunity of making a few remarks upon it.

The only portion of your comments of which I have personally to complain, is that in which I am accused of a want of courtesy to Mr. Tito,—a statement that I read with considerable surprise, as nothing could have been farther from my wish; nor can I or my friends discover any passage in either of my lectures which could possibly be with common fairness distorted into such an accusation. I certainly ventured to state that Mr. Tito's paper was "full of inaccuracies," and that in it he had committed grave archaeological errors; adding, that the sooner such errors were rectified the better for archaeology, as in the most recent work of any importance on Roman remains ("Notices of Roman Bath," by the Rev. W. H. St. John, the Chester discoveries were compared with those at Bath, a comparison that was certainly not warranted by the facts. In so doing, however, I do not for a moment consider that I passed the bounds of fair criticism, and had Mr. Tito reason to complain in similar terms of inaccuracies, &c., in my paper, I should certainly not have attributed his adverse criticism to a want of courtesy on his part.

Whatever may be Mr. Tito's present opinion as to the character of the Chester remains, does not affect the question. I had to deal solely with his original opinions and statements, as they appeared in the report of his paper in *The Gentleman's Magazine* for March, 1864, and which Mr. St. John also quotes in the work just referred to, the correctness of which he had an opportunity of verifying as he had read Mr. Tito's original paper at Bath. From this report I extract the following:—

"On further examining these excavations, Mr.

Tite found the distinct remains of a small temple or shrine. This temple originally consisted of twenty-four Corinthian columns, four at each end and eight on each side. Of these, ten remain in their places—that is, there were ten bases and considerable portions of the shafts. Other fragments of the shafts and portions of the capitals were found in the rubbish, and the foundations of the twenty-four were to be recognised; and further, that the first base discovered rested "on a square block of red sandstone standing on the maiden rock."

These are not simply opinions or suggestions advanced by Mr. Tite, but they are, to quote the words in his letter read before the Chester Archaeological Society, "incontestable" facts; and yet, however the quotation may be defended, it is "full of inaccuracies." In the first place, the blocks under the bases did not rest on the maiden rock, but had a thin bed of stone concrete beneath them, the same plan having been adopted under the foundations of all the walls also. Secondly, nine bases only were discovered, all of which were *in situ*, with one exception in the northern range, which had been evidently pushed out of position during the erection of some modern buildings. Thirdly, the sites of two rows of pillars, ten in each range, were to be recognised even where the bases were absent; and so far I coincide with Mr. Tite, between whose original statement and that to which you allude in the first column of your leader there is a marked discrepancy; but of the original existence of any in the intervals between the ends of the rows (answering to the front and back porticoes of a temple) there was not the faintest trace; the ground at those points was on the same level as that occupied by the terminal pillars, and it was the general opinion of architects and archaeologists who visited the site, that, apart from other reasons which I mentioned in my lecture, pillars had never been erected there. Fourthly, there is the distinct assertion that the remains were "those of a small temple or shrine."

Mainly based upon these pseudo facts, Mr. Tite exhibited before the Society of Antiquaries a drawing of "a beautiful restoration of the whole building, with its baths, palestra, gardens, &c., a restoration of the temple or shrine, &c." Now I must and do maintain that he was not warranted in exhibiting such a drawing, based, as it was, upon imperfect and insufficient data. Of the main building, neither its length nor breadth could be ascertained, nor could the dimensions of even one room be determined, as a Medieval wall, parallel to the external one of the original Roman structure, and belonging to the adjoining property, intersected the whole range. As for the "palestra, gardens, &c.," it is hardly probable that they would be attached to the temple of a simple military colony, like Chester, whilst they were absent at important places like Pompeii. When Sir William Gell made a drawing of the restoration of the Temple of Fortune at Pompeii, ample data were furnished him for this purpose from amongst the fragments found within the ruins; and the same may be said of that of the restoration of the Temple of Minerva at Bath, in the great work of Lysons; whilst at Chester, beyond the existence of two rows of pillars, there was literally no evidence whatever in support of Mr. Tite's statement.

Moreover, in his comparison of the Bath temple with the supposed one at Chester, he states the former to have been hexastyle, whilst the latter was tetrastyle, forgetting the Roman practice that "where the end portico was tetrastyle, there were never any columns at the sides, except false ones" (*vide* Smith's Dictionary of Greek, &c. Antiquities—art. Templum). This was one of several reasons I mentioned at my lecture as being fatal to Mr. Tite's theory; and I further added that although a Roman architect in *Dea* might not have carried out all the ordinary rules of temple construction, yet it is scarcely probable that he would have deliberately violated the whole of them.

With reference to the paragraph to which you take exception as being a *non sequitur*, I may remark that the newspaper abridgment of my paper is at that part imperfect. After having explained the attributes of a Roman bath as shown by the discoveries at Caerwent, I pointed out that the Chester remains possessed none of the essential characteristics of a bathing establishment, beyond the presence of a range of hypocausts; but, considering that they assimilated so closely in character to those first uncovered at Wroxeter, that they were evidently those of a public building, and that they formed

only a small portion of the original structure, &c., I was inclined to the belief that they formed a portion of the remains of public baths; but to this I subsequently added, that the "absolute proof must wait until future excavations expose more of the southern portions of the building." Of the conjoint erection of baths and basilicae we have not only the evidence of the Wroxeter example, but also the records of others at Ribchester and Lancaster.

However distasteful it may be to Mr. Tite to find his statements questioned, I attribute the errors in his paper to the circumstance of his visit to Chester having been of a hurried character, and that it did not afford him sufficient time to make an accurate personal inspection of the remains (I am assured by the gentleman who accompanied him to them that his visit did not extend to one entire hour). However much he may have been assisted by the two visits of his clerk, it does not alter the fact that his lecture, like his own visit, bore the marks of great precipitancy; so much so, that at the very time he was reading his paper before the Society of Antiquaries (January, 1864), the excavations were not completed; in fact, unless he materially enlarges his original paper, it will, I believe, be found that he has omitted to mention many of the important features connected with these remains.

Not one of the members of our local Archaeological Society, many of whom visited the site several times weekly during the progress of the excavations, and who are as competent as Mr. Tite to judge of the character, &c., of the buildings, coincide with him in his opinion; and considering the many opportunities they had of studying them, I leave it to your readers to judge whether he or they are the more likely to be correct. One other comment on Mr. Tite's paper and I have done. In the *Gentleman's Magazine* report of it are these words:—"This was the state of things when these remains were fortunately seen by Mr. Tite;" and, "that his paper was received with much satisfaction, and it was considered fortunate that so complete an account of remains so interesting had been thus accidentally preserved." Now, no stranger could possibly read these extracts without at once coming to the conclusion that if a local Archaeological Society existed at all, it must have seriously neglected its duty in allowing such remains to be left undescribed and unrecorded; whereas, from the very onset the members of the Society had done all in their power to ensure a correct description being brought under the notice of one of the Society's meetings, and of subsequent publication in their journal: they therefore, with good reason, have to complain of a want of courtesy on the part of Mr. Tite, in permitting such a reflection to be thrown upon them. It is true that in his letter read before the Chester Society, he stated, "Though I made every inquiry I could not find any one who was collecting any particulars as to the remains themselves, except my friend, Mr. Peacock, to whom I was referred;" but this only proves that his inquiries must have been of a most meagre description. Mr. Peacock (the gentleman he mentions), as well as Mr. Hodgkinson, the architect of the site, both knew that I was at work collecting materials for a paper on the subject, and they each rendered me most valuable assistance. Further than this, the Marquis of Westminster, the owner of the ground, had given directions for the purpose facility should be afforded me for the purpose. And on June 23, 1863, the day following the discovery of the hypocaust, it was officially announced at a meeting of our Society, that I had promised to watch the progress of the excavations, and to bring under the notice of the Society a report of all the remains that were uncovered,—a statement which appeared in the local journals of July 1st, 1863, and which was known to the majority of the members of the Society.

In conclusion, I must again disclaim any want of courtesy on my part towards Mr. Tite, notwithstanding his injustice to our local archaeological society; and with reference to the important Roman remains which have formed the subject of his paper, as well as of mine, my sole desire has been to place the facts fairly and without prejudice before the antiquarian world.

T. N. BRUSHFIELD, M.D.

* * * What we complained of was the tone of the paper read and the remarks made, and we see no reason whatever to alter our opinion. Mr. Tite found in Chester certain very curious remains, so far as he knew unrecorded. He

took great pains to measure and describe all that was to be seen. As soon as he learnt that others had done so also, he sent a courteous note, stating his regret that he had inadvertently interfered with a duty undertaken by others, but unknown to him. Mr. Tite, of course, is not responsible for the opinions and conclusions of the *Gentleman's Magazine*, which, after all, seem to have been the main provocative. Why such an amount of anger should have been shown because of a well-meant and kindly effort, followed by a most courteous and reasonable explanation, must still remain a modern "Chester mystery," though no Miracle.

WORKHOUSE AND HOSPITAL NURSES.

DURING the late protracted investigation by Mr. Farnall, Poor-law Board inspector, in connexion with the death of a man in the Holborn Union, that gentleman expressed an opinion respecting workhouse nurses exactly similar to that which we have on several occasions given.

Mr. Farnall said,—"I object to pauper nurses in workhouses; but I am not a guardian of the Holborn Union. We have in the metropolis a great number of paid nurses, and I believe that the ratepayers benefit by it, because the paid nurses get rid of the sick cases sooner than the pauper nurses."*

As regards the case of the man whose death has led to this inquiry, we will only say that he was, according to the account of his friends, a man of large and robust frame, and was admitted into the Holborn Union suffering from rheumatic fever; and it is clear that, owing either to want of care or knowledge on the part of the nurse, bed-sores were allowed to form on the man's body, so that his condition seems to have been shocking. Eventually he was removed by his friends, and soon after died,—it is said, chiefly in consequence of the want of proper care and attention. In this instance the head nurse herself seems to have been unequalled to attend to a large number of persons, many of them seriously sick; and it also appeared that one of the male night-assistants had not been appointed in consequence of any indications of his fitness, but because of his not being able to sleep in the night-time. Even with the most vigilant care on the part of the medical attendants and masters of workhouses, if the nurses are unfit there will fail to be justice done to the sick poor; and the custom of placing paupers to fill important posts in those large establishments is most objectionable; as is also the practice of appointing such inmates to teach and exercise guidance over large numbers of young children.

There is a custom which, under present arrangements, causes hardship to the most destitute. In cases of sickness, in some of the workhouses, friends are allowed to visit the patients and take with them tea, sugar, and other little matters, which, by contrast with pauper fare, may be considered luxuries. Presents of money are also made to the nurse, or what almost amounts to the same thing, to the sick, by those who have the means, and in these cases the patients are likely to meet with a little extra kindness and care; but those who have no friends are, in far too many instances, on this very account, left in misery and neglect.

We have heard complaints of a similar kind in connexion with porters and nurses of more than one of the metropolitan hospitals—a point which requires investigation, not only as regards in-door but out-door patients.

THE DEATH-RATE OF PARIS.

A REPORT, drawn up by M. Deville in the name of the inspectors of the verification of deaths in Paris gives the following account of the mortality in that capital during twenty-four years, from 1840 to 1863.

As far as can be judged from documents furnished by different historians, the annual mortality in Paris about the beginning of the last century was 1 in 28. Fifty years later an improvement took place to 1 in 30, and in 1836 there was only 1 death to 36 inhabitants. The year 1840 was an inexplicable exception to this gradual decrease in the death-rate, which rose

* It seems that the cost of attendance upon the sick in the thirty-nine metropolitan workhouses amounts to a little over 10,000*l.*—a small sum when the large number of the inmates of the workhouses in the metropolitan district is taken into consideration.

in that year to 1 in 38. In 1841, from which date the commission has been able to obtain absolutely authenticated documents, the mortality was 1 in 36. Five years later, viz., in 1846, at the period of the quinquennial census, it declined to 1 in 37. In 1851 it improved to 1 in 38, and in 1856 to 1 in 39. The above rates are for ancient Paris, the population having been increased by the addition of the suburbs in 1860, the period of the annexation. Yet, with all this increase, the census of 1861 giving for Paris 1,696,141 inhabitants, the mortality was only 1 in 39. During the years 1862 and 1863 the decrease progressed steadily, 1 in 40 being recorded for each year. Thus in twenty-four years (from 1840 to 1863) four inhabitants were gained. The Commission attributes, and with some reason too, this amelioration to the vast public works carried on throughout Paris, by which each individual enjoys more space, more air, and more plantations; to the immense surface drainage through the new sewers; to the unremitting exertions of the Commission on unhealthy lodgings; to the better installation and organisation of the hospitals; to improvements in the management of barracks; lastly, to the greater prosperity of the labouring classes, who are better cared for, better clad, and better fed.

EXCESSIVE DEATH-RATE OF MANCHESTER AND LIVERPOOL.

In a recent number of the *Builder* attention was directed to the serious excess of the death-rates of these important towns. The deaths in Liverpool are given at 42 in 1,000; the mortality of London 30 in 1,000; so that the deaths in Liverpool are 12 in 1,000 more than occur in the metropolis. In Manchester the deaths are 40 in 1,000, or 10 in each 1,000 more than London. The deaths in certain healthy neighbourhoods are but 17 in 1,000; so that Liverpool is in excess 25 in each 1,000, and Manchester 23 in each 1,000. This waste of human life is monstrous, and ought to lead to the greatest care on the part of the health officers; for it is to be noticed that the death-rates of both Manchester and Liverpool have greatly increased since some illustrated papers were published in these pages descriptive of the first-named city. At that time the death-rate of Manchester was about 33 in the 1,000, and that of Liverpool about 35 in the 1,000.

At the time of our visit to Manchester on that occasion we pointed attention to the excess of deaths, and objected to the system of ash-pits and cesspools, which, to the astonishment of many, receive so much favour from certain members of the corporation. There can, however, be no doubt that this practice is the cause of much sickness and death. The cellar-dwellings, many of which have been allowed to remain in use with certain modifications, are another source of mischief, as are the small dwelling-houses which are without thorough ventilation, and which in many instances are built back to back. But besides these proximate causes of preventable disease, we referred in the notes mentioned to risk which there was of the pressure of the cotton famine driving the people to overcrowding, and by this means leading to the outbreak of fever and other disorders which arise from this cause; and there is no doubt that this has been the case in both those places. In Liverpool this has been caused, to a more considerable extent than in Manchester, by the removal of dwellings which had been occupied by the poorer classes. We hope, however, that the state of the health of these towns will be carefully inquired into, and that the intelligent and energetic men of Manchester and Liverpool may enter into a contest, for the purpose of endeavouring to reduce to the greatest extent the death-rates of their respective localities.

SCHOOLS OF ART.

The Ipswich School.—The usual annual exhibition of the works of the students of this School, has been held at the new Assembly-room, Northgate-street. The exhibition contains a large proportion of oil and water-colour works, and chalk drawings, and is reported to be creditable to the students, and to the master, Mr. W. T. Griffiths.

The Southampton School.—The distribution of medals and prizes in this School, has been deferred. The total number of students under

instruction in the School of Art, has been 145, and in public and private schools, 1,300. There is an increase of 283 since last year. There are to be distributed 1 national medal, 7 medals, 20 prizes, and 31 certificates, besides 110 prizes to children of poor schools, and 55 honorary certificates to students of private schools in the lower grade, besides some local prizes. Suitable accommodation for the School is urgently requisite.

PROPOSED STATE ASSISTANCE TO ART-SCHOOLS.

HAVE you seen the code of rules for State assistance to art-schools, proposed by the Department of Art, to meet the Select Committee's recommendations? If so, you have seen the greatest injustice (proposed to be done) that ever was inflicted on a body of respectable men. Art-masters are, as a body, a hard-working set of men, and not over-well paid. It was a source of alarm to many when a large part of their income was proposed to be taken away, though an equivalent was offered by the Department of Art. I never was frightened myself at the loss of certificate allowance, because I saw a disposition to give an equivalent. But this last minute not only abolishes the equivalent, but ignores the art-masters' certificates, placing them entirely on a par with those held by national school-masters for teaching drawing in national schools, and offers precisely the same assistance to holders of second or elementary-grade certificates as to third grade or art-masters' certificates. Any intelligent schoolboy could take, and often has taken, the second-grade certificate, in a few months' occasional study; and this is the standard of art knowledge which in future will only be required in candidates for masterships of art-schools!

The scale of payments also is such that only a very slight portion of the enormous grant for art-education will ever find its way into the provinces; and allowances to provincial schools for art-pupil teachers are to be abolished, so that the master of a school of art which has three or four class-rooms will find himself entirely without assistance. The direct opposition to the Select Committee's decrees will, I hope, prevent this proposition from passing Parliament.

The art-masters in the provinces have studied for years, at great expense to themselves, and some cost to the country, and the inevitable consequence of this minute will be either to drive them away entirely from the public service or turn them into bad public servants. A premium is positively held out to them to prevent the spread of art knowledge, because every person taught and becoming possessed of the elementary certificate may at once become a rival teacher, as well paid by the State as the art-master who has studied and worked for years.

This is especially the case among school-masters, when there ought to be held out the greatest inducement to teach them.

A MASTER.

OVERFLOW-PIPES TO THE RAIN-WATER HEADS.

THE sketch in your recent number of "Telephone Rain-water Pipes" shows a very great improvement, as it gives an opportunity for unstopping the pipe; and I beg to suggest that all rain-water heads should have an overflow-pipe in front, as is often found in the old lead heads; the difference in the cost would be but trifling, and the advantage very great.

How often do we see the fronts of houses spoiled, and the brickwork damaged, from this cause; and also the paper in the rooms.

The overflow-pipe would get rid of another difficulty, for it is well known that the heads are often fixed to fall backwards as they are drawn close to the brickwork by the pipe-nails, and the overflow is backwards when the head is stopped.

Allow me to point out another great evil in fixing cast-iron rain-water pipes and heads without painting the inside of the sockets,—the water lodges, rusts the pipe, and, after a time, the socket is cracked. I have often found an overflow at the joint from this cause when the pipe is stopped, and been obliged to put new pipes, this evil arising from a little carelessness in not painting the sockets.

I hope the manufacturers of rain-water heads will take the hint I have now given, as other hints given in the *Builder* have been taken.

OCTAVIUS.

HEALTH IN SHROPSHIRE.

THE rate of mortality is fearful in many parts of Shropshire. In Madeley parish, containing about 3,000 inhabitants, there were, from Oct. 1 to Dec. 31, 1864, inclusive, 94 deaths, and only 87 births. A great number of these deaths were from small-pox, others from bronchial and inflammatory diseases. A mortality so excessive is attributed to the malaria arising from the River Severn; and no doubt that evil exists.

A great cause, however, will be found in the deficiency of drainage, and the want of airy, well-ventilated dwellings for the poorer classes, most of whom live in wretched hovels (for which they pay exorbitant rents), without cellars, paved with porous tiles or bricks upon damp clay, without drains, and, what is worse, often without good water, as the country is all coal and iron.

Another large village, two miles from Madeley, and fourteen from Shrewsbury, with the pretentious name of Dawley Magna, is worse, if possible, than its neighbour. It is a large colliery district, and may be truly called "a Black Country."

The churchyard is about 4 ft. above the road; and as the cemetery is very old, perhaps this is an accumulation of "mortal coils." A portion of this bank has been excavated, and in the churchyard a school, of brick, has been built, the back, with the utmost contempt for drainage, abutting against the mould of "some mute inglorious Milton or Cromwell, guiltless of his country's blood." The result was more than the hardy little colliers could stand; and sickness and mortality were so great that the school had to be abandoned, and now stands, with its broken windows (although not above a dozen years since it was built), a melancholy memento of want of foresight. The Sunday scholars are accommodated in a room in the "Church Wickets," through the kindness of the landlady, who, though "a publican," we may venture to say is no great sinner.

JANUS.

FALL OF A NEW SUGAR REFINERY AT LEITH.

A CALAMITOUS occurrence has taken place at Leith in the fall of a large new sugar refinery, belonging to the Leith Sugar Refining Company, which was in progress of building near Redbraes, on the Bonnington-road, near Edinburgh. At least four lives have been lost, several persons severely injured, and a valuable property almost entirely destroyed.

The refinery was built in two divisions—one a building four stories high, the other and larger one, of eight stories. It was in the last-mentioned building that the accident took place, and which was 82 ft. long by 44 ft. broad. It consisted of eight flats—the lowest of which was 11 ft.—and the others 9 ft., from floor to ceiling. The total height of the building must, therefore, have been between 80 ft. and 90 ft. The building was constructed entirely of iron and brick, so as to be completely fireproof. The floors rested on a series of brick arches, which it was intended should be paved with flags. A row of six iron columns ran through the entire length of the building from north to south, which supported iron beams running across the breadth of the building, from which the arches of the different floors were sprung.

The roof of the building was a large tank for receiving water, which was 4 ft. deep, and was made of $\frac{1}{2}$ -inch iron plates. The tank, which must have been of immense weight, rested equally on the outer walls and on the iron columns. Unfortunately, however, the foundations appear to have been insufficient for the very heavy superstructure; so says the *Scotsman*. The foundations on which the pillars rested were stone piers, each surmounted by a block of free-stone, 4 ft. square, in which the iron part of the column was sunk, and fixed by iron clamps. The failure of one of these blocks of stone is supposed to have been the immediate cause of the accident.

The architects of the refinery are Messrs. Blake & Barclay, engineers, Greenock; contractors for the brickwork, Messrs. Allan & Mann, Glasgow; for the machinery, Messrs. Blake & Barclay; for the iron beams and columning, &c., Messrs. Cowden & Brodie, Paisley. All the parties engaged were considered men of good reputation in their respective departments.

ARCHITECTURAL SCULPTURE AND THE PRIZE SCHEME.

UNDER the above title you printed in your last number a letter, suggesting that the council of the Architectural Museum should include architectural sculpture in their prize schemes, and inferring that stone carvers have been lost sight of. This has not been the case, for on several occasions prizes for works in stone have been offered. The response, however, has never been up to our expectations, and we have put down the inconvenience of working at home in such a material as stone as the probable cause of failure. When our council consider the question of prizes for next year, it may be disposed to renew their offers for stone-carving.

JOSEPH CLARKE, Hon. Sec.

BUILDERS AND ARCHITECTS.

SIR.—The article that appeared in your publication of February 11, under the above heading, has been to me a source of some amusement.

"Measure and Value" says,—"Perhaps I can explain my meaning in the shortest way by showing what led me first to keep architects out of the picture. I do not blame him for so doing, as it must be apparent to any one with common sense that it would be to his interest to do so. Having no one to control his movements, he would, of course, be in a position to make the matter agreeable to his own wishes. Under the circumstances, may it not be fairly presumed that he would make the opportunity beneficial to himself?"

"Measure and Value" goes on to observe that architects, as a rule, advise their clients that builders, as a class, are a set of rogues, and that it is highly dangerous to have any dealings with them except under the protection of one of themselves. Surely architects would not make those grave assertions without just cause? "Measure and Value," by his own showing, has been very successful, having, as he assures us, acquired a competency, while time out of ten that commenced when he did have gone to the bad. As he is so much to the good without supervision, let us hope he has in all cases been ever mindful of his clients' interests. Architects, he says, must not expect any good feeling from builders while they continue to do so and so. I would venture to suggest that architects would not wish or expect any, as it would, in my opinion profit them nothing. It would appear to me that architects are employed to look after their clients' interest, and not to study whether they have the good feeling of builders towards them. "Measure and Value" further says, in any other business a tradesman who is known to turn out good work is patronised; not so in our trade, where architects have their way. This, I presume, should read, where architects have not their way, as it must be apparent to the most unobtrusive that architects are employed for the sole purpose of seeing that the works are well and effectually performed. "Measure and Value" also says, "I advise all honest builders never to let an architect get between them and their customer, if they can help it." Were I a builder, I doubt not I should enter into his views. The reason, of course, is obvious.

A COMMONPLACE OBSERVER.

* * Of course, when we printed the letter referred to, we had no intention of seriously discussing whether or not it is desirable to employ an architect. Our reason for inserting it we stated at the time.

COMPENSATION CASES.

RIMMINGTON V. THE SOUTH-EASTERN RAILWAY COMPANY (CITY TERMINUS).

THE jury was summoned in this case (Lord Mayor's Court) to assess the amount of compensation to be paid to the claimant in respect of certain freehold property in Dowgate-hill and Turnwheel-lane, Cannon-street.

Mr. Bovill, in opening the case for the claimant, stated the property in question consisted of a spacious and recently-erected pile of buildings, known as Dowgate-hill Chambers, and a house and premises in the rear, 5, Turnwheel-lane, known as Stebbing's Billiard-rooms. The Dowgate-hill Chambers were the freehold of the claimant; the premises, No. 5, Turnwheel-lane, were subject to a lease, of which five years were unexpired, at the close of which it would have become the freehold of the claimant. The counsel then went through the various items of the claim, which, he said, amounted in round figures to 36,000*l.* The company had offered 24,000*l.*, which the claimant refused to accept.

Witnesses having been called in support of the claimant's case,

Mr. Lloyd, on behalf of the company, repudiated the figures given them by the claimant's witnesses, and called a large number of surveyors, who valued the compensation at from 20,233*l.* to 22,927*l.*

The jury, after a short absence, awarded the claimant 30,500*l.*

WOOD V. THE CHARING-CROSS RAILWAY COMPANY.

An inquiry was held on the 28th February, at the Surrey Sessions House, before Mr. Gresham, the High Bailiff of Southwark, to assess the compensation for Nos. 89 and 90, Redcross-street, and Robson's-yard, in the rear.

Mr. Lloyd, with Mr. Mellor, appeared for the company; and Mr. Bovill, Q.C., with Mr. Butler, for the claimant.

The property was held under a lease for three lives, on the Bishop of Winchester's estate, known as Winchester Park, leased to the Messrs. Pott. The principal contest was as to the value of the yard after the expiration of Robson's underlease in 1872, the witnesses for the plaintiff placing it at from 180*l.* to 230*l.* per annum, and those for

the company from 120*l.* to 130*l.* Another disputed item was a percentage on the value for the right to enfranchise, which the claimant put at one-third of the dry value, and the company at *sic*. The claimant's witnesses, Messrs. Edward Roberts, Edward Habershon, Thomas Green, and Henry Rice, varied in their valuations from 2,023*l.* to 2,255*l.*; for the company, Mr. H. A. Hunt was called to lessen the value of the right of enfranchisement, and Messrs. C. Lee, F. J. Clark, J. Shaw, F. Vigers, F. Marable, and W. Snook, for the valuations, which were from 914*l.* to 1,029*l.* The jury, after considering for nearly an hour, returned a verdict of 1,750*l.*

We understand that there has been a great deal of litigation in the matter, and this issue was directed by the Master of the Rolls, the costs being held over until a jury had determined whether the formal offer of 1,400*l.* was or was not sufficient.

PREVALENCE OF FIRES.

THE prevalence of fires at present is even greater than usual. The last of any note, as we write, is that which has completely destroyed the well-known Saville House, on the north side of Leicester-square. This was the result of the foolish act we last week commented on,—using a light to discover if gas was escaping. Another great fire has destroyed Messrs. Defries's premises in Shoreditch. The large fire which recently occurred near the London Docks, and other fires, have followed each other of late in London with startling rapidity.

The new Hulme town-hall was on fire recently from a flue connected with the heating apparatus igniting some of the woodwork. Fortunately the fire was discovered early, and the means provided within the hall itself proved sufficient for its extinction before much damage was done to the building.

Soon after the opening of a court hall, at the Ducal Palace, Brinswick, a fire broke out, and the whole building, except the left wing, has been burnt down. A bronze chariot, which formed the principal ornament of the façade, was melted by the heat.

In reading again the article on fire extinction in the *Builder*, of the 4th ult., I am struck with the remark made relative to the use of steam instead of water for the purpose of extinguishing fire. Having repeatedly in my long service in steam-ships seen the furnace fires put out in an instant by a jet of steam from a plug in the boiler, I can quite believe that our steam fire-engines would be much more serviceable as steam-generating annihilators than as mere pumps. You justly say that flame is the most dangerous constituent, rising and setting fire as it rises.

SAFETY.

ALLOW me to reply to the "Naval Captain's" inquiry as to the mode of rendering wood unburnable for ships' decks and sides. Sir W. Burnet's principle (as carried out by Lieut. Jackson, R.N.) secured this object, but has not been adopted as it deserved: probably it will be when beyond the patentee's hands, by being run out. I beg to state I submitted my idea of rendering a ship fire-proof (from accident or warfare, such as red-hot shot or shell), and laid it before the Admiralty, as the *Times* had stated "A man would be immortalized who could keep a ship secure against destruction by fire." I have proved "it can be effected" by applying the timber floors, or sides, or ceilings, in an end grain series of panels, which nothing will set fire to, as wood so placed only chars and forms a sooty face, whereas the timber floors and sides of face or side grain are capable of being fired immediately by flame, or hot bar, shot, or shell.

W. AUSTIN.

SANITARY MATTERS.

UNDER the title of "Threatened Absorption of the Thames," a contemporary says:—The Bill now before Parliament for incorporating the Cheltenham and Gloucestershire Company, if carried, will prove most serious to Oxford, Reading, and all the other towns on the banks of the Thames. The company propose to supply the towns of Cheltenham, Charlton-Kings, Cirencester, Cricklade, and other places, by pumping the water from the Cerney springs, which now supply the river Thames. Such a measure, if carried out, will diminish the water of that noble river a million of gallons per day. This announcement, which was made by the vice-chancellor at the recent meeting of the local board of health, caused some little consternation in the city of Oxford, and will, doubtless, throughout the valley of the Thames. The Oxford board of health have resolved to petition Parliament against the

scheme.—At the Bristol Council House, an agent for premises in Jarman's-court, Horsefair, has been summoned for suffering houses to be overcrowded in that court in such a manner as to be injurious to health. There were forty-eight inhabitants in four small houses, and only two closets in common. The fever had prevailed in the court, which was the only infected place in the neighbourhood. The defendant was fined 10*s.* and costs, or a distress to be levied on his goods; in default of sufficient distress, seven days' imprisonment. Another person was summoned for a similar offence in Foxhall-court, St. James's. The magistrates ordered the houses to be closed until they were rendered fit for human habitation.—The prevalence of fever in Glasgow was considered at the last fortnightly meeting of the Police Board. From the minutes of the sanitary committee, it appeared that during the last fortnight there had been 427 cases of fever reported as against 367 cases during the previous fortnight. This was the greatest number of fever cases which the medical officer had yet reported to the board, thus showing that fever was still on the increase. Means were being taken to prevent the overcrowding of dwelling-houses, and Mr. Carrick (master of works) was instructed to proceed with his plans for the erection of a temporary fever hospital on the north side of Parliamentary-road.

PROVINCIAL NEWS.

Basingstoke.—The Corn Exchange building has been opened. The building is at the corner of Wote-street and the lesser market, in close proximity to the old corn-market and the town-hall. The edifice is in the Italian style, and is faced with Bath stone and yellow bricks. The principal entrance is from Wote-street. There is a basement and a ground floor, the former being intended to be used as corn and other stores. On the ground floor is the large Corn Exchange room, 80 ft. long, 57 ft. wide, and 33 ft. high to the skylight. It is surrounded by iron columns supporting an ornamental iron roof, and skylight. A gallery is constructed over the principal entrance, which can be used for musicians, and other purposes. The lighting is provided by side windows, as well as the skylight, and the ventilation has been arranged by means of forty-two side-swing windows. The hall is lighted at night by two large gas coronas, and about a dozen pendant globe lamps around the sides. This portion of the work was done by Mr. Soper. The iron columns are of a chocolate colour, chased with scrollwork, tinted green and amber. The wrought-iron principals supporting the roof are of a similar shade, relieved with lighter lines. The architects were Messrs. Salter & Wyatt, of London; and the builders, Messrs. H. and R. Holland & Hannan, also of London.

Wolverhampton.—It is proposed to erect a new town-hall, sessions house, and police barracks in Wolverhampton. The borough surveyor has been instructed to report on the probable expense of erecting certain of the proposed new buildings.

Selby.—The opening of a new armoury and drill-shed at Selby, constructed for the use of the 38th West York Rifle Volunteers, has been celebrated with rejoicings. The armoury occupies a prominent position at the bottom of Brook-street, close to the railway, but several hundred yards from the station. The premises consist chiefly of a large central hall, which has been designed as a drill-room; and adjoining it are two prominent wings, one of which is fitted up as rooms and offices for the use of the Selby corps, while the other is devoted to the use of the sergeant who takes charge of the building. The central portion of the building is one story in height, while the wings are subdivided into two stories. The dimensions of the drill-room are,—length, 80 ft.; width, 40 ft.; and height, 23 ft. At one extremity is a staircase and balcony, for the use of those who may desire to witness the evolutions of the corps. In the interior the walls of the drill-room are uncovered, but the sameness of the tiers of brick of which it is built is diversified by rows of white. Externally the building consists of a central gable, which forms a transept to the drill-room, with Gothic arched windows; and there are two gables to the wings at the ends. The whole structure is faced with red brick, with bands and cornices of white brick, and the gables are finished with iron finials at the foot and apex. The interior of the building is chiefly

lighted by the large windows in the centre gable. All the rooms set apart for the use of the corps are lighted with gas, while the drill-room is illuminated by three large star pendants.

Hereford.—An ornamental drinking-fountain is to be erected in St. Peter's-square, at the cost of certain citizens, and on a plan approved by the City council, and carried out to the satisfaction of the City surveyor.

Llanelly.—The local Board of Health, having secured about 25 acres of land to be laid out to the best advantage as a public park, determined to consult Sir Joseph Paxton, M.P., and that gentleman has recommended Mr. Barron, of Sketty, to be employed by the Board in laying out and planting the ground.

Barton-upon-Trent.—A company is about to be formed, called "The Barton-on-Trent Building Company (Limited)," the objects of which are mainly to provide for the erection of houses in and near the town of Barton, suitable for the requirements of the labouring population.

Withington.—The foundation-stone of a new hospital for the Chorlton Poor-Law Union, has been laid at Withington. It will cost, with the furniture, nearly 20,000*l.*, and is intended to accommodate 500 inmates.

Sheffield.—The Cutlers' Company have at length resolved to carry out the long talked of enlargement of the Cutlers' Hall. The plan approved of proposes to leave the ground-floor meeting-room, entrance-hall, assembly-room, vestibule, and dining-hall without any alteration; to enlarge the grand staircase; to build a new dining-hall, 100 ft. by 50 ft. with galleries, offices, &c.; the room to be entered from the present dining-hall on the right by a lobby, 18 ft. 6 in. by 15 ft., with other entrances for waiters, &c., giving also a second room on the ground-floor, 85 ft. by 50 ft. The architects are Messrs. Flockton & Abbott. They estimate the whole to cost, including decoration, 5,000*l.*

Darlington.—The Society of Friends at Darlington, in order to celebrate the Prince of Wales's marriage in a way more congenial to their own feelings than that generally adopted throughout the land in March, 1863, set about to raise funds for establishing an accident and fever hospital, which has long been much wanted. Mr. John Ross was the architect employed, and he has erected, under the direction of Mr. John Pease (upon the land of that gentleman in Russell-street) and others associated with him in committee, a building capable either of further extension in case of need, or of conversion into dwelling-houses should failure ensue. The cost of the building, exclusive of land, the fittings, &c., has been 1,649*l.* 17*s.*

South Shields.—A meeting of the shareholders of the proposed New Theatre Company has been held, and a memorandum of association, together with the articles, were laid before the meeting and adopted. It is expected that the company will shortly be duly registered, and in a position to take preliminary steps for the purchase of the ground and the erection of the building. The proposed site is on the north of the Golden Lion Hotel, in King-street.

FROM SCOTLAND.

Anderston (Glasgow).—A new church in connexion with the Established Church of Scotland, has just been opened, at the junction of Dumbarton-road and St. Vincent-street, in the Anderston district. It is from the designs of Mr. James Salmon. The edifice stands east and west, and consists of nave and aisles, with organ-chamber behind pulpit at east end of nave. It is fitted up with galleries in the aisles, which are treated as two stories, and are continued round the west end of the nave. The nave roof is of the same pitch as the aisle roofs, both on the exterior and interior. The walls are built of freestone in broad and narrow courses of ashlar alternately, and relieved with red bands occasionally. The arches, &c., of the windows and doors are alternated by coloured stones. The cornices, door and window caps, label terminations, &c., are all carved. The roof is of timber, and decorated with gilding and stencilling in positive colours. The walls are of rough plaster, in courses corresponding with the exterior, and are broken up into geometrical and emblematic forms in red, buff, and black colours. The wall over the organ at the back is dispersed in gold on a blue-grey ground. The church is seated for upwards of 1,000 persons, exclusive of the choir-benches, and is provided with cushions and kneeling-boards. The pulpit is of large size, and

decorated with carving, containing busts of Peter, James, and John. The interior is described in its structure and decorations as being in advance of anything yet in the city, and also as being the first church in Scotland, in connexion with the Established Church, to introduce the organ. The tower, for want of funds, is at present carried no higher than the eave of the clerestory, which, till executed, mars the effect of the exterior. The whole cost, exclusive of the organ, is about 4,500*l.* The contractors were,—for mason's work, Messrs. Bruce & Kerr; Wright's work, Messrs. McIntyre & Jack; slater's work, Mr. Darrie; plumber's work, Messrs. Ingleton & Phillips; plasterer's work, Mr. Wm. Thompson; painter's work, Mr. Charles Gray. The stone carving has been executed by Mr. Earp, of London; and the carved woodwork of the interior by Messrs. Rhoddis & Grasseby. The organ is from the manufactory of Messrs. Hill & Son, London. Mr. James Lamb was master of the works. The gas-fittings were by Mr. Hugh Buchan, and the heating by Mr. John Hay.

Dundee.—A large stained-glass window has been added to the already considerable number of those which decorate St. Paul's Episcopal Church. The window has been given to the church by Mr. O. G. Miller. The frame is a two-light one in the west end of the north aisle. In the right-hand opening of the window, under a canopy of tabernacle-work, is a full-sized figure, after Holman Hunt, of our Lord, as "The Light of the World." Beneath this, the principal division of the window, is a smaller panel or compartment containing a representation of "Our Lord giving Sight to the Blind." In the left-hand division, and under a similar canopy as the other, is a second full-sized figure of our Lord, as "The Bread of Life." Underneath this is a representation of the "Marriage Feast of Cana." In the cinquefoil at the top is a miniature representation of the Paschal Lamb, the bordering being artistic in arrangement. The artist-manufacturer was Mr. John Scott, of Carlisle, who has already filled in several windows in this church.

Glenagarry.—A new church at Glenagarry has been opened for public worship. It has been built at the sole expense of Mr. Edward Ellice, of Glenagarry and Glenquoich, M.P. The new church is situate on a rising ground, a short distance to the west of the inn, on the north side of the river Garry, and close to the road from Invergarry to Skye. The edifice is built in the form of a parallelogram, 48 ft. long by 24 ft. wide, with a porch and vestry attached. The east gable is surmounted by a stone belfry, and the west by a simple cross. It is lighted by a traceried window in the east end, and by a series of triplet-pointed windows along the sides. Internally the roof is open-timbered, stained, and varnished, and is of larch, grown on the estate. The seats and pulpit are of pine, also varnished. The seats are arranged to accommodate 150 persons. Mr. Ross, of Inverness, was the architect.

CHURCH-BUILDING NEWS.

Bedford.—A vestry meeting has taken the reports of Mr. Palgrave and Mr. Street, on the subject of the restoration and enlargement of St. Paul's Church, into consideration, and has resolved to proceed with the work on these reports if the funds already subscribed can be sufficiently increased to cover the expense. Mr. Palgrave had proposed the removal of the tower and spire out of the line of the church, which, though of great length, is cut in two, as it were, by its thick piers and small arches, so that only one-half can be used in divine service, unless by two clergymen. The architect suggested that the tower should be re-erected in connexion with a new north aisle. Mr. Street was consulted, and concurred in the proposal to remove the tower, as it was in a state rendering it impossible to alter the piers and arches so as to open up the church. Mr. Street, however, stipulated that the worked stones should be used in the re-erection in such a way as to form an exact likeness of the tower as it stands. This the vestry has resolved on doing, with this modification, suggested by Mr. Palgrave, that as the tower will only be seen as behind the church, its height be raised to a certain extent, so as to be sufficiently visible.

Wootton.—This church, which has undergone a restoration from plans prepared by Mr. Butterfield, of London, architect, has been re-opened. The arch between the nave and the chancel and the two side arches in the chancel have been re-

built, and the whole of the pillars have been cleaned and restored. The western tower arch has been thrown open; and to do this, an old gallery, which formerly blocked up the upper portion of the arch, has been removed. The reredos has been decorated according to designs prepared by Mr. Butterfield, and the chancel roof has been similarly adorned. The old high-backed seats have given way to open oak benches. Near the centre aisle is a new font, the principal portion of which is formed of Devonshire marble, which is intermingled with Italian, French, and Irish marble. The basin is supported by a number of pillars.

Fangbourne (Berks).—The demolition of the church here will be commenced immediately. At a committee meeting recently held, the tender of Messrs. Reavell & Sons, of Windsor, for the erection of the new church, was unanimously adopted, the amounts being,—for the body of the church and fence walls, 2,742*l.*; tower, 860*l.*; spire, 258*l.*; as designed by Mr. Woodman, architect. The new church, which is intended to occupy as nearly as possible the site of the old, will consist of nave and north aisle, chancel and chancel aisle, south porch, and vestry at the end of chancel aisle. The tower will be at the west end of the nave, and about 70 ft. in height, surmounted by an octagonal stone spire, rising to the height of about 130 ft. The walls will be built with flint and stone; and the timber of roof, &c., will be open, stained, and varnished. The style adopted is the Early Decorated. The old bells, after undergoing extensive repair, will be re-hung in the new tower. The church will be heated by warm air, and it will provide accommodation for 413 persons. The churchyard will be inclosed with a flint and stone wall.

Northleigh (Oxfordshire).—The parish church has been re-opened. Besides the repair of the nave, aisle, and tower-roof, the gallery at the west end and high pews have been swept away, and low seats of deal, varnished, put in their place. The east window of the chancel, which was bricked up and hidden by an Italian altar-screen of painted deal, has been opened, and a Grecian chancel-screen of wood replaced by a stone screen. A pulpit of stone and new south porch have also been added. The whole has been completed from designs of Mr. G. E. Street, the diocesan architect. The entire cost of the chancel was defrayed by the governors of Bridewell Hospital.

Guernsey.—The newly-erected church of St. Stephen the Martyr, at the Rocquettes, in the parish of St. Peter-Port, has been opened. The project for erecting a church for the accommodation of that portion of the population of the town parish which is resident in the western suburb, was set on foot about seven years ago. The church, which is built of grey and red-tinted Guernsey granite, in courses of rubble work, with Caen stone columns and dressings in the interior, consists of nave, two aisles, which run the whole length of the building, and a chancel. The eastern and western gables, and the north porch, have much architectural merit, while the whole structure has an appearance of reality and solidity which compensates for the want of ornament. The church has an open timber roof, and the aisles are divided from the nave by massive round columns of Caen stone, from which spring arches faced with the same material. Each side of the chancel is furnished with two rows of carved oak seats running longitudinally, and the body of the church is fitted with semi-open seats, which will accommodate 750 persons. The pulpit, which is of carved oak, is placed against the southern side of the chancel arch. Twelve very handsome gilt gneelers, with five jets each, are placed in the nave, six on each side. Most of the windows are to be filled with painted glass, to be supplied by Messrs. Morris & Marshall, of London; but the completion of this part of the work has been delayed by the illness of one of the artists. The Caen stone font, at the western entrance, has been presented by Mr. D. de Putron, the builder of the church. The church contains 750 sittings, of which 450 are free. The entire cost will amount to 5,000*l.* Mr. G. F. Bodley, of London, was the architect, and Mr. D. de Putron, the contractor.

Wadsworth (near Doncaster).—The chancel of the Church of St. Mary, Wadsworth, has been renovated and improved, under the direction of Mr. Teale, a local architect. Mr. Athron, of Doncaster, and Mr. Green, of Wadsworth, were the contractors. The principal work has been the insertion of a new chancel-arch of Roche Abbey stone, in the place of a lath and plaster

affair erected some thirty years ago. New low-stalls have taken the place of the pews in this part of the church. The floor of the chancel has been brought back to its original level. Many old features have been discovered during the progress of the work, and are left exposed, showing points of architecture of former times. The sedilia, piscina, locker, and two lancet windows are among the principal features that have been brought out. Mrs. Walker, of Wilsic House, has provided an organ, which is placed in the north of the chancel. Mr. Meacock, of Doncaster, supplied the instrument, which cost 66 guineas.

Ebernoe (Sussex).—A subscription list has been opened for the purpose of building a new church at Ebernoe, in the south-west part of the parish of Kirdford. Lord Leonfield has contributed 1,000*l.* towards this object; and Mr. Penclley, of Ebernoe, 500*l.* and the site. Other donations make with these a total of 2,000*l.*

Mirfield.—A public meeting of the inhabitants of Mirfield has been held "for the purpose of considering the desirableness of erecting, by voluntary subscriptions, a new parish church, more suited to the increased and increasing population of the district." A proposition affirming the desirableness of building a church by voluntary subscriptions was passed with acclamation, and a committee was formed, and a subscription-list opened. Before the proceedings closed it was stated that upwards of 5,000*l.* had been subscribed. This is exclusive of a sum of 3,000*l.*, a legacy left by a Mr. Lee, for building a tower and providing a peal of ten bells.

Fenny Bentley (Derbyshire).—The restoration of the Church of St. Mary Magdalene has been completed, by the re-seating of the nave to correspond with the north aisle, the addition of a stone broached octagonal spire to the tower, 55 ft. high above the parapet, and some other and minor improvements.

DISSENTING CHURCH-BUILDING NEWS.

Mansfield (Notts).—A new Wesleyan chapel has been opened in this place. The edifice occupies the same site as the old building, which has been entirely removed, and is a stone structure, the walls being pitch-faced with dressed quoins to relieve the openings. The building is of Italian character, the principal façade having an open vestibule in the centre, with its entablature supported by stone columns and pilasters, having carved capitals of conventional foliage of the Corinthian type. The two wings are flanked by rusticated pilasters the whole height of the building, terminating in carved consoles supporting the main entablature, and the cornice is surmounted by an attic or perforated balustrade, upon which are placed six vases, relieved by carved foliage. The two tiers of windows have stop chamfered jambs, archivolts, and key-stones. The seats of the chapel are of stained and varnished deal, with mahogany cappings, and the gallery pews are arranged continuously round the walls, forming an oval well in the centre, the front of the well being painted in colours (delicate lilac and green), with the panels and carved ornaments picked out with gold. The supporting columns underneath are of cast-iron, relieved by a spiral band and bronzed, and with white foliated capitals. The main ceiling is surrounded by a cornice, and has in the middle a foliated centre piece, from which is suspended a star-light or corona. The ground-floor of the chapel internally is about 56 ft. by 45 ft., and the gallery about 80 ft. by 45 ft. In the rear, on the ground story, and communicating with it, are constructed a large vestry, 24 ft. by 20 ft.; class-room, 14 ft. by 12 ft.; and minister's vestry, 12 ft. by 10 ft.; and there is another class-room, 20 ft. by 11 ft. A crowded congregation can effect egress in the rear as well as in the front of the building. The works have been carried out by Messrs. Lamb & Stevenson, of Nottingham, the contractors in chief, assisted by Mr. Maude, of Mansfield, for the ironwork and heating apparatus; Mr. Greening for the painting, &c.; Mr. Wheeler for the glazing; Messrs. Lewis for the slating; and Mr. Smith & Mr. Rawlins for the carving. The gas-fittings have been supplied chiefly by Messrs. Thomason & Co., of Birmingham. The building has been carried out from the designs and under the superintendence of Mr. John S. Norris, of Nottingham, architect, at a total outlay (exclusive of site and value of old materials) of about 2,500*l.*

Liverpool.—A new Presbyterian church is to be erected in Prince's-road, from a design by Messrs.

W. & G. Audsley. It is to be a Gothic building of the Early French period, with a spire 175 ft. high, and traceried windows. The nave will be 100 ft. long, the transepts 80 ft., and sittings provided for 1,250 persons. 5,000*l.* have been raised at one effort by a Welsh congregation, in order to assist in carrying out the design.

Huddersfield.—The new Congregational church, Hillhouse, has been opened for divine worship. The church is situate about a mile from the centre of the town, in a rapidly increasing neighbourhood. The building is in the form of a cross, with nave, transepts, and organ recess. The front elevation is a gable, containing a five-light window, with decorated tracing, and a double doorway underneath. To the left, at the angle formed by the junction of two streets, a tower and spire rise to the height of 120 ft., and have been erected by the sons of Mr. Willans, in memory of their father. The pews are about 36 in. wide, low, with leaning backs. The galleries extend all round the church. The windows are glazed with cathedral glass, with a coloured margin. The aisles are separated from the nave by light iron columns, surmounted with foliated caps, carrying an arcade of wooden arches, which support an open hammer-beam roof. The woodwork is deal, stained dark and varnished. The lighting is by large gaseliers suspended from the roof and brackets under the galleries, and the warming by hot air. The dimensions of the church are, extreme length, 93 ft.; width of the nave, 49 feet; width at the transept, 63 ft.; and height, 43 feet. Accommodation is provided for about 950 persons, and the whole cost of the building is less than 4,000*l.* The architects were Messrs. Pritchett & Son, of Darlington.

STAINED GLASS.

St. John's, Wapping.—The chancel of the church of St. John, Wapping, has received, during the past week, two painted windows, as memorials. The subjects are—the Resurrection of our Lord, to the memory of Jane Randall; and the Ascension, to the memory of Joseph and Ann Oliver. The windows are about 10 ft. by 5 ft.; each subject filling the centre; a border surrounds them. The artist was Mr. Bell, of Bristol.

St. Mary's, Guildford.—The memorial window to the late rector has been finished. In the centre part of the tracery are the four Evangelists; to the right and left are St. Peter and St. Paul; and to the right and left of these are St. Thomas, John the Baptist, St. Andrew, and St. Philip. The five lower compartments have "The Nativity," "The Baptism," centre "Crucifixion," "Resurrection," and "The Ascension."

Uppingham Church (Rutland).—It is intended to erect a coloured glass window and a reredos in this church, to the memory of Bishop Jeremy Taylor, whose pulpit is still in use in the church.

Corfax Church, Orford.—A stained-glass east window, a memorial of the late Mr. James Morrell, is being put up in this church by Messrs. O'Connor, of London.

St. Neot's Church.—A new stained glass east window has been placed in St. Neot's Church, by Messrs. Hardman, of Birmingham. The execution of the glass has cost 450*l.*, inclusive of the guards and fixing, the money being chiefly contributed by the congregation. The lower part of the window represents the last scene in the sufferings of the Saviour, mystically treated with angels receiving the sacred stream in golden chalices. The upper part symbolises the exaltation of the Redeemer as contrasted with His humiliation below.

Seighford Church (Stafford).—The old church of this parish has been recently beautified by a stained-glass window, erected at the expense of Mrs. Thompson, of Seighford Hall, as a memorial of her husband, the late vicar. The subject represented is the interview between the Angel and the three Marys at the Sepulchre on the morning of the Resurrection, and it has been executed by Mr. Gibbs, of London. The window is a single light. A canopy surmounts the group, and a geometrical border of varied design runs round the whole.

Roman Catholic Church, Leamington (Warwickshire).—Two more altar windows have been fixed in this building, completing the decoration of the chancel. The subject of the centre one, which is divided into two lights, is Our Saviour, surrounded by the Apostles, and giving the keys to St. Peter. Introduced into the tracery, in a large medallion, is the figure of God the Father,

in the centre of a cinquefoil, filled, as canopies, with ornamentation. The right-side window is the counterpart of that on the left, and they contain two large figures representing St. Christina and St. Williams; and in the tracery an angel bearing a crown of thorns. The windows, which were executed by Mons. T. Dury, of Warwick, were presented to the church by two ladies of Leamington.

Leek Wootton Church (Warwickshire).—Stained glass has recently been fixed in the new rose-window in this church with subjects representing "Elijah raising the Widow's Son," "Christ Preaching out of the Ship," "The Storm at Sea," and "Christ Raising Lazarus," and in smaller openings the family-badge, monograms, and Gothic ornament. The glass was designed and executed by Mr. W. Holland, of Warwick.

Gloucester Cathedral.—The east cloister of this cathedral is about to be adorned by two new stained glass windows. One will be erected to the memory of the late Dean Plumtre, the other to that of the late Dean Rice. Mr. Powell is the artist employed, and Messrs. Hardman & Co., of Birmingham, furnish the glass. The late Mrs. Wetherell intended to put in a memorial window in the north cloister to the memory of her husband, the late Ven. Archdeacon Wetherell, canon of Gloucester. The new stone-work for this window has been prepared, and it is expected that the work will be completed by the executors of the deceased lady.

Trull Church (near Taunton).—A memorial window has just been placed in Trull Church. The window, which is in the Perpendicular style, consists of three lights and tracery. In the centre light is represented the Resurrection, and below this "Our Lord raising the Widow's Son;" in the right-hand light, "Our Lord bearing His Cross," and the "Raising of Jairus's Daughter;" and in the left, the "Entombment," and the "Raising of Lazarus." In the tracery are angels with scrolls, and others bearing the emblems of the Passion. The whole is surmounted by a crown. At the bottom of the window is the legend "I am the Resurrection and the Life;" and below this, on a brass plate, an inscription, "In memory of James Vibart, Commander, Royal Navy." The window was designed and executed by Messrs. Horwood, of Mells, near Frome.

Window to the late Duke of Newcastle.—A design, by Messrs. Ballantine & Son, Edinburgh, has been selected for a stained glass memorial window to the late Duke of Newcastle, to be erected in Basildon Church, near Nottingham. The design represents the Magi worshipping the Infant Saviour, symbolising the devotion of his grace to the cause of religion.

SCHOOL-BUILDING NEWS.

Sleaford (Lincolnshire).—The new day-school erected here by the Wesleyans has been opened. The building, which is of white brick, has been erected by Mr. Bension, of Sleaford, from designs furnished by Messrs. Pattinson, of Ruskington, under whose superintendence the whole of the works have been carried out. The entrance is by a porch on the south side, and the large room, measuring 48 ft. by 30 ft., affords sufficient accommodation for the education of 200 children. The height of this room and two smaller ones at the east end of the building is 17 ft. Hot-air flues have been introduced for the purpose of heating. The cost of the building, with fittings, &c., will amount to about 1,100*l.*, of which sum nearly 950*l.* have been promised.

Louth.—It is probable that a scheme for rebuilding the grammar school and Bede houses here, on the site now occupied by the old school, will shortly be carried out.

Cottonham (Cambridgeshire).—The tenders for the erection of a new British school in this place were as follow: that of Mr. T. Piggott was accepted, with the understanding that no person from another place should be engaged upon the works:—

Christmas, Haird, & Graves	£368 10 0
H. Baird & Leach	342 1 0
Leach, Ingle, & Smith	338 0 0
Piggott	329 0 0

Bromley (Middlesex).—An infant-school, being the first of a block of buildings, has been opened by the Bishop of London. It is used as a mission-church on Sundays, and will seat 400 adults and children. It is 70 ft. in length and 24 ft. in width, with open framed roof and boarded to under side of rafters, the whole stained and varnished. Several of the windows

are gabled, and have Bath stone dressings; there is also a quasi chancel, with wood screen and iron cresting. The entire cost was about 800*l.*, which, with the cost of the site for a church, parsonage, boys' and girls' schools, has been defrayed by the Bishop's Fund committee. Mr. G. J. Watts was the builder, and Mr. J. W. Morris the architect.

Harpenden (Herts).—The new Sunday and National School-rooms in this village have been opened. The style is Gothic, and the cost 600*l.* The dimensions of the school-room are 50 ft. by 20 ft.; and there is a class-room 20 ft. square. The roof is of deal, with lath and plaster between the rafters. Messrs. Slater & Carpenter were the architects, and Mr. Miskin, of St. Alban's, the builder.

Bristol.—The foundation-stone of the new schools in Temple parish has been laid by Mr. O. C. Lane, Master of the Society of Merchant Venturers. The school was founded by Edward Colston in the year 1711, and since that time upwards of 6,000 boys have had religious and commercial education in it. The building about to be erected will accommodate 200 boys, and the same number of girls. The architects are Messrs. Foster & Wood. The cost of the new schools, master's house, and recently purchased land, will be 2,500*l.*

Books Received.

Galbraith & Houghton's Scientific Manuals: Mathematical Series: Manual of the Steam-engine. By the Rev. Joseph A. Galbraith, M.A. London: Longman & Co. 1864.

This treatise appears to be a very good one, based on Count de Pambour's theory of the steam-engine. The author is a professor of natural and experimental philosophy, in the University of Dublin, and a Fellow of Trinity College; and for the last ten years he has given lectures in the School of Engineering at Trinity College, based on the same principles, though developed and applied somewhat differently from the mode adopted by De Pambour. The English edition of the treatise by the latter author has long been out of print, and Mr. Galbraith is desirous of placing the theory again in the hands of English engineers.

VARIORUM.

Admirable, Mr. Punch! Well done, John Tenniel! "Telescopic Philanthropy," for the good it is calculated to effect, shall whitewash thee of some private sine, should such befall thee. "Please 'm, ain't we black enough to be cared for?" says the neglected, attenuated, sharp-eyed London street-boy to Britannia (beautifully drawn), looking through a telescope for objects to aid. Dark enough in mind and body, in all conscience, poor boys, poor refuse. For God's sake, gentlemen legislators, do something for them! If that adjuration be not strong enough for you, then for your own sake do it.—A pamphlet titled "The Agricultural Value of the Sewage of London examined in reference to the Principal Schemes submitted to the Metropolitan Board of Works" has been published by Stanford, London. Although this may be regarded as a partisan publication in favour of Messrs. Hope & Napier's scheme, it seems to give a very fair statement of what can be said in its favour. An outline of Messrs. Hope & Napier's scheme is of course given, and the subject is illustrated by a map of the route and field of distribution in Essex. As to the question of value, it points out, just as we recently did, that the value of sewage is relative, and that "all comparison between the value of sewage and the value of guano is simply absurd."

"Guano is saleable the moment it arrives in port: there is a price current, and at a reduction of two or three pounds a ton on that price it would be easy to sell, even before it was landed, an additional fifty or even a hundred thousand tons. The merchant has no difficulty in storing it, neither has the farmer. If it is not required this season, it will lie in the manure-shed until next. But the value put upon sewage by certain persons (a value entirely disclaimed by agricultural chemists) depends on the chemists doing something which it is impossible to do. If the fertilizing constituents of the solid and liquid sewage of London could be taken out and dried without any expense, they would be worth a sum variously estimated at from one million and a half to three millions. But as the process is impossible, any calculation founded on this estimate is a waste of time. Before the sewage can be made worth anything, it must be conveyed to a place suited to receive it, within the reach of persons prepared to purchase manure largely diluted with water. To those who want it, sewage has a certain value; but to

those who do not want it, it is worse than valueless, because it can neither be stored nor got rid of."

The author remarks, on such questions of value, that "the time has not yet arrived, predicted by Baron Liebig, when the fertilizers of 1,000 acres can be carried in the pocket of a shooting-jacket;" and he reminds the English public that—

"It is notorious that on several points of practical agriculture this eminent professor has been egregiously wrong;—so wrong, that any farmer who had followed his advice would have inevitably been ruined. For instance, the experience of twenty years has proved that systematic drainage, originally suggested by Smith, of Deanston, and perfected by Josiah Clarke, is the greatest agricultural improvement of the age. Yet when this system was first adopted, or rather indorsed with the authority of the Royal Agricultural Society, Professor Liebig believed and asserted that the result of thorough drainage would be to impoverish and eventually render barren the soil so treated. At the same time he introduced to public notice, through Messrs. Mospratt, the eminent manufacturing chemists of Liverpool, a patent mineral manure, which he promised should correct the effects of drainage, and enormously increase all crops. While the drainage proved a great success, the patent mineral manure proved a total failure. Still more recently Baron Liebig has authoritatively stated that the soil of England, under the modern system of high farming, is becoming impoverished and reduced to the state of barrenness which afflicted the Roman States in the latter days of the empire; but, challenged to point out a single example of this exhaustion in any parish or noted farm in England or Scotland, he has remained silent,—facts being notoriously opposed to the professor's theory."

"The Ambulatory Schoolmaster: Miss Burdett Coutts's Letter on the Extension of National Education." This tractate contains a reprint of the letter to the *Times*, in which Miss Burdett Coutts suggests a scheme for carrying education into small hamlets scattered at too great distances for children to meet in one common school. Instead of sending the children to the teacher in such cases, she proposes sending the teacher to the children, day or week about, as most suitable or convenient. The *Times*' leader on the subject is appended to the reprint of the letter.—"An Abridged Text Book of British Geography." By William Hughes, F.R.G.S. Longman & Co. Mr. Hughes's "Geography of British History" is well known and appreciated, but too large and costly for some uses. This little abridgement is specially prepared to obviate that difficulty, and gives, compendiously, a large amount of information in a cheap and pleasant form.—The current number of the *Band of Hope Review* (to show the spirited manner in which this little publication is conducted) contains an engraving from a vigorous and effective drawing by Mr. Cave Thomas. It represents the brave sailor who stood to the wheel while the ship burnt, and brought her safely in, only to die himself.

Miscellaneous.

ROYAL ENGLISH OPERA.—Gounod's "Médécine Malgré Lui," with English words by Mr. C. L. Kenney, has been produced very successfully under the old title of "The Mock Doctor," and has enabled Mr. Henry Corri, who plays the chief part, to take an advanced position. The music is remarkably lively and pleasant throughout, and some of it will soon be universally popular.

PROPOSED TESTIMONIAL TO PROFESSOR DONALDSON.—A project is afoot, on the part of Professor Donaldson's friends and pupils, to testify their esteem for him, on the occasion of his vacating, next June, the chair in University College, London, which he has filled so zealously and conscientiously for the long term of three-and-twenty years. At present it has scarcely taken its proper shape, and we will confine ourselves to the brief intimation that Mr. Chas. C. Nelson, by whom this worthy project was initiated, will gladly receive co-operation.

PRINTERS' ORPHAN ASYLUM.—From a printed report of a public meeting to establish a Printers' Orphan Asylum, which has been laid before us, we are glad to observe that a very successful commencement has been made towards the realization of this excellent purpose. Numerous subscriptions have already been obtained from various well-known printing establishments, the printers of the *Builder*, Messrs. Cox & Wyman, holding, we perceive, a prominent place in the list of master printers, readers, and compositors who subscribe. No attempt at present will be made to erect an asylum building; orphans will be sent to existing institutions at the cost of the orphan fund. The new institution is designed not to compete with, but rather to supplement, the other charities of the trade.

MONT CENIS TUNNEL.—The Turin correspondent of the *Avenir National* says: "The Mont Cenis works will probably be completed sooner than was hoped: rocks have been reached much softer than those hitherto found; and the progress may be calculated at the rate of 250 metres per month. Should no unforeseen obstacles arise the tunnel might be opened for traffic towards the close of 1868. I can guarantee the accuracy of these details, which interest the whole world."

ECCLESIASTICAL ARCHITECTS.—Sir: The enclosed paragraph, cut out of the *Illustrated Christian Times*, gives another instance of professional (?) practice.—H. S.

"The Rev. W. Woods said good-bye to the Baptist church at Swaffham, on Monday, at a farewell meeting. After tea an address, with a purse containing thirty-five sovereigns, was presented to Mr. Woods, with many expressions of esteem. Mr. Woods has spent ten years in Norfolk, and has laboured hard and successfully both at Swaffham and in the country. In addition to his pastoral labours he has been the architect and surveyor of four capital chapels, at Diss, Dereham, Swaffham, and Yarmouth."

OUR RAILWAYS TO BE SUPERSEDED!—A contemporary has received a letter from Mr. W. H. James, C.E. (eldest son of the late Mr. William James, of Warwick, founder of the present railway system), stating that he has invented an improved mode of transit, whereby passengers may be conveyed 100 miles at the very small charge of one shilling each, provided there are a sufficient number of travellers; and for great distances at the rate, if desired, of 100 miles an hour and upwards, when there are no intermediate stoppages, with greater safety and much greater comfort than on the present railways; and that this improved system of transit may be brought into general use in less than one-tenth part of the time, and at less than one-tenth of the cost, of the present railway system.

WORKS EXECUTED IN THE CITY.—The usual annual report of Mr. Haywood, C.E., engineer and surveyor to the City of London Sewers Commission, on works executed, has been printed by authority of the Commission. From this report it appears that 230 premises were drained in 1864, in addition to 13,548 previously drained, leaving 2,223 without known drainage. Various improvements, as from setting back frontages, cutting off angles, &c., have been effected, and new ones projected. There are now thirty-three halting-places within the limits of the City, but no additional drinking-fountains have been erected, and there are still only five within the jurisdiction of the Commission. Cow-houses have been reduced from 20 to 19, and lodging-houses from 135 to 128.

THE DUJARDIN TYPE-PRINTING TELEGRAPH.—This improved type-printing instrument has for some time been experimentally worked by the Electric and International Telegraph Company, with favourable results, according to the *Mechanic's Magazine*. The type-wheel, says our authority, is of the ordinary form, with the type disposed around its periphery. Motion is communicated to it by means of a weight acting upon a train of wheels, and this motion is governed and made to take place, "step by step" by means of an escapement attached to what may be termed a pendulum vibrating between the poles of two electro-magnets. The type-wheel, in its motion from one letter to another, is thus independent of the electric power, and this motion would even take place by the effect of the weight, if the currents, rapidly alternating in the two electro-magnets, were interrupted. The weight and the escapement, in fact, of themselves give to the type-wheel a motion which is synchronous with that of the apparatus at the sending station, also set in motion by means of a weight, for the transmission of alternately positive and negative currents, the synchronism being merely controlled by the action of the latter. The transmitting apparatus is furnished with keys similar to those of a piano, and corresponding to the letters of the alphabet. When one of the keys is depressed, a current somewhat longer in duration than those which regulate the step-by-step movement of the type-wheel is transmitted at the exact moment of time when the latter reaches the proper position for the impression, upon a band of paper, of the corresponding letter. In the new inking apparatus the resistance offered by friction to the motion of the type-wheel is said to be greatly reduced. It is composed of a pad of velvet, the pile of which only is in contact with the type.

THE MIDLAND BUILDING TRADE ARRANGEMENT.—At Birmingham, a private meeting of the several delegates appointed by the members of the building trade has been held, at which, after some discussion, Mr. Thomas Lloyd was appointed as umpire. Mr. Lloyd was waited upon by a deputation from the delegates, when he accepted the office.

NO RAILWAY COMPENSATION FOR LOSS OF BUSINESS.—It seems that a recent decision of the Exchequer Chamber declares that compensation cannot be claimed for loss of business during the making of a railway. A number of persons who have been injuriously affected in this way by the Metropolitan Railway have formed a committee to raise funds to carry an appeal against this decision to the House of Lords.

LEAMINGTON SURVEYORSHIP.—The following were the selected candidates for the Local Board Surveyorship:—Mr. Joseph Niblett, London; Mr. T. D. Barry, Norwich; Mr. Archibald D. Darnley, Warrington; Mr. Edward Clavey, Derby; Mr. John Laing, London; and Mr. William Alderson, Basford. The final contest lay between Mr. Barry and Mr. Niblett. On the votes being taken, seven were recorded for Mr. Barry, and six for Mr. Niblett: Mr. Barry was therefore elected. The applications received were fifty-two in number.

MAGNESIUM LIGHT.—Mr. W. Stubbs writes,—"There is great difficulty in keeping a continuous flame with this metal, even when fed by clock-work into a spirit-lamp flame. My remedy is to feed two thin wires at once instead of one: one always remains ignited, and burns the other when a momentary imperfection occurs."—We hear of the use of magnesium light in the chambers of the Great Pyramid; now, in consequence, seen properly for the first time. We shall hope to have it taken into the New Grange chamber, as we suggested, for a proper examination of the interior.

GAS.—A new gas company, by name the Commercial Gas Company of Ireland, is now in process of formation, for the city of Dublin, eventually to extend its advantages to other cities and towns of Ireland. Dublin is at present lighted by two companies, which for some time acted more or less in opposition, but a few years since seemed to come to some tacit or private understanding concerning the price and quality of the gas supplied to consumers. The new company proposes to supply light of threefold the power of the old gas, and at a price lower than that at present charged to the consumers in Dublin.

CAMBRIDGE ARCHITECTURAL SOCIETY.—The first meeting of the Society for the Lent Term was held on Thursday, the 16th ult., the Rev. W. J. Beaumont, in the chair. The Rev. J. H. Henderson gave an account of the Lady Chapel of Ely Cathedral, and of the restoration now in progress. He entered into detail as to its original foundation, and the speculations which had been made as to whether it had ever been intended for a Chapter-house. He explained fully all the circumstances of its formation into a parish church, and the taking down of the old church, which was simply a lean-to on the north side of the cathedral; and he concluded with a very interesting account of all the difficulties which had to be encountered before the present restoration had been commenced. Considerable discussion took place with regard to the proposed arrangement of the seats, after which the meeting adjourned.

PRINCIPAL AND CONTRACTOR.—It has been decided, in the case of Gray v. Pullen, that where a duty is by statute imposed upon a person in respect of work which the statute authorises him to do, and he employs a contractor to do it, and, by an act of omission on the part of the contractor, a breach of the duty arises, the employer is responsible. The owner of premises within the Metropolis Local Management Act was authorised under sect. 77 of the Act to make a drain from his house into one of the public sewers. He employed a contractor to do the work, and in the course of doing it a trench was cut across the public footway, which was afterwards insufficiently reinstated, and in consequence thereof the defendant sustained an injury. The Court of Exchequer Chamber held (reversing the judgment of the Queen's Bench) that the defendant was personally liable for the breach of duty occasioned by the negligent omission of the contractor.

PROPOSED WORKING MEN'S CENTRAL INDUSTRIAL EXHIBITION.—A meeting, composed chiefly of committee-men of the late North London Industrial Exhibition, has been held in St. Luke's, when the following resolution—"That a Central Working Men's Exhibition for the parishes in and around London take place, at a time and place to be determined on hereafter,"—was carried unanimously. A committee was then appointed. The proposed exhibition will take place some time during next year. The Industrial Exhibitions Bill, we may here remark, has been read a second time in the House of Commons.

ACCIDENT IN THE WESTMINSTER-ROAD, LAMBETH.—A firm of linendrapers had been enlarging their warehouses, and were adding to the buildings another house, adjoining. In order to carry out the designs of the architect, a heavy scaffolding had been erected in front of the four stories of the premises, and the men were actively engaged in running out the cornice work at the top of the building, when the front of the wall between the two houses fell, and the whole of the scaffolding from the base to the roof of each structure parted asunder, and fell half way across the wide thoroughfare of the Westminster-road. Over 1,000l. worth of silks and satins were buried in the ruins, and over 36l. worth of plate-glass was demolished, but most fortunately and singularly, not a single person was injured. The front of the three buildings was afterwards barricaded, as three or four rooms, the staircase, and the drawing-rooms, were all in a dangerous state.

TOMB OF JAMES III. OF SCOTLAND.—The researches made in the grounds of Cumbuckeneth Abbey during last summer by the Royal Society of Scottish Antiquaries and the magistrates of Stirling will, says the *Scotsman*, in all likelihood, cause this fine old ruin of the eleventh century to be repaired, and the tower saved from destruction. The most interesting fact in connexion with the Abbey was the discovery of the tomb of King James III. The grave was found near the spot where in old guide-books and histories it was indicated to be, and was covered with a marble slab, bearing the marks of iron bands and sockets. The whole circumstances of the discovery were laid before the Queen, who signified her wish to erect a memorial stone or cross over the remains of her royal ancestors James III. and his Queen, Margaret of Denmark. The Stirling town council at once unanimously assented to the desire of the Queen. During the excavations, several large oak trees were found in one of the foundations.

THE COURTS OF LAW CONCENTRATION BILL.—In the Commons, on Tuesday, Mr. Kinnaird moved "That it be an instruction to the select committee on the Courts of Justice Concentration (Site) Bill that they have power to make provision for appropriating or obtaining sites, and for the erection of lodging-houses or other suitable dwellings for the working classes proposed to be displaced by the said Bill." Mr. Cowper opposed the motion, as placing impracticable duties on the committee. A brief discussion ensued, after which an amendment was moved by Mr. Hennessy, modifying the terms of the motion; but Lord Palmerston declined to accept the amendment; and on a division it was negatived by 18 votes to 8, when, forty members not being present, the House adjourned. A correspondent of the *Times* suggests that the Carey-street site ought to be abandoned, and a site on the Thames Embankment chosen. Although there are strong points in this suggestion, and especially, too, as it would settle the question of working-class dwellings for the displaced ones, we cannot cordially adopt it. The author of the suggestion imagines that one year's further delay would be all that would take place, but this we think is more than doubtful. It might be not a few years ere everything was settled for the new site and the new design; for although the *Times* correspondent urges that no change in the plans need be made, he somewhat inconsistently points out that, while the Carey-street design requires four frontages, the Embankment design would only require one. Though not inclined to advocate this suggestion, however, something ought to be done to provide new dwellings for those displaced. And although the town railways are offering facilities for the conveyance of working people to and from the suburbs, we are quite aware that there are other difficulties in the way, such as the necessity which some workmen, such as tailors, are under to live near their employers.

WHARFS AND WAREHOUSES AT BATTERSEA.—Now that the Thames Embankment will sweep away no less than 2½ miles of wharfs, and almost entirely close up the water-way to many warehouses, there is an absolute necessity for new wharfs and warehouses as a substitute for the old. A new company, with this view, we observe, is being got up under the title of the West London Docks and Warehouses Company, with a capital of 500,000l., in 25,000 shares of 20l. each, one-third of which has already been subscribed, for the formation of wharfs and warehouses with river frontage at Battersea. The company is under good direction. Sir Charles Fox & Son are the engineers, and Mr. F. Vigers and Mr. F. Whitaker the surveyors and architects. The site chosen is close to the Victoria Railway Bridge, and there will be railway communication between the wharfs and all the great railways in the metropolis. A canal basin is also to be constructed.

TENDERS.

For erecting eight almshouses in Easton-street, Wycombe. Mr. Edward J. Payne, architect:—

Ashton.....	£1,625 0 0
Reavell & Sons.....	1,185 0 0
Hollis.....	1,150 0 0
Pierce.....	1,060 0 0
Ward.....	875 0 0
Burnham.....	945 10 0
Spicer (accepted).....	777 0 0

For additional stables for Messrs. E. & W. Sturge, Bridge Wharf, City-road. Mr. James Harrison, architect. Quantities supplied by Mr. Arthur W. Q. Nicoll:—

Brass.....	£235 0 0
Ashby & Sons.....	485 10 0
Asford & Co.....	470 0 0
Browne & Robinson.....	465 0 0
Little.....	425 0 0
Coleman.....	425 0 0

For shop and dwelling in London-street, Norwich, for Mr. John Hatt. Mr. Edward Boardman, architect:—

Rice.....	£705 18 0
Hall.....	737 15 0
Blythe.....	728 18 0
Wales.....	699 0 0
Brown & Bailey.....	697 15 0

For forming warehouses, &c., for Mr. Pratt, on Tombland, Norwich. Mr. Edward Boardman, architect:—

Brown & Bailey.....	£370 0 0
Ford.....	370 0 0
Rice.....	355 15 0
Blythe.....	283 0 0

Schedule of prices for remainder.

For erecting seven alcoves and twelve alcoves at the North Pole Garden, Islington. Mr. C. Foster, architect:—

	For the seven.	For the twelve.	Total.
Ellis.....	£31 10 0	£35 9 0	£66 19 0
Gadley.....	27 0 0	45 0 0	72 0 0
Davy.....	22 10 0	41 2 0	63 12 0
Grover.....	21 0 0	38 0 0	59 0 0
Hughes.....	22 5 0	38 0 0	60 5 0

For new schools at Hemel Hempstead, Herts. Mr. Joseph James, architect. Quantities not supplied:—

Humphreys.....	£265 0 0
Sear.....	750 0 0
Monk.....	745 0 0
Young.....	697 0 0
Cheshire.....	690 0 0

For four semi-detached houses, Lordship-road, Stoke Newington. Mr. P. Charles. Mr. Herbert Ford, architect:—

Hewett.....	£4,132 0 0
Rawlins.....	3,796 0 0
Bateman.....	3,357 0 0
Perry.....	3,240 0 0
Culow.....	2,835 0 0
Grey.....	2,900 0 0
Bowman.....	2,759 0 0
Best & Nottle.....	2,750 0 0
Tully.....	2,650 0 0
Flint.....	2,480 0 0
Ashton.....	2,368 0 0

For the erection of new buildings to the Cornwall County Asylum, Bodmin:—

Collins.....	£5,290 0 0
Finch.....	5,189 0 0
Jenkins & Hallett.....	5,069 0 0
Condy.....	4,970 0 0
Harvey.....	4,867 0 0
Clarke.....	4,810 0 0
Call & Pethick (accepted).....	4,444 0 0
Bray & Co.....	4,437 0 0
Bowman.....	4,390 0 0
Marshall.....	3,960 0 0

For re-building and enlarging Acton Church, Middlesex. Messrs. Francis, architects. Quantities supplied. Net amount after deducting value of old materials:—

Higgs.....	£7,750 0 0
Myers.....	7,483 0 0
Howard.....	7,361 0 0
Adamson.....	7,283 0 0
Dove.....	7,190 0 0

For alterations at 29, Savile-row. Mr. A. Evers, architect. Quantities not supplied:—

Howard.....	£587 0 0
Corder.....	579 0 0

The Builder.

VOL. XXIII.—No. 1153.

Gothic Architecture in Spain.







E have heretofore had very little precise information concerning the monuments of Gothic architecture remaining in Spain; general notions of the size and grandeur of some of them, gathered chiefly from the drawings of David Roberts and Villamil; but little, if any, knowledge of their dates or of their architectural details. Mr. Ferguson's chapters on "Spanish Architecture," suggestive as they are, only served to show how scanty the readily-available information was; and Mr. Waring, in his book, illustrates chiefly what is known as the Plateresque

Renaissance work. Concerning the Moorish remains in Granada and elsewhere, we have complete information; but of the Gothic structures, as we have said, next to nothing for the professional or otherwise precise inquirer. Mr. Ford, in his excellent "Handbook of Spain," affords many interesting particulars, but his space is necessarily very limited, and he gives no illustrations. His references, however, to local guides and authorities have served to lessen the difficulty of Mr. Street, who has sought to supply the want to which we have pointed, and whose portly and very handsome book, the result of several journeys to the country, is now before us.*

Viewing the interest of the subject as three-fold,—first, Artistic and Archaeological; secondly, Historical; and, lastly, Personal; he has first of all arranged the notes of his journeys in the form of one continuous tour; and then, in the concluding chapters, has attempted a general résumé of the history of architecture in Spain; and, finally, a short account of the men who, as architects and builders, have provided the materials of his work. As an appendix, he adds two catalogues,—one of dated examples of buildings, and the other of their architects,—with a few translations of documents which serve to bring before us very clearly the way in which these Mediaeval buildings were carried on. He appears to have been most

assisted by a Spanish book, the title of which may be Englished as "Notices of the Architects and Architecture of Spain, by D. Eugenio Llaguno y Amirola, edited with additions by D. Juan Augustin Cean-Bermudez," in four volumes, compiled about the beginning of this century, but not published until A.D. 1829.

His book consists of 527 pages, and is very fully illustrated with engravings and plans from drawings by the author. Remembering the extent to which he is engaged in the practice of his profession, it speaks loudly for his industry and power of application. The full-page engravings, some of which we are enabled to reproduce, are fifty-one in number, and of folded ground-plans there are 25. On the plans the age of the various parts is indicated by shadings to the extent of the author's light, and he has added, in most instances, much to our personal gratification, a selection of the Masons' Marks observable on the different portions. These marks, we may note, are the same in character as those we have found in many parts of the world, and in most cases, indeed, identical in form.

The pentalfa , the universal , this form , the eight-pointed star , less

common in England, though it is to be found, and many others well known prevail. Our author at starting correctly points out that travelling in Spain involves no real difficulty, and very little personal inconvenience in the way of food and lodging, especially if, when journeying in the autumn, the traveller take his advice and live occasionally on bread and grapes. In his first tour Mr. Street entered the country from Bayonne, travelled thence by Vitoria to Burgos, Palencia, Valladolid, Madrid, Alcalá, Toledo, Valencia, Barcelona, Lérida, and by Gerona to Perpignan. In the second he went again to Gerona, thence to Barcelona, Tarragona, Manresa, Lérida, Huesca, Zaragoza, Tudela, Pamplona, and so to Bayonne; and in the third and last by Bayonne to Pamplona, Tudela, Tarazona, Sigüenza, Guadalajara, Madrid, Toledo, Segovia, Avila, Salamanca, Zamora, Benavente, Leon, Astorga, Lugo, Santiago, la Coruña, and thence back by Valladolid and Burgos to San Sebastian and Bayonne.

The Cathedral of Burgos being the first described, the cathedral arrangements common in Spain are set forth:—

"The choir proper (Coro) is transferred to the nave, of which it occupies commonly the eastern half; the portion of the nave outside, or to the west of the Coro, being called the 'Trancoro,' and that to the east of it the 'Entre los dos Coros'; and in most great churches the 'Crucero,' or crossing, and the transept really do the work of the nave, in the way of accommodating the people. The floor of the nave proper is, indeed, too often a useless appendage to the building, desolate, dreary, unaided, and cold; whereas in the transepts, the services at the altar and in the choir are both seen and heard, and this accordingly is the people's place. A passage is sometimes, or perhaps I ought to say is usually, made with low iron or brass screens or railed-in from the eastern gate of the Coro to the screen in front of the altar. This is especially necessary here, as the choir proper is deep, and the people are thus kept from pressing on the clergy as they pass to and fro in the long passage from the altar to the Coro. Gates in these screens admit of the passage of the people from one transept to the other whenever the services in the Coro are not going on. The Coro is usually fitted with two rows of stalls on its north, south, and west sides, the front row having no desks before them. The only entrance is usually through the screen on the eastern side, and there are generally two organs placed on either side of the western bay of the Coro, above the stalls. In the centre of the Coro there is always one, and sometimes two or three lecterns, for the great illuminated office-books, which most of the Spanish churches seem still to preserve and use. High metal screens are placed across the nave to the east of the Coro, and across the entrance to the choir, or 'capilla mayor,' as its eastern part is called. These screens are called 'rejías.' Above the crossing of the choir and transepts there is usually an open raised lantern, called by the Spaniards the 'cimborio'; and behind the altar, at the end of the Capilla mayor, is usually a great sculptured and painted retablo or reredos. All these arrangements are generally described as if they were invariably found in all Spanish churches, as they certainly are at Burgos and many others now; and an acute and well-informed writer in the 'Ecclesiologist' suggests that their origin may perhaps be looked for in the early churches of the Asturias and Galicia, since he had looked in vain, in both Spanish and Galician liturgies, for any peculiar dogma or ritual practice which would have involved arrangements so different from those common in other countries. The grounds for my opinion will appear as I describe other churches in other places; but I may here at once say that what occurred to me at Burgos was to some extent confirmed elsewhere, namely, that most of these arrangements have no very old authority or origin, but are comparatively modern innovations."

In the church of San Gill, in Burgos, there is an iron pulpit, of which a view is given. The support is of iron, resting on stone, and the staircase modern. The framework at the angles, top and bottom, is of wood, upon which the ironwork is laid. The traceries are cut out of two plates of iron, laid one over the other, and the ironwork is in part gilded. The canopy is of the same age and character, and the whole effect is described as being very rich.

The old cathedral of Salamanca, attributed to the twelfth century, has a strikingly handsome lantern at the crossing, vaulted inside, and of which we give a view.* We can scarcely call it "a dome" (as Mr. Street is inclined to do), and outside it takes the character of a low spire, with an entasis: four great circular pinnacles built against the external angles resist the pressure of the vault. The exterior angles have lines of simple and boldly contrived crockets, and the stones with which it is covered seem all to have been cut with scallops on their lower edge. The stonework of the exterior is much decayed, but otherwise the whole work stands well and firmly. Attention is called to the admirable treatment of the gables over the windows on the cardinal sides of the dome. No doubt they answer the same purpose as the circular turrets at the angles in providing a counterpoise to the thrust of the vault, and the change from the circular lines of the angle turrets to the sharp straight lines of these gables

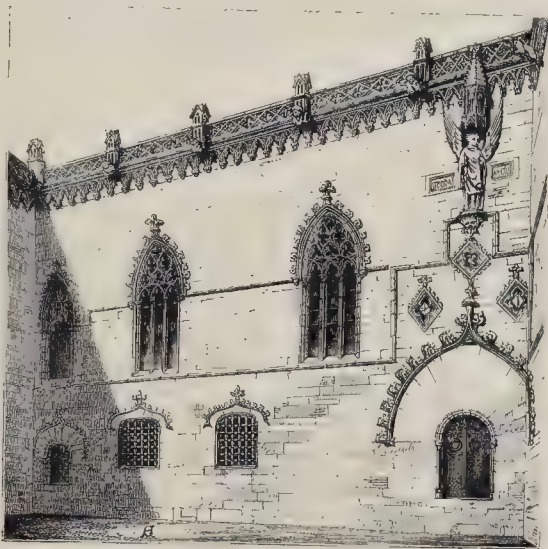


Fig. 3.—Barcelona. Casa Consistorial.

* "Some Account of Gothic Architecture in Spain." By George E. Street, F.S.A. London: John Murray, 1865.

* See p. 172.

produces an agreeable effect. So, too, the contrast between the shafted windows, with their springing lines definitely and accurately marked by sculptured capitals, and the openings in the turrets, with their continuous mouldings. The value of contrast—a treasure in the hands of the real artist—here consciously and most artistically exhibited; and it was no mean artist who could venture to make so unsparring a use of architectural ornamentation without producing any sense of surfeit on those who look at his work even with the most critical eyes.

At the beginning of the sixteenth century, it was determined to have a new cathedral, and Mr. Street gives interesting particulars of the steps that were taken as to the designing of it. In 1509, a Royal order was issued to Anton Egas, master of the works at Toledo Cathedral, to go to Salamanca to make a plan for the proposed cathedral. Egas seems to have delayed so long that it was necessary to send another order to him, and then at last, in May, 1510, he went. The same kind of command had been laid at the same time by the king on Alfonso Rodriguez, the master of the works at Seville, and after these two had considered the matter, they presented a joint plan, drawn on parchment, showing the heights and widths of the naves, the thickness of the walls, and so forth; but they were unable, they said, to agree as to the proportion of length to breadth in the Capilla mayor, and so they settled to meet in ten days at Toledo, and then to appoint an umpire. Nothing more seems to have been done by them, for in A.D. 1513 the Bishop and Chapter resolved to call together a junta of architects to make another report; and Rodriguez being dead, they summoned Anton Egas of Toledo, Juan Gil de Hontañon, Juan de Badajoz of Leon, Alonso de Covarrubias of Toledo, Juan Tornerio, Juan de Alava, Juan de Orozco, Rodrigo de Saravia, and Juan Campero, who all assembled in September, A.D. 1512, at Salamanca, and drew up their report. The detailed character of this report is very curious. It describes the dimensions of every part of the church, the thickness of the walls, the projection of the buttresses, and the exact position that it ought to occupy. The architects not only agreed in all their opinions, but testified to their truth by taking an oath "by God and St. Mary," saying each one, "So I swear, and amen."

What Spanish architecture owes to that of Germany is seen in many places. St. Maria, at Benavente, for example, with its five spires projecting from the east wall covered with semi-domes might stand for one of the Rhine churches.

San Vicente, at Avila, is a remarkable church, and exhibits sculpture which induces some natural exclamations:—

"To me the sight of such work as this is always somewhat disheartening. For here, in the twelfth century we find men executing work which, both in design and execution, is so immeasurably in advance of anything that we ever see done now, that it seems almost vain to hope for a revival of the old spirit in our own days; vain it might be in any age to hope for better work, but more than vain in this day, if the flimsy conceit and impudent self-assertion which characterize so much modern (so-called) Gothic is still to be tolerated; for evil as has been the influence of the paralysis of art which affected England in the last century, it often seems to me that the influence of thoughtless compliance with what is popular, without the least study, the least art, or the least love for their work on the part of some of the architects who pretend to design Gothic buildings at the present day, may, without our knowing it, land us in a worse result even than that which our immediate ancestors arrived at. Here, however, at Avila, in this porch of San Vicente, let us reverence rightly the art and skill of him who built, not only so delicately and beautifully, but also so solidly and so well; let us try to follow his example, knowing for certain that in this combination lies the true merit of all the best architecture—Pagan or Christian—that the world has ever seen."

The cathedral at Toledo our author finds to be an example of the pure vigorous Gothic of the thirteenth century, "equal in some respects to any of the great French churches." The first stone of it was laid in 1227. Mr. Street is disposed to think the architect (called in his Latin epitaph *Petrus Petri*) was a Frenchman. At any rate, he had his knowledge from France. It has five aisles; is 395 ft. long, 178 ft. wide between the walls; the nave being 50 ft. in width from centre to centre of columns: and it is excelled in area only by the cathedrals of Milan and Seville.

We must pass rapidly through the book, and will take out a couple of specimens of domestic architecture. The first (Fig. 2) is the finest in Valencia, the Casa Longa, or Exchange, commenced on the 7th of November, 1182. The architect is thought to have been Pedro Compe. The main front of the Lonja is still very nearly

as he left it, a fine specimen of late Spanish pointed work. The detail is of the same kind as, but simpler than, the contemporary works at Valladolid and Burgos, and there is a less determined display of heraldic achievements; though the great doorway, and the window on either side of it which open into the great hall, and which are so curiously grouped together by means of labels and string-courses, have some coats of arms and supporters rather irregularly placed in their panels. The great parapet of the end, and the singular finish of the battlements, are worthy of note. The principal doorway leads into a fine grained hall, 130 ft. long by 75 ft. wide, divided into a quasi nave and aisles of five bays by eight columns, sculptured and spirally twisted. The portion of the building to the left of the centre is divided into three chambers in height, the upper lofty and well proportioned. The next stage, have plain square windows. The next stage, windows of much loftier proportions, and with their square heads ornamented with a rich fringe of cusping. There are pointed discharging arches over them. The upper stage of this wing is extremely rich, the window-openings being pierced in a sort of continuous arcading, the pinnacles of which run up to and finish in the parapet. This parapet is enriched with circular medallions enclosing heads, a common Italian device, betokening here (says the author) the hand of a man whose work was verging upon that of the Renaissance school. At the back is a garden, the windows and archways opening on which are of the same age as the front.

The second is the Casa Consistorial in Barcelona (Fig. 3). This building is said to have been commenced in 1369, and finished in 1378,* and inside the great hall an inscription bears the date 1373. The enormous arch-stones of the principal doorway are very common throughout Catalonia, and are indeed seen as far east as Perpignan. The figure of St. Michael has metal wings; and as the little church is dedicated in honour of the same archangel as if there was some special connexion between the two buildings, the *partio* or quadrangle is oblong in plan, and on the first-floor the passage is open to the air, with delicate arches all round. On the east side of this passage a door opens into a noble hall, with a dais for the throne at the upper end, and doorways on each side of the dais.

Of the cathedral in Barcelona ("the Manchester of Spain"), Mr. Street gives a full description. It would seem to have been commenced in 1298, and was still in progress in 1329, the date, according to our author, of the bulk of the work. Jayme Fabra, or Fabre, appears to have been the architect,—"*el Maestro*."

"In the deed which I give in the Appendix, he describes himself as 'lapiscola,' citizen of Mallorca, and says that he is about to go to Barcelona, to undertake a certain work there at the request of the King of Aragon the 14th of July, this was in A.D. 1314, and it is clear, I think, from the terms of his contract,† that Fabre was something more than architect, and really also the builder of the church in Palma. The term used might indeed lead us to suppose that he was a mere mason, but the request of the king and the bishop proves that he was much more than this, and is useful as showing that these titles literally translated are very apt to mislead."

The last stone of the vault was placed in September, 1448. We give a view of the interior (Fig. 4). The planning of the nave is very peculiar. It seems as though the main requirement of the founders of this church was a plentiful number of altars; for there are no less than twenty-seven distinct chapels inside the church, and twenty-two more round the cloister. The chapels in the south aisle have a row of other chapels, which open into the cloister, placed back to back with them, and the windows which light the former open into the latter, showing, when seen from the nave chapels, their glass, and when seen from the cloister chapels the dark piercings of their openings. The arrangement is not only extremely picturesque, but also an evidence of the care with which the sun was kept out of the building. The Coro here is in its old position in the two eastern bays of the nave, with the old screens around it and all its old

fittings. It is to be observed, however, that here, where the late Spanish arrangement was from the first adopted, the western entrance to the choir was preserved, and so the awkward blank which the wall of the Coro generally presents on entering is not felt. West of the Coro are two bays of nave, over the western of which rises the lower part of a rich octagonal lantern. This is carried on bold piers of square outline, which, from the very simple arrangement of the shafts of which they are composed, have the grandeur of effect so characteristic of Romanesque work. The cross arches under the lantern are lower than the groining, and on the east face the spandrel between the two is filled in with rich tracery and arcading. Arches are thrown across the angles to carry the octagonal lantern, of which the lowest stage only—which is well arcaded—is built.

The Cathedral of Tarragona, Mr. Street describes as one of the most interesting churches he has seen in Spain, affording one of the finest types, from every point of view, that it is possible to find. It unquestionably is a very noble interior.

The Cathedral of Gerona has, perhaps, the widest pointed vault in Christendom, the clear width of the nave so covered being 73 ft., with a height proportional. These Spanish churches, or rather we would say, churches in Spain, are well deserving the study Mr. Street recommends, showing what may be done by boldness of design and simplicity in detail, provided there be solidity of construction and tasteful disposition of sculptured decoration sparingly used. Sculpture in excess becomes offensive. We may not now touch the chapters treating of the Spanish architects of the Middle Ages. Suffice it, at present, and without accepting all its conclusions, that the book is a valuable contribution to the history of our art, and should lead many to visit the country.

THORVALDSEN.

The Danish sculptor, Thorvaldsen, was of Icelandic origin; and in times of old, doubtless, so noble a genius, had his countrymen then been such lovers of statues as the old Greeks were, would have been declared to be a son of the Scandinavian god, Thor, only Thor was by no means so celebrated for his constructive as for his destructive genius.

The father of Thorvaldsen was a poor carver of ships' heads at Copenhagen, who had great difficulty in cutting out a lion's head so as to resemble anything else than a poodle. The family had been known and respected in Iceland for no less than nine generations. The carver, when only seventeen years old, but he never rose out of poverty; and, notwithstanding his son's celebrity even before the father's death, the old carver died in an asylum among cripples and other disabled poor.

The young sculptor,—whose Christian name, if he was ever christened, is actually unknown, although, being usually called Bertel, it was believed to have been Alberto, or Carlo Alberto,—was born at Copenhagen, on November 19th, 1770. In his youth he had no school education whatever, and it was not till he was thirty-five years old that he began to study the Danish grammar. His father, however, would appear to have taught him reading and writing,—at least, his autographic productions strongly resembled those of his father, but we have known many instances in which a son's handwriting was very like his father's, although not taught by him to write. Bertel Thorvaldsen, while a youth, worked with his father as a carver, and was very useful to him in "developing" the poodle genus into the *genus leo*. Hence, it was with no great good-will his father allowed him to cultivate his peculiar genius for statuary in any other way than in ship-head carving. There were discriminating persons in Copenhagen, however, who induced the father, who seems really to have had more affection for his son than the son afterwards showed for the father, to allow Bertel to go to the Arts Academy School, which cost nothing, and for which the father had no means to pay had it cost anything. In 1781 Bertel was admitted to the first "Sketching Class," and in 1782 he was promoted to the second,—a very unusual thing, it was considered, for a boy only twelve years old to accomplish. This very talent, it was, however, which tempted his father to employ him at home as an assistant in his own carving business, so

* *Paracrisis*, Recuerdos, &c., Cataluña, i. 107.

† "The architects of the work of the new temple," says S. Furio (Diccionario historico de los Profesores de las Bellas Artes de Mallorca, p. 55), "agreed to give to the architect, Master Jayme, eighteen sueldos a week for the whole of his life, as well when he was ill as well; and during the work, in case he should have to go on matters of business to Mallorca—his country—the Chapter bound themselves to pay him his travelling expenses and maintenance as well going as returning. They promised also to give a house rent free for him and his family, and two hundred sueldos annually for clothing for him and his children."

that the kindred pursuits of the father stood greatly in the way of the son's advancement. Bertel was still allowed to attend the Academy classes, however; and in 1786 he was removed to the Modelling School, and here, for the first time, began to study from nature and to work in that substance wherein his most famous pieces were subsequently executed. One of the academical professors, Nicholas Abildgaard, the artist, attracted by the rare talents of his pupil, took great pains with him, and was even afterwards of much use to Thorvaldsen. When a lad of sixteen he gained the small silver medal, which was regarded as something remarkable, and induced the provost, whose brother was secretary to the Academy, to honour him with the title of "Monsieur Thorvaldsen," of which title the young artist was almost as proud as he was of the medal; and amongst all his subsequent titles and his crop of medals he never forgot the compliment of the provost.

In 1789 Thorvaldsen gained the large silver medal of the Academy for a *bas-relief* of "A Sleeping Cupid," a work which is still preserved in the Academy, and betrays, it seems, evident marks of Abildgaard's instruction.

In 1790, Thorvaldsen first appeared before the public as a statuary at the request of a school-fellow, Nicolas Wolff, who commissioned him to model three statues representing the tutelary deities of Denmark and Norway for a triumphal arch. Thorvaldsen at the same time executed a portrait medallion of the crown princess, Maria Sophia Frederica, for whose entry into Copenhagen the arch was erected. A plaster worker, named Regoli, induced the lad to sell him the portrait for a trifle, and multiplied it in plaster for sale to his own advantage.

Thorvaldsen had great reluctance to risk his examination for the small gold medal of the Academy. He tried to "keep his spirits up by pouring spirits down," while about to enter on his preliminary task of sketching "The Expulsion of Heliodorus from the Temple;" but he fairly ran away, and was brought back by one of the professors, and in less than four hours produced a sketch which met the entire approval of the examiners: the model from this gained him the gold medal on the 15th of August, 1791.

His reputation thus became widely extended, and procured for him many powerful friends and patrons. On the 14th of August, 1793, the great gold medal was awarded him for a *bas-relief* of "Peter healing the lame Man." This entitled him to a travelling stipend for three years on the Continent; and of this privilege he eventually, but somewhat reluctantly, and much against the inclination of his parents, availed himself by going to Rome. In the interval, however, he earned a competence by painting portraits, which were much sought after. He also devoted a good portion of his time in making mirror-frames with his father, and in executing vignettes for booksellers. His friend Abildgaard also procured him employment in modelling several *bas-reliefs* and statues for the new palace at Copenhagen. His method of working was peculiar, and seems to have attracted the notice of *savans*. Instead of first modelling them, as was usual, in clay, and afterwards taking a plaster cast, he would gradually build them up from the base with stones and stucco,—a composition the more difficult to work in on account of its drying so speedily. A Swedish sculptor went to see Thorvaldsen's workmanship on this occasion, and asked how he executed such beautiful figures. "With this," replied Thorvaldsen, curtly and simply, holding up his scraper.

"Thorvaldsen is now in Rome! God be with him! He is a good fellow, but an idle dog." Such was the remark made by the captain of the vessel in which he sailed to Rome, when writing to his wife. No doubt, Thorvaldsen was in the continual habit of lounging about the docks, with his pipe in his mouth and his hands in his pockets, staring at nothing in the far-off horizon or the azure sky, which his busy brain, however, was even then, to a certainty, peeping with the numerous gods and goddesses of his laborious future; or leaning lazily over the grunale, and down into the blue depths of the ocean, where statues swam about before his mind's eye as the fishes did before his unheeding outward vision. The wonderful list of this idle dog's sculptural works, comprising no less than 500 separate items, each item often comprising a whole group or a number of duplicates of sculptured figures, amounting in all, we should think, to not far short of a thousand distinct forms of sculpture, gives a striking com-

mentary on an idle phrase, by the use of which the world are but too apt to stigmatise the habits of those sons of genius whose ways are not as their ways, and who do not jog on in the ordinary grooves of worldly wisdom.

Thorvaldsen's self-dependent consciousness of inward power, as well as his diffidence, were manifested on his arrival at Rome by the fact, that of all the numerous letters of recommendation he had brought with him he only presented one, that to his archaeological fellow-countryman Zoega, whose influence, however, was both great and beneficial. Perhaps his natural lowness of spirits may have conduced towards his reluctance to make use of his letters of introduction. He hired a studio in Strada Babuina, previously occupied by Flaxman, but was shortly afterwards attacked by fever, and indeed to this disease he was repeatedly a martyr while in Italy. Love also, about this time, kept the lazy dog idle. He formed a *malisance* with a girl named Anna Maria Magnani, with whom he was associated for many years, and by whom he had a daughter, the only child he ever had. Rome about this time was in a very unsettled state, and Thorvaldsen did not make much pecuniary progress. The Copenhagen Academy took the matter into consideration and voted a further stipend to him for a year after the expiry of the three years of his travelling studentship. He had forwarded several works by that time to the Academy, and he now set to work on his afterwards famous "Jason with the Golden Fleece." He broke up his first model, however, but rapidly produced another, in clay, larger than life-size. This was in 1803. Canova was much struck with the excellence of the design, and it excited general admiration. The year, however, expired without any material improvement in the sculptor's prospects, and he prepared to return home, but on the very day of his departure a valet came into his studio, and told him that an English gentleman was waiting outside, and very much desired to see his statue of "Jason." Mr. Hope was the man, who restored hope to Thorvaldsen. He asked him to name his price for "Jason" in marble. Six hundred zecchinos, or 300*l.*, was the price. Mr. Hope at once agreed to this, remarking that the remuneration was but small for so large a work—so great a work, he might have said. He paid 800 scudi, or about 63*l.* in advance; and thus it was that Thorvaldsen's portmanteau was untrapped from the vetturino's conveyance, and he became for many a long year a citizen of Rome. His difficulties, however, may be said to have only now begun: he had to purchase the marble for "Jason," at Carrara, and that cost 650 scudi. Other and minor orders flowed in, however, and he struggled on, while his fame as the designer of "Jason" went forth, and connoisseurs hailed him as the regenerator of the long-lost antique art. It was at least eight years, nevertheless, ere he acquired anything like distinction as a sculptor. This was partly owing to repeated attacks of fever, and also partly to political causes. It is painful to find Thorvaldsen's father telling him by letter, after this, from the asylum, that Herr Abildgaard was his only friend, and had lent him ten dollars to pay the expenses of Bertel's mother's funeral, which he had had hard work to pay back; and the poor old man adds,—"God knows what my burial will be."

Oehlenschläger, the renowned tragic author, thus describes Thorvaldsen as he saw him previously to the summer of 1810, in his studio, whither he went to inspect the statue of "Jason." "As I stood absorbed in gazing at it," he says, "I became aware of the presence of a man very meanly dressed. His countenance was remarkable for the regularity and intellectual expression of its features, and for the deep blue of the eyes. He stood beside me, with his boots bespattered with clay, and regarded me with evident attention."

Commissions poured in from all quarters, and Thorvaldsen never hesitated to undertake them, reckless of the circumstance that not even his "Jason" had yet been executed; and, although no one would have now called him an idle dog, he certainly exposed himself to the charge of being an ungrateful one; for it was only after four years after Mr. Hope had given him the order for "Jason," that the statue was executed! He did make amends, however, by unexpectedly sending, along with "Jason," in 1828, a bust of one Mr. Hope's children, and another of his valuable works. Moreover, a "Jason" executed at that time was at least worth as many thousands as Mr. Hope paid hundreds for it.

It was not till 1838 that Thorvaldsen finally left Italy, and returned, greatly renowned, to his native country, where he was received as if he had indeed been a son of Thor. Forty-one years of his life were thus spent in Italy. He died in 1843, expiring suddenly while at his favourite resort, the theatre. In 1848 his remains were removed from the Frus Kirk to the museum which he had founded in Copenhagen, and which was then completed.

This outline has been gleaned from "The Life of Thorvaldsen, collected from the Danish of J. M. Thiele; by the Rev. M. R. Baruard, B.A.," just now published,* in which those who desire to know more of him should look for it. The volume itself is but a sketch; and it seems to be a matter for regret that the author did not make greater use of the voluminous memoir of Thiele, if not even extending to a full translation; for Thorvaldsen is well enough known and rightly enough esteemed in this country to have justified such a course.

The volume is appropriately dedicated to Her Royal Highness the Princess of Wales.

SAVILLE HOUSE: WHY WAS IT BURNT?

THE accounts of the destruction of Saville House by fire have omitted notice of circumstances that would deserve to be remembered in any efforts to develop a system of construction less productive of danger than that which now prevails. Something has been written, in our own pages especially, concerning the system which allows each house,—or in the majority of cases,—to be as so much firewood conveniently disposed for the perfect ignition of the whole mass during a period of time to be counted by minutes. Even should the rapidity of the communication of flame be moderated by accidental circumstances, such as the absence of a great rush of air through an opened door, smoke will precede the flames, and suffocate those who might have remained some minutes longer unburnt. Though it has been shown that if quartered partitions and joisted floors were filled in solid between the timbers, the rapid spread of fire might be materially counteracted, and perhaps arrested, the greater number of partitions and floors are still constructed hollow. Fire-proof plasters which have stood severe experimental tests, are, consistently with the general inattention to the whole matter, scarcely used at all; and ordinary plastering, which, well executed, is really capable of resisting fire for a moderate length of time, is so laid that it is of little service, especially where joists are weak, and fractures in the plaster have commenced. In short, each house is still built like a funeral pile, with the proper spaces and channels left for supply of air and the lapping on of flame from stick to stick, only excepting that there is an ostensible outer casing which is more or less effectual in confining the fire to one house, according to the number and arrangement of any openings in the wall, and to the vicinity of other buildings and the direction of wind. The result from the arrangement of the material quite resembles that from the housemaid's manner of laying the domestic fire when the wood has been dried, and is well laid for the cracking up quickly. The effect to sight and hearing is absolutely identical: the period elapsing from the first catching fire, to the complete inflammation, judging from what we have seen, must be the same in the two cases.

Circumstances attending the destruction of Raggett's Hotel, in Dover-street, several years ago, as then described, deserve to be recorded in the history of this subject. We cannot now turn to the newspapers; but we recollect that one of the incidents showed that the slightest hesitation in making an escape after the first intimation of an occurrence of fire, although scarcely any smoke or flame be distinguishable at the moment, involves the utmost danger. On the occasion referred to, one of the inmates of the hotel came out of his room-door, saw nothing, went back, delaying little more than an instant, and was somewhat injured in descending the stairs. It is not necessary to allude to the loss of life then, and on so many other occasions.

The value of good party walls was shown on the occasion of the destruction of Saville House; but the fire in Leicester-square should lead to consideration of the danger which there is of communication of fire from one building to another, through the existence of a feature in

* Chapman & Hall, Piccadilly.

the arrangement of adjoining buildings, that is modern, and is becoming almost general. We have sometimes referred to disadvantages which there are sanitarily in the practice, growing with the increase in the value of ground, of building on the sites of yards and gardens. The structures, which in the majority of cases must be top-lighted, form a perfect means of communication of fire from one building to another. The fire in Leicester-square did not extend to the houses east and west of Saville House, in the front towards the square; but had the fire occurred in Messrs. Stagg & Mantle's premises, it would have been communicated to Saville House, by reason of the existence of a one-story building of the kind to which we have alluded.

But this circumstance is not the only one to which attention should be directed just now. There were other circumstances which, it may be said, might be supposed to have attended such a fire, but which required no demonstration to convey the impression of. We have spoken of them, but only slightly. The writer of these lines happened to arrive in Leicester-square only five or six minutes after the explosion; but flames were pouring out of the windows of the second or principal floor; and in two or three minutes more, the whole interior of the story seemed as a furnace. So early was this, that little more than the ordinary crowd in the square was to be noticed. A long time seemed to elapse before the engines came; though we do not think there was unusual delay; and the Chandos-street station is not far off. When the engines got to work, the water from them seemed to vanish in spray without reaching the fire; or the streams bore about the same importance to the fire, as those from a boy's squirt would to the most glowing fire that there could be in a kitchen-grate. The exertions of the firemen may have helped to save adjacent premises; as regards Saville House, they seemed to have no effect whatever, unless one prejudicial; the fire ceased when everything combustible was burnt. Great damage, however, was done to goods in adjoining premises, by the water.

Our own impression of the extreme rapidity, and otherwise remarkable character, of the total inflammation of the principal floor, is more than confirmed by a statement to us, by Mr. J. E. Collins, the painter of several exhibited portraits of Miss Bateman. Mr. Collins happened to be passing at the time, on the footway next Saville House; and the window of one of the lower stories, where the explosion is said to have occurred, was blown out in front of him. He ran to the opposite side of the road, immediately turned round to see what was the matter, and saw the flames at the windows above, much as we have described their appearance only about five minutes later. His impression was that some combustible liquid, as turpentine, must have caught fire on the second floor. It seems to us that the appearance, whether due to any such cause as this last, or to combustion of gas following the explosion, — as in the case at Liverpool, taken as reported, and which we alluded to in our last number as mentioned previously, — or to a rapidity of communication of flame greater even than that which is ordinary, should even now suggest official investigation. Inquests on fires, after having been revived, — and one of them, that on the fire of Covent Garden Theatre, having led to knowledge of possible causes of fires, — seem to have again fallen into disuse, unless where there is loss of life. We venture to assert that what was seen by ourselves, and others, previously to the arrival of the engines, at the fire in Leicester-square, deserves some further attention, at least with the object of greater care in the gas-arrangements, as in the construction, of many classes of buildings.

There is another circumstance to be noted of the fire in Leicester-square, not less important than any other that we have alluded to. Although almost immediately after the manifestation of fire in the second or principal floor of Saville House, the whole of that story was glowing and crackling like a furnace fed with wood, it was very long before the fire got to the story above. What was the construction of the flooring we are not aware; but it could scarcely have been such as that of the commoner kind of London house. We have heard several statements from persons who witnessed the fire; and each one has included surprise at what indeed was sufficient to surprise ourselves. The case affords one more piece of evidence that a floor may offer considerable resistance.

We may mention here that there is an invention, Nickson & Waddingham's "Patent

Slate Ground for Plaster," — once noticed by us in a review of the materials and manufactures at the Architectural Exhibition, — which, besides other advantages over wooden laths, has the property of fire-resistance. The secretary of the Patent Plaster Foundation Company, at Manchester, has lately written to us saying that on the evening of the 20th ult., a fire occurring in certain offices in that town, in Faulkner-street, and of which the ceiling and partitions were plastered on the slate-ground, the fire was confined to the one room, and did not touch the joists or flooring above, though a wooden beam below the ceiling was burnt to a depth of 2 in., and the whole of the partitions and fittings, and a joiner's bench and tools, were destroyed. The actual damage did not exceed thirty pounds. The offices are in a new warehouse, and had been locked up at about eight o'clock in the evening.

In conclusion: the destruction of buildings by fire should be made to result in some accurate knowledge of circumstances which cause the calamity, and of all those which induce the rapidity of a conflagration, and eventually in an improved system of construction. Unfortunately the most important data for any questions which there are, are to be gathered only at the time of outbreak of a fire, and within a very short interval after, or before the fire-brigade and persons competent to form opinions have had time to arrive.

THE EXHIBITION OF THE ROYAL SCOTTISH ACADEMY.

THE Scottish School of Art, although of comparatively recent origin (the present is the thirty-ninth exhibition), has added some of the greatest names to the roll of British artists. Those of Wilkie, Raeburn, Dyce, Watson Gordon, Roberts, Phillip, Noel Paton, Gibson, and Calder Marshall are sufficient testimony of the truth of this statement. The tendency of this age of telegraphs and railways is to reduce peoples to an uninteresting uniformity of habit and manner; but any nation, worthy of the name, having a history of its own, and a distinct peculiarity of natural features, must, in the nature of things, evince a distinct type of character, although this may be greatly modified by change of circumstances. The shepherd of the hills will be a man of as different a stamp from the labourer of the plains, as the ploughman of the ocean from the ploughman, so long as hill and dale, land and sea exist. It is needless, therefore, for a certain class of writers, to pour ridicule upon the Scot, because he shows some peculiarities, unless, indeed, these peculiarities are deserving of blame; but, upon the broad field of art, there is room for all to roam at freedom without offence.

The peculiarities of the Scottish School of Art may be said to consist in appreciation of character and a certain bold, rough mode of treatment, combined with a rather heavy and dull tone of colouring. At the same time it must be confessed that there is a manifest improvement in the matter of colouring within the last few years; and this improvement is mainly due to the influence of one artist, Mr. John Phillip, whose "Spanish Wake" (453) is the chief attraction in the galleries. Its strong contrasts of light and shade, mirth and woe, its glorious colour, masterly drawing, and dramatic effect, produce a lasting impression upon the mind; but, as its merits were sufficiently descanted upon when it was exhibited in the Royal Academy last year, it is unnecessary for us further to refer to them. Before closing these preliminary remarks, we would refer to another influence at work, that tends towards making the Scottish artist more cosmopolitan and less conventional than he otherwise might be. Having studied in the northern capital, and acquired in that limited field a certain reputation, his ambition prompts him to seek a wider field of exertion; so he shifts his studio to the capital of the empire, where greater advantages are at his command, and a new impulse and direction given to his exertions. A few years ago Messrs. Faed, Petty, Orchardson, Archer, and J. and A. Barr, followed this impulse; and since then their works have been received with much favour, and commanded a more ready sale than they could have done in the provinces.

The present exhibition is in many respects above the average of former years, not only from the importance of the works exhibited by well-known artists, but from the increased power

and improvement shown by younger and less known men. The number of works exhibited exceeds by forty-seven those in the last exhibition of the Royal Academy, and we cannot undertake to go over the catalogue in detail, but will confine ourselves to a notice of the most prominent and meritorious productions.

Mr. Horatio Macculloch has long retained the first place as a delineator of the Scottish highlands, and no one excels him in giving the general expression and feeling of the "brown heath and shaggy wood, the mountains and the flood;" but he seems not to be aware that there are other colours than brown and grey in a highland landscape. "Glencoe" (125) exhibits his peculiarities in a marked manner. The mist creeping along the summits of the bold range of mountains, with their bald and rugged sides, is true to nature; but in the foreground there is no indication of living colour: all is dead brown, not a spot of green moss nor a tuft of living heather, not a blade of grass nor a solitary wild flower or stunted bush. In this region of mist there is always sufficient moisture to preserve some green spot for the eye to rest upon, even in the hottest summer. No. 669, "Loch Achray," shows a little more attention to local colour, and of having been studied from nature; but the grass and felled trunks of trees are conventional and slovenly in execution.

"He Was Faithful and Mither and a' things to me" (506), is a charming little picture, by Thomas Faed, and will be remembered by visitors to the Royal Academy, and by our readers.

We cannot see much to admire in the work of Mr. Harvey, the newly-elected president (529), "A Joyful Mother of Children;" it is good neither in colour nor texture, and is decidedly faulty in drawing, as witness the awkward ungraceful position in which the girl who is being assisted into the open window is thrown: the mother is a very common-place looking dame, and her family have no special beauty to recommend them. It is in his landscapes that Mr. Harvey appears to best advantage; and the effect of sunshine in the room, and the glimpse of landscape seen through the window, are the redeeming points of the picture, which, by the way, might as well have been called portraits of Mrs. So-and-so and family.

Several specimens of the late Mr. Dyce are sent by their proprietors, none of them great works, but each exemplifying, in some degree, his peculiar merits. (455) "Study of a Head," is full of dignity, and the colour of the drapery remarkably fine, but the flesh appears leathery and the beard rather woolly. (511) "Pegwell Bay, Kent," is highly finished and carefully detailed, and the flickering evanescent light of the declining sun on the chalk cliffs truthful and evincing keen observation. (711), "The Mouth of the River Rosa, Arran," is a small carefully finished piece of landscape, without any peculiar excellence of colour or expression.

There are three specimens of the late David Roberts in the Exhibition. (419) "One of the Chapels of the Church of St. Jacques, Dieppe," is one of his earlier productions, and shows more attention to detail than he afterwards bestowed on his later works, of which (795) "San Giovanni e Paolo, Venice," is a good example. It would appear from the works of Mr. Roberts, that generalization of detail in a painting of an architectural subject produces more grandeur of effect, and less feeling of littleness, than when the detail is carefully elaborated. Many are apt to forget that the province of the painter is distinct from that of the delineator. 833 is a sketch of "Burns's Monument at the Auld Brig o' Doon," in which the landscape is merely indicated by dashes of neutral tint.

Mr. William Douglas lives in an atmosphere of romance; he is at home in old tapestried chambers, with quaint furniture, in libraries with heaps of works strewn about, and in vaulted cells where the alchemist mixes his simples and the necromancer wields his magic wand. His principal work this year is entitled "The Return of the Carrier" (546). In a Gothic chamber a bibliophile pursues his studies, and a young lady watches her opportunity of gaining possession of a letter, brought by a carrier pigeon, without disturbing the stillness that reigns around. The room has an appearance of genuine antiquity about it, and the drawing and texture, as in all Mr. Douglas's works, are excellent.

Mr. James Drummond's works are thoroughly national in subject, and exhibit the faults as well as the merits of the Scottish school; he displays great antiquarian research in the selection

of the costumes and accessories of his pictures. The characteristics of the various historical personages are, in most instances, happily expressed; the execution is sometimes loose, and the colour and texture seldom good. (606) "Queen Mary's Last Look of Scotland," is about the worst specimen from his easel that we have seen; the figures are crowded into a small boat, to such an extent that it could not "live" in a calm sea, far less in one, as in this instance, when a brisk breeze is blowing; the boat, moreover, lies towards the wind, as it could not do with the sail filled out in the opposite direction.

Mr. Peter Graham promises to be, if he is not already, the best landscape-painter in Scotland. His landscapes are not mere transcripts of nature, but poetical productions of a high order. His "Ruins of other Times" (624), would have been better named "A Picture of Desolation." At the edge of a stagnant pool a blasted pine-forest is falling to decay; a damp, cold shroud of mist is slowly embracing in its folds the distant landscape; a solitary raven—the only inhabitant of this dreary spot—is perched upon a branch of a fallen pine, which by slow degrees has parted from the root; and a deer's skull lies partly imbedded in the marshy soil. It is easier to suggest than to produce, and still easier to find fault: in this spirit we might express an opinion that the picture would have been finer than it is had the number of pines been fewer, with one in the foreground rising sheer up to the top of the canvas.

There are some minds like milk that will only stand one skimming; and Mr. Alexander Leggatt's seems to be of this order. Last year he produced a rich bit of clotted cream, from which he derived a considerable amount of butter; this year he produces nothing but skim milk. The figure of "Palissy modelling from Nature," in his last year's work, possessed considerable power of expression; and although the other figures introduced, and the accessories, were rubbish, their defects were overlooked upon the supposition that the artist had been hurried in finishing the picture; but this excuse cannot be urged in favour of what he now exhibits. Palissy again appears (755), declining to be converted to Popery, even by a king. His majesty stands in a stony attitude, intended to represent offended dignity; whilst the old potter cringes before him, and two female figures in the background look as if they were the work of the potter's art, which they can hardly be, from their position and size.

A Dutch painter, A. Mollinger, of Utrecht, sends two landscapes, (279) "Church of Village Zwoelo," and (362) "Rainy Day in latter End of Summer, hamlet Weezup." Neither of these is a subject that would have engaged the attention of any of our artists; they have better at command all around: the more credit, therefore, is due to the Hollander who has used to such good effect what he could get. The sunny calmness of the one, and the dull leaden hue of the other, are admirably represented, and the flat uninteresting landscape stretches far into the distance.

Mr. Sam Bough works at railway speed—express time; he can execute a painting,—ay, and a good painting, too, in its way,—in a single day. Such being his impetuous mode of working, it is useless to look for high finish or much detail: doubtless his pictures would be more valuable as works of art with more attention to these particulars; but it is not in his idiosyncrasy, and we must take him as we find him. 552, "In the Trossacks," shows good colour and modelling in the hills; but the birch-trees are flat and devoid of character, the perspective of the road is defective, and the flock of sheep like so many packs of wool.

Mr. J. B. Macdonald just falls short of excellence in his "Episode in the Time of the Test Act" (686), *vide* "Old Mortality," esp. 8. Milnwood, the miserly laird, is well hit off, and so is the fanatical bitterness of old Manse, and the pawky cunning of Cuddy. Bothwell is a gallant-looking trooper; but Henry Morton, the gay gallant whom Bothwell addresses as Captain Popinjay, is more like a tapster in a city tavern than a hero of romance, and it would not require the craft of the Brothers Davenport to undo his bonds. The picture is good in colour, and strong and forcible in execution.

Mr. H. Cameron's "Sunny Hours" (487) is a charming little picture, reminding us of Mulrondy in the coloring of the figures and the mode in which the landscape is brought into harmony with them.

Mr. Macdaggart confines himself to the delineation of peasant life, with an occasional essay

at portraiture. His principal picture (367) "Word from the West," which represents the reading of an emigrant's letter, a subject which has been frequently painted before, is, unlike the generality of his works, dull and heavy in colour, and deficient in imagination and sentiment. No. 387, "A Summer Afternoon" is full of sunshine, and so is (454) "The Press-gang."

Mr. McWhirter is a diligent student of nature; he has painted on the spot the snow-peaks of Norway and the sunny plains of Italy, as well as many a pleasant nook in his native land; but it is obvious that "The Exile's Garden" (347) is a creature of his own imagination,—the hilly and the rose, the poppy, digitalis, and hare-bell all bloom luxuriantly together; whilst at the same time the over-ripe apples are falling from the tree. His "Temple of Vesta, Rome: Evening" (708) is charmingly treated.

In the biography of letters Scotsmen are said to excel in republicanism,* and the analogy holds good as to portraiture. The late president, Sir John Watson Gordon, stood unrivalled in the delineation of character, though deficient in texture and colour. There are four of his works exhibited, the finest of which, we think, is the unfinished one of Mr. John Pender, M.P. (534).

There are two fine examples of Francis Grant, "Major-General Sir Hope Grant" (452), simple, unaffected, and manly, the colour rather chalky; and (689), "The Lady Mary Craven," full of grace and refinement.

No. 474, "Rev. Shafto Orde," and (533), "Alexander Mitchell Innes, Esq.," by Colvin Smith, are vigorous and broad in treatment. Francis Cruickshank's "Portrait of Alexander Cassels, Esq., W.S." (584), has something akin in it to Sir J. Watson Gordon's famous "Provost of Peterhead."

No. 668, "Portrait of Anderson Ferguson, M.D., Inspector General of Military Hospitals," by Norman Macbeth,—a noble head finely rendered; and 424, "The Rev. James Begg, D.D., full of self-consciousness. 328, "The Earl of Dalhousie," like all Mr. Phillip's works, fine in colour and vigorous in touch.

Water-colour painting has never taken firm root in Scotland. Notwithstanding the patronage of royalty, Messrs. Macleay & Gregg have hard work of it, and it was not till he emigrated southward that Mr. Burton could get his works satisfactorily disposed of. There is an idea prevalent in the north that water-colour is evanescent, and the "canny Scot" likes to have something substantial for his money, so he goes in for what he considers more durable stuff, and invests in oil.

Last year Mr. Waller Paton entered the ranks of the small band of water-colourists, and must have met with some degree of success, as he again appears as one of their number, and, in our opinion, his works in that medium are superior to his oil paintings. He delights in purple, violet, and crimson, and sunsets are the invariable product of his brush. 44, "The Dhu Hlochran," a grand expanse of deer forest, is, perhaps, the best work he has yet produced; it is rich in tone, yet subdued and harmonious in effect, and full of air.

Mr. G. M. Greig's "Jedburgh Abbey: Evening" (209) offers a marked contrast to Mr. Paton's, being sombre and subdued in tone; and the same qualities appear in 216. Mr. Greig is a little too timid in the use of colour: a visit to the Water-colour Society's Gallery in Pall-mall East would do him no harm.

Mr. J. J. Bannatyne has several brilliant landscapes: 106, "Benvenue and Loch Achray," and 86, "Glenfulas," particularly.

Mr. Horatio Macculloch's small studies are excellent in effect; and the productions of Messrs. Clarke, Stainton, W. H. Nutter, and others, deserving of more attention than time and space will allow us to bestow on them.

The sculptures consist chiefly of busts, and we shall only refer to two of them as exemplifying diametrically opposite modes of treatment. That of "The Rev. Principal Candlish," by Mr. D. O. Hill (863), represents the peculiarities of physiognomy of the reverend Principal in the most exaggerated manner, and the expression is more that of a barrister attempting to puzzle a jury than that of a divine. 864, "Bust of the Rev. Wm. Robertson, by George Macallum, has all the dignity and spiritualty becoming the sacred profession. Mr. Calder Marshall's "Summer Cloud" (888) seems to float on air; the graceful undulation of the figure, the drapery wafted

about as with a gentle breeze, and the very shadows which it casts, all tend to the main object of the sculptor, Mr. Macdonald's "Bacchante" (885) is a graceful and lovely maiden, with none of the wildness and exuberance of spirits that one looks for in a follower of the god of wine. She is probably, however, meditating on joining the British League.

It seems strange, at first sight, that architecture should be the least popular of the fine arts. Works of painting and sculpture generally become the property of private individuals, and disappear from the sight of the public; but a building, once it is erected, becomes, in a manner, the property of all; and if the principles of the art were more generally understood, we should not have to complain of the want of art which is too frequently displayed by proprietors and builders; our suburban villas, instead of being, as in ninety-nine cases in a hundred they are, mere places to live in, would be a source of continual interest, each displaying some peculiarity of taste, and giving an additional charm to the landscape. Every tyro can pretend to a knowledge of iconology and prate about colour, light and shade; but to be able to appreciate an architectural design requires a knowledge of styles, and of the fitness of the parts for the service they have to perform. To acquire this knowledge requires study; and unless the critic knows the terms and technicalities of the art, he cannot make himself understood. With all their faults, competitions have done much to popularize architecture.

The Royal Scottish Academy are much more liberal in affording space and good places for designs that have any claim to be called works of art than the Royal Academy in Trafalgar-square, and local architects are beginning to take more advantage of this, and find it to their interest to do so, and in many instances bestow much care in getting up the drawings.

There are upwards of two dozen designs in the water-colour room, some of them of works of considerable importance.

Mr. David Bryce exhibits two views of the Bank of Scotland, as now being remodelled (21 and 192). No architect is better qualified than Mr. Bryce for the difficult task set before him; under his hands a great number of the mansion-houses throughout Scotland built during the latter end of the last century and the beginning of the present, in the tasteless and barren manner then prevalent, have been converted into picturesque and interesting edifices. The Bank of Scotland stands in advance of the picturesque and broken line of edifices which crown the ridge running from the Castle towards Holyrood, and present a marked contrast, in their rugged and ancient appearance, to the more regular and modern new town which they overlook. The elevation towards the south is not devoid of merit, and has been retained and used by the architect as the key-note for the additions. The north or back elevation is a hideous ill-proportioned mass, with no architectural enrichment; but as about to be altered it will form one of the most prominent and elegant additions to the architecture of the city; and from its great height, caused by the rapid fall of the ground, it will have a majestic and grand appearance. Mr. Bryce has added wings, which are thrown back as seen from the north, and project beyond the line of the south front, and has thus given breadth to, and taken away from, the flatness of both elevations. These wings are surmounted by open lanterns, roofed in with scaled domes, with sculptured eagles at the springing and a winged figure at the apex. The central dome has been raised in height, and a lantern added similar to those on the wings; between the projecting wings on the south front, which are terminated by circular-headed pediments, runs a screen of one story, with apartments behind. The central portion of the north elevation shows a large circular-headed pediment, supported by caryatides, and decorated with sculpture. Viewed as a whole, the design appears more like an original creation than a specimen of patch-work.

Messrs. Peddie & Kinnear's design of Kenetles House, Forfarshire (20), shows that they have a competent knowledge of the domestic Scotch style. In their additions to Lashall House, Fifeshire (133), they introduce an infusion of the Cinque-cento along with the Scotch with happy effect; the tower is particularly deserving of notice. In the Sheriff Court House, Greenock (91), the same firm use the style practised by the late Medieval architects in France in the Hôtels de Ville there. The central tower in

* *E.g.*, Boswell and Carlyle.

this design seems over-done; and the double buttresses at the angles do not seem necessary for construction, and are certainly not elegant additions to the design.

Mr. J. A. Hamilton's "Public Offices in Leith" look better in execution than on the drawing; the old Scotch style groups pleasantly with the shipping and surrounding buildings. The Batty Langley pepper-box turrets at the angle would have been better absent.

No. 105 is an "Architectural Design in Memory of H.R.H. Prince Albert as it would be seen from Holyrood," by Mr. R. Raeburn. We hope and trust it never will be seen from Holyrood or in any other shape than its present one. It consists of a pyramid rising to the height of 120 ft. profusely gilt, and having Doric porticos on its four sides.

No. 66, "Mansion House, Grange Loan, Edinburgh," Mr. F. Pilkington. In looking at Mr. Pilkington's designs we feel disposed to admire them at first sight, but a closer inspection modifies this admiration and discloses many faults. This mansion displays considerable originality in the mode of treatment, the basement containing the kitchen offices is not, as is usually the case, either sunk below the ground-level or screened off, but stands clear, the entrance being from the side; by this means an appearance of greater altitude is obtained than in the usual mode. In the centre of the front elevation, buttress-like piers are projected, upon which are superimposed the pillars of an arched balcony, which looks as if hoisted upon stilts. The angles are rounded off into the form of towers, and filled in with clusters of arched windows, not a very safe piece of construction. The "Free Church, Kelso" (161), is less open to criticism than Mr. Pilkington's former ecclesiastical designs, and is possessed of considerable beauty: the very deep recess given to the porch and window above can hardly fail to produce a good effect, but it must be obtained at the expense either of double walls or by constructing them of extraordinary thickness.

Messrs. Douglas & Stevenson send a view of the "Kelvinhaugh Free Church, Glasgow" (226). The spire has a certain stern grandeur about it much superior to the overloaded style so frequently used; it is hardly in keeping, however, with the church to which it is attached, which is heavy and lumpy.

WOMAN AND THE FINE ARTS.

THE ARCHITECTURAL MUSEUM.

The session of 1865 was inaugurated by the delivery of a lecture, on Tuesday evening last, at the South Kensington Museum, by Mr. F. T. Palgrave. Subject, "Woman and the Fine Arts." Mr. Joseph Clarke presided.

The chairman said that, in consequence of a slight accident, the President of the Society, Mr. Beresford Hope, was unable to attend that evening, as it had been his intention to do, for the purpose of distributing prizes to art-workmen and delivering an address on "The People's Share in Art." He was sure they all joined with him in regretting the cause of Mr. Hope's absence. The accident was, however, he was happy to say, a slight one, and they hoped to have the pleasure and advantage of Mr. Hope's presence on the next evening of meeting. Mr. Palgrave had very kindly undertaken to deliver a lecture which he had prepared for the 21st of March.

Mr. Palgrave said he hoped to have been a listener rather than a speaker on that occasion, and he heartily joined the chairman and the meeting in regretting Mr. Hope's absence. He had, under these circumstances, to throw himself on the indulgence of the meeting, as he might have been enabled before the day originally named for the delivery of the lecture to have made it more worthy of the subject and of the meeting. The subject was, "Woman and the Fine Arts." Mr. Palgrave then proceeded with his lecture, the reading of which, and of the short poems and extracts with which it was interspersed, occupied nearly an hour and a half. The first inquiry instituted was why women had not attained the measure of success in poetry, in painting, in music, or in sculpture which had been reached by men. Contemporary poets, painters, musicians, and sculptors were, for obvious reasons, excluded from consideration. Europe had passed through the first stage of civilization, in which women were slaves; and through the second stage, in which women were regarded as com-

petent only to act as housekeepers and perform works of charity. In the present day, men professed to place women on a level with themselves; but had not woman reason to maintain that man did not honestly carry out his profession? She was surrounded by the deadening influence of an atmosphere of false compliment and flattery, in which no energy could be expected to live. The qualification of excellence in the fine arts, besides physical aptitude and educational facilities, might be described as imagination and fancy on the side of intellect and the emotional feelings on the side of the heart. If it were true that these exhausted the conditions necessary for success, was it not strange that during 300 years the success of women in the departments of art alluded to should have been so meagre? Excluding contemporaries, and looking altogether to the past, how few women had distinguished themselves as poets. Mrs. Phillip and Mrs. Hemans, who stood in the front ranks, did not soar above their contemporaries, Waller and Southey; in painting there was a greater paucity still; while one bar of music, written by a woman, or one statue from a woman's hand, did not exist to challenge admiration. There must be something in the nature of woman, or in her position and external circumstances, to account for this non-success. There was an educational hinderance, but he thought it was somewhat overrated. Girls of seventeen were required to cease to be students, and to become ornaments of society. The rich storehouse of antiquity was thus closed to a girl at a time when she could have entered it with advantage, and when boys have not only full liberty to explore it, but are required to do so. Even if the education of boys be interrupted, they have opportunities of resuming and completing it, which girls have not. Men and women do not, therefore, start in the race on equal terms, except, perhaps, as to music, in which the position and circumstances of the latter give them an advantage, from which, however, nothing has resulted. What song written by a woman has survived a generation—not to speak of greater works? The last thing he would think of contending for was that women should be the mere echo of men. Their work was in great part essentially different; but in that in which it was similar, why was there not nearly similar success? They were not in a position to assume that there was anything in nature to account for it. The natural bar could not be pleaded until one or two generations of women had been educated as men were—until in education, as in other things, women and men stood on a perfect equality. Until this condition of just comparison were supplied such could not be instituted. Training was nothing without the proper gifts; but it was equally true that gifts were nothing without the proper training. England in poetry, and France in painting, had recently shown examples of excellence which posterity would not soon let die.

At the conclusion of the lecture,

Mr. Gambier Parry moved a vote of thanks to the lecturer, which was subsequently carried by acclamation. Mr. Palgrave, he said, must be possessed of no little courage to have contemplated rising before a meeting consisting of ladies and gentlemen, and boldly instituting a comparison between them. That he had succeeded in the task he proposed to himself resulted from this, that he had justified the position of woman, and shown that from adverse circumstances she was unable to place herself in competition with man. He had, however, hinted that there was another poetry—the poetry of common life—in which woman shone with peculiar lustre, and through which they exercised a mild and genial influence upon the ruder race. The gentlemen present could not, from anything they had heard, go away in the slightest degree enhanced in their own opinion, or with the idea that the dearest amongst their female friends had been disparaged.

THE ROYAL MEDAL OF ARCHITECTURE.

The Institute of Architects have resolved to recommend to Her Majesty for the Royal Gold Medal, Mr. James Pennethorne, fellow. The Council in their report named a well-known church architect; but the members in general meeting assembled thought differently, and, by a vote of 38 to 13, decided as we have stated. The recommendation of the Council in respect of the award of one of the ordinary medals was also set aside.

HOSPITALS IN FRANCE.

The Surgical Society of Paris has published the following instructions with regard to the reconstruction of the Hôtel Dieu and hospitals in general.

1. A hospital should be situate in an open space and on a declivity. The grounds attached to the building should be of considerable extent; a superficial area of 50 square metres (588 square feet) per inmate is the minimum of the space, and which ought to be increased progressively with the number of patients.

2. The farther removed a hospital is from populous neighbourhoods the purer will be its air, and no hospital should be retained in the midst of large towns but those of urgency, or for the purposes of instruction. This sanitary measure would be attended with economy, and would permit large towns like Paris to establish hospitals on open spaces of inexpensive ground.

3. In hospitals of 200 to 300 sick, it is easy to obtain good sanitary dispositions; but it is next to impossible to realise these when double the above number is exceeded. Within these numerical limits, the expenses of all sorts are pretty uniform, except in very full hospitals.

4. The elements of the atmosphere mingling always in a horizontal direction, we must, by furnishing space, guard against the effects of contact and proximity which constitute the evils of overcrowding, and which are produced from inmates to inmates, from ward to ward, and from building to building.

5. It is not only by increasing the cubical content allowed to each inmate that contagion can be effectually guarded against, but by augmenting the superficial space at present so insufficient in our civil hospitals. For the same reason it is considered undesirable to multiply the number of stories, each of these engendering a stratum of air more or less vitiated. In the rigour of salubrity, more than two stories should not be adopted.

6. It would be illusory to imagine that a large cubic current of air in the interior of the wards would compensate for want of space and exterior aération, or that an abundant artificial ventilation would make up for either of these conditions. Nothing can compensate for the insufficiency or the default of the natural circulation of air.

7. Buildings, completely isolated, with the same aspect, exposed, without any obstacle, to the rays of the sun, to the effects of rain and the action of the winds, are to be disposed of in a single line, or in parallel lines, at wide intervals of 50 to 100 metres, so as to obtain an effective separation, and a free and plentiful current of open air.

8. Small wards of fifteen to twenty beds are easily managed as far as attendance is concerned. The inmates incommode each other less; the chances of direct contagion are less also; the cleansing, &c., more rapidly performed. They ought to be preferred for ordinary service, except when special arrangements are necessary to be adopted for some classes of patients who require a larger space and separate wards.

9. The furniture of the wards ought not to hinder in the least the free circulation of air. The superintendents have the power of suppressing curtains if they think proper.

10. The wards are to be separated by landings and attendants' rooms. It would be advantageous to have one ward to receive the convalescent inmates during the day, and at meal-time, so that the common convalescent ward would be cleared out in the middle of every day and purified.

11. The periodical and regular emptying of the wards, and their being left vacant for some months, have, in the French military hospitals and in those abroad, been attended with results indicating the necessity of the general adoption of this measure in time of an epidemic.

12. All arrangements are to be made so that any refuse or substance liable to create effluvia may be rapidly destroyed or removed, either from the interior of the wards or from their neighbourhood, so as not to cause any appreciable emanation on the premises.

LUNATIC ASYLUM, COUNTY DOWN.—Mr. Francis McGanghey, of Omagh, has been declared the contractor for the erection of this institution, at the sum of 43,174l. 11s. 1d. Mr. Wilkinson is the architect.

ENGINEERING PRIZE.

M. PERDONNET, engineer-in-chief, president of the Society of Civil Engineers, Paris, has offered a prize medal of 2,000 francs for the best treatise furnishing the results of new experiments, undertaken by the competitors, in an engineering point of view, on one or more questions comprised in the following programme:—To determine by a great number of experiments the resistance of vehicles and locomotives to traction on a railway, taking into account all the circumstances which can modify them, such as, the state of the rails, vehicles, and engines; the force and direction of the wind; the surfaces of the carriages and the length of the trains; the dimensions of the axles and the wheels; the method of attaching the carriages; the distribution of the load and construction of the engines; friction of mechanism, coupling of wheels, escape of steam and draught of chimney, gradients, curves, &c.; to determine separately the influence due to each of these above circumstances. To analyze the causes which, in curves, modify the resistance, whether for an isolated vehicle or a series of carriages, and to guide the reasoning by experience. To find by experiment a practical formula for calculating the load that a locomotive of given form and dimensions can draw, taking into consideration adherence to the rails and other important conditions. To study the circumstances which modify the production of steam per square metre of heating surface, such as—the position of the sides in relation to the fire-box, the thickness of the plates, the interspace of the tubes, &c. To determine the resistances opposed to the passage of the steam from the boiler to the valve-box, and from this into the cylinder; to determine the difference of the pressure of the steam in the boiler and in the cylinder in different conditions. To inquire into the effects of "priming" upon these differences of pressure; to examine the causes which influence the counter-pressure; to determine the influence of draught upon the dimensions of the exhaust pipe, and the pressure and velocity of the exit of steam and the dimensions of the chimney; to examine the resistance met with by the air in its passage from the fire-box to the chimney. These *mémoires* are to be written in the French language, and all the measures indicated are to correspond with the units of the metric system. The Society of Civil Engineers of Paris have adopted the above programme, which can be had on application to the secretary, No. 26, Rue Buffault, Paris.

ARTESIAN WELL, PARIS.

The interesting work of the boring of the artesian well at the Place Hébert (eighteenth arrondissement) continues actively, in spite of the enormous difficulties met with at almost every step. The first 72 ft. of the shaft are lined with masonry; then succeeds wrought-iron "tubbing," in sections 6 ft. 7 in. in diameter, and 3 ft. 3½ in. high, forced in by screw pressure. When this lining had been carried down through thirty-six beds of different strata a zone of sand was reached, mingled with such a quantity of water that it was almost in a fluid state. This dangerous sand might have been traversed by driving the tubbing with extreme precaution, had it not been for another obstacle which presented itself. It was found that the undercurrents of water had actually driven the tube out of the perpendicular. To obviate this was impossible, so that nothing remained to be done but to remedy the defect radically by taking up the tubes altogether, and continuing the masonry lining, which afforded a better guarantee of stability. The cylinders having been removed with enormous difficulty, it was plain that the masonry could not be continued on the ordinary conditions, and that a new method must be devised. This was done as follows: after several yards had been excavated below the existing masonry, and the sides properly shored up, a strong cradle of timber, exactly fitting the circumference of the well, was lowered and held suspended by stout chains to beams over the orifice of the well. This being done, the masonry was rapidly carried up from the cradle or platform as far as the existing lining, the chains being sealed up in the work. One section being thus terminated, another space was cleared away and another circular platform let down, by other chains, and the masonry laid upon it. By this ingenious method, the *calcaire grossier* was at last reached, and a firm footing gained, though

not without its share of complicated difficulties. One of the upper platforms of the tier was found to have been crushed by the enormous weight upon it, and it was necessary to replace it by a new one; but, in piercing the masonry all around for this purpose it was found, with surprise, that a large hollow or bell-shaped cavern was behind the masonry. Fortunately this sort of vault was strong enough to prevent the top soil from falling in, and to fill up the cavity no less than 700 fascines had to be stowed away. Other obstacles have arisen since the *calcaire grossier* has been reached; the water springs up in such abundance, that the two pumps at work are not sufficient, and as there is not room for a third, the sinking of the well by manual labour must be abandoned, and recourse had to the trepan. This boring implement weighs no less than 5 tons, and is composed of six branches, each armed with a steel chisel. At the orifice of the well a space has been cleared 13 ft. square, and 20 ft. deep; this is the sort of chamber in which the various operations of boring will be conducted. It is not expected that the works will be free from unforeseen obstacles, till the chalk is reached at an estimated depth of 472 ft., only one-fourth, or 118 ft. being at present gained.

LIFE STATISTICS, PARIS.

A LETTER has been addressed by the Prefect of the Seine to M. Le Verrier, stating that the municipal administration of the capital are about to issue a monthly bulletin of municipal statistics, comprising, for Paris, all the facts which can be expressed numerically. This sheet is to contain principally a return of births and deaths, with the nature of the malady in the latter case, and is to be completed by a return of climatic and meteorological events observed at the same period. It is to be in form somewhat similar to that of the weekly official return published in London, a copy of which accompanied the letter.

DUBLIN CATHEDRAL.

Two or three correspondents have addressed to us comments on the ill-advised course pursued in "restoring" St. Patrick's, Dublin, the completion of which was described in our last impression. At a time when the works had not proceeded far, and objection and advice might have had a good effect, both were offered in our pages on various occasions, nor do we cease to regret that the advice was not taken, although, honouring the munificent liberality of Mr. Guinness, we refrained from any great complaint in recording the completion of the work. For the sake of the future, however, the evil of the precedent must not be lost sight of. One of our correspondents thus writes:—

"If there is any work which more than another requires learning in an architect, it is the patient restoration from crumbled and decayed fragments of the forms of some fast-perishing building of ancient date. If there is any work which requires a rare combination of genius, taste, and sound judgment, with great knowledge of archaeology, it is the labour, to quote your own words,—of endeavouring 'to reproduce a building such as may have been the aim and design of' a fourteenth-century bishop and his architect. Yet, sir, we find that these duties have been allowed to be undertaken either by a builder, or (for it is understood that 'Mr. Guinness was his own architect') by a private individual of whom we do not learn that he has other qualifications than liberality, wealth, and zeal.

"I cannot but think, that even if Mr. Guinness had been one of the most accomplished amateur archaeologists of the day, the dean and chapter of Dublin would be held to have committed a great indiscretion in intrusting to his superintending a work for which no amateur is thoroughly qualified. Still, had this recommendation existed, it might have served as an excuse for what has been done, and, as such, I think we should have heard of it. I greatly fear, therefore, from the silence maintained on this point, that the chief reason why Mr. Guinness was allowed to do as he liked, was because he made so magnificent an offer.

"If this be so, and the cathedral be really splendidly spoiled, rather than restored, is it not true that a breach of trust has been committed of the gravest kind, and one against which all interested in the preservation of ancient monuments ought to protest?"

COMPETITIONS.

New Boarding Houses for Cheltenham College.—We understand that twenty-two designs were sent in in answer to the advertisement which appeared in our columns, and that the committee of selection have preferred those bearing the following mottoes and marks, for final selection by the directors, viz., "Alpha," one marked with double triangle in a circle; one with single triangle in a circle; "Finem respice;" "Experience;" "Hors du combat."

The Swindon Central Market Company (Limited) very!—Sir: Four designs were submitted for this competition, and the magnificent premium which the directors offered for the best design, viz. 107.11 has been awarded to the author of the drawings bearing the happy motto, "Support home talent," which proved to be the production of Mr. Lansdowne, of Swindon, who has recently joined the profession, and declined the business of a builder.—W.

Cambridge: "The Union."—The proceedings with reference to obtaining an architect for the proposed Debating Hall, Reading Rooms, and Library, have been a little out of the common way. In the first instance, the committee proposed Mr. Scott; but the general body afterwards determined that any member might name an architect, that from the list thus sent in the committee should select three, and that the whole body should then elect one of these three by vote. The committee's list showed—1. Mr. Scott; 2. Mr. Waterhouse; 3. Mr. D. Wyatt; Mr. Gordon Hills coming fourth. On going to the general poll, the numbers came out—Mr. Waterhouse, 233; Mr. Scott, 135; Mr. Wyatt, 16; and Mr. Waterhouse was accordingly appointed. The Hall will be erected on a piece of land immediately behind the Round Church.

"COMPETITIONS AND THE ALLIANCE."

In reply to "W." we have received a letter from the Honorary Secretary of the "Alliance," of which we print a part. Mr. Pritchett says:—"I was glad to see the letter on this subject signed 'W.'—not because his objections are, to my mind, valid, but because the delegates of the Alliance wish to ascertain the views of the profession in every point, and, if possible, act for their good according to the wishes of the majority. The circular as now used was adopted last July for a year, and meanwhile the opinions of the allied societies are asked on matters of detail; so if, as I hope, your correspondent 'W.' is a member of one of the allied societies, he will have an opportunity of bringing the matters he wishes to be altered *officially* before the next meeting of delegates in July, by getting his Association to adopt his views, and report accordingly. . . . If 'W.' or any other gentleman, will communicate his views on this subject to me by letter, they shall be considered at next July meeting."

A STRONG ROOM.

SOME particulars of a strong room, for cash and securities, recently constructed for a London bank, may be of use to some of our readers:—The walls are 2 ft. thick, of hard bricks, laid in cement, and with strong hoop-iron in the courses. In the interior there is placed a fire-proof Chubb's safe, weighing 13 tons. This is 10 ft. long, 8 ft. high, and 8 ft. deep, made of plates 1 inch thick, and secured by two iron and steel doors, having twenty-eight bolts. The remaining part of the brick room is lined with iron, ½-in. thick. The whole is again further secured by an iron and steel door, having ten bolts, let into the centre of the brickwork; and there is a gate for ventilation in the daytime. A large alarm is fixed in the bed-room of a clerk on the second-floor, which goes off whenever the outer door is opened; and a porter who sleeps in the office, and whose bed is in front of the door, can also, by pulling a trigger, set the alarm going. The whole of the ironwork we should mention, was executed by Messrs. Chubb & Son. Mr. P. C. Hardwick is the architect under whom it was set up.

OPENING OF THE TELEGRAPH TO INDIA.—The Indo-European Telegraph has been opened throughout, and telegrams have since been received which travelled the whole distance from India to London in eight hours and a half!

GOTHIC ARCHITECTURE IN SPAIN.

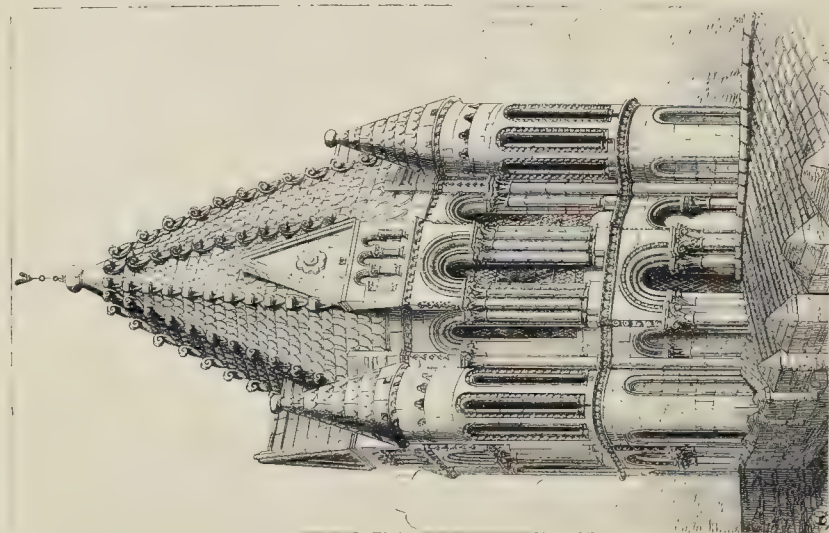


Fig. 1.—Salamanca Old Cathedral Exterior of Lantern.

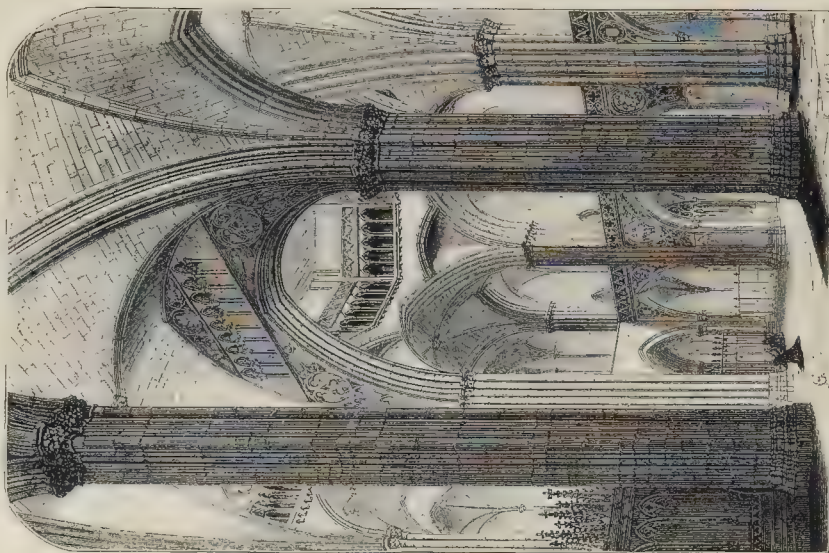


Fig. 1.—Barcelona Cathedral. Interior of West End of Nave.

[See p. 155, ante.]



INNS OF COURT HOTEL, LONDON. VIEW OF THE INNER COURT.

Messrs. Lockwood & Marsden, Architects.



Fig. 2.—Valencia. The Casa Lonja.

INNS OF COURT HOTEL, LONDON.

In our recent notice of this hotel,* it was mentioned that an interior court was formed as shown on the plan, having a roof of iron and glass. We now add to our illustrations of the structure a view of this court. It is to be faced with stone, and will have an ornamental fountain in the centre.

CONTINENTAL NEWS.

Paris.—The Hôtel de Dieu is now being pulled down, as also a house adjoining belonging to the Public Charities Commissioners, in order to clear and enlarge the space in front of the Cathedral of Notre Dame. The hospital will be re-erected to the left of the old site, and the costs are estimated at 22 millions of francs.—The Jews of Paris have held a general meeting to consider the propriety of erecting two new synagogues. Both have been determined upon, and a sum of four millions of francs was voted to carry them out. Half of this sum will be borne by the City, the other half by the Jews of Paris.—The Empress has conceived the idea of calling upon all the Christian princesses of Europe to unite in erecting a new church over the Holy Grave at Jerusalem! It is said that several crowned ladies have already responded to this appeal; amongst others Queen Mary of Hanover.

Rome.—The minister of public works has just published an interesting list of buildings and other works in and about Rome, which have been "restored" between the years 1859 and 1864. For the word "restored," our readers must, of course, substitute "repaired" in many instances. Amongst the ancient buildings enumerated are the Palace of Lucullus, at Frascati; the Pyramid of Cestius; the wall of Servius Tullius; the Villa Adriana, at Tivoli; the Circus of Caracalla; the Conduit of Vopiscus, at Tivoli; the Etruscan graves at Corneto; the baths of Titus and Caracalla; the tombs of the Scipios; the Colosseum; the Columns of Trajan; the Tabularium; the Circus Maximus; the Pantheon; the Forum of Augustus; Nero's Aqueduct, &c.; and amongst the buildings of Mediaeval origin are mentioned, the Abbey Alle Tre Fontane, San Lorenzo, the house of Cola di Rienzi, &c. Fourteen churches were restored, and have received internal mural decoration.—The statue of Hercules, lately discovered, will in future be known by the name of the "Mastai Hercules," in honour of the pope.—A new method of painting and preserving plaster casts has just been applied at the Redemptorist Church of San Alfonso, which, perhaps, in a great measure approaches to the lost encaustic process of the ancients. Mr. H. Schubert, a German sculptor here, made a present to the church of a plaster cast of the great *telamo* piece which he exhibited in London in 1862; but inasmuch as all the other sculpture, as well as the walls of the church, are in colours, it became desirable that this cast should also be painted. Mr. Schubert, therefore, together with the artists Würger and Böcklin, applied common water-colours to the cast, which had been previously well saturated with water. The colours were taken rather lighter than required, and when perfectly dry the whole was coated with a solution of wax and rosin, applied hot, partly in order to fix the colours, and partly to obtain a firm transparent coating by means of the rosin. This process seems to secure the cast from damp and dust, and the colours stand out with unusual brilliancy.—Schlörth, the Swiss artist, is giving the finishing touches to his Arnold von Winkelried, to be erected in one of the four cantons. Another work, in course of execution by the same artist, is a monument of the battle of St. Jacob, in Switzerland. The design represents a group of five figures,—Helvetia, the tutelary protectress of Switzerland, on a high pedestal, holding the crown of victory, and surrounded by four fighting and wounded warriors at the base.—Architects intending a visit to this city should not omit seeing the curious collection of the various kinds of stone employed by the ancients in their works. The originator and founder of this very interesting collection is Professor Sanguinetti, who has succeeded in collecting no less than 607 different kinds of marble and alabaster. They will be found in the Collegio della Sapienza.—A local paper gives a very curious list of payments made to artists, showing with what moderate remunera-

tion men like Michelangelo and Raffaele were content. The tomb of Pope Clement XIV., in the church of Santi XII. Apostoli, cost 12,000 scudi, or about 2,400*l.* Canova was engaged four years upon it, and only received 4,561 scudi for his trouble, equal to about 912*l.* A receipt for 1,200 scudi (240*l.*), signed "Michelangelo," is still preserved; it was for the execution of the monument to Julius II.; and Raffaele received 20*l.* for one of his pictures, from Alexander VII.

Florence.—The Dante Monument consists of a pedestal 22 ft. high, having bas-reliefs on three sides, surmounted by a figure of Dante, 18 ft. high, executed by the sculptor Pazzi, of Ravenna. The author of the "Divina Commedia" is in the habit of a Franciscan monk, but without scapula and hood; the head is encircled by a laurel wreath. The right hand grasps the manuscript of the "comedy," whilst the left holds some folds of the dress. The features were carefully worked from the cast taken after death, and now in the possession of the Torrigiani family.

Naples.—A marble bust of Alexander von Humboldt is to be erected in the aula of the university here.—An archaeological discovery of considerable interest has just been made at Bagnoli, near Pozzuoli, by the proprietor of the baths of that place. In excavating for some alterations, he found undoubted antique remains, and on continuing the excavations a complete set of Roman Thermæ, of the time of the Empire, was brought to light. The various apartments can be readily traced, and even the sulphuric springs were found, which originally gave rise to this establishment. The waters must have been used from a very early period, and thence for a long time, since the inscriptions go back to the first years of the Republic, and down to the first century after Christ.

THE PROGRESS OF THE SEWING MACHINE.

This ingenious piece of mechanism is, month after month, coming into more extensive use, and will before long drive the chief part of the hand-work with the needle out of use. Nor should we regret this, for labour of this sort has become a miserable source of existence, as women starve when engaged in this kind of industry. It is also to be noted that steam is now becoming extensively used in connexion with the sewing machine; and instead of poor women working in garrets and miserable apartments, they are in some instances gathered into roomy and well-ventilated places. In other instances of steam-sewing factories, this is unfortunately not yet the case; and there is great need of inspection, in order to prevent such extensive factories from becoming as bad in their condition as are some of the City and West-end dress-making and millinery establishments. Even at the present day we hear of complaints of the way in which some are managing these machines. Persons who have driven, or "sweated," as it is called, the poor needle-women and tailors into much distress, are using the sewing-machine to produce similar effects; for capitalists lend machines to *middle-men*, who reap a separate profit; and these again dispose of their work so that the workers having to support these drones do not get what is actually their due. It is hoped, however, that this evil may in time be remedied, and that, as in the factories of Lancashire, there may be in connexion with the sewing-machine a certain amount, in ordinary times, of what may be considered fair remuneration.

The advantages to this and other countries of the sewing-machine, will be shown by the following figures:—Men's shirts, made by machine, take 3 hours and 10 minutes each to do; by hand, 15 hours 20 minutes: a lady's dress, by the machine, takes 12 hours 6 minutes; by hand, 20 hours 35 minutes: a merino dress, by machine, 10 hours 35 minutes; by hand, 16 hours 20 minutes: a calico dress, by machine, 6 hours 20 minutes; by hand, 11 hours 35 minutes. Other articles are in somewhat similar proportions; and we will, therefore, only mention that a silk apron is made by machine in 2 hours 30 minutes; by hand, 6 hours 16 minutes: and a muslin skirt, by machine, in 4 hours 50 minutes; by hand, 10 hours 10 minutes.

A like saving of time is to be noticed in the making of male attire; for instance, a common frock-coat, by the machine, occupies 17 hours 20 minutes; by the hand, 27 hours 40 minutes: a linen vest, by machine, 3 hours 44 minutes; by

hand, 7 hours 18 minutes: a fine overcoat, by machine, 28 hours 13 minutes; by hand, 31 hours 20 minutes: a fine frock-coat, by machine, 21 hours 25 minutes; by hand, 35 hours 16 minutes: a fine business coat, by machine, 19 hours; by hand, 26 hours 40 minutes: a satin vest, by machine, 8 hours 14 minutes; by hand, 12 hours 55 minutes.

Notwithstanding all that has been argued to the contrary, it is certain that the means which save the need of human labour are a great advantage to the community. In this way the general amount of saving in Great Britain alone must be in each year enormous. Not only in the preparation of clothing, but also of linen, woolen, and other fabrics, the sewing-machine has come into extensive use. In the manufacturing of leather articles, and especially in the boot and shoe trade, it is doing useful service. The sewing-machine has been objected to by many workmen, who when drawing as they call it "the strings of misery," have a sort of dread of being relieved from a difficulty. At Northampton, one of the chief places where boots and shoes are made on an extensive scale, the machine was introduced in the following manner. A wholesale shoe-maker of that town, seeing the value of the machine in his own trade, determined to introduce it, but fearing the opposition it would produce, thoroughly mastered the working of the machine himself. Having done so, and sewn a pair of upper leathers, he entered his shop, and put them into the hands of his foreman, with the remark, "What do you think of these?" The man, after carefully examining them, remarked, "Why, they are splendid! I never saw such work in my life!" The boots were passed round the shop, the men being chiefly members of the trade society, and were admired by every one who saw them. The master then said, "The party who made them wants work; shall I take him on?" The foreman replied, that nothing could be better, and that for his part he should be glad of such a hand. "But," said the master, "he is deaf and dumb." "Dear me," replied the foreman, "what a misfortune! Not much fear, however, of him quarrelling with his mates, sir." The master, with emphasis,—"And he neither eats nor drinks." "Ah! it is the sewing-machine!" exclaimed the foreman, and the excitement in the shop became intense. "But," said the master, "listen to me for a moment. I have seen the working of this thing in the States, and its introduction here is a positive certainty: it is the merest question of time. To attempt to stay the introduction of machinery into any branch of trade is something worse than madness: it never has succeeded, and it never will. I have made up my mind to introduce the sewing-machine into my trade,—and introduce it I must and will, but not at your cost. I know that it will decrease your labour, but it shall increase your pay. You may not think so, but I will guarantee that for twelve months your wages shall never be less than now, and as much more as you can earn you shall have." The trade-union men agreed to those terms. The movement has been successful; and in Northampton the machine is extensively in use, and the patentees sell them under a system of weekly payments, so that many men have their own machines and work in their own cottages; and this, it is reported, has had an excellent effect upon the habits of the people. One machine gives employment to four people, in preparing the work for the process of sewing. In Stafford, it is said that the machine already finds work for more hands than can be obtained; and women, in this way, can earn from 12*s.* to 20*s.* a week.

Up to the present time the sewing-machine is far more extensively used in America than it is in this country. In the United States it is believed that the value of the sewing done by it has been more than 65,000,000*l.* It is estimated that there are at present at work in the whole world more than 300,000 sewing-machines. Out of this number, 200,000 are at work in America, 50,000 in England, and the remainder elsewhere. These figures will serve to show to what an enormous extent this power has to be developed in Great Britain alone. In the United States there is a manufactory which is especially devoted to the construction of these machines, in which some thousands of men are employed; and from this place 1,000 machines can be turned out weekly.

The history of the inventor of the sewing-machine is a most curious and interesting one. The name of this man is Elias Howe. He was

* See p. 154, ante.

a mechanic of New York. Not succeeding well with this effort of ingenuity in America, he came to England, and sold his patent right in this country to Mr. Thomas, of Cheapside, for 250*l*. Mr. Thomas, some time later, paid 2,000*l*. to a person who made some improvement in the feeding apparatus. Howe was engaged by Mr. Thomas at a salary of 3*l*. a week, to adapt the machine to the stay-making trade. About this time the inventor had fallen into such extreme poverty, that his family were destitute of the necessities of life; but, fortunately, he had not disposed of his patent rights in America: to that country he returned; and it is stated that the royalty which he now reaps from home sale and for exportation, amounts to 50,000*l*. a year.

CRYSTAL PALACE.

The Triennial Handel Festival.—Early preparations are being made for this great festival, which will take place on three days in June—Monday, the 26th, when "Messiah" will be performed; Wednesday, the 28th, when a selection from Handel's other works will be given; and Friday, the 30th, when the "Israel in Egypt" will be performed. The hour has been altered from one to three p.m. The full rehearsal will take place on Friday, the 23rd of June, at one p.m. instead of ten a.m. Tickets will be issued from Monday, the 13th March, for the securing of seats, at the rate of 25*s*. and 2*s*. each for each day, or three guineas and two guineas and a-half for the three days of the festival.

The progress of the works for the station of the High Level Railway is encouraging, and from the remarks of the chairman of this new line (Sir Cusack Roncy) at the meeting on Tuesday last, it was clear that the contractors, Messrs. Peto, Betts, & Crompton, are determined that the works should be so pushed on that they may be certain of completion by the 1st of July. It is stated that the station will be an imposing architectural structure; it is understood that the cost of it will exceed 100,000*l*. It is being erected by Messrs. Lucas.

An interesting collection of Chinese objects of rare beauty and great value, formed by Capt. Negroni, of the French army—mostly taken from the Summer Palace at Peking—and worth, it is stated, over 300,000*l*., will be opened for exhibition on the 18th of March.

STOVE REGISTERS.

The recent use of charcoal placed in a brazier in a closely shut-in bed-room, which ended in the destruction of one life and was attended with great risk to a second person, is one of several similar instances which have occurred within a comparatively recent period. Not long since some men were suffocated by the fumes of charcoal which had been burnt in the cabin of a ship: having lighted their fire, they, either in ignorance or from carelessness, placed the hatches of the cabin over the entrance, for the purpose of keeping out the cold. Other instances might be mentioned of a somewhat similar description; but in connexion with the Kentish-town accident, it is to be particularly noted that the register of the stove after the death had taken place was found closed; and, no doubt, it must be owing to this cause that the fatal result is chiefly to be attributed. This circumstance ought to be a warning in various ways. In the case of charcoal suffocation we suddenly see the deadly results: more slowly, but no less surely, does the pent-up breathing of human beings destroy life and health. We have said so much on this subject that it would be scarcely worth while to refer to it at present, but for the belief that the danger of closed flues is far too often overlooked, and that those who would not willingly cover up the fireplaces in bed-rooms with boards, do not remember that the closing of the register produces exactly the same ill effect.

In far too many instances, especially in houses let in tenements, where a family may have say two rooms, and it is not usual to light a fire in the apartment used as a bed-room, there is a necessity for keeping the fire-place closed, to prevent the down-draught of smoke, which comes from other fires in consequence of the bad arrangement of the chimneys. The unpleasantness of this invasion is great; for, besides the smoke of the coal, there is often an adulteration of the fumes of the refuse of vegetables, such as

the peelings of potatoes, onions, and other unpleasant matters, which are put on the fires instead of being carried to the dust-bins. However, when it is absolutely necessary to close the chimney, and prevent it from being a means of ventilation, care should be taken in both summer and winter to ventilate and admit air in other ways. Want of care in this respect is a common cause of fever and other complaints.

PROPOSED NEW REREDOS AND ALTAR, WESTMINSTER ABBEY.

The proposed restoration of the altar and reredos in Westminster Abbey, from designs by Mr. G. G. Scott, has moved a correspondent to address to us some violent words of denunciation, founded partly, at any rate, on wrong information. The matter, as we learn, stands thus. The old reredos, of the fifteenth century, was defaced some time in the last century, and a "classic" one was erected against it. This was taken down about 1824, and Bernasconi was employed to restore the original design, as well as he could ascertain it, in his artificial stone. At the same time a sham stone altar was erected, which, we are told, consists of a pile of street paving as a core, which is covered with cement, and finished above with a black marble slab.

A feeling has recently arisen to do something more worthy than this artificial work, and the Dean and Chapter are about to substitute alabaster and marble for as much of the plaster-work of the reredos as they can afford, and to introduce a mosaic picture of "The Last Supper" over the altar, below the fine central canopies. The sham stone altar is to be removed; and, as the Order in Council seems to forbid the use of stone, the altar-table is made of cedar inlaid with other woods, and of very rich design. This will be of the size of the ancient altar as indicated by the retabulum which is preserved in the church, viz., 11 ft. long. The old marble slab will be retained, and enlarged by means of a mosaic border to the increased size.

The mosaic picture alluded to, representing "The Last Supper," will be executed by Signor Salviati, from a cartoon by Messrs. Clayton & Bell. This picture will be 11 ft. long and 4 ft. deep, and the figures in it will be projected upon a gold field generally, with the exception of that of Our Lord, which will be against a diaper of black and gold, while the colours used on the whole work will be bright and interesting. The cost of the mosaic work will amount to about 550*l*. Over the canopy of the altar there will be a cornice, 36½ ft. long and 18 in. deep. The commission for this piece of carving has been placed in the hands of Mr. H. H. Armistead, the sculptor. It will be executed in white alabaster, something in the style of the ancient cornice at the back of the present altar facing Edward the Confessor's Chapel, and the subjects represented will be various events in the life of the Saviour. The reredos is being executed by Messrs. Poole & Son, and the altar-table by Mr. Farmer.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening (the 3rd inst.), at the House in Conduit-street.

The chair was occupied by the president, Mr. J. H. Christian.

The following gentlemen were elected members of the Association:—Messrs. H. T. Bonner, Edward O'Brien, Thomas Lloyd, E. G. Hayes, G. Walsh, C. W. Griffith, C. W. Hall, Ernest Flint, Malcolm Watson, and H. T. Gordon.

The only business discussed had reference to a memorial recommended by the committee of the Association for presentation to the Royal Institute of British Architects, suggesting certain alterations in the regulations and conditions for voluntary examination.

On the motion of Mr. Plumble, seconded by Mr. Blashill, the memorial was approved, and after a short discussion, in which Mr. Spiers, Mr. Lemon, Mr. Webber, and other gentlemen took part, it was moved that it be presented to the Institute.

Mr. Harris called attention to an announcement from a publishing and lithographing firm, in Lincoln's-inn-fields, offering to execute architectural drawings as a part of their trade, and gave notice that he intended on a future day to bring the subject under the notice of the Association.

He also expressed a hope that the Institute, towards whom the public naturally looked as a conservator in matters relating to the character of the profession, would also deem it to be its duty to take some action in the matter.

The meeting was then converted into a *soirée*, and the members and their friends amused themselves with glee, musical selections, recitations, &c.

THE BUILDING TRADES.

Birmingham.—A large meeting of the carpenters and joiners was held last week at the Odd Fellows' Hall, when there were some 1,500 of the trade present. The delegates from the trade laid before the meeting the following rules, as agreed to by the representatives of masters and workmen, at a joint meeting held at the Public Office, Birmingham, on the 20th February, Mr. Thomas Lloyd presiding:—

1. The rate of wages to be 6*d*. per hour for skilled workmen, during ordinary working hours; superior and inferior workmen to be paid at such rate of wages as may be decided by the foreman or employer.
2. The ordinary hours of work to be from 8 a.m. to 5:30 p.m. on each of the five first days, and from 8 a.m. to 4 p.m. on Saturday in every week, 14 hour excluded for meals; but during winter (that is, during the six weeks before and the six weeks after Christmas), on exposed buildings, where artificial light is not furnished, from 7 a.m. to 5 p.m. on each of the five first days, and from 7 a.m. to 4 p.m. on Saturday in every week, one hour excluded for meals.
3. All overtime to be paid for at the rate of 3*d*. per hour extra till 5 p.m., and after that hour at the rate of 6*d*. per hour: on Sunday, double time.
4. All wages to be paid at 4 p.m. on Saturday in every week, and not in a public-house or a beer-shop.
5. If the distance of the work or job be not more than 2 miles from Stephenson-place, Birmingham, the men shall walk in their own time; if more than 2 miles, then walking time shall be allowed at the rate of 3 miles per hour beyond the first 13 miles; but the men shall walk back in their own time, except on Saturdays, when the wages are not paid on the job or place of work. Lodgings and railway fare to be paid by the master, subject to special arrangement between masters and men—for all works at a distance of more than 4 miles from Stephenson-place, Birmingham.
6. A quarter of a day's notice shall be given by the master or workman of any intention to put an end to the service, and in default thereof, either party shall forfeit and pay to the other a quarter of a day's wages.
7. Each master shall have power to conduct his own business in any way he may think advantageous, in the matter of letting piece-work, in taking apprentices, in using machinery and implements, and in all details of management not infringing the individual liberty of the workman; but no master shall take or employ more than one article improver to every ten workmen in his service.
8. Trade societies will not countenance any interference with a workman because he is not a member of a trade society; and as regards individual members—it being impossible to bind them by any present resolution—the societies pledge themselves to discourage all such interference.
9. All trade regulations, and all disputes that may arise between masters and workmen, shall be settled by six delegates appointed by each party to the dispute, who shall, if necessary, appoint an independent chairman with a casting vote; and if either masters or workmen desire any alteration in, or addition to, the foregoing rules, a notice in writing, stating the nature of the proposed alteration or addition, shall be given on or before the 1st day of January in any year, and the proposal shall be accepted or rejected before the 1st day of March then next; if accepted, the new rule shall come into force on the 1st of May then next.
10. These rules to come into operation and force on the 1st day of June next. THOMAS LLOYD, Chairman.

The meeting unanimously approved of the rules.

Stourbridge.—The members here of the General Builders' Association write us, by their local honorary secretary, saying:—"Since our meeting on the 20th ult., the bricklayers and plasterers have agreed to unite with the other branches of the trade, in order to draw up local trade rules, and form an arbitration court for settling disputes; so that now we have carpenters and joiners, bricklayers, plasterers, painters and plumbers, and labourers. Delegates from all these branches met an equal number of masters and agreed upon an independent chairman, not engaged in the building trade, according to the resolution passed at our public meeting. I would say that the meeting of delegates was exceedingly amicable." In mentioning these facts, the secretary expresses a hope that it may "be the means of encouraging other towns to try and settle the perplexing difficulties of trade rules," a hope in the expression of which we earnestly unite with him.

Kidderminster.—A meeting of the building trade has been held in the Guildhall, in regard to the settlement of trade disputes by arbitration. The attendance of employers and workmen was very numerous. The mayor took the chair. A friendly tone pervaded the meeting, and it was resolved to adopt the principle of arbitration, and appoint delegates in equal numbers from masters and men. From the carpenters there were appointed: masters, Messrs.

Thompson and Binnian; men, Messrs. C. Croft and J. Lane. Bricklayers: masters, Messrs. Fisher and Herrin; men, Messrs. W. Hooper and T. Marden. Labourers: masters, Messrs. Bale and Williamson; men, Messrs. Frailey and Webb.

Widness (Lancashire).—The brickmakers and bricklayers' labourers have turned out on strike, on account of the master brickmakers introducing brickmaking machines into Widness. There are now three in the town, and it is feared disturbances will take place, the men having expressed their determination to break them. The master builders of the town have passed a resolution not to employ any men belonging to the union.

Leeds.—At a large meeting of the Leeds branch of the Yorkshire Association of Master Builders, the following resolution has been unanimously agreed to:—"That the operative masons be requested to appoint a deputation of six to meet the same number of masters, with full powers to settle the questions at present pending." A similar resolution was agreed to respecting the joiners.

Stockton.—The whole of the bricklayers employed at Stockton have turned out for an advance of wages. They were in receipt of 4s. 6d. per day, their hours being by mutual consent of themselves and employers "from daylight to dark." They demand generally 5s. a day, and in some cases 5s. 3d., and ask that the hours of labour be modified so far as beginning on the Monday morning and ending on the Saturday night are concerned. They will be content if allowed to commence the week at seven o'clock in the morning, and terminate it at half-past three o'clock in the afternoon. A general meeting of the masters was held, and it was decided to offer 5s. a day, from the third Monday in March until the month of November. There is said to be an understanding on the part of the Stockton employers to form forthwith a combination of the master bricklayers of Stockton, Middlesbrough, Hartlepool, West Hartlepool, and Darlington, as a more consolidated security against future strikes. The labourers have not yet turned out, and it has been intimated to them that they will receive 21s. per week simultaneously with the rise in the wages of the bricklayers: at present the labourers are in receipt of 20s. per week.

Carlisle.—The working masons in this city, to the number of about sixty, have left work on strike, having refused to adopt the system of payment by the hour, insisted upon by the masters. The only masters who have acceded to the demands of the men are Messrs. Dodd, Ward, Brough, Scott, and Simpson. The bricklayers have also gone out on strike. They have formed themselves into a co-operative association, and announced that they are "prepared to do all kinds of jobbing in connexion with their trade at 10 per cent. below the masters' prices."

The Strike and Lock-out in the Iron Trade.—The strike in North Staffordshire against a reduction of wages, and the threat of the South Staffordshire men and others to support the strike, have led the masters to adopt the fearful alternative of a general lock-out till the North Staffordshire men be compelled to give in. It is said that wages to the extent of 120,000. a week are already stopped (since the lock-out took place on Monday). On the other hand, however, it is also reported that some masters have not carried out the lock-out, and that it is believed the misunderstanding will be at an end in a week or two. It is to be earnestly hoped that the iron trade of the whole country will not continue at a stand even for a week or two, and that something like the Midland builders' mode of settling the question will be immediately agreed to by the parties in dispute. Mean time, we hear, there are already 40,000 men out of work, and that by the end of the week this number will be increased to 70,000,—a great proportion of them, probably, heads of families.

RAILWAY MATTERS.

COMMUNICATION between passengers and guards is hoped to be at last in a fair way of settlement. The Government inspector of railways has for some time been investigating the various proposals that have been submitted and plans tried by different railway companies, and has forwarded his report to the Board of Trade. The railway clearing-house have also formed a committee of managers, who have been similarly occupied, but who have not yet produced their report. It is, however, known that their decision

is against the adoption at present of any general plan, chiefly from the want of experience in the working of the electrical system favourably noticed and approved by the Government inspector. It is arranged that the London and South-Western, the London and North-Western, and one or two other railway companies, shall try for a short period different plans, and then, after full and mature experience, the clearing-house committee will again meet and recommend for general use the most successful system. The system recommended by the Board of Trade is the design of Mr. W. H. Preece, the telegraph superintendent of the London and South-Western Company.

The directors of the South-Western Railway, having promised the Queen to do all they could to prevent accidents on their line, seem to be honestly trying to fulfil their promise. They are carrying out various experiments for the purpose of providing communication between the passengers and guard; and, according to the account given of a trial between Waterloo and Wimbledon, they have achieved considerable success. The apparatus is thus described:—On both sides of the partitions of each compartment, within easy reach of the passenger, is a small circular box, with a glass face; and, to attract the attention of the guard, a passenger must break the glass, which liberates a spring hitherto confined, and causes a small arm to drop out from beside the window of that compartment where assistance is required. At the same time an electric current is called into play, which establishes communication with another wire, causing a bell to ring in the guard's van; and he has only to look out of the window to see the precise compartment where his assistance is required, indicated by the outstretched arm. Of course we conclude that the guard can do something more than merely look or ascertain the whereabouts of the warning. The danger of the passenger cutting his hand in breaking the glass to set the machinery in motion will, the reporter supposes, prevent his playing with it; and in the grave emergencies to which alone it is intended to apply, a cut or a scratch is a small matter. It is said that the cost of the apparatus will be about 4l. for each carriage.

Whatever plan may be finally adopted, we think we may safely say that none will be efficient without arrangements for the free movement of the guard along the train, either outside or inside; and such arrangements, if regularly made use of by the guards, would obviate entirely all occasion for any other arrangement. Thus the watchman's beat may be said to be the *sine qua non* or the *ne plus ultra*, and the guard is no guard till he have such a beat and be such a watchman. The knowledge of the public, victims and victimizers, that at any moment a watchman might look into a carriage, would restore both confidence and safety to railway travelling; and nothing else, we fear, will so effectually do so.

A correspondent, "D. M. P.," suggests, as a safeguard against collisions, that a fender truck, padded, or rather filled, with such material as that used in ship's fenders, should be placed in front of every engine and behind every train, so that in collisions these fenders would always receive and alleviate the shock.

At the last meeting of the Manchester Literary and Philosophical Society, a paper was read concerning the construction of a swing bridge for carrying a railway over the Sankey Canal, in which the girders are made of Bessemer steel plates. The object of using steel instead of wrought iron was to reduce the weight of the girders. These are four in number, about 56 ft. long, with bearings varying from 30 ft. to 40 ft., and 2 ft. deep. The weight of the girders was a little more than half the weight they would have been if wrought iron had been used.

A gentleman owning an estate at Bexhill brought an action against the Brighton Railway Company, for damage done to his plantations by the sparks from their engines. Between the 17th of July and September, 1863, there were six fires in the plantations, which destroyed 943 trees. The only question was as to the amount of damage done, the company admitting their liability, and the jury gave 200l., after being locked up for some time. The damage had been laid at 20,000l.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 25th of February, on 11,821 miles, to 564,951l., and for the corresponding week of last year, on 11,476 miles, to 539,150l., showing an increase of 345 miles, and of 25,801l. in the receipts.

Ever since the commencement of the American war, we have been accustomed to hear of the utter inadequacy of the Indian railways to the immense goods traffic which has been poured upon them from the interior. In Bombay, cotton in great quantities will sometimes be at a remote station for weeks before the single line of rail or the scanty rolling stock of the company admits of its being forwarded to the port of shipment. And now come similar complaints from Bengal. The line between Allahabad and Calcutta, the *Englishman* informs us, is literally at a dead-lock, goods of every description being delayed in transit for want of carriage.

SANITARY MATTERS.

Brighton.—A court of inquiry has been held at Hove, to settle the boundaries of a district, comprising Hove and St. Anlyn, for the purposes of the Local Government Act. Mr. R. Rawlinson, C.E., was the inspector appointed by the Home Department. At the close of the inquiry, the inspector stated that he should report in favour of the adoption of the boundaries. He had previously expressed his opinion, however, that the whole of Brighton and Hove should be under one head for sewage purposes.

Cheltenham.—The question of the water supply for Cheltenham is now being warmly agitated by the inhabitants, who have vigorously endeavoured to thwart the proposed plan of the existing water company in its object of obtaining its water supply from the Severn. A Bill, brought in by the Cheltenham and Gloucestershire Waterworks Company, for supplying the town with water direct from the Boxwell springs, was thrown out on the second reading. A large public meeting has been held to protest against the present Bill of the Waterworks Company, as the waters of the Severn were polluted in the greatest degree, and totally unfit for domestic use. An abundant supply of water might be obtained from other sources in the neighbourhood. A resolution condemnatory of the proposition of the Waterworks company terminated the proceedings.

Malden.—The second annual report of the Malden Cottage Improvement Company states that during the past year twenty-one cottages have been purchased, and the directors call attention to the fact that their capital is all invested, and that it is desirable more shares should be taken for the purchase of more cottages. The whole property of the company is stated to be paying, on an average, over 8 per cent. per annum, net.

Liverpool.—A townsmen has offered 10l. as a premium for the best essay "On dwellings for the poor, and how to provide them, as applicable to Liverpool." His object is to aid the Sanitary Committee in getting information on the subject. The referees are to be the borough engineer, Mr. H. Shimmis, and the donor.—Fever still prevails at Liverpool, there being forty-one deaths last week from typhus alone, or twenty-seven above the average. The relative mortality of Liverpool as well as other towns, will be seen from the following return for the week that ended Saturday before last.—The rate of mortality was 28 per 1,000 in London, 33 in Edinburgh, and 36 in Dublin; 41 in Liverpool, 33 in Manchester, 28 in Salford, 28 in Birmingham, 32 in Leeds, 27 in Bristol, and 47 in Glasgow.

Preston.—The report on the sewerage and private improvements, for 1864, by the borough engineer, Mr. John Newton, C.E., states that previous to the adoption of the Public Works Act for behoof of the cotton-spinners, the local Board had executed main sewerage, amounting to 49,141l., and private street improvements, amounting to 26,477l., and they had also drained 13,973 houses, at an average cost of 1l. 15s. each, making a total expended on sanitary works alone exceeding 100,000l.; and that the local Board, nevertheless, were the first to apply for loans under the Act, and that their expenditure has been upwards of 24,000l., nearly one half of which was for wages. The number of men at present employed is 320. Notwithstanding the comparatively high rate of mortality throughout the country of late, and at Preston as well, the sanitary works have already reduced the average death-rate from 29.95 per 1,000 to 28.68 per 1,000, instead of allowing it to show any excess here as elsewhere for 1864. In the previous year it was down to 25.25 per 1,000, and for next year, unless a generally high death-rate continue throughout the country, we have not

the least doubt that the death-rate will fall below 25 per 1,000.

Nottingham.—The report of the Sanitary Committee states that the rate of mortality in this town for the year ending 30th September, 1864, was 26 per 1,000. No typhus or typhoid epidemic is reported on.

Typhus Fever in Scotland: Greenock.—In the quarterly reports for 1864 of the Registrar-general for Scotland, he observes there was nothing in the meteorological phenomena of the year to account for the great epidemic of typhus which prevailed in Scotland. It attacked large masses of the people in the early months of the year, abated in the warmer season, but again resumed its virulence in September, and increased more and more till the year closed. The epidemic appeared among the people while in the midst of plenty,—plenty of work, high wages, and cheap food being characteristics of the year. The town where the demand for labour has been greatest and wages highest, and in which there need not be a single person idle—viz., Greenock, has been the town where typhus has been most virulent and fatal, causing above 14 per cent. of the deaths of the year, including among its victims four of the medical practitioners. Taking the experience of the Royal Infirmary of Edinburgh—namely, one death in every 12 cases of this epidemic,—above 7 per cent. of the population of Greenock must have been attacked with typhus fever in 1864. But Greenock is shown by the register year after year to be by far the most unhealthy of the eight principal towns of Scotland, if not the most unhealthy town in Scotland. The inhabitants have to contend with two adverse causes which tend to induce predisposition to attacks of epidemics,—a low-lying, damp site, and greatly overcrowded dwellings, the houses accommodation not keeping pace with the increase of the inhabitants. The report records an extremely unhealthy year.

The four medical practitioners who have died from fever constituted one-fourth of the medical men resident in the town. One of them, Dr. Dowie, who was the youngest, and was only twenty-one years of age, had himself treated no less than twenty-eight fever cases on the day when he was attacked by it. Greenock has long been infamous for its unsanitary state.

New York.—Small-pox has become so fearful in New York that the legislature of the State has been appealed to to take immediate action to make vaccination compulsory with the inhabitants of the metropolis. It is estimated that from 100 to 125 persons die daily in the city, while it is known that several thousand cases of sickness exist. Many of the streets—among others Pell, Clinton, and Columbia—have been barricaded, or "boarded up," to prevent the passage of the public.

St. Petersburg.—Fever is now raging at St. Petersburg, and the streets are placarded with notices issued by a "committee of public health." The fever, which is contagious, is said not to be dangerous if properly treated forthwith, but in the contrary case mortal. The water from three of the canals, and from all the springs near the drains or near bath-houses, is declared unfit to drink. Impure bread and excess of brandy are reprobated. Overcrowding and filth, however, do not seem to come under notice as likely causes, although these are doubtless the giant evils which are here, as elsewhere, marking out the seats of continued sanitary neglect.

CISTERNS IN FROSTY WEATHER.

HAVING suffered much annoyance from cisterns freezing and pipes bursting during frost, which misery is common to all houses having the "closets" and cisterns near to or outside the main walls, which is usually the case, I beg to send you a plan by which I overcame this inconvenience.

Over the gas-burner in the closet I placed a thin lead pipe, about 2 in. diameter at the bottom, and 1 in. at the top. The low end of the pipe comes through the ceiling, and is finished and fitted with a coved block-in disc, having an opening in the centre to allow the heat to ascend. The pipe is soldered to the bottom of the cistern, and goes up above the water, and is turned down at the top, which partly confines the heat.

By this means, with a jet of gas burning, and a cistern containing about 1,400 gallons (being rain water, and also used for the rooms) in an exposed situation, during all the long frost this winter, with the thermometer down to 20 degrees

below the freezing point, there has been no inconvenience or trouble.

Where there is no gas, and where there are hot-water pipes leading to baths or rooms, a small pipe from the hot-water pipe, with a tap on it near the cistern, could be used to allow a portion of hot water to run into the cistern during frosts; or the pipe could be carried into the cistern and finished with a hollow copper or lead ball, into which the hot water could be allowed to flow by opening the tap in frosts, and so keep the water from freezing.

By either of the above means, much discomfort, destruction, and expense, can be saved by an outlay of a few shillings. R. C.

ON LAYING OUT HOUSES.

NUMEROUS are the publications that profess to exhibit designs of, or else for, country mansions and villas of different grades, scarcely any instruction is to be gathered from them relative to the skillful laying out of buildings of that class. The "Vitruvius Britannicus" and its successors are perfect blanks in that respect. In a church—which, however large, consists of little more than a single large room—there is, properly speaking, nothing to plan: widely different is it in the case of an extensive mansion, containing perhaps a hundred rooms, or even more, of various kinds, in which the most conflicting requirements have to be reconciled, and the *utile* so completely to be mingled with the *dulce* as to coalesce inseparably. Nevertheless, eminently deserving of particular attention and study as the matter of planning is, very little indeed is to be met with on the subject in books.

At length, under the attractive title of the "English Gentleman's House," Mr. Kerr has given us a volume professedly on laying out houses of that description, which, however, is so comprehensive as to require a good deal of subdivision, embracing as it does the studiously comfortable, perhaps even luxuriously appointed though small and unpretending cottage residence, the ornate Palladian villa, or the aristocratic family mansion, adapted for a large establishment and the reception of a concourse of the locusts cycloped "staying visitors." To quote, as Mr. Kerr does, Blenheim, that national monumental pile, as a sample of a gentleman's house, seems to me rather preposterous.

A positive omission—a not little serious one, unfortunately—is that nothing at all is said in regard to a very important matter indeed, namely, the respective advantages or the contrary of two directly opposite systems of planning; the one being that of keeping the domestic offices out of sight, by placing them beneath the house proper; the other, that of erecting them above ground, and along side of it—a separate though contiguous structure. The first mode insures compactness; the other is attended with more or less of the *straggling*, with its accompanying inconveniences, to say nothing of comparative extravagance as to cost, when the offices are stretched out till they occupy as much ground as the house itself, although no more than a supplementary adjunct to it, which, so far from improving the general design, usually degrades it. Mere juxtaposition of an additional range of building tacked on to a house, as a separate habitation for the domestics, is inimical to artistic unity of composition. Suppressing here, for the present, a great deal that would detain me longer than suits my inclination, I just now content myself with remarking that however it may have occurred or been occasioned, the absence of all comment or advice relative to so very fundamental a point for decision at the very outset, certainly does not add either to its interest or its value.

As it seems to me,—and not to myself alone,—instead of endeavouring to correct it, the writer rather countenances that laxity, not to call it downright slovenliness of both composition (rather mere putting together) and detail, which has become the characteristic of too much of the architecture of the day, when, though it is now the latter half of the nineteenth century, we are exhorted by some to revert to Mediaevalism, in architecture at least, notwithstanding that we are advancing further and further every day from the state of society in those exquisitely blissful days, when a prince was far worse lodged and accommodated in every respect than is now a well-to-do shopkeeper: but I am digressing. Therefore I here conclude at once, by observing that Mr. Kerr's book would have been none the worse had he both taken up and

brought down the history of our domestic architecture much later than he has done. Hypothetical or ceiling fenestration is, for instance, a most important modern improvement, one connected with planning, and that deserves to have been spoken of at some length. ART-LOVER.

ENCOURAGEMENT FOR ARTISANS.

SIR,—In reference to your article headed "Drawing for Artisans," I beg to say a few words of encouragement to those to whom you allude. I believe it is possible for any man, with the slightest idea to begin with, to attain sufficient knowledge of drawing to enable him to fill any ordinary situation of trust that may arise in his own branch, or to take the entire charge of works, if he have but the will to go into it: the greatest difficulty lies not in learning, but in beginning to learn. Take my own case, for example: apprenticed in a country village, without a relative or friend in any branch of the trade, you may guess I had no royal road before me; but I had a will. I am proud to say that I have filled situations of trust in my own branch on works of almost every description and magnitude, and also as general foreman of not small jobs, without intermission, for fifteen years (I am now forty-five), and I commenced to learn to draw after I had a family about me to provide for. Not being able to purchase instruments, I began with a pair of iron compasses, with a pencil tied on one leg with a piece of string; but my will carried me through. I managed to get a few odd instruments, one at a time, and without a half-hour's instruction from any man, in my own home; and by the light of the candle, and after many a hard day's work, did I study and persevere and succeed so far that (although far from being a clean clever draughtsman) I am enabled to make any ordinary working drawing, plan section, &c., and strike out any geometrical figure in ordinary use in the trade, and many others that are not; intersections of lines, &c.; and set out any work that comes before me on any plan, and without the assistance of any one. In conclusion, I say to them, persevere, and you will, I am certain, never lose if you never gain. A BRICKLAYER.

THE NEW ART CODE OF "THE DEPARTMENT."

SIR,—In reply to your correspondent of last week, "A Master," touching the "New Art Code," as the schedule appended to the Council of Education Minute of the 8th ult. may be called, it is quite true that an intelligent school-boy could take, and has taken, the second-grade drawing-certificate; but it is not so that this forms the standard of art-knowledge which will future be required in masters of art-schools.

The new art-code takes cognizance of elementary drawing alone as a basis on which to calculate State payments in aid, and very properly, I think, greatly extends the area of instruction in elementary drawing, by proposing to make payments whenever it is taught to artisans, provided only the teacher has himself a certificate for elementary drawing—the second-grade certificate. The managers of art-schools are left at liberty to provide the highest and best instruction adapted to the requirements of their locality, and to charge remunerating fees for it. This tends to cause art-school managers to investigate the qualifications of candidates for masterships, and to secure the best available talent, rather than to rely upon the validity of a so-called art-master's certificate, which, I can assure you, under the old rules did not require an overwhelming amount of art-knowledge to obtain.

The accounts of the art grant are in future to be kept separate from the grant for the museum, so that the public will be able to judge to what extent it is misappropriated. Because payments for art pupil-teachers are abolished, it does not follow that a master with three or four classrooms will find himself without assistance. If he can fill a large school with paying pupils, there is no doubt that efficient assistants may be found, and money to pay them.

Art-masters are not the only professional men who study at great expense to themselves and some cost to the State, and yet have to strive to live without direct or indirect State assistance. This minute may displace a few bad art-masters; but it rests with the local committees, who by this minute have become entities, to see that

the art-master holding his appointment from them faithfully and loyally discharges his duties. To state that the art-master is interested in preventing the spread of art-knowledge because every person possessing the elementary certificate becomes a rival teacher, as well paid by the State as himself, is mere balderdash.

The promotion of elementary drawing-classes in mechanics' institutes and night-schools, taught by second-grade teachers, is likely to strengthen greatly the hands of the art-master, as these classes will act as feeders to a good central school.

"A Master" makes no allusion to the removal by the new minute of much irritating and harassing surveillance; to the withdrawing of the restriction as to the amount of fees; and the liberation from the dry, illogical, heart-wearing course of instruction in twenty-three stages and sixty-one sections, under which art-masters have groined for years; and many minor relaxations, which are like the glimpses of liberty to the life-long toiling slave.

DAVID W. RAIMBACH.

DRYING BY GAS.

To attempt to dry by combustion of gas appears to be a mistake, for in small chambers at least, where there is no ventilation, instead of evaporation, moisture is produced, and condenses upon the walls. This I have found from repeated experiments, and was much puzzled for some time by a solicitor's strong room, which I had built, obstinately refusing to become dry, although favourably situated for the process, and a jet of gas being kept burning day and night. The consequence, however, was, that the papers and parchments became flaccid and damp. The mischief has been entirely and speedily remedied by inserting two terra-cotta ventilating bricks, also, in one case the gas in a washing lobby, when the paper on the walls was found to be saturated with moisture for about 1 ft. in width, and below the level of the light, and where, as on varnished parts, it could not be absorbed, the moisture hung in great drops as if a pipe had leaked. The combustion of gas, therefore, in confined chambers produces a moist atmosphere instead of a dry one.

T. G.

CHRISTIAN GRAVES.

No one can walk through our churchyards and cemeteries without being impressed with a conviction that an earnest and affectionate regard is being paid to the memories of the dead, in the many and varied forms of Christian memorials which mark their resting-places.

One cannot help feeling, however, that hitherto we have been expressing our affection rather upon the memorials of our dead than on the actual abode to which we consign them.

Surely there is an opportunity afforded to us for expending a loving care on the tomb itself, before we commit those dear to us, who sleep in death, to their last resting-place, if only to relieve ourselves from that association of gloom which falls upon us when our minds revert to the spot wherein we have laid all that is earthly of those loved ones who are lost to us.

The Pagans in ancient times lavished more care on, and rendered more cheerful, the sepulchres of their dead than do we Christians of the present day.

The custom that now prevails with ourselves is, simply or at most, to build a common brick vault, which at best has but a bare and repulsive aspect, but which might be made to form the groundwork of a cheerful sepulchre, if converted from a gloomy prison-house; it then would tend to soothe the lacerated feelings of sorrowing relatives, who would feel that the expressions of their care and love surrounded and enshrined the object of their affections, instead of only being expressed on the surface memorial.

It is but recently that two great funerals have taken place, and nothing that affection could suggest, or that money could procure, seemed wanting to surround the remains of the two illustrious personages; but all exhibition of feeling terminated on this side the grave, instead of, as it were, following them into it. The contrast was very striking when the richly-decorated coffins were consigned to common brick vaults,—the one vault, I am informed, being a white-washed pit in the earth, perhaps meant as a slight attempt at decoration; the other, which

I witnessed, was a common brick vault, wherein lay exposed the coffins of the illustrious predecessors of the deceased.

I was lately present at the funeral of the son of an eminent architect, whose grave seemed to me to be free from the objections I have alluded to. It was formed of brickwork, the internal faces of which were lined with encaustic tiles, having some simple Christian emblems introduced, together with ornamental and plain tiles, in simple forms, surrounded by ornamental border-tiles, the whole treatment giving a cheerful aspect to the tomb; and doubtless it conveyed to the sorrowing relatives a train of more pleasing associations than a gloomy brick vault could possibly have suggested.

I am aware that many difficulties present themselves, owing to the necessarily limited time allowed for the preparation; but tile-manufacturers would doubtless be prepared for an emergency of this sort if a demand were created, and would keep a supply of tiles of suitable designs ready to be used at a short notice, the other materials being easily procurable. C.

MAIN DRAINAGE OF THE METROPOLIS.

ANOTHER section of this work has been just completed, namely, the Northern Middle Level Sewer, by the admission of the sewage into the aqueduct crossing the Metropolitan Railway at the back of the Sessions House, Clerkenwell. This aqueduct is of the extreme length of 150 ft. between the bearings, and is constructed of boiler-plate, the tube being suspended between two girders, which are 12 ft. deep, and are calculated to bear a load of 600 tons, they having been tested to 250 tons, with a deflection of half an inch only. The tube itself is 8 ft. 9 in. in the clear, and is calculated to contain 60,000 gallons. The tube weighs 240 tons. The contract for the construction of this portion of the Main Drainage embraced the formation of twelve miles of sewers, of sizes varying from 4 ft. to 12 ft., and the whole has been carried out by the firm of Brassey, Ogilvie, & Harrison, under the superintendence of Mr. Bazalgette, the engineer in chief, Mr. Lovick, the resident engineer; and the staff of the Metropolitan Board of Works.

His Royal Highness the Prince of Wales has accepted the invitation of the Metropolitan Board to open the Main Drainage Works: Tuesday, the 4th of April, is appointed for the ceremony.

GALVANIZED IRON TANKS.

Sir,—Will your correspondents inform me as to the effect of a severe frost on a tank made from galvanized iron filled with rain-water? I want to substitute a tank for the rain-water butts. May the water safely remain in the tank during a severe frost? F. K. C.

COMPENSATION CASES.

Hart v. Metropolitan Railway.—An inquiry was held in January and February last before an umpire (Mr. H. Brandon) as to the compensation to be paid to the occupier for his leasehold interest, nine years unexpired, in No. 1, Chapel-street, Edgware-road, at 80l. a year, with the contingent extension by the lease of life tenants for a further term of twenty-one years if he should obtain a renewal.

Mr. Hawkins, Q.C., appeared for the claimant, and Mr. Horace Lloyd for the company.

It appeared that the company had encroached on the rear of the premises in question used as a beerhouse, and preferred exercising their power to purchase to altering their buildings.

The claimant and his manager were called to prove the extent of the trade at 280l. per annum net profit, and Mr. E. Roberts for the valuation of the lease and goodwill. The company did not call witnesses, but relied on a speech by counsel, who denied that there was any profit, and that there was any value in the contingency of a renewal, and suggested 400l. or 500l. as the maximum.

The claim was for—

Lease and goodwill.....	£1,280 0 0
Contingent renewal and probable profit.....	500 0 0
Fixtures, removal, &c.....	225 0 0
	£2,005 0 0

The award has now been given for 1,320l.

Faulkner v. Metropolitan Railway Company.—An inquiry under similar circumstances was held in January, before Mr. E. Brandon, umpire, to assess the compensation of a term of 24 years unexpired term in a lease and occupation of No. 5, Chapel-street, Edgware-road. The claimant carries on the trade of a coffee-house, and proved a net profit of 870l. a year.

Mr. Barrow appeared for the claimant, and Mr. Holloway for the company.

The witnesses for the claimant were Mr. E. Roberts, Mr. F. Chinnock, and Mr. Driver. Their estimates were from 550l. to 600l. The company's witnesses, Messrs. F. Clarke, Shaw, and Pownall, ignored the lease, as being of no value, and estimated the compensation at 300l. to 320l.

The award has been published at 481l. 1s. 3d.

CHEDDLETON CHURCH, STAFFORDSHIRE.

THE restoration of Cheddleton Church, near Leek, has received a further instalment towards completion, by the fixing of the churchyard cross, which has been restored from the designs of Mr. G. G. Scott, architect. The old cross stood on a base of four large steps: these, with about 5 ft. of the shaft, were all that remained. The shaft is a clustered column of four smaller ones, placed midway on the faces of a square pillar. The newly-added portion consists of a continuation of the shaft, with capitals, canopies, and cross. The canopies or niches contain the figures of four kings: these are surmounted by a cross of foliated designs, bearing the figure of our Lord. The kings, as nursing fathers of the Church, are represented as follows:—Melchisedec, as priest and king, bearing chalice and sceptre; David, as warrior, king, and musician, with sword and harp; Solomon, with sceptre, holding a model of the temple; Edward the Confessor (to whom the church is dedicated) with sword and shield of five martlets about a cross fleury. On the back of the cross are five small shields, bearing the emblems of the Passion. The whole is carved in Witley Rocks and Roche stone, by Mr. Farmer, of London. The stone was supplied by Mr. H. Goldstraw, of Witley Rocks, builder, under whose direction the cross was fixed. The total height is almost 20 ft. It is, we believe, the offering of a parishioner.

CHURCH-BUILDING NEWS.

Boyn Hill (near Maidenhead).—The tower, with spire, of All Saints Church is now in progress. It is in the Decorated style, 80 ft. high from the foundation, and the spire rising 70 ft., makes a total of 150 ft. The architect is Mr. Street, and the work is in the hands of Messrs. Silver & Son, Boyn Hill. The tower will be banded with red and black bricks (moulded by Messrs. Silver), with Bath stone dressings, and the spire will be faced with Bath stone. The bell-chamber will be constructed for eight bells, and the ground-plan is 20 ft. square. The contract is to be completed by August next. A curate's and governess's house and three almshouses have been erected, and four of the windows in the church have been filled with stained glass (by Mr. Wailes, of Newcastle), of which the following are the subjects:—On the north side, the Slaying of the Innocents, the Flight into Egypt, the Presentation in the Temple, Jesus disputing with the Doctors, and the Baptism of Jesus; on the south side, the Incredulity of St. Thomas, and Jesus walking on the Sea. We understand that the two in the western end will shortly be filled with stained glass by Messrs. Connor, when the whole of the windows will be of stained glass.

Tunton.—St. James's Tower, having of late shown signs of external decay, a vestry meeting has been held, at which a report by Mr. Metford, architect, as to what was requisite to restore the tower without destroying it, was read, and it was resolved that measures should be taken to that end. In the event of Mr. Metford declining to undertake the superintendence of the work, it was resolved to employ Mr. Pollard.

Stoke Priory (Herefordshire).—The parish church has been re-opened, after being closed for restoration during the last six months. A new roof has been put upon the nave. Almost the whole of the west wall has been rebuilt, and a new window of stained glass (by Messrs. Chance & Co., Birmingham) has been inserted, being the gift of Mr. J. Corbett, churchwarden. Two coronas, from Messrs. Hardman & Thomason, of Birmingham, with eight standards and four altar candlesticks, have also been placed in the church by subscriptions. The walls of the nave and chancel have been scraped and pointed. Other improvements have been made. The whole of the work was carried out under the superintendence of Mr. Bohill, foreman over the Stoke Prior Salt-works. The whole expense is estimated at about 1,000l.

High Ercall (Salop).—St. Michael's Church has been restored and re-opened. The plaster ceilings and ornamental plaster-of-Paris cornices have been taken down, and the original carved trusses and corbels have been restored to their former character. The timbers have been cleaned, oiled, and plastered between the rafters. The roofs have been retiled and finished with an ornamental crest from Mr. Burton's works, Iron-bridge. The external walls have been dressed

of plastering, and the stonework repaired and painted. The stone carving to pier caps and bases has been restored. The gallery at the west end, including the organ, and the lath-and-plaster partition in the tower arch, and ringing-loft floor, removed, and the tower thrown open to the nave. The high pews and sittings have been removed, and the whole re-seated with oak benches. Various other restorations have been effected. The architect employed was Mr. G. E. Street, of London; and the works have been carried out by Messrs. Nevett, Ironbridge, under the superintendence of Mr. Mellors. Two stained glass windows, from the establishment of Messrs. Lobin et Fils, Tours, have been presented to the church by Mr. Patric Hunter, of Roden and Mount Alyn. The whole of the other windows in the church were supplied by Messrs. Done & Davies, of Shrewsbury.

Derby.—Christ Church has been re-opened. The alterations consist of the formation of a new chancel, with organ chamber and vestry. The new chancel is 18 ft. in width, and 26 ft. in length, with octagonal termination. The four lancet windows have been fitted with stained glass, presented "in memoriam" by Mr. John Walters. The floor is laid with Maw & Co.'s encaustic tiles. The total number of additional seats provided by the extension of the church, the extra seats in the chancel, and the removal of the organ from the gallery into the new chamber, is 100. The edifice has been heated with hot water. A new infants' school, 40 ft. long and 20 ft. wide, has been erected in connexion with the present schools, at the back of the church. The external walls are faced with Whitwick white bricks, relieved with blue and red brick dressings. Mr. Crump supplied the stained glass and hot-water apparatus for the church, and Mr. Woodhouse the gas-fittings. The whole of the remaining works were executed by Mr. E. Thompson, builder, all under the direction of Messrs. Giles & Brookhouse, architects, at a cost of about 1,000l.

Deansbury.—The recently completed Gothic church, in Halifax-road, dedicated to St. Mark, has been consecrated by the Bishop of Ripon. The edifice is from designs by Messrs. Mallinson & Henley, of Bradford, architects. The nave is separated from the side aisles by arches springing from plain circular freestone pillars. These arches are eight in number. Above them rises the clerestory, which is lighted by a corresponding number of spherical-triangle windows. The roof of the nave is open-timbered, and of steep pitch. The aisles have lean-to roofs corresponding to the nave, and both are lighted by three-light tracery windows at the sides. The transepts have windows of four lights at the end, besides others of smaller dimensions at the sides. The chancel, which rises a couple of steps from the body of the church, is separated from it by a lofty arch springing from carved capitals, which surmount polished pillars made of Aberdeen granite. The floor is laid with encaustic tiles. The east window has four lights, and is filled with tracery; but in none of them is placed any stained glass. All the seats are free and open, made of stained pine: they will accommodate about 650 people. The tower, which is surmounted by a spire, and is a principal feature of the church, rises to a height of about 180 ft. It is almost wholly of dressed stone, and bears several lights, which are similar in design to the windows. To Mr. J. Chadwick, now of Mirfield, is due the origination of the scheme for building the church. He gave the site and land for a school-house and parsonage, of the value of 2,000l., besides 400l. to the building fund, and 600l. towards the endowment. By October, 1862, 3,000l. had been obtained: nearly 1,500l. were realised by a bazaar in that month; and in the November following the foundation-stone was laid.

RECENT PATENTS CONNECTED WITH BUILDING.*

CONSTRUCTING OR FRAMING LIGHTHOUSES, HOLLOW METAL PILES, AND CYLINDERS, &c.—*J. N. Douglass.* Dated 5th April, 1864.—In constructing or framing lighthouses, hollow metal piles, and cylinders, the patentee employs a series of quadrilateral frames or panels, each frame being complete in itself, and made of angle iron or metal of any convenient section, welded up or otherwise fixed together, so as to make rigid frames. If the structure to be framed be cylindrical, the frames may be similar from

end to end, and each frame is curved to the radius of the cylinder. In forming the structure, the frames are put together edge to edge, so that the diagonals of each frame run longitudinally and transversely of the structure. The sides of the frames or panels are each of them riveted or fixed to the side of another frame or panel which is in contact with it, and the angles of the frames so meet that their junctions are perfectly fished, the angles of four frames meeting in a point, and then one pair of frames serves to fish the other pair; thus the sides form double ribs or webs crossing each other, and running continuously and spirally from end to end of the structure in opposite directions. If the structure is to be taper, and not cylindrical, the frames will not be exactly similar throughout, but will gradually decrease in size as the structure tapers away. To a framing thus constructed, metal plating may be applied, as may be convenient, being riveted or otherwise fixed to the webs of the frames. The patentee prefers that the plates should be of sufficient size to pass over two or more frames, as the strength of the structure is thereby increased.

GLAZING HORTICULTURAL AND OTHER STRUCTURES.—*C. Beard.* Dated 7th April, 1864.—For the purpose of this invention, in place of supporting the squares of glass with which the building is to be glazed, on iron bars, made with the usual sash-bar rabbet, as is common when iron sash-bars are employed, the squares of glass are supported by bars of T iron, or of other suitable section, having one flat side upon which the said edges of the squares of glass are to rest, and the squares of glass are held against the flat side of the T or other iron by bars of half-round or other suitable section of iron, having a flat side, the edges of the squares of glass being nipped between the flat side of the T and the flat side of the half-round iron. Between the surfaces of the glass and the flat side of bar iron, strips of very soft thick paper, or paper wadding, or materials manufactured from a pulpy substance, or any soft elastic fabric, are placed, thus avoiding the use of putty; the outer bars of iron are drawn towards the inner bars of T or other iron by means of screws or otherwise; the squares of glass are cut to any suitable length, and are of a width slightly less than the distance between any two of the T or other sash bars, so that the flat side of each sash bar may support the side edges of two squares of glass. The squares of glass are so placed together that each corner of a square of glass meets the corners of three other squares, and the corners of all the squares are cut away in order to form spaces wherever the corners of four squares of glass come together, through which the screws which draw together the upper and under bars may pass.

Books Received.

Fraser's Magazine for March (Longman & Co., publishers), contains a paper advocating Working Men's Clubs and Institutes, with the purpose of engaging the attention and interest of the higher classes in favour of the movement, as one highly beneficial to the working classes, and capable of withdrawing them from the meretricious attractions and abominable influences of the beer and gin shops. Our warmest sympathies are in favour of the Workmen's Clubs and Institutes. *Fraser* also contains the concluding part of Miss Frances Power Cobbe's able though a little transcendental paper on the "Hierarchy of Art."—A "Familiar description of the old Delabole Slate Quarries," by Mr. J. T. F. Turner, has been published (price 6d.), at Stonehouse, by J. Lewis, Union-street.—"Report upon the System of Weaving, by Compressed Air in the Patent Pneumatic Loom. By Thomas Page, C.E. Cambridge: Naylor, Chronicle Office, Market-hill."—We have already given an abstract of Mr. Page's Report on this ingenious and important invention of Mr. Charles Weightman Harrison, whose name will doubtless be henceforth permanently associated with those well-known geniuses by whom the power-loom has been created and matured. His simple but beautiful invention relates exclusively to the shuttle, which it shoots forth by the force of compressed air, directly applied, thus doing away with complicated mechanism, and uncertainty, and even danger in working. It also compels a continual supply of fresh air in factories and workshops, and must thus promote health and vigour in the work-

people.—"British Rainfall, 1864. Compiled by G. J. Symons. London: Stanford." This thick pamphlet contains an elaborate account of the distribution of rain over the British Isles during the past year, as observed at about 900 stations. It is illustrated by a map and other engravings.

Miscellaneous.

LITERARY FUND.—The annual dinner will take place at the Albion, on May 10th. The Archbishop of York will preside.

LIVERPOOL.—The new building for which the tenders are given in their proper place, is the first structure in a new line of street to extend from North John-street, by Temple-court, to the foot of Manchester-street, opposite St. George's Hall.—We hear with great pleasure that within the last few days Mr. J. A. Picton, architect, has been placed on the commission of the peace.

THE ROMAN REMAINS AT BRADWELL, ESSEX.—A *soirée* in connexion with the Chelmsford and Essex Museum has been held, at which various objects of interest from Bradwell were exhibited, and the Rev. F. Spurrell read a paper on Bradwell as the Roman Othone, in which he maintained that the chapel remains must have been a basilica in Roman times.

TRIBUTE TO SIR ROWLAND HILL.—A deputation of gentlemen, representing the merchants and shipowners of Liverpool, have presented to Sir Rowland three pictures, as a testimonial of the high estimation in which they hold his improvements in the postal arrangements of the country. Sir Rowland had been consulted on the form which he would desire the testimonial to take, and selected pictures by Stanfield, Creswick, and Cooke.

APPOINTMENT OF SURVEYOR AT COCKERMOUTH. At a meeting of the Local Board on the 20th ult., on the motion of the chairman, seconded by Mr. Mitchell, it was unanimously resolved, "That Mr. T. F. Middlemiss, C.E., of Sunderland, be appointed surveyor to the Board, at a salary of 800l. a year, with liberty to practise without the district, but not within the district, and to reside in the district." There were thirty-two candidates for the situation.

PARAPET ON THAMES EMBANKMENT.—I understand that the tetraco walk of the Thames Embankment is to have a parapet 4 ft. high. Even if this is open balustrade, would it not go a long way towards destroying by its height the cheering open effect which ought to be the chief consideration in the splendid promenade which we may expect from this great work? When crossing Waterloo Bridge, it will be seen that unless people are walking close to the parapet, they will see nothing of the beautiful river and its busy highway. I mention this in the hope that those in power may perhaps reconsider this important feature, which an artistic eye will fully realize.—FATHER THAMES.

BOMBAY CATHEDRAL.—Supplementing particulars already given, we may mention that a large organ has been built for Bombay by Messrs. Bishop & Starr, and seems a fine instrument. It includes three complete manuals, and the total number of pipes is 1,604. The interior woodwork is of hard mahogany, to suit the climate of India, and the metal pipes are of spotted metal. It has two fronts; one towards the choir, and the other to the aisle. The case, which is of oak, with a superstructure of iron-work enriched with copper and brass, was designed by Mr. Roger Smith.

PARIAN CEMENT.—Some time ago in describing the Charing-Cross Hotel, we mentioned incidentally our inference from personal experience, that this material does not always bear painting on so quickly as is supposed, and is not so hard as another cement that was named. Messrs. Bollman & Ivey combat this opinion, and attribute our own disappointment to the fact that some of the material sold as Parian cement is of a very inferior quality to what it should be. They state positively, "after large experience with Parian cement, commencing before its introduction to the public, and up to the present time, and constantly using it upon works large and small of various kinds, without one single failure, that it will always bear painting on not only quickly, but the quicker the best."

* Selected from the *Engineer's* lists.

THE COURTS OF JUSTICE BUILDING BILL.—This Bill has been read a third time, and passed the House of Commons.

CAMBRIDGE PROFESSORSHIP OF ARCHEOLOGY. Notices has been given that the Disney Professorship of Archeology having become vacant by the resignation of Professor Marsden, the election of a person to fill the office will take place on April 4, 1865. The professor must be a member of the University of Cambridge, and of the degree of Master of Arts, or of some higher degree.

A PUBLIC PARK FOR SWANSEA.—The *Cambrian* says:—"We cannot see without regret our noble sands being gradually cut up and demolished by the extension of docks and the carrying out of railway schemes, field after field being laid out for building purposes. In a few years opportunities which now present themselves for a people's park will present themselves no longer: the few green spots which now dot the outskirts of our locality will be covered with villas, or still more humble homes. We sigh in vain for some nobleman or princely merchant to devote some few acres of his estate to such a noble purpose as a public park."

NEW DOCKS, BLACKWALL.—In anticipation of the increasing demand for graving docks to receive the largest class of vessels, the Thames Iron Works Company are now constructing two dry docks at Blackwall: one will be 450 ft. long, 64 ft. entrance, and 23 ft. deep; the other, 350 ft. long, 55 ft. entrance, and 21 ft. deep. The works, which are being executed by Messrs. John Aird & Sons, from the designs of Mr. Alfred Giles, C.E., will be completed in October, at a total cost of about 80,000*l.*, inclusive of pumping engines.

SALE OF CONTRACTOR'S PLANT.—The surplus plant remaining at the completion of the Northern Outfall Sewer, at Barking and Plaistow, was brought to the hammer during the week, by Messrs. Fuller & Horsey, and attracted a large attendance of buyers. Three locomotives brought respectively 1,000*l.*, 550*l.*, and 270*l.*; six hundred tons of rails, 5*l.* 7*l.* 6*l.* to 4*l.* 7*l.* 6*l.* per ton; sixty-six iron-bodied earth-wagons, 13*l.* to 13*l.* 5*l.* each; fifty-four ballast trucks, 12*l.* 10*l.* to 14*l.* each; sixty-eight end-tip wagons, 11*l.* to 11*l.* 10*l.* each; one hundred and thirty side and end tip wagons, 7*l.* 15*l.* to 8*l.* each; six thousand sleepers, 6*l.* to 1*l.* each; and the other odd lots found plenty of buyers. The total amount will exceed 10,000*l.*

THE AMALGAMATED SOCIETY OF ENGINEERS.—A Birmingham contemporary, in allusion to a recent meeting of this society at Birmingham, says:—"The Amalgamated Society of Engineers may justly claim to stand at the head of all trade-unions. Possessing branches in all parts of the United Kingdom, gradually sending out new shoots into the continent of Europe, and numbering their members by tens of thousands, their funds are enormous, and their weight in any trade dispute necessarily almost irresistible. Yet for many years past they have engaged in no great strike; nor, so far as we are aware, have they been charged with using their vast influence to encroach upon the rights of the masters. The secret of all this prudence and moderation, we suspect, lies in the fact that their trade-union is also a great mutual benefit society. Since 1851, they have spent in this way half a million of money. In 1862, they spent 34,000*l.*; in 1863, 84,000*l.*; and they have at the present time a balance in hand of 85,000*l.*"

MONKSILVER, SOMERSET.—An unusually good example of a monumental cross has recently been erected in the village churchyard of Monksilver, in memory of the Rev. W. F. Chilcott, of that parish. It stands on the site of the old churchyard cross, and is about 12 ft. high. The steps are of red sandstone, and the remaining portions of the yellow Ham Hill stone, the contrasted colours producing a pleasing effect. At the angles of the base are sculptured the conventional emblems of the four evangelists. At the ends of the four arms of the cross on the east side, are the symbols of our Lord's gifts to His Church:—Himself in the Lamb, Baptism in the Dove, Holy Communion in the Chalice, and the power of Remission in the Keys. Between these symbols the vine is introduced. On the west side are sculptured the symbols of the Passion:—the crown of thorns, spear, reed, sponge and dice, the hammer, pliers, and the nails. The work was executed by Mr. John Seymour, of Taunton, from the designs of Mr. C. E. Giles.

SWANAGE: QUARRIES.—"A PURBECK MARBLERS."—The quarries of this neighbourhood, says the *Dorset Chronicle*, appear now to be divided into two parties—first, those who believe in the solidity and value of their code of laws, rules, customs, and usages as an ancient order, having certain privileges, and who accordingly act and say they can keep and secure the stone trade in their own families and company; secondly, those who do not believe in the same, and who accordingly act and say that there is and must be more freedom, openness, or liberty in their trade.

NEW MAP OF THE PARISHES OF ST. GILES-IN-THE-FIELDS AND ST. GEORGE, BLOOMSBURY.—The old map of these parishes was made in 1815, by Mr. Mawley, but owing to the great alterations in every direction since that time, it has been rendered entirely useless. The new map was entrusted to Mr. George J. J. Mair, and has just been handed over to the vestry. A plan of each property is shown, and at a glance is distinguished from the adjoining properties by an arrangement of cross hatching; a book of reference gives a further description. The parishes contain 245 acres (38 of which are open ground in squares), and 4,701 dwelling-houses. The parish churches in the margin, and the whole map (5 ft. by 5 ft. 6 in.), are drawn by Mr. J. H. Swan. It is framed, glazed, and mounted on an easel with castors, for the use of the appeal committee.

THE CHURCH OF ST. CROSS, WINCHESTER.—A gentleman of position in the county, a lessee of the Hospital, has undertaken, at his own expense, the decoration of the eastern wall of the church, after a pattern prepared by the architect, and approved by the master. In the letter in which this offer is made, the writer says, "That this work of restoration should be brought to a successful issue in a manner worthy of the subject, is a matter of not merely local interest, but one which has a claim on the sympathy of the whole country. As one who has an interest in all that concerns this county, I therefore trust that I may be permitted to offer as a gift to the church the decoration of the east wall according to Mr. Butterfield's design. It would give me the highest satisfaction if others should be induced thereby to apply to the two side walls of the choir similar decoration, so that all this portion of the church may be brought into harmony."

ACCIDENTS.—The outer walls of a warehouse in St. Rumbold's-lane, Lincoln, have fallen, but fortunately no person was injured. The warehouse contained from 1,200 to 1,400 quarters of malt, and the walls, being thin, were unable to bear the pressure of so great a weight. One of the buildings of the Leeds Old Foundry, Mill-street, has suddenly given way, and injured three persons. The pavement was a very old one. A large portion of the side wall fell in without the slightest warning, and the support being removed from the roof and flooring, they also gave way. —A fire has occurred in the Manchester Union Bank, from the ignition of the trimmer, on which a hearthstone rested, and which extended into the fine of the Bank Board-room. —The Roman Catholic convent of St. Benoit, at Galata, Constantinople, has been destroyed by fire. One of the walls suddenly fell outwards, burying a great crowd of people, and some of the fire-engines at work on the fire. A shocking slaughter must have resulted.

IMPROVEMENT IN CHATHAM DOCKYARD.—The sum of nearly 100,000*l.* has been taken by the Admiralty in the Navy Estimates for 1865-6, for the new works to be executed during the year for the enlargement and improvement of Chatham Dockyard, as well as for the other undertakings connected with the extension of that establishment. Of this amount the sum of 70,000*l.* will be required this year for the construction of the additional docks and basins, and other works for the enlargement of the dockyard. The original estimate for the extension of the dockyard by throwing into the establishment the whole of St. Mary's Island, containing between 300 and 400 acres, was 943,876*l.*, a further sum of 306,124*l.* being required for additional work now proposed to be executed by contract, making the total estimated outlay 1,250,000*l.* Hitherto the whole of the works have been executed by convicts, some 800 or 900 of whom have been daily employed on the undertaking for some years past; but the Admiralty have decided on supplementing their efforts by the employment of skilled labour, at an additional outlay of 300,000*l.*

CAMBRIDGE.—The question of a new corn exchange is mooted in the town council. The site and a design have been already provided.

TENDERS

For Commercial Buildings for Messrs. Fowler, Brothers, Temple-court and Temple-lane, Liverpool. Messrs. J. A. Pictou & Son, architects. Quantities supplied:—
Yeal & Son £10,175 0 0
Holme & Nicol 2,730 0 0
Mullin 9,687 0 0
Burroughs & Son 9,617 0 0
Rowe 9,581 0 0
Jones & Son 9,580 0 0
Tomkinson 9,500 0 0
Hughes 9,500 0 0
Ray 9,498 0 0
Trisman (accepted) 9,398 0 0

For new infirmaries and other works to the Ipswich Union House. Mr. R. M. Phipson, architect:—
Morley £2,457 0 0
Cannell 2,373 0 0
Bennett 2,315 0 0
Baxell 2,268 0 0
Girling 2,247 0 0

For Southsea Beach Mansions, for the Southsea Mansion Company (Limited). Mr. Whitchord, architect. Quantities supplied:—
Foster £14,350 0 0
Light & Roberts 14,190 0 0
Backhurst 13,990 0 0
Ball & Sons 13,862 0 0
Absalom 13,755 0 0
Stephens 13,540 0 0
Simms & Marten (accepted) 12,440 0 0

For tavern on Miss Kell's estate, Curtain-road. Mr. Reddall, architect:—
Maeers £1,172 0 0
Smithers 1,158 0 0
Kell 1,145 0 0
Kiddle 1,141 0 0
Kilby 1,129 0 0
Browne & Robinson 1,115 0 0

For the erection of three houses, Stafford-road, Old Ford, Bow, for Mr. Ames. Messrs. T. & W. Stone, architects:—
Sonster, Brothers £1,237 18 0
Wire 958 0 0
Davies 950 0 0
Evans 932 10 0
Norman 907 0 0
Higgs 907 0 0

For the erection of a pair of residences, Forest-gate, Stratford, for Mr. B. Warner. Messrs. T. & W. Stone, architects:—
Higgs (accepted) £800 0 0

For the erection of a pair of semi-detached residences, with stabling, for Captain Morris, at Anerley, near Penze. Mr. J. H. Rowley, architect:—
Nivert £3,893 0 0
Rider 3,667 0 0
Brass 3,617 0 0
Manley & Rogers 3,457 0 0
Piper & Wheeler 3,440 0 0
Till & Keddell 3,366 0 0
Longman 2,865 3 0

For the erection of five cottages, at Penge, Surrey, for Mr. Wren. Mr. Theodore Barker, architect:—
Dunk £285 0 0
Jarrett 796 0 0
Evans 718 0 0
Lamerton 712 0 0
Lose (accepted) 687 15 0

For new warehouses and offices, for Mr. Wood, Bank-side, Southwark, Messrs. Habesham, Spalding, & Brock, architects. Quantities supplied:—
Carter & Son £2,236 0 0
Patman & Fotheringham 2,175 0 0
Sherrington & Co. 2,109 0 0
Simpson 2,053 12 6
Kawlings 1,987 0 0
Manley & Rogers 1,884 0 0
Downs 1,869 0 0
Newman & Mann 1,856 0 0
Stephenson 1,846 0 0
Sawyer (accepted) 1,925 0 0

For taking down and re-building three houses at Nine Elms, for Messrs. Robbins & Miller, Mr. Charles Bowes, architect. Quantities not supplied:—
Nixon £1,165 0 0
Wootton 1,073 0 0
Young 1,058 0 0
Hancock 940 0 0
Lathley, Brothers (accepted) 923 0 0

For building a public-house in the City-road, and house in Providence-street, for Mr. Whittett, Mr. W. E. Williams, architect:—
Estlin & Chapman £2,547 0 0
Maeers 2,497 0 0
Scrivenier & White 2,434 0 0
Enner 2,471 0 0
Stanley 2,352 0 0
Chapman (accepted) 2,134 0 0

For re-building the "King's Head," Kingsland-road, for Mr. W. Joseph James, architect. Quantities by Mr. Chas. Poland:—

	Allow for old Materials.
Lark	£1,078 0 0
Lawrence	1,790 0 0
Sergeant	1,799 0 0
Turner	1,711 0 0
Garrad	1,682 0 0
Wills	1,647 0 0
Smith	1,547 0 0
Chapman	1,445 0 0

The Builder.

VOL. XXIII.—No. 1154.

Restorations in Northern Italy: Milan.



LATE visit to Milan sufficed to convince us that the Italian Government, notwithstanding many preoccupations, is actuated by a generous and intelligent spirit in regard to public works, and that not in the sphere of the utilitarian only but also of the monumental; and moreover, spite of antagonisms now so irritably active between civil and ecclesiastical powers,—in that class which pertains to the sacred and Mediæval. Besides the complicated works at the wonderful Duomo, prosecuted (as we understand) without intermission since the Lombardic provinces were annexed to the Italian Crown, other undertakings of high antiquarian interest have been progressing in the local metropolis, which ranks third (after Naples and Turin) among cities of the newly-constituted kingdom, Milan being peopled (according to the last census) by 196,109 persons in the midst of her fertile province, whose inhabitants number 948,320.

After having satisfied the feeling naturally excited by that marvellous cathedral, which seems like a "great ambassador from earth to heaven," to sanctify and elevate the very life around its sculptured walls, we first bent our steps towards the most venerable and characteristic among this city's subordinate sanctuaries, the Basilica of St. Ambrose, one of the most perfect examples of its style in architecture, and especially renowned for the sacred treasures under its olden vaults, though the edifice has indeed passed through great transformations since it served as the Cathedral of St. Ambrose himself, from whose portals that heroic prelate personally expelled the guilt-stained Emperor Theodosius after the massacre at Thessalonica. In the ninth century it was entirely rebuilt by the Bishop Anspertus, assisted for the costs sustained by the Emperor Louis the Pious; but that later construction was also destined to disappear, all except its apse and one of the two campanili, when another restoration was effected in the twelfth century, the actual vaulting, which is clumsy and ill-adapted, being of the century subsequent. Its brick façade is admirable of its class.

In the general aspect of this church, repose and quiet dignity, with the appearance of great solidity and venerably-simple antiquity, are characteristics that most impress. Its leading features are the arcades, with circular arches in two stories, the upper forming a gallery once appropriated to females; the ribbed vaulting, spacious crypt, altar-tabernacle (or baldachino) ambones, and apse adorned with numerous mosaic figures; externally, the two towers divided into stories of blind arcades, the ample quadrilateral atrium (or *paradisus*) surrounded by arcades that rest on slight piers with capitals in imitation of the Corinthian; façade with gable summit and double arcade string-course under a cornice of very simple character; five arched windows rising in height from the lateral to the central, and single doorway with curious reliefs (animals and other bizarre figures) on the jambs, massive flat lintel, and archway above entirely covered with rich mouldings, one of the

signal examples of the Lombardic portal carried to its perfection in the cathedrals of Verona, Como, Ferrara, Ancona, and elsewhere in Northern Italy,—the region in which sacred architecture became first, after the fall of empire, enriched with a complete and intelligently-organized style, partaking of the Roman and Byzantine, yet in certain respects differing from both, and which continued to be dominant from the fifth to the eleventh century, wherever the Latin Church had obtained ascendancy,—though, unfortunately, scarcely a single building of this style remains unaltered to the present day, one only exception being pointed out in a small chapel at Friuli.

To return to S. Ambrogio: we found works there in progress for a restoration of its interior, intended to be in strict conformity with primitive types, and, so far as could yet be judged, giving promise of intelligent purpose. The double-storied arcades, between the nave and aisles, are to be cleared of the stucco and whitewash long disfiguring them; their archivoltis reconstructed, where necessary, in a peculiar brickwork that seemed to us, in the parts finished, of appropriate character; the spandrels to be filled with fresco-painting, of what sacred subjects we could not obtain certain notice; nor could we learn from the *custode* the name of any artists commissioned for these works. Most interesting among the ancient paintings here, some of which cover the surfaces of massive square piers, is that brought to light by removal of the modern coating that had concealed it in 1863, representing St. Ambrose and his sister, St. Marcellina, in act of interring their brother, Satyrus, beside the body of the martyr St. Victor, in the basilica of Fausta, a still more ancient church, whose origin is referred to the period of Pagan persecution, and whose buildings were eventually absorbed into those of S. Ambrogio. The bodies of Satyrus and St. Victor were discovered and identified, to the satisfaction of ecclesiastic authorities, so recently as 1860. But another discovery, which could not fail to excite high interest both in the ecclesiastic and antiquarian circles of Italy, occurred within the walls of the same basilica in 1864, as first reported, by the Canon Biraghi (a Milanese clergyman distinguished in the walks of sacred archaeology) in the pages of the *Osservatore Cattolico*, a periodical of the same city. On the 14th of January in that year, researches having been ordered in the hope of finding some saintly tomb, and a perforation made in the massive stonework behind the high altar, the explorers came in sight of a large urn of finely-tinted porphyry, built up under the *mensa*, with covering formed by two ponderous slabs of the same stone; and here at once authorities concluded that no less sacred a sepulchre had been brought to light than that containing the bodies of the three saints so revered at Milan,—Ambrose, Gervasius, and Protasius,—whose relics are known to have been removed from other—their original—resting-places to this more honoured tomb under the chief altar. On the following day the works were resumed, and the ground opened below the adjacent pavement in the sanctuary, where soon was found, right of the altar, a long sepulchral niche, lined with precious marbles, Phrygian pœonazzo, green, white, and other variegated species; the cavity being filled with fine soil, in which lay embedded some small fragments of bone, also a broken *ampolla*, like those found in Roman catacombs. Next was opened, in the prosecution of the same labours, another similar place of interment, left of the high altar, alike filled with soil, in which lay, besides bones, several teeth, portions of gold thread, and fourteen small coins, one with the effigy of Flavius Victor, son of the usurping emperor, Magnus Maximus, and on the reverse the legend, "*Spes Romanorum*;" another with the effigy of Theodosius, and on the reverse two Victories holding crowns and

palms; two other coins, of silver, with the head of the emperor Anastatus, and also the monogram of Theodorico, surmounted by a cross, a star below, with the legend, "*Invieta Roma, C.M.*," the rest being of the very smallest species, without intelligible symbols. Near this tomb was opened another cavity, like a well, covered by a slab of white marble, containing another broken *ampolla* and several marble fragments, which, pieced together, formed the base, part of the mouldings, and shaft of a classically-wrought column, supposed to have served for some penal purpose at the martyrdom of SS. Gervasius and Protasius,—therefore been thought worthy of such careful preservation. The story of these Milanese martyrs, of the discovery and transfer of their bodies to this very church by St. Ambrose, A.D. 386, is well known in local hagiography; and it is a like attested fact that those remains, together with the body of St. Ambrose himself, were exhumed by the Archbishop Angelbertus, in the ninth century, to be deposited in a more sumptuous tomb of porphyry, secured by massive constructions all around, under the high altar, above which that munificent prelate caused to be placed (A.D. 835) the splendid shrine, or altar-pallium, of silver gilt, unrivalled for richness and beauty, studded with innumerable gems, and adorned with a series of elaborate reliefs (most interesting for their character and period in art-history); twelve of their subjects representing scenes in the life of St. Ambrose.* Still the special treasure of this basilica is only exhibited to the public on a few solemn anniversaries, but at other times is to be seen with permission from authorities. We shall not here attempt to describe in detail this marvel of Mediæval art and material richness, perhaps the most precious tomb in which mortal relics were ever enshrined.

Another church we found also undergoing restorations, apparently extensive and suitable, was S. Eustorgio, a curious and perplexing edifice, a labyrinth of chapels and different styles, rebuilt, in its main structure, in the ninth century, but with many lateral chapels of various dates, and one a graceful octagonal building of Renaissance architecture, added by Bramante, in the sixteenth century. Visiting this on a Sunday evening, we fell in with a stream of people thronging in the same direction, and soon discovered this to be a great festival at the same church; rich draperies being suspended from house to house across the long wide street (one of the ancient quarters) leading to it; and the temple itself alike decorated with showy hangings, anything but suitable to its venerable character, or the dusky solemnity of its vaulted aisles—an epigraph above the portal announcing this to be the fête especially for the benefit and at the cost of the Guild of Silk Weavers. Notwithstanding these devotions and pre-occupations, we were able to examine, fully and at leisure, the most celebrated and beautiful monument at S. Eustorgio, the sculptured shrine of St. Peter Martyr, which stands isolated, under a pavilion of curtains, behind the altar centrally placed in Bramante's chapel. This elaborate work, the masterpiece of Giovanni Balduccio, a pupil of Giovanni Pisano, was finished in 1339, at the expense of the Milanese citizens, and of the King and Queen of Cyprus, whose effigies are introduced among the many sculptured groups; the subjects of the reliefs referring to the story of the canonized Dominican Inquisitor as follows:—St. Peter visiting and healing the sick; his assassination, near Como; his body exposed for public veneration; his funeral; a ship in a tempest, whilst the crew invoke and obtain miraculous aid from him; other miracles described

* In Dr. Rossi's "Bulletin of Christian Archaeology," this pallium is described as plated with laminae of gold; and, if we remember rightly, the same report as to its material is given at the church. It was briefly described in our papers "Going Along."

to his intercession; besides which are twenty-four statues of saints and personified virtues, and on the highest story, under canopies with trefoil arches, the Virgin and Child, St. Dominic, and St. Peter Martyr. It seemed to us that rather than in the expression of heads, the merit of this most interesting monument consists in the movement of its groups, and able treatment of draperies; its beauty of effect, in the general architectonic character and intelligent accord between the two arts, the sculptor's and architect's. In Ciognara's work is a full and appreciating description of it, with the engraved outline.

Turning from monuments to humanity, we may add our testimony as to the manifest improvement, the increased signs of quickened life and energies, in Milan, under a constitutional Italian ruler, as compared with that under the Austrian ruler, and contrasted with Verona, where we had recently been. "Look but on this picture and on this" should we be inclined to say if desiring to refute any advocate of the overthrown despots in this land, by the proof advanced to all whose eyes are open, in the two cities' conditions,—of gloom and decay on one hand, vitality and eagerly-directed progress on the other.

Among the public works at Milan should be mentioned two monuments to the illustrious dead—that (in project) of the humanitarian philosopher, Beccaria; and that recently finished, in bronze, at Florence, of Cavour; the latter with two colossal figures, the statesman erect, in rhetorical action, a folded paper in one hand, his dress the plain costume of every day, by Tabacchi; beside him, Italy, seated, writing on a surface before her with a stylus, by Tantarini—both these artists Milanese. The work of the former, as it struck us, truthful and full of animate expression; that of the latter scarcely equal to the dignity of its idealized subject.

Let us add that the Italian king has laid the first stone of an extensive improvement in the centre of the city of Milan, based on plans by Signor Mengoni, architect, selected by a building committee from a large number sent in. The scheme, of which we have before spoken, comprises the formation of a spacious new square in front of the cathedral, the construction of a great "Victor Emmanuel Gallery," and a general systematizing of the adjacent streets, whereby piles of mean, damp, and unhealthy buildings will be substituted by large and well-lighted and ventilated dwellings. Further improvements in streets, to radiate from the centre and replace gloomy lanes and alleys, are also contemplated.

CONDITION OF OUR TOWNS: PERTH.

The ride from Stirling to Perth via the Scottish Central Railway, carries the traveller through the beautiful valley of Strathern, and round the base of the Ochil hills. These hills appear quite dwarfish when compared with the Grampian range, which constitutes the north-western boundary of the prospect; indeed, in many respects they form a complete contrast. The Ochils are smoother and more rounded on their surface, and being clothed to their summit with verdure, they possess a greater degree of pastoral beauty; and it has often been observed that they give a serene and pleasurable tone to the mind of the traveller, who is, perhaps, overpowered with the wilder magnificence of the scenery in the Highlands.

The undulating surface of this valley will, by a geological eye, be easily attributed to its true source, namely, to the successive groups of moraines, or isolated heaps of rocky debris, which the action of the glaciers of a former age had scooped out from the gorges and river courses of the neighbouring hills. The magnificent view from the Ochil hills of the valley of the Tay will not be overlooked.

Perth is fortunate in possessing the largest and certainly the finest railway station in Scotland. This is, perhaps, explained by the fact that it constitutes a central terminus for no less than four of the principal Scottish railways,—the Scottish Central, the North British, the North-Eastern, and the Inverness and Perth Junction (the last only finished last year), and also for two local railways,—the Dundee and Perth and the Perth and Almond Valley, all of which lines converge towards and terminate at the Perth station. It is a large and extremely well built edifice, resembling a good deal the general station at Newcastle, which we have frequently

noticed in our pages. The roof is of extraordinary span, and is skilfully managed with malleable iron girders and bracings, and tie rods of light and elegant construction. The architectural design is Tudor. The external walls, doorways, and window openings are varied, and grouped with much taste, although some of the details are loose enough; and there is an elegant hall for the booking-office, with open timber roofing of elaborate construction. This station, we may add, contains sleeping apartments for her Majesty and the Royal Family, who sometimes make use of it during their long journey to Balmoral; and who are certainly safer here than they would be in the town.

The town itself, when viewed from any of the distant prospect places, has a regular and picturesque appearance. To quote the language of the guide-books, it possesses a rich and rather sumptuous aspect. But this certainly does not improve on closer acquaintance. To begin with the state of the roads: those leading from the station to the town, such as the Leicard causeway and Pomarium; and generally speaking those in the outskirts of the town, are mostly in that particular stage of order and repair which might best be compared to a newly ploughed field. The lower suburbs through which we pass are excessively mean and dirty, and the houses not unfrequently half ruinous and dilapidated. The whole streets are also uncommonly dirty and ill kept. Indeed, it is not until we reach the magnificent terraces and crescents of the modern part of the town, which look outward on the North and South Inches, that we can cease to fancy ourselves in a town of the seventeenth century.

These "inches" (or islands, as we believe the word literally signifies) are the grand and most characteristic feature of the fair city. Perth is situated on the west bank of the river, on a level and extensive plain, which has originally been divided on the plan, we suppose, into three equal portions; the centre being appropriated as site for the town, and the two wings for those beautiful meadows, each of which, although probably much curtailed, is about a mile and a half in circumference. In addition to their uses as public parks, or as "common good," as they say in the north, they serve the useful purposes of pasturing cattle; and the weekly cattle market is, we believe, still held on the North Inch, which is also the racetrack of the Caledonian Hunt. Both inches are furnished with seats; but the South Inch alone is planted with trees. Some two or three years ago we were told the town council took a fancy to adorn the North Inch by planting a shrubbery. This, of course, would effectually interfere with the game of golf, to which the inhabitants are much attached. A public meeting was held in consequence, which ended in the indignant citizens proceeding to the spot and tearing up the obnoxious plants by the roots! It would appear that in Perth, as well as some other places we know, it is not always safe for the municipal government to run counter to the popular will.

Perth is said to be one of the most regularly planned towns in Scotland; and next to Edinburgh this would appear to be the case. Its three principal thoroughfares, the High-street, South-street, and Canal-street, run at right angles from the very embankment of the river, from which they are protected by an iron railing. From these main streets others of a much narrower order branch at right angles, connecting them, such as St. John's-street and the Meal Vennel, Ruthven-street, &c., all of which are in the older parts of the town. The newer parts of the town, although containing the best streets, are not so regularly planned, consisting as they do of terraces and crescents facing the inches, and circumscribed by the configuration of the river.

The bridge of Perth, which crosses the Tay from the southern extremity of the North Inch on the one bank to the village of Bridgend on the other, is one of the most remarkable structures of its kind in Scotland. It was designed by Mr. Smeaton, commenced in 1766, and finished in 1772. This simple and elegant structure consists of ten arches, one of which is a land arch; its whole length is 906 ft., and its breadth 22 ft. between the parapets. The piers are founded 10 ft. beneath the bed of the river upon piles of oak and beech; the stones are bedded in puzzalano, and cramped with iron. Such unusual precautions were not unnecessary; for the Tay, it is well known, discharges more water into the ocean than any other river in Great Britain, and it is likewise distinguished for its prodigious velocity and irresistible force during a flood.

We have no doubt whatever that this bridge of Perth has resisted a greater accumulated pressure of water and ice than any other bridge in the kingdom; but the force of the elements begin to tell even on its superstructure after the lapse of a century. It appears to have been built of the new red sandstone of the district, which is full of nodules of flint and water-worn pebbles; and, judging from the manner in which these project from the plane of the parapet and coping, one might form some estimate of the terrific force of the northern tempests, which can cut so deep into so hard a stone. The cost of this bridge was over 26,000*l.*, which sum was partly supplied (about 14,000*l.*) from the Highland estates which were forfeited during the rebellion, partly by the magistrates of Perth, and partly by subscription. At one period, indeed, the works were at a dead stop for want of funds; but Lord Kinnoul, a neighbouring proprietor, advanced about 6,000*l.* on the security of the tolls; and so the bridge was at length finished.*

Some idea of the engineering difficulties which must have attended the construction of the Perth Bridge may be obtained from the recent experience in the railway viaduct which crosses the Tay at an oblique angle lower down the river. These almost insuperable difficulties, and the manner in which they were surmounted, were fully detailed in our columns at the time.

But, to proceed. Perth, although such an ancient town, possesses very few specimens of architectural antiquities. Of these the chief remaining is the venerable church of St. John, which is a low cruciform Gothic edifice of great antiquity, sadly deformed and defaced, but still retaining some features of its original magnificence. It is now divided into the East, West, and Middle Scottish churches; but when these three were in one, the interior must have been very fine. It still contains the original groined arches in the crypt and chancel. The lantern tower is in good preservation; the roof, had been destroyed, is covered with lead; and the peal of bells which it possesses are still the finest in Scotland. Some curious specimens of ancient domestic architecture may still be seen in Skinnergate; and in the Fountain-close, the ruins of a house, which once belonged to the Bishop of Dunkeld, are still discernible. The old jail, at the foot of the High-street, has a curious octagonal tower, part of which is very ancient, and is supposed to have been designed by Cochrane, the court architect to Robert III. St. Bartholomew's Chapel in Curfew-row still shows the niche in which the curfew-bell hung. These, and a few other remains of old houses in obscure *vennels*, are the only vestiges of antiquity in a town which, as Mr. Morrison tells us, boasted a greater number of really fine and interesting buildings than any other place of the same extent in Scotland. The removal of Gowrie House, which stood on the site of the present County Buildings, connected, as it was, with one of the darkest problems of Scottish history, is more to be regretted than that of any other building; but it does credit to the local antiquaries that they have done their best to preserve accurate plans of this memorable mansion.

Of strictly modern buildings worthy of notice are the County Buildings, designed by Sir Robert Smirke, noticeable from the heavy Corinthian portico; the Literary and Antiquarian Museum, in George-street; the Lunatic Asylum; the City Hall, which contains some valuable paintings; and an elegant bank, with Italian front and cornice, in St. John-street. Most of the churches are very poor in point of design. The Domestic architecture of the High-street is itself very poor and unmeaning, and, in fact, we may say the same of all the older parts of the town. As a set-off to this, some of the chimney-stacks are curious. That which adorns the water-house, for instance, vomits its smoke through a nicely-turned Roman vase, which seems resting on the

* Some account of this bridge will be found in Mr. Smirke's "Lectures of the Engineers," vol. ii. A curious anecdote is told as of the stoppage of the works in connection with the corporation of Dundee. This corporation offered to advance the money on the security of the beautiful bells of St. John's Church, which in that event were to be removed to Dundee. But, in the mean time, Lord Kinnoul's more generous offer turned up; and the town clerk of Perth (who, it should seem, was a witty fellow) returned the following poetical and sarcastic answer:—

"Ye cantons o' Forfar,
Tak care o' yer bells;
Keep ye your money,
And we'll keep our bells!"

Dundee, it must be remembered, is in the county of Forfar; but, although the largest, it is not the principal town in the county.

top of a freestone column. Another one, we observed, was trained to resemble an obelisk. Some of the suburban villas are neat enough; but, in the majority of instances, they transgress every principle of taste and usefulness. The mixture of styles is curious, ranging from bad Gothic to worse than debased Italian; sometimes mixed with Scotch, and sometimes with Chinese. The best architectural features of Perth, as we have said, is that range of buildings which fronts the North Inch, where the public schools present an imposing façade in the centre of the terrace.

Close to this point the statue of Prince Albert, by Brodie, is placed. The very cursory examination we could afford to give this work of art did not produce on our mind a high impression of its merit. The likeness is good enough; but the posture is wanting in dignity; and the limbs are decidedly too stout, or rather too fat; besides being somewhat too conspicuously poised in the third position. There is also a disagreeable unmeaningness about the design of the pedestal; and it being of a different and rather opposing hue of colour from the yellow sandstones of the statue, it gives the tone of the latter an undue predominance. Knowing Mr. Brodie's previous works (in particular his statue of Lord Cockburn), we must own that we were rather disappointed with this statue of the Prince.

But, after all, we did not go to Perth to study the artistic character of the place, otherwise we should require to betake ourselves, in addition, to the noblemen's estates in the neighbourhood, such as Scone Palace, Kinfauns Castle, and Duffin Castle, which are already well known to our readers. We will only notice further in this connexion one other remarkable building, which must attract the attention of all strangers, viz., the Perth Penitentiary, or general prison for Scotland. This is a huge ugly structure, such as one might take for a factory were it not built on that famous spoke-wheel plan which Sir Samuel Benthon first designed for the model prison at Millbank. This building was originally erected as a depot for the French prisoners of war, in 1812; but about twenty-five years ago, it was converted, at a great expense, for its present purpose, partly by public grant, but chiefly by assessments. The prison is under the management of a board of twenty-one directors, who also exercise a general superintendence of all the prisons in Scotland. The prisoners are confined on the separate system. There are 360 cells, of which 260 are for males and 100 for females. There is also a provision for thirty-five male and eighteen female criminal lunatics, which has, we understand, been found inadequate. It was a great mistake, on the part of the Government of the day, to set down this huge social necessary in a situation otherwise so picturesque.

We must now turn to what is really the most important part of our subject—to the vital statistics of the town. Perth, although one of the smallest of the eight principal towns in Scotland, which are usually classified together by the Registrar-General, is yet in many respects the most important. Perth might be easily made a sort of testing point in Scotland of the connexion of mortality with sanitary neglect. We shall do our best to lend what assistance we can in this direction, but of course our efforts must necessarily be limited. If we can succeed in indicating a method by which local reformers may be assisted or encouraged to attempt reform, our object will be served; and we must say, that it has been a source of great satisfaction to us to see that the local authorities are beginning to recognise their position. Within the last two or three weeks, Mr. Baist, the registrar of births, &c., in Perth, has issued a set of elaborate tables on the mortality returns of the district, from which we are enabled to supply our readers with the following authentic facts. The population of the town (census 1861) is 26,094. In the year 1864, the number of births was 860; and the number of deaths, 871; so that the population was *actually reduced* last year to the amount of 11, by an excess of deaths over births. The death-rate of Perth, or as it is stated the per cent. of deaths to the population, is 3.33—a proportion which is only exceeded in Scotland by Glasgow, Greenock, and Dundee. The infantile mortality is equally high. Of the children under one year, there died, last year, 162; and of those under six years, 171. "This is rather a mournful sheet," says the registrar, "which I submit to the town council and inhabitants of Perth. The deaths

this year exceed the births by 11; they also exceed the deaths of last year [1863] by 219; and those of 1862 by 253. Fever and bronchitis seem to have been the great causes of this mortality. The other large towns appear also to have suffered from fever; but I fear that Perth will show a larger proportion than any of them!"

We shall endeavour, as we proceed, to connect these statistics with what we conceive is their natural cause. But it is, first of all, necessary to keep the physical properties of the surrounding soil in view when treating of Perth. In the first place, the town is founded upon one of these low-lying inches, or islands, which have at one time or another been surrounded with water, and which are still only a few feet above the level of the river. Indeed, at high-water, and particularly during stream tides, a considerable portion of the town lies below the level of the river. We shall return to this when we come to the drainage. Again, Perth, thus situated in the zone, as it were, where those Highland valleys, Strathern, Strathmore, and the Carse of Gowrie, coalesce and merge into the Lowlands, is subject to all the varieties of climate and all the variations of temperature which are common to the different counties. West winds predominate; but the cold blast from the German Ocean is also felt. The rain-fall, although not so heavy as some towns on the coast of Scotland, is yet considerable. In the Carse of Gowrie, on the shores of the Frith of Tay, the mean quantity for twelve years was 24½ in.; at Perth, for a period of sixteen years, 26.95 in.; and at Belmont, in Strathmore, for a period of thirty years, it was 30.40 in. Once more, look at the disadvantage in which the town stands in respect to the great highland river of which it is the chief ornament? Perth has always been exposed to inundations of a serious character; and the recent process of drainage all over the Highland counties—which has undoubtedly ameliorated the climate—has also rendered the lower levels exposed to the disastrous influence of floods and spates, just as much after a heavy fall of rain as after a snow-storm. Of these phenomena Perth has experienced her full share; and with respect to their consequences, however evil, the inhabitants,—or rather, we should say, their local government,—must be clearly exonerated.

The remaining principles, then, over which they can exercise control, and for the exercise of which they must be held responsible, are those which are connected with the sanitary condition of the town itself. Of this condition we shall proceed to speak in another article.

THE HERBERT HOSPITAL; WOOLWICH.

The acknowledged part which this journal has had in the correction, so far as it has gone, of certain defects of hospital-planning, leads us to take an even more than professional interest in the closely-approaching completion of the Herbert Hospital, near Woolwich, the building that will be regarded as the grand experimental test of the soundness of the views which have been maintained by Mr. Robertson, of Manchester, by Miss Nightingale, and others in England, and have been accepted as conclusions by different Royal Commissions. The same circumstance has led us to give attention to the reports which have been industriously circulated, of serious failures in the construction of the building near Woolwich, and to assertions imputing that the site had been selected badly for the especial purposes of a hospital.

The building is situated at Kidbrook Common, on the westward slope of Shooter's Hill, and south of the Dover Road. It may be seen on approaching from the Artillery Barracks, and crossing Woolwich Common, and is reached by the Eltham Road, which passes west of the Royal Military Academy, or Cadets' Barracks. Perhaps the best view of the building is that from the south-east.

To the matter of the arrangement on plan, of the Herbert Hospital, our attention is immediately called by what is reported to have been said in a recent debate on military hospitals, in the House of Lords. We discover that there are persons amongst those who should be the best acquainted with the subject, who can regard with complacency the arrangement of Netley Hospital, and that the Secretary of State for War seemingly is amongst the number. The Earl of Dalhousie, who called the attention of the House "to the condition of the mili-

tary hospitals at Netley and Woolwich," went so far as to stigmatize the principle of the plans of the new hospitals of Woolwich and Hounslow, as "the glass and glare principle," one which would not conduce to recovery from illness, but would have the reverse tendency. According to the newspapers, he said of the Herbert Hospital, that it was certainly "most gorgeous," having "a very handsome façade in which there was no architectural fault," but that it was "built in blocks and wards of glass, in which, in his opinion, it would be absolute cruelty to put an invalid,"—"the first anxiety in illness," as he said their lordships would be aware, being "to relieve the brain and the eyes from too much light,"—and that if intended for a flower-show, or a museum, the building would have been admirable, whilst for its present destination it was absurd. It is worthy of observation that the "glass and glare" or pavilion principle was reported upon favourably by a committee, in 1856, with reference to a hospital at Aldershot, and by the Sanitary Commission of which originally Lord Herbert was chairman,—both committee and commission being, all honour to Lord Dalhousie, due to him. Lord Dalhousie did not omit to mention the failures to which we have alluded; and when we read of "rents in the blocks," "almost as likely to be fatal as the 'rent the envious Casca made,'" and that required "formidable supports and buttresses," many, and "still unremoved," we felt prepared to find on a visit to the building, evidence of malconstruction of the most serious nature. We are obliged to say that what is thus reported to have been said concerning the pavilion-principle, and of the actual plan of the Herbert Hospital, is incorrect in every particular; and that as regards structural defects, there are none which we can now discover to have been ever of the alarming nature that would be supposed, or that are not such as may be found often in extensive works, even where the stratum of foundation is more favourable than was that on the site selected for the Herbert Hospital. Whether the actual site was wisely selected, economy of construction, and suitability for hospital uses being in view, we would not say in the absence of information concerning other sites, some of which were suggested by a correspondent, in our journal, in 1859. The present one is finely placed for prospect,—though, for a general hospital, a cemetery as a conspicuous feature in the view in one direction, would have been objectionable; but the ground is undeniably clay, of the worst kind; and in the natural drainage, the flow comes from a higher level towards the site of the building, and passes transversely to the lines of the wards. The site was determined upon by those who have the best knowledge of what have been the pronounced disadvantages of clay as the soil under and about a building; and we cannot doubt that resources which experience would suggest, were largely called into use to intercept the upland water, and to drain the actual area of the structure. In the report of 1863, "of the Commission appointed for Improving the Sanitary Condition of Barracks and Hospitals," we read,—"Why build a hospital on ground which does not admit of being drained?" That certain provisions were actually made to exclude damp from the wards, is shown by portions of the work which are above the ground-line. The difficulties experienced may be understood by reference to those which there have been between New Cross and Forest-hill, on the line of the railway, where the slopes of the cutting have been said to be not capable of resting at any angle. On the site of the Herbert Hospital, the clay was veined with gravel. The site, in general, was drained before the building was commenced, so far as the clay could be by drains 25 ft. apart; and other drains were put in afterwards to provide for land-springs. Some of the drains were built into the concrete. This latter material has an average thickness of 5 ft. 6 in., excepting some spots where the thickness is 8 ft. The contract provided for 3 ft. The concrete of course is stepped in suitable lengths.

Whilst we are referring to failures which certainly there were in the construction, we may do well to say all that requires to be added concerning them. There was a settlement in one of the side-walls of one of the pavilions, in the middle of the length; which opened some of the joints of window-arches, whilst cracks extended in two or three of the bays up the brickwork, as from the arch of one window to the sill of a window above; but they do not appear to have been of any such importance as those which may

be seen in the Palace at Westminster, both in the front to Old Palace-yard, and that to New Palace-yard. Proper tests applied, proved that the cracks did not increase in width; greater strength at the spot was given to the foundations; and we imagine that some description of shoring during the operation of filling in concrete, may have attracted Lord Dalhousie's attention. The traces of recent pointing up, externally, would now almost escape a practised eye; and, internally, a hair-crack, or two, in the plaster, and a trifling unevenness under a window, require to be pointed out, to be seen or felt by the hand. As to the work generally, in this building, it deserves the highest praise. Mr. Myers, who is the contractor, has had in his hands some undertakings of extraordinary magnitude; and he has never done better than in the Herbert Hospital. The principle for hospital-planning of which the building under notice claims to be an exemplification, requires that materials and workmanship should be of the highest class; moreover, in this case, there was the disposition on the part of the Government, to provide a building in all respects worthy of the nation,—a disposition so seldom found as to occasion surprise when made manifest; and the contractor, here, seems to have been able to work up to both demands. If there be defects, they are not in the work: everything is good, true, well-fitting, and well-acting.

We return to the point raised in the House of Lords, of the respective merits in plan, of Netley Hospital, and those of the last exemplification of the pavilion-principle. Were there all the defects of site and construction that have been imputed to the Herbert Hospital, it would still be a model of arrangement for that class of building. We might have desired certain features of plan slightly different, and certain of the decorative features marked more as the produce of an artist's hand. There are stone dressings to all the windows; and equal, or even better, effect might have been produced at slightly less expense; but there is nothing "gorgeous." Referring to "glass and glare," and suitability of the building to the purposes of flower-shows, Lord Dalhousie must have had in his recollection the corridors which connect the pavilions, or ward-buildings, and are lighted on both sides, where between the pavilions, by very large windows. The wards themselves have not the same amount of window-opening, though they have all that is required by the principles of the system of planning. His lordship cannot have considered the statements which are those of medical men, and of others who, like Miss Nightingale, are qualified to judge, that abundant light is not hurtful, but beneficial, unless in cases of ophthalmia. As to Netley, we very much doubt whether Earl de Grey and Ripon would be right in what seems to be his conclusion, that because "the fears which were expressed by some persons with respect to the state of Netley Hospital have not been realized" there would be no reason for them even still to exist. Perhaps on this question, we need only quote what was said in 1863. The report of the Commission on Barracks and Hospitals, said:—"If Netley Hospital should ever have its original destination changed from being a resort for invalids, three-fourths of whom would be able to walk about, to that of a general hospital for sick, most of whom would be confined to bed, it would have 1,000 sick beds under two roofs, 500 under each roof; and in that case it would present the largest aggregation of sick under a single roof of any hospital built in modern times." At the same time the Commissioners had to speak of Netley as "one of the worst-ventilated places" found anywhere by them,—though at the moment referring to a particular instance of misjudgment and bad economy which it is to be hoped is no longer existent.

Readers of the *Builder*, who have our volume for 1859, will find in it, as well as in other volumes, several articles on hospital-planning,—partly in review of buildings erected, and of designs,—and in the course of them, some particulars of the points of difference between the French arrangement, of which we gave a plan from the example of the Hôpital de Lariboisière, and the English as shadowed forth in the Blackburn Infirmary. In a subsequent volume we described the Marines' Hospital at Woolwich. This building is near the Dockyard. In the French plan, there is a central open court, oblong in the example we have named: it is surrounded by a corridor; and parallel with the corridor at each side, is a range of buildings containing dining-rooms and a staircase to each ward.

From this range of buildings, the pavilions, or buildings of the wards, on that side, project. In the English plan, the longitudinal axis passes not through an open court, but through a corridor of communication, which extends from end to end of the group of buildings, and across one end of each ward. There is a separate staircase to each pavilion as before; and the corridor connects these staircases with one another, and with the staircase of the central block, where may be a convalescents' room, as well as the kitchen. In the Herbert Hospital there is also a chapel. In passing from one end of the connecting corridor to the other, the transeptal pavilions may branch off alternately right and left,—or there may be a short projection on one side, on the same transverse line as the long one on the other,—the positions of the long and short arms being reversed in the next case. Otherwise the pavilions, right and left, may be both opposite one another and of equal length. By this latter, or the double-pavilion, arrangement, there will be half the number of staircases; but in any case it must be remembered that adequate space is to be left between blocks, for access of light; and the number of stories must not be too great. The patients in the wards of the top story should have a chance of seeing garden-ground in the space between the pavilions; and those in the ground-story should see enough of the sky to relieve the oppression of looking at an opposite wall. The practical result is that the number of stories which may be appropriated to wards, in the pavilions, is generally limited to two; though in the Hôpital de Lariboisière, three such stories have been attempted,—the consequence being that the spaces between the pavilions are insufficient, and that there are other disadvantages. In the Herbert Hospital the arrangement may be said to include both the dispositions of transeptal pavilions. The longitudinal corridor is intersected at seven positions; but only in five of the cases are there double transpents, and both of sufficient length for wards, namely in the two cases at each end of the line of corridor, and in the case of the central intersecting line,—where however the projection on one side is appropriated not to wards, in the different stories, but to the kitchen, the library, and the chapel. At the extreme ends of the longitudinal corridor are, in one case, certain separate wards, and at the other an operating-room and some other requisites of the hospital system. A separate building called the administrative block, and of which the purpose is explained by the name,—is placed parallel with the line of the longitudinal corridor, and parallel with the line of frontage and the road. When the number of patients is to be much less than that, 650, for which the Herbert Hospital is planned, or as in the case of the hospitals for 120 patients, built on the official plans which we published in 1862, the difficulty as to space between pavilions does not exist. These latter plans show the two fireplaces of each ward in one of the side-walls; but the Herbert Hospital has them in the middle of the floor, each with a descending flue.

In the disposition of the building on the ground, the transverse axis, otherwise the longitudinal axis of the wards, may be said to range north-north-east and south-south-west. The space occupied by the building and grounds is about ten acres.

The building, planned to receive 650 patients, will have 640 beds in the ordinary wards, and 10 in the supplementary wards. The ordinary wards occupy the two upper stories, in the pavilions, in the three stories into which the building is divided, inclusive of the basement. In each of the two double-pavilions next the ends, there are four wards, which contain each 32 beds. In each of the two single pavilions, or southward only of the longitudinal corridor, and which are next to the central intersecting block, the four wards are for 28 beds; and one ward on the upper floor in the central block will provide 20 beds. There is a lofty basement under the entire building; and this at the western end is wholly above ground. Thus, under the western wards, there are provided rooms for a board-room, museum, medical officers' library, non-commissioned officers' quarters, and stores. The spaces under the eastern wards are left unappropriated. The longitudinal corridor in the basement continues from end to end, of equal height and level, and has the kitchen, scullery, beer-cellar, and provision stores and other offices grouped together in the northern portion of the central double-pavilion. The kitchen, which has one of Benham's large cooking-stoves, similar

to one exhibited in 1862, has a large serving-window. From this, the meat will be conveyed along the corridor to the lifts, of which there is one communicating with each ward above. The lifts are worked by hydraulic power. Opening into the same passage are shoots for dust and dirty linen. The arrangement of the dust-shoot opening inside the building is different to that adopted in the model-lodging houses, but may be better than in those cases. A close receptacle will be fixed up to the mouth of the shoot; whilst, were the dust removed on the exterior of the building, it would probably be blown about by the wind. The extreme length of the corridor in the floor above this basement level is about 715 ft., whilst the width is 15 ft. in the clear. There is no corridor, properly speaking, to connect the pavilions, above the corridor of the ground story; but patients can be wheeled from one ward-building to another, along the flat, which will, moreover, form an agreeable place of promenade in the open air. The closed corridor below will form a most suitable place for promenading in wet weather. The greatest length of one of the double pavilions externally is 312 ft.

The ordinary wards, which are of three dimensions of length, measure 117 ft. 8½ in., 108 ft. 6 in., and 73 ft. 8½ in. in length, respectively; and are uniformly 26 ft. 9 in. in the clear width, and 14 ft. in height. The last dimension would seem to be a foot, or two feet, less than it should be; but an increased height of the pavilions would have made the distance of the wards apart, which (63 ft. 9 in.) is already too little, practically less than it is. The dimensions of the wards give an air-space of 1,200 cubic feet per patient. The beds are arranged two with heads against each pier; and there are eight windows each side in the length of the longest wards. These windows are 8 ft. 9 in. in height, and have an opening of 4 ft. 6 in.; whilst the sills are 2 ft. 9 in. from the floor. The sashes are 2 in. thick, of oak, and are glazed with plate-glass. The window at the end of each ward, and those to the corridor, are fitted with French casements, having brass hinges and Espagnolette bolts. The closets and ablution-rooms are placed in square blocks, as appearing externally at the angles of the pavilion, at the end furthest from the longitudinal corridor. The entrance from the ward is directly to an outer lobby, which can be ventilated by the windows,—but not, as seems to us, so thoroughly as where there is provision for a straight current of air across the space between the door from the ward and the closet. Some of the arrangements in these adjuncts of the wards are varied in the pavilions; and we doubt whether there has yet been success in inventing anything that exactly meets the want of a urinal suitable for the interior of a building, and not liable to be broken. The walls of the wards are rendered, and the ceilings plastered, in Portland cement; and both are finished in Parian to a hard and polished surface.

The floors are laid with iron joists and concrete, on Fox & Barrett's principle; but upon this are sleepers running lengthways of the floor, and small timbers of 2 in. by 2 in. across them. The boarding is of oak battens, closely laid, and wrought to a smooth surface. In some of the wards the oak has been oiled and rubbed. What treatment will be adopted for the remainder or the whole of the floors does not seem to be decided at present. The spaces between the joists are ventilated through holes drilled in an oak sill, which forms a species of skirting.

The stoves, in the middle of the ward, with descending flues, seem to embody contrivances which will render them very important contributions to good hospital-construction. There has been difficulty hitherto in securing draft of downward flues; but here the whole of the objects of heating and ventilation, without returned smoke, seem to be accomplished. The back and splayed sides of the grate are formed of fire-clay; and the back has a long narrow opening to admit air from beneath the grate, to the back of the fire, to help the combustion of the smoke. The smoke-flue, of iron, in lengths fitting into one another, telescope-fashion, is placed in a trough which admits fresh air from the exterior, direct to the fire, being thus warmed in its passage. To prevent possibility of the air being "burnt" by contact with heated iron, the smoke-pipe has an iron inner-casing. The flues from the wards, upper and lower, are carried up in the external walls as the two outer channels of a group of three terra-cotta flue-channels. The

middle flue of the three is called the pilot-flue, and serves a very small fire in the basement, which will usually be lighted about one hour before ward-stove fires, to ensure draft. We have seen this contrivance in action,—the draft being perfect. It is found that a common fan-blower, inserted into a length of iron pipe, would answer a similar purpose. That the flues may be swept, a portion of the floor-boardings is made to be taken up; so that, a brush being inserted, the soot may be pushed towards a flue in the wall, down which it falls to openings on the exterior of the wall, at the basement.

Sherringham's ventilators for the admission of air are inserted in the upper part of the walls on each pier; whilst there are outlet-flues from the four corners of the ward to louvres which are placed on the roof. The gas-lights have each a cap over the burner, and an escape-pipe passing up to an outlet above the slope of the roof. There is no arrangement in the ceiling itself, for escape, either over the gas, or elsewhere.

We should mention that the staircases for the ward-buildings are specially designed for ease of ascent. The risers, rather more than 4½ in. in height, are iron; and the treads, 12½ in., with 1½ in. nosings, are of oak,—the whole being carried by trussed iron carriages. The width of the stairs is 5 ft. The nurse's room, attached to each ward, has the inspection-window placed so that it scarcely commands every bed. A bow-window might be the best thing.

We may here add, as important to a description of the wards, that the walls throughout the hospital are built with a cavity, the bond being made by Jennings's bricks. There is a damp-proof course in the lower part of the walls next the ground; and there is a surface-drain channel close round the walls. The drainage is carried by 12-in. pipes into a sewer which is continued across Woolwich Common to the outfall sewer of the Metropolitan system.

The water, to the amount of 20,000 gallons per day, is supplied, by the Kent Waterworks Company, to softening reservoirs placed in a building on Shooter's Hill, whence it descends to the Hospital. The softening process is Clarke's. The arrangements for the water-supply were designed by Mr. S. C. Homersham.

Nearly opposite the Hospital is a large wash-house and laundry; and here also power is accumulated to work the lifts in the building. In the wash-house the most approved contrivances for beating and wringing are in use.

The materials used in the exterior of the buildings, are chiefly white Suffolk brick and Bath stone. Good effect is produced in the centre pavilion of the Administrative Block, by its archway and side-entrances, and by the interior perspective of the entrance.

Ground was first broken for the buildings, in September 1861; but the sewer had been commenced in the previous year, when the first votes were taken. The building is now all but ready for occupation. The total cost may be estimated as likely to amount to about 205,486l. Mr. Myers's original contract was for 153,100l.; but to that amount there have been large additions; and there were other and separate contracts by Sir Wm. Armstrong, and Messrs. Jeakes & Co., Mr. Barrett, and Mr. Jennings. The Hospital contracts may be taken as 167,617l., and those for the Washhouse as 4,149l.; these making together 171,766l. Probably the ultimate cost may be found to be about as under:—

Myers, contract for Building and extras.....	£ 180,000
Jeakes & Co., Gas and Water-Supply, exclusively of the Water Works.....	13,000
Sir Wm. Armstrong & Co., Hydraulic Lifts.....	2,450
Benham Brothers, Cooking Apparatus.....	450
Joseph Kennard, Ventilating Stoves.....	1,000
Jennings, Damp-proof Course, Stoves, &c.....	8,800
Barrett, Floor Joists.....	6,786
	£205,486

The drawings for the building were prepared at the Royal Engineer Department of the War Office, under the superintendence of Captain Galton. The Superintending Officer at the building is Captain Newsome. Mr. C. E. Ware, and for portions of the time, Mr. C. Tate and Mr. Perry, have acted as clerks of the works.

THE BISHOP OF LONDON'S FUND.—An anonymous donation of 4,000l. which has been given to this fund has been applied, at the donor's wish, to the building a permanent church in the district of St. Andrew, Haverstock-hill.

THE SEPULCHRE OF CHRIST.

MR. FERGUSSON has delivered a lecture at the Royal Institution, with a view to show that the building in the sacred enclosure at Jerusalem, called by Europeans, the "Mosque of Omar" (but by the Mussulmans the "Dome of the Rock"), and supposed by some to have been built by Omar over the site of the altar of the Jewish Temple, is really the "Church of the Resurrection," built by Constantine over the rock which he believed to contain the sepulchre of Christ. In his former lecture, in March, 1862, on the same subject, he had argued the Christian and Constantinian origin of the "Dome of the Rock" mainly from the architecture of that building. No refutation of his arguments having been put forward, he said, and his own recent visit to the spot having confirmed him in his former views, he took this opportunity of re-enforcing them. This he did by the reverse process of argument to that formerly employed, viz., by describing the dimensions of the successive temples of the Jews. "If I can convince you that the rock which is situated in the centre of the building popularly known as the Mosque of Omar is, and always was known to be, outside the temple area, you will be forced to admit that it was not built by the Moslems—the only reason ever advanced by any one for assigning the building of it to them being that on that rock stood the Holy of Holies, or the altar of the Jews. If it was not built by the Moslems, it was by the Christians; and if by them, it could not be other than the church which Constantine erected over what he believed to be the cave in which the body of our Lord was laid. The architecture is of his age, and neither he nor any other Christian ever built a church in Jerusalem, or anywhere else, the whole floor of which was occupied by a great rock with a cave in it, but that which Eusebius describes as the one erected by that emperor."

He commenced with the Tabernacle, which was the model for Solomon's Temple. He showed that the apparent anomalies in the dimensions given in Exodus, which had hitherto so sorely encumbered restorers of the Tabernacle, vanished directly it was assumed that the Tabernacle had a "ridge." "It was a tent; and like every tent from before the time of Moses to the present day, it had a ridge. When once this is suggested the whole becomes clear. Thus, every dimension of the Tabernacle is a multiple of 5, except the curtains, which are 14, because they were measured along the slope. There were only four pillars in the interior, but five in the porch, as there must be if there was a ridge; and the same necessitated an unequal number of boards (nine) behind. In fact, the moment you assume the ridge, which was indispensable as a protection against the weather, all the difficulties disappear, and every part of the Bible description becomes intelligible."

"When the Tabernacle came to be superseded by a more permanent structure, it was copied literally in plan and arrangement, with this marked distinction, that in the edifice of the Temple every dimension of the Tabernacle was exactly doubled. Thus, the Holy of Holies in the Tabernacle was a cube of 10 cubits; in the Temple, of 20. The Holy place in the Tabernacle was a double cube of 10; in the Temple, of 20 cubits. The porch of the Tabernacle was 5 cubits by 10; of the Temple, 10 by 20. The verandah of the Tabernacle was 5 cubits wide, the chambers that surrounded the Temple measured 10. But perhaps the most remarkable coincidence is that the angle of the roof made the Tabernacle 15 cubits in height, and consequently the Temple was raised by a false roof, or upper chamber, till its height was 30 cubits."

The dimensions of the court are not given either in the Bible or Josephus, but it may safely be inferred that, like the edifice, they were double those of the Tabernacle; and that the court, therefore, measured 100 cubits by 200, or 150 ft. by 300 ft. This is the more probable because the courts of Ezekiel's Temple were of that size. In the edifice itself the only difference between Ezekiel's dimensions and those of Solomon arises from the introduction of a range of chambers between the Temple court and the north court.

The Temple of Zerubbabel followed the measurements of Solomon and of Ezekiel, as appears by comparing the notices of Esdras, Josephus, and Hecateus of Abdera.

So far the pre-Christian temples. The Temple of Herod is much more important, because its foundations can still be traced out, and it thus

becomes the turning-point of all topographical inquiries at Jerusalem. The authorities for restoring it are Josephus and the book *Middoth* in the Talmud. The house itself was only repaired. It was still standing as rebuilt by Zerubbabel when Herod took it in hand, and the dimensions were not altered; the only difference between it and Solomon's being that it retained the passage between the external chambers of Ezekiel, making the width 60 instead of 40 cubits. Two wings were also added to the façade, each 20 cubits square, so that the whole building measured 100 cubits long and 100 cubits wide. It is evident that a building 100 cubits wide could not stand in a courtyard of the same dimensions, and allow a passage round it. We consequently find the breadth of the court increased to 135 cubits, or 202 ft. 6 in., and the length between the porticoes 187 cubits, or 280 ft., leaving 20 ft. for the cloisters and the thickness of the walls. The court was strongly fortified, having three gates on the north and three on the south side, and one, the most magnificent of all, towards the east. What had been the outer court, or Court of the Gentiles, was cut in two, and appropriated to the women; its breadth was also 135 cubits. Its extent east and west can be fixed with very tolerable accuracy by the protrusion of the outer court. It must have been as nearly as possible 40 cubits, or 60 ft. The important and characteristic addition which Herod made was the great Court of the Gentiles, with its "Royal Porch," 600 ft. long and 100 ft. wide, supported by 162 Corinthian columns, which divided it into three aisles, of which the centre one was 100 ft. high. The Court of the Gentiles surrounded the whole of the other courts, and formed a square, as Josephus expressly states, of which the external measurement was one stadium, or 600 ft., on each side.

Having obtained these general dimensions, the lecturer next proceeded to apply them to the existing remains. All agree that the south-western angle of the Harem enclosure is one of the angles of the Temple area. For 600 ft. eastwards from this angle along the south wall all is practically solid. But at that point a range of vaults is reached, unequally spaced, badly constructed, and not only of much more modern age, but too weak to have supported the Temple. So far, therefore, did the Temple extend, and in this direction the history and the topography are agreed. Returning to the south-west angle, and measuring 600 ft. north, we come to a second bridge or causeway. Up to that point the great "bevilled" masonry of Herod extends, but there it ceases. On this side, again, the history and topography are at one, and thus two sides of the quadrangle are obtained. The other two, lying within the sacred inclosure, have not yet been investigated. The position of the great rock-out reservoir in front of the Aksah, the watercourses, as far as they have been examined, all accord with the indications of Josephus and the Talmud. Everything tends to show that the Temple of Herod was, as Josephus tells us, 600 ft. square, and was situated in the south-western angle of the present Harem area. The rock, therefore, which now stands under the Dome of the Rock was certainly outside the area of the Temple, at a distance of 150 ft. from its northern wall. A few words were devoted to showing that the supposition that the altar in the Temple was placed upon a rock is unsupported by any evidence or implication of the Bible, Josephus, or the Talmud, and is, in fact, a mere Mohammedan tradition.

The remainder of the lecture was devoted to an examination of the post-Christian evidence. The lecturer said that he had had Sir H. Rawlinson's Arabic library examined by a competent Arabic scholar, who had extracted and translated all passages bearing on Jerusalem, the result being, that down to the time of Abd-el-Malik, and later, the limits of the Temple were well known to the Mohammedans, and that they neither built nor pretended to have built the structure now called the "Mosque of Omar."

"If, then," concluded Mr. Fergusson, "the Dome of the Rock was not built by the Saracens, it must have been built by the Christians: there is no third party in the field who could have done it. In that case I would ask, 'What church did Constantine or any other Christian priest or monarch build in Jerusalem over a great rock with one cave in it, but the Church of the Holy Sepulchre?' Till this question is answered—and no attempt has yet been made to reply to it, or to supply its place with any reasonable suggestion—the arguments of my opponents halt. As

PARIS.

On the Boulevard de la Madeleine, was opened on the 12th instant, the Grand Café, situated underneath the Jockey Club at the corner of the Rue Scribe, surpassing in sumptuousness and luxury of decoration anything of the kind seen in Paris. The colossal vastness of the mirrors, the immense profusion of the gilding, and the richness of the painted ceilings, are truly wonderful as specimens of decorative art. There are three saloons. The ceiling of the first is the work of M. Gustave Boulanger, and represents in groups of allegorical figures the fruit- and wine-bearing provinces of France, the Bordelais, Bourgogne, Champagne, Roussillon, Côtes du Rhone, &c. The second saloon contains a representation of the fraternal union of peoples, Persians, Arabians, Chinese, Europeans, Africans, all offering their homage and felicitations to Paris. This is the work of M. Emile Lévy. The ceiling of the third saloon, due to the pencil of M. Delanney, contains five female personifications,—Poetry, Science, Agriculture, Industry, and Commerce.

In continuing the Rue Puebla, a new thoroughfare, opening a communication between the Seine at Bercy and La Villette, through the 20th arrondissement, a formerly country district of Paris, is about to be completely transformed; this is the Ratraït, a place where workmen of the neighbouring faubourgs were wont to pass the Sundays and Mondays in the rustic cabarets in the midst of the vines and green fields. This formed portion of the domain of the Marchioness de Pompadour, and was known by the nickname of "Le Retrait de Cotelion II." corrupted into "Ratraït," as did also the lands now occupied by the Orphelinat de la Chaussée Menilmontant, which institution has been recently purchased by the municipal authorities of Paris for 180,000 francs (7,200*l.*). This building was the site of the ancient habitation of Favart, author of "La Chércheuse d'Esprit," and whose wife was a celebrated actress of the last century.

Considerable improvements have been made by the enlarging of the Bois de Vincennes, a magnificent park being laid out between the fortifications, Saint Mandi, Charenton, and the Bois de Vincennes. The ornamental lake in the grounds has been completed, and two verdant islands appear in this vast sheet of water supplied by the waters of the Marne. Two iron suspension bridges serve to join the islands together, and with the continent. This last forms, on the side next the Bois de Vincennes, a large promontory, on which is a temple in shape of a rotunda supported by an open colonnade. In the centre of this pavilion is a circular seat serving as base to a vase filled with plants. From this resting-place a "natural" artificial rugged pathway leads downwards to the shore, where a wave-worn rock-work grotto, of remarkable effect, has been constructed,—and in Paris they do excel in rockwork,—so real that it is impossible almost to believe that it is man's handiwork, especially when we see the ledge of rocks cropping up above the water in front of the cavern to complete the illusion.

THE DRAINAGE OF PARIS.

INSTITUTION OF CIVIL ENGINEERS.

On March 7th, Mr. J. R. McClean, President, in the chair, the paper read was "An Account of the Drainage of Paris," by Mr. H. B. Federstedt.

Before describing the modern system, allusion was made to the manner in which the drainage of the city was effected up to the year 1808, when the subject first received thorough investigation, and after which numerous works were undertaken; so that by the commencement of 1832 there was a total length of drains of different kinds of 40,302 mètres. The year 1832 marked an important epoch; for then the dreadful ravages of the cholera showed the absolute necessity for cleaning and draining the streets upon a better system than had previously prevailed. An accurate survey of the city, both above and below ground, having been made, levels were taken, and the principal features of each existing drain, or series, were recorded in a tabular form.

As Paris was situated wholly in the valley of the Seine, it was assumed that the drains should empty themselves into that river as far as possible, following the undulations of the streets in a more or less direct course. On the left, or

southern, bank, where the city occupied an even and almost unbroken slope, the drains discharged directly into the river, independent of each other, and without consideration of their ultimate connexion, by a transverse sewer parallel with the river, as in the system now in use. The islands of St. Louis and Notre Dame dipped on each side of a longitudinal ridge coinciding with the centre line of the river, and their surface water at once entered the river, by drains on each slope. On the right, or northern, bank, there was one slope bordering on the river, down which the drainage passed into the Seine, and beyond this there was a dip in a northerly direction, towards the brook of Menilmontant, or the track of the "great drain," as it was called, which received the drainage of all the streets on this northern slope, and which finally fell into the river at Chaillot, some distance off on the west.

The ridge of this slope was within the present fortifications, and from it descended another slope in a southern direction now lying beyond the fortifications, but the drainage of which could, if deemed desirable, be placed in connexion with the river on the north and beyond Paris. There were thus five principal divisions, the left bank, the isles of St. Louis and Notre Dame, the right bank southernmost slope, the right bank northern slope, and the extramural slope. The Seine was subject to heavy floods, but these were fortunately rare, as during the past 216 years there were only nine on record. In 1655, the surface of the river rose 28½ ft. above its ordinary level. In 1802, when the last flood occurred, the river only rose 6½ ft. above the level of the discharging mouth of the modern drain at Asnières. These floods were all more or less disastrous, sometimes lasting fourteen days, and submerging large areas of the city. To check their recurrence, the low portions of the streets along the banks of the river were raised and walled in, to a point above the influence of floods so severe as that of 1658. There were, however, some parts of the city still exposed to floods, but their effects would be less disastrous, from the efficiency of the new drains, which carried off flood water almost as soon as the river level itself could subside, instead of leaving it to be absorbed or evaporated.

The progress of the drainage works might be gathered from this, that from the year 1832, to January, 1837, the length of drains was increased from 40,302 to 76,565 mètres, while the new works in preparation and projected amounted to an additional 20,000 mètres.

The position, cost, and object of the several drains, with the difficulties encountered in their construction, were then noticed. During 1833, thirty-three works were completed, of a total length of 15,005 mètres, at a cost of about 5*l.* 13*s.* per metre. These included the first drain executed by tunnelling, the side-walls of which were built in masonry, and the arch in brickwork, at a cost of 8*l.* per metre. In 1834, there were twenty-eight works, having a length of 6,810 mètres, and costing 3*l.* 17*s.* 6*d.* per metre. In 1835, twenty-two works were completed, being of the length of 8,713 mètres, at a cost of 3*l.* 13*s.* 9*d.* per metre. In 1836, new drains were built in several places, and a sewer was constructed in a quicksand, the rate of progress of which was 8 mètres per day.

With regard to the sections of the drains, those of the old and of the new systems differed in two respects,—the area of the latter was much larger though not more effective, and footpaths and rails for carrying waggons were provided. In the former it was arranged that, as far as possible, all the drains should have a clear height of 6 ft., in order to insure their being properly cleansed. When this height could not be given, shafts were frequently added, to allow the workmen occasionally to stand upright. The minimum inclination of the drains was 1 in 1,000; some were much steeper, and in these steps had been introduced in the inverts, principally at the points of junction with other drains. Up to the end of 1863 there were in operation 217 miles of drains, or more than four times the length in use in 1837.

As to the cleansing of the drains, before the introduction of the mechanical contrivances now in use, it was found necessary to employ hand-labour, assisted by flushing, in many of the drains having an inclination of 1 in 1,000, as that slope was found to be insufficient to carry off in suspension the solid materials of the drainage. In the smaller drains, rakes or scrapers of wood cut to the contour of the invert, were worked backwards and forwards, until the mud was drawn to a shaft, through which it was lifted.

In the larger ones the brush and rake were still made use of, aided by flushing. From both banks, and from the central islands, all the outlets poured direct into the river, and at the end of 1837 there were probably forty important outlets. Now, with three exceptions, all the discharging mouths had been abandoned, and longitudinal drains, parallel with the river, had been substituted. These finally discharged into the Seine at two places, one within and the other beyond the limits of the city.

A description was then given, showing the manner in which both the household and the rain water was disposed of. Night-soil, it was remarked, had no connexion whatever with the drains, except in one case. Most of the houses in Paris were built in blocks, with a central courtyard common to all, in which there was usually a cesspool for receiving the soil, whence it was removed at intervals. A new plan was now under trial in a few places, chiefly at barracks. This consisted in leading the night-soil into cylinders perforated with fine holes, which allowed the liquid portion to rise in an outer cylinder, while retaining the solid matter within. The liquid portion was drawn off daily, and the internal cylinder was emptied as required. In all cases the night-soil was carted away from the city, and was deposited in appointed places. A large quantity was converted into manure, at deodorising works; but only what found a ready sale was thus operated upon, so that much still went to waste.

The method of cleansing, and the appliances to effect it, were next noticed. Several of the main drains were composed of two principal parts, of which the lower, or water-way proper, formed but a small proportion of the entire sectional area. These drains which had no separate waterway were cleaned by hand. The waterway, when forming a distinct part of the work, was of three standard sizes, all cleansed on one principle, but by appliances differing in detail. One was by a cleansing-boat furnished with a scraper at the bow, which nearly filled the section, and was capable of motion in a vertical arc. This scraper formed a dam, and the water rising behind it formed a motive power, which pushed the boat forward, carrying the mud with it. This scraper, of course, required constant adjustment; and instead of being a solid disc, it was provided with three openings, the central one of which was always open, while the others were fitted with sliding shutters. A simple arrangement at the stern of the boat kept it true to the axis of the channel. Under the most favourable circumstances it seldom happened that a length of more than 800 mètres could be thoroughly cleansed in one day, owing to the necessity for going over some places several times. Some of the drains were cleansed by means of a small truck, used with apparatus like that of the boats.

In order to provide for the safety of the workmen, in the event of their being overtaken by a sudden rise of water above its normal level, safety chambers had been built in the roofs, which were reached by openings in the side-walls of the drains. In June, 1855, the water rose in the outfall-drain on the right bank of the Seine to a height of 4 ft. 11 in. above the level of the side footpaths, and in that on the left bank the water rose to 7 ft. above the same level. Since then, many overflow weirs had been built along these main outfall drains, so as to carry off the surplus water after it had risen above the footpaths.

One leading feature of these works was the absence of small pipes, so constantly used in England; the smallest section ever built, under either the old or the modern system, being 5 ft. 6 in. in height, by 2 ft. 3 in. in width at the springing of the roof. As only a small portion of the total area was occupied by the waterway proper, the modern plan appeared to be very extravagant. In one case, the large space sacrificed for two water mains was instanced. Another source of heavy outlay arose from this circumstance: it might have been supposed that one drain of the prevailing large sizes would fully satisfy the requirements of one street. This, however, was not so. A recent Act compelled all householders to build, at their own cost, private branches in communication with the street-drains; and, apparently with a view of reducing the pressure of this Act, it had been established that in all new streets having a width of 72 ft., the City Commissioners should build a drain on each side of the street, so as to shorten the length of transverse drainage. These drains would be under the pavements, and the

effect of this Act upon the householders would then be scarcely felt. During the early part of 1864, when the author was in Paris, he noticed the rapid progress of new works in several parts of the city; but in these no provision appeared to be made for the branch drains, which it might naturally be supposed would be proceeded with simultaneously with the main drains, to avoid the expense and inconvenience of opening the ground a second time.

The velocity of the current on the Seine was not sufficient to carry off the heavy matter discharged from the drains; consequently mud accumulated in the river-bed, which was cleared by dredging, at an annual cost of 3,000*l.* being at the rate of tenpence to one shilling per cubic metre. The maintenance of the system was most expensive, involving an outlay, during a recent year, of about 30,000*l.* With respect to the drains at work, the author stated, as the result of several personal inspections, that there was a complete absence of unpleasant smell.

The materials used in the construction of the works of the old system were, a rough random rubble plastered,—a superior kind coursed,—and ashlar, chiefly for the inverts. Concrete was frequently employed in the foundations, as it was now; but the selection of lime for the masonry was formerly not considered important. At present, a coarse gritty sandstone was extensively used, set in random rubble fashion, the stone forming, perhaps, not more than 40 per cent. of the work, the staple material being mortar. The sand for the mortar was coarse and fine together, as taken from the pit,—the result being a concrete rather than a mortar, which was employed in a dry stiff state. The work, nevertheless, was strong—attributable, it was believed, to good hydraulic lime being employed. Within the last three years a new building material, concrete, or *béton* "Coignet," had been introduced, the use of which had already been found to be satisfactory. This concrete was composed of sand, or ballast, dredged from the Seine, mixed with hydraulic lime and Roman cement. The cement was required to weigh 2,800 lb. to 3,100 lb. per cubic metre. This concrete cost 1*l.* 12*s.* per cubic metre in position in the drains, but the varieties of the mixture caused the price to fluctuate between 1*l.* and 8*l.* 5*s.* per metre. The mode of building with this material was described in detail.

In conclusion, the author offered his acknowledgments to M. Belgrand, the engineer-in-chief, for courteously placing at his disposal all the records connected with the works, as well as for allowing him permission to inspect them.

On the 14th a paper was read "On the Metropolitan System of Drainage, and the Interception of Sewage from the River Thames," by Mr. J. W. Bazalgette. The two will be discussed together.

A LITERARY REVIEW FOR ITALY.

A FRIEND in Florence writes,—“I noticed in a recent number of the *Builder* a comment on there not existing a single journal in this city devoted exclusively to art, &c. I may tell you there appeared on the 1st of January a small publication of 16 pages, 2 columns, entitled *La Civiltà Italiana Rivista Settimanale di Scienze, Lettere, ed Arti*. Price 5 francs a year;—the paper, print, &c., inferior. The director, in his prefatory address, says that this is the first literary review ever published in Italy. It treats of Philosophy, Science of Language, Natural Science (the ancient sub-Lake Habitations of Vicenza), of Italian Literature, Foreign Literature, and Fine Arts. Under the latter head is a paper 'On the Preserving and Renewing of the Arts'; treating, principally, of the desirability of constructing in the new capital of Italy larger theatres, suggesting one large edifice to be dedicated to the opera, another to the drama; the elevation of musical and dramatic amusements above the very mediocre place they now hold in Italy; and the making them a means of refinement and intellectual improvement to the people, instead of, as now, that of affording a few hours' restless and useless pastime. As there is now one vast cathedral for the public worship, there should be one vast Basilica or Forum, or 'Palazzo di Città' (Hôtel de Ville, or Town-hall) fit for the assembling of those appointed for the administration of justice, or for receiving the votes of the people. So, also, there should be one great theatre in which art might show its power; all classes of people be instructed, edified; the

feelings of the soul moved by the manifestation of the beautiful, the intellectual, and the moral. This has been effected at Milan and elsewhere; why not in the new capital of Italy?"

LILLE.

A CORRESPONDENT writes,—“The extensions to the limits of our town are proceeding tolerably well, but no buildings of any architectural character yet show themselves. The railway station at Lille is, as you may remember, a miserable pile; the plans for extending and improving it are made, and the works will probably be commenced this year. The façade is to be '*monumentale*.' A number of old places are to be demolished, to make room for a fine street upwards of 70 ft. wide, direct from the station to the Place du Théâtre; so that from the theatre a view of the railway station will be obtained, and of course *vice versa*. Much is required to render Lille a fine town; but that much will be done: the principal thing needed is time. In another ten years it will be a very handsome place; the system of decentralization now in vogue will tend to improve the aspect of the place, and the habits of the general population. Some new pictures have been added to the Museum, and further contributions to the Industrial Museum have been sent in. These collections are superintended by men who really take a pride and pleasure in their occupation, and will no doubt finish by forming a museum unique in its kind. The new cathedral is not quite at a stand-still: a stone now and then is added. The spirit that started this useless affair is willing, but the purse is very weak. They have already tried the effect of one lottery, and will not be allowed another.”

MR. EWART'S PROPOSAL FOR THE REMOVAL OF THE CARTOONS TO LONDON.

At the end of the present month Mr. William Ewart will bring forward a motion in the House of Commons that it is expedient to the artisans, as well as to the public, that the cartoons of Raffaele and the frescoes of Andrea Mantegna, be removed from Hampton Court to London.

For the most part, those who are anxious for the progress of art and the advancement of taste in this country, will wish Mr. Ewart success in the matter which he has taken in hand. At present those noble works are a great ornament to the famous palace of the Cardinal; but, notwithstanding the facilities of the railway and other means of conveyance, and the natural and artificial beauties of the place, the works of Raffaele are left comparatively unnoticed. When the summer sun shines, numerous companies of Londoners flock to Hampton Court; but, at no time is the gathering so great as during the races; and at other seasons we have noticed that more persons appear to enjoy themselves by puzzling in the maze, or wondering at the gigantic vine, or wandering by the margin of the Thames, or amid the pleasant trees and greenery, than go in real earnest to study those cartoons which many would gladly study often.

It is said that to deprive Hampton Court of those adornments would not be right, and that exposure to the smoky and polluted atmosphere of the metropolis would cause damage, and eventually destroy those noble works. As regards the first of these objections, it may be remarked that the cartoons were not original features of this palace any more than were the paintings of the beauties of Charles II.'s court; and with proper taste and judgment, and at no considerable cost, the general effort of the cartoons at Hampton Court might be easily replaced by characteristic ornamentation; and many good authorities are of opinion that works of art even as perishable as Raffaele's cartoons might,—by means of plate-glass, the proper exclusion of the atmosphere, and by the equal heating of the apartments in which pictures are kept; and, as regards oil paintings, by a plentiful supply of daylight; and in connexion with water-colours, by a sparing supply of that element,—be as safe at Charing-cross as at Hampton Court; and there can be no doubt that fifty times more persons would see the cartoons if they were placed at Charing-cross than now find the opportunity at Hampton Court.

In the course of a few years, the changes in connexion with rooms of the Royal Academy will afford a large extra space for the display of the national

collection, and afford an opportunity for the admission of many works of art which are now but little seen, but with which it is very desirable that the public should be acquainted. When these alterations are being made, it is to be hoped that care will be taken of the lighting, both in the daytime and in the evening. If the South Kensington Museum and picture galleries can conveniently and with apparent safety be shown by gaslight, what is there to prevent a similar application to the National Gallery?

When the Royal Academy vacate their half of the Trafalgar-square building, we trust that, besides making judicious alterations on the exterior, care will be taken to render the whole fire-proof, so that we may be under no apprehension respecting our treasures of art, which, if destroyed could never be replaced.

SANITARY AND SOCIAL MATTERS.

THE state of the dwellings of the poor in Bethnal-green again comes under notice in an inquest held on the body of a child aged six years. The deceased was one of several persons who had died in the neighbourhood of Chester-street, Bethnal-green, of diseases that there was every reason to believe had been aggravated by the bad condition of the locality. The evidence of several witnesses confirmed this suspicion, and Dr. Letheby said that the state of the dwelling in question was very bad, and tended to make fevers more malignant than they would otherwise be. The jury returned a verdict, that the deceased died from malignant scarlet fever; that the parish authorities ought to cause the houses to be put into a habitable state; and that their cleanliness ought to be enforced.

As to the excessive death-rate in Manchester, a correspondent of the *Manchester Courier* says:—"The article from the *Builder* which appeared in your impression on Monday, on the excessive death-rate of Manchester, contains a statement of facts which merits the serious attention of our corporate authorities and of the public of the city generally. . . . I find from the statistical returns of the Manchester police, that in 1864 there were 3,866 cellars in Manchester inhabited as dwellings, and in these no fewer than 12,028 persons were living. Undoubtedly some progress has been made, for I find that in the four years between 1860 and 1864 the number of people living in cellars has decreased by 5,450, so that the council has not been idle. The fact, nevertheless, remains that more than twelve thousand individuals, men, women, and children, are still housed in dwellings which, even under the best conditions, are inimical to health."

The engineer to the Stockport Corporation under the Public Works Act (Mr. Brierley), has presented to the council a report upon the present and prospective cost of sewage works completed or contemplated in the borough, in which he states that the sum already expended is 18,008*l.*, and the amount yet required to complete the sewage scheme 24,541*l.*

The returns made to the Registrar-General of Scotland show that in 1864 the births, deaths, and marriages have been considerably above the average of the nine previous years. 112,445 births were registered in Scotland in 1864, being in the proportion of 360 births in every 10,000 persons of the estimated population. This is the highest proportion of births in Scotland during the last ten years, and it exceeds the English birth-rate for the same period, which was 356 births in every 10,000 persons, also greatly above the average of former years. The birth-rate in the towns appears to be 386 in every 10,000 persons, while that in the country was only 324 in the like number. Of the 112,445 births, 101,376 were legitimate and 11,069 illegitimate, showing a proportion of 9.8 per cent. of illegitimate births, and 0.1 per cent. less than the proportion in 1863. To this proportion the rural districts contributed a per-centage of 10.1, while the towns only furnished 9.6 per cent. In the counties forming the northern division only 6 per cent. of the births were illegitimate, while in those of the southern division 15.5 per cent. were illegitimate! Wigtown furnished the highest proportion (17 per cent.) of illegitimate births! Orkney the lowest 4.2 per cent.

Thus in Wigtown every sixth child born is illegitimate, and in the southern division of Scotland every seventh child born is illegitimate. About the boasted religion of such a country there must be something radically wrong. The Scottish clergy ought really to think seriously of it,

and consider whether the fire-and-brimstone system of terror thumped out from their pulpits be not sifter doctrine for a set of savage devil worshippers than for a civilized nation, on whose more thinking minds it can have no other result than a revolting, even though a covert and hypocritical, disbelief in all religion. Is there any other country in the world which could have produced so scandalous and grotesque an affair as that which recently occurred in Scotland, where all the young women in a village, with the approval of parents and clergyman, were examined by a medical man in order to prove that none of them could have been the mother of an infant which had been murdered?

Of the children born in Scotland in 1864, 57,485 were boys and 54,960 girls, or in the proportion of 104½ boys to 100 girls. During the year 74,303 deaths were registered, being in the proportion of 235 deaths in every 10,000 persons. The mortality fell heaviest on the town populations, among whom it attained a proportion of 285 deaths in every 10,000 persons, while in the country districts the death-rate was only 184 deaths in the like number. There were 72 marriages in every 10,000 persons. Although this is the highest rate attained in Scotland since the Registration Act was passed, it falls short of that of England, which has averaged during ten years 83 marriages annually in every 10,000 persons.

The population was extremely unhealthy during the year, and was afflicted with an epidemic of typhus fever, which was most prevalent in February, March, September, and thence increasing till the year closed. The highest death-rate from this epidemic was attained in Greenock, where it rose to 14·2 per cent. of all the deaths. Scarletina and diphtheria appear to have been the two other more prevalent diseases. The rainfall in Scotland was 38½ in., which was considerably more than that in England, though closely adjoining, where it was only 16·7 in., the smallest rainfall in England of which there is certain record, while that in Scotland was above the average.

SCOTTISH PRINCE CONSORT MEMORIAL.

HER Majesty, having examined the designs for the Memorial selected by the Committee of Advice, and submitted by them to her Majesty, has expressed a preference for Mr. Steell's equestrian statue, with a solid pedestal, surrounded by groups at the base. The site proposed for it is on the level ground of the Queen's Park, in which her Majesty reviewed the Scottish volunteers, as such a site is considered appropriate from its close proximity to Holyrood, and also from the Prince Consort's presence on the occasion of the great review. The general form of this design is pyramidal, composed of several stages. On the sides of the upper pedestal are bas-reliefs, illustrative of the career and character of the prince—on the one side is a representation of his marriage, and on the other his opening of the International Exhibition, 1851. On the front panel the prince is represented in the midst of his family; and, on the back, awarding rewards of merit. On the second stage long quotations from the prince's public speeches enrich the surface; and, on each centre, a mass of classic emblems, indicative of his tastes and pursuits. At each of the angles of the first stage, or base, groups represent the people, of all classes, from the peer to the peasant, approaching the effigy of the prince, looking up to it with reverence and affection, and leaving at its base chaplets and wreaths, in token of their gratitude and love. One group is representative of the votive offerings of rank and wealth. Another group illustrates honest labour.

MOSAIC WORK, SOUTH KENSINGTON.

MR. LEIGHTON'S very effective representation of N. Pisano which adorns the wall of the East Court at the Brompton Museum, has been produced in mosaic, with gold background, by Dr. Salvati, very satisfactorily, and now fills one of the panels in the West Court. Some of the other figures will be similarly reproduced. Each painting should, of course, be rigorously examined before it is put into the hands of the mosaicist, and none should pass to which any strong objection can be urged. The material and process are too costly to spend on any but really fine works.

THE BATH HOUSE COMPETITION.

THE Bath council have taken a step in this matter, or are about to take one, that will probably have considerable effect in preventing architects from wasting time in competitions for private works, and so far may be useful. They referred the selected first and second designs to Mr. J. A. Clark, of Bristol, to ascertain the probable cost of carrying them out. That gentleman in his report says,—

"I have most carefully measured both plans and ascertained the cubic quantities to be as follows:—Mr. Davis's plan, including the balconies, 1,214,165 ft.; and Messrs. Wilson & Willcox's plan, 912,918 ft.

As near as I can judge on the drawings of detail working drawings and specifications, and from the cost of other buildings of a similar description, taking into consideration the proximity of the local stone, I estimate that either design could be carried out with good ordinary new materials, and with suitable internal finishings, but exclusive of the pipes and extra fittings, heating apparatus of the baths, &c., at 5½d. per cubic foot, this price would make the cost of Mr. Davis's design 27,324l. 12s. 3d., and that of Messrs. Wilson & Willcox 20,491l. 11s. 6d."

The third and fourth designs were then referred to Mr. Clark, and he gave as result,—

"Mr. C. J. Phipps, 1,304,486 cubic feet. This plan being of a plainer character than the others, I have estimated it at 5d. per cubic foot, which amounts to 27,192l. 13s. 4d."

Messrs. Giles, Hickles, & Isaac, 1,004,839 cubic feet at 5½d.—23,027l. 10s. 9d.; 69,896 cubic feet in drawing-room and conservatories, if erected, at 1s., 1,472l. 3s.—Total, 24,499l. 13s. 9d."

The committee in consequence brought up the following report, which was, we believe, adopted:—

"The committee assuming that the council will not award the premiums formerly recommended to be given to Mr. Davis and Messrs. Wilson & Willcox, suggest that the committee should be further empowered to resume negotiations with the architects who had already competed, with a view to some modification of the designs, similar premiums as were offered before to be awarded for the best plans."

Both Mr. Davis and Messrs. Wilson & Willcox protest against Mr. Clark's statement. The former says,—

"Mr. Clark should not have included the balconies in his cubing; he might with equal reason have included the area of the quadrangle."

I have never erected a domestic building in the provinces at so high a cost as 5½d. the cubic foot; the prices in all such cases varying from 2½d. to 4d."

Mr. Clark has priced the second-premium design at the same rate precisely as that of the first; this is a great mistake."

"I feel well assured that the estimate by cubing alone, according to Mr. Clark's report, exceeds by no less a sum than half the true cost for which my design can be executed."

And Messrs. Wilson & Willcox send a tender from builders to carry out their design for 15,000l.—the sum named in the instructions.

Estimates by cubing, at an assumed price per foot, are altogether fallacious.

We must take the liberty of informing the Bath Council that, if they withhold the premiums offered to the architects who have already competed, they will perpetrate something very closely approaching a swindle; and we feel assured they would not willingly be thus guilty. Let them recollect the time, skill, and money that have been expended by the competitors in this matter on the faith of the Council's offer, and they will see they have no right to withhold the prize for which the competitors staked.

THE STRIKE AND LOCK-OUT IN THE IRON TRADE.

INSTEAD of being likely to come to an immediate close, the lock-out threatens extension into Scotland, where also announcements have been made of reductions of wages and a determination not to employ any of the English lock-outs or strikers. The London Trade Societies have resolved to aid the lock-out, on the ground that the conduct of the masters is cruel and wrong. With regard to the resolution of the masters to lock out the workers in the Newcastle district, who were said to have denounced the conduct of the Staffordshire strikers as wrong, and resolved not to aid them, it is now said that the resolution of the masters to lock out the Newcastle workers arose from the fact that the Gateshead Union executive had contributed to the support of those on strike in North Staffordshire. In the Newcastle district, however, the first token of returning amity between masters and men has been manifested in the occurrence of a long conference, at which there was nothing decided certainly, but the questions at issue were referred to an adjourned meeting at York, where it is to be hoped some general system of arbitration will be adopted.

THE ABSORBING WELL, NEW BARNET, HERTS.

I HAD determined to give some account of one or more of the borings which I have made for the "British Land Company," in my forthcoming work, on "Specifications for Practical Engineering and Architecture,"* but space could not be afforded. In case you should think the subject of sufficient interest for the *Builder*, I send you a description of the absorbing well which I have completed (some time ago) at New Barnet, and which is most successful in its operation. The London clay in this district comes nearly to the surface, or is but thinly capped with vegetable mould, or in "pot-holes," with drift gravel, mixed with clay, lumps of septaria, and occasional erratic boulders,† so that the only means of natural drainage is by open ditches; which, in a neighbourhood designed for building, would be out of question altogether. In forming new roads and sewerage over an extensive area, it became necessary to provide an outlet for the sewage, and this could only be done by carrying the water discharged by sewers into a brook (almost dry in summer), running in a valley, on the north side of the estate. This was objected to by an adjoining parish, and I recommended that the company should, on a convenient part of the estate, sink a well to some depth in the clay, and then bore (commencing with 9 in. diameter, and terminating with 7 in.) into the best water-bearing strata of the lower tertiary formations; but not into the chalk. The beds of hard grey sand arrived at, after passing through the mottled clay, yielded a supply of water which rose to within 30 ft. of the surface; but, on continuing the boring to a depth of 130 ft. from the surface, we came upon a bed of free light-coloured sand (a seam of 30 ft. thick), and the water immediately sank to a depth of 60 ft. from the surface, which appears to be its permanent level. Into this stratum I determined to carry both the storm water from the new roads and estate, and also the filtered water from the sewers, or house drainage. As the mottled clay, as well as the lower sand, in this district, is very liable to fall in when bored through, I had the boring lined with strong wrought-iron galvanized pipes, which were jointed as they were lowered.

The following is an account of the formations bored through, with the thickness of each deposit, commencing at the surface:—

	Feet.
Superficial gravel and yellow clay...	20
London clay	46
Dark shelly clay	5
Grey sands, pebbles, with water ...	2
Mottled clay	23
Green sand	9
Brown sand	5
Hard pebbles (conglomerate)	8
Fossil wood and sand	9
Hard pebbles and quick-sand (free light-coloured sand), level of water-bearing surface	14

Total, from the surface... 141

I cannot, without diagrams, make my account perfectly intelligible; and as I believe the method of performing this work will bear examination, I have sent plans and sections of the arrangement of the deposit wells, the filter-beds, the absorbing-well, and the stand-pipe and shafting for ventilation, and other particulars.

A is the inlet-pipe for the sewage; B, the settling-well; C, pipes connecting with D another well of the same description; E, the filtering tunnels; F, the absorbing well; G, stand-pipe; L, the boring; H, shoot for giving light to the well F, when it requires examination; N, side-entrance to absorbing-well; I, ventilating shaft.

On commencing the works, I first sank a well 24 ft. in depth, and 15 ft. in the internal diameter, setting the same with 9 in. brickwork, laid dry, with rims 1 ft. thick, set in cement, instead of using curbs, at every 4 ft. The bottom of this well is paved with brick on edge, in cement. At the bottom of this well the boring was commenced; and thus the staging otherwise necessary for this operation was avoided. When the boring was completed, and the pipes let down and driven home with moderate force, a York flag, pierced to the size of the bore-pipe, was fixed over it, at the bottom of the well, for

* Spon & Co.

† Whit stone.

THE ABSORBING WELL, NEW BARNET, HERTS.



receiving the stand-pipe, to the use of which I shall afterwards allude.

A side entrance, fitted with a safety grate and cover, in the manner of forming entrances to sewers, was built, and the well was domed over in brickwork, having a shoot lined with cement (fitted with an iron door), for giving light to the well when opened, and fitted in the centre with a York flag, pierced to receive the cast-iron ventilating shaft.

The filter beds, E, were then made: they consist of two short tunnels or culverts formed of brickwork, and arched at top and bottom, and are fitted with an examination shaft, K (which is covered with a safety grating), by means of which the material used for filtering can be removed and washed, or renewed if necessary from either tunnel, or from both at the same time.

B and D are settling wells, intended for assisting the deposit of the heavier portions of the sewage and storm water, before the filter beds are reached. They are covered with brick domes fitted with safety grates, so that they can be opened and cleaned at any time: they are connected by the pipes C, and M M M are iron cages or grates, to prevent any solid substance from passing, and the filtering material from escaping. As the bottoms of these wells are considerably lower than the pipes, they are capable of holding a large amount of deposit, and seldom require attention. All the safety covers are 2 ft. 6 in. by 2 ft., and are kept locked. They afford the most ready means of examining the

wells, and clearing them of deposit when necessary.

Perhaps an excess of caution was observed in fitting the boring, with the stand-pipe G, pierced with holes at the upper 9 in.; so that until there are 4 ft. of water in the large well, none can flow over the stand-pipe into the boring. It is necessary to prevent the escape of any matter held in mechanical suspension in the water from passing into the bore-pipe, whatever becomes of that held in solution, so that any possible escape of the finest sand through the filter-beds would be deposited in the large well F, and be prevented from entering the boring by the height of the unperforated portion of the stand-pipe. There are also other advantages arising from having a quantity of still water in the large well. The side entrance affords the means of examining the stand-pipe, and the condition of the well at any time, and of removing any sediment.

The iron turret in the middle of the dome of the large well is hollow, and provided with loose movable tills for animal charcoal and chloride of lime, through which and over which any gases arising from the well must escape before reaching the atmosphere. I have some doubt as to the utility of this arrangement; but, at all events, the works are sufficiently distant from any of the intended nearest buildings to prevent the slightest chance of annoyance, whether permanent action be preserved at all times or not.

A is the termination of the sewer of the district (which includes eleven roads of considerable

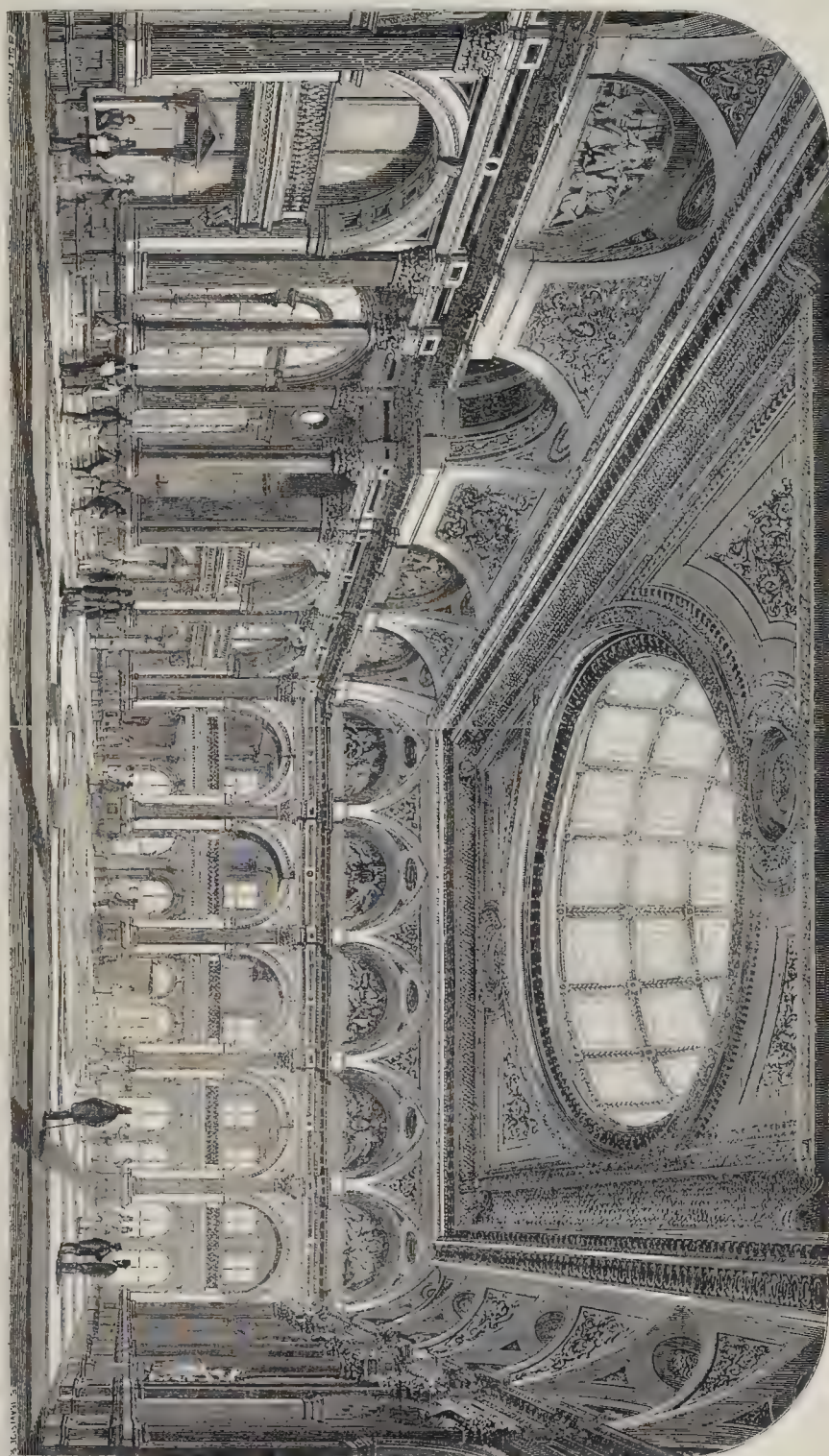
length, with rapid fall for water and large building area partly appropriated), and the sketches clearly show the access of the water through the wells and filter-beds to the stand-pipe and into the boring.

The absorbing power of the boring and the efficiency of the arrangements have been severely tested during the late heavy storms. The water passed into the chamber and into the boring at the rate of 1,000 gallons a minute, without materially altering the level of the water on the stand-pipe.

I had suggested in the first instance the use of a gas-burner constantly lighted in the well F, to accelerate the escape of any accumulating gases through the ventilating turret, but the expense was deemed objectionable and unnecessary.

As the safety-covers all lock down, the key being kept by the clerk of works in charge of the estate, it is not possible for any one to incur any danger in consequence of the works, or to tamper with them in any way. In the course of a season all will be grassed over, and the only evidence of anything existing below the surface will be the ventilating-turret and the locked-down safety-covers.

A piece of land, to be let for pasturage, has been reserved near the works, on the estate, over which will be spread, from time to time, the matter collected in the deposit-wells, and the washings of the filtering materials. I am indebted to Mr. J. F. Bonterms, one of the directors



THE NEWS ROOM OF THE INTENDED NEW EXCHANGE, LIVERPOOL.—MR. THOMAS H. WYATT, ARCHITECT.

of the company, for his wise liberality in allowing this useful work, in what will shortly become a populous and important neighbourhood, to be completed without question as to the necessary outlay.

JNO. BLENNERN.

Note.—It should be observed that the success of works of the kind described must depend on an acquaintance with the geology of the district to be drained, as many circumstances must be taken into consideration which may affect both the arrangement and the cost of such undertakings.

THE LIVERPOOL EXCHANGE.

At the close of the last century, the Exchange in Liverpool was held in the ground floor of the Town-hall. In April, 1801, the project of building a new Exchange was introduced, and in three hours the subscription-list, amounting to 80,000*l.*, was filled up, though no one was allowed to subscribe more than 1,000*l.*

Nearly two acres of land to the north of the Town-hall were cleared of buildings; the old streets were destroyed; and the site laid out with a large area or "quad," well known as "the Flags," the Exchange Buildings comprising three sides; the Town-hall the fourth; the statue of Nelson standing in the centre. The news-room, which forms an integral part of the Exchange, as at Manchester, Glasgow, and elsewhere, was placed in the east wing; and with it, though of smaller dimensions, the underwriters' room or local Lloyd's.

The remainder of the huge pile of building was divided into counting-houses and warehouses; a merchant usually having his office on the first floor, the rest of his taking being used for warehouses. The elevation next the Flags consisted of a Corinthian archway, columns, and pilasters, on a heavy rusticated basement, in which were the arcades for shelter in wet weather. The design is supposed to have been by the late James Wyatt. Mr. John Foster, who built the Custom House in Liverpool, held the office of architect, surveyor, and secretary to the Exchange Company.

For many years much inconvenience was felt from the limited size of the news-room, and from the inconvenient arrangements of the buildings, which were unsuited to modern wants. The site had become far too valuable for warehouses. After two or three makeshift enlargements, the directors became aware that the space was wholly inadequate for the accommodation of upwards of 3,000 subscribers; and finally, in 1857, they decided to apply to Parliament for powers to enlarge the news-room only. This, however, appeared so inadequate a provision, that the Chamber of Commerce determined to oppose the company on that ground. In 1859 a new company obtained an act of incorporation, with power to purchase the property of the old company, the site of the Sessions House belonging to the Corporation, and the street that divided these two properties. The capital of the new company was fixed at 480,000*l.* In 1862 the purchase of the existing buildings was made from the old company at the sum of 317,000*l.*, on the arbitration of Mr. Norton, of London;—a price equivalent to rather more than 70*l.* a square yard for ground and buildings. The Sessions House property was acquired shortly afterwards. Mr. Lewis Cubitt, who had held the appointment of architect and surveyor to the Company during the proceedings in Parliament, resigned the appointment at this time. The directors then determined to resort to competition for the design of their new buildings, and at the end of 1862 issued their instructions to architects, offering a premium of 1,000*l.* for the first design, and two of 250*l.* each for the second and third. In January, 1863, forty-four designs were sent in. The first prize was awarded to Mr. Thomas H. Wyatt, of London, and he was subsequently appointed architect to the new buildings.

The arcades, which bound three sides of the Flags, and formed so important a feature in the old Exchange, were, by the instructions for the competition, to be entirely omitted, and the office windows brought close to the boundaries of the property belonging to the company. The wording of their recent Act undoubtedly gave the directors power to have done so; but it was generally felt in Liverpool that the loss of the arcades, so necessary for shelter in rain and shade in summer, would be a great public inconvenience, and the Chamber of Commerce took an active part in urging their re-introduction. After considerable discussion, a compromise was

effected; the company giving up some of their ground, and taking upon themselves the cost of construction, the public and the corporation giving up some ground as a matter of compensation.

There can be little doubt that, in addition to the great public convenience, the effect of light and shade and outline gained by the arcading will be of great advantage to the design, and it was a matter of much satisfaction to the architect that this object was attained.

Owing to the necessity of providing accommodation for the news-room subscribers, for the underwriters, stock exchange and telegraph companies, occupying portions of the existing buildings, until they can be transferred into the new buildings, the works can only be done under two or three separate contracts. That for the western wing is now in active progress, and is being executed by Messrs. Holmes & Co., of Liverpool, who submitted the lowest tender for it, viz., 69,680*l.*

In this wing is comprised the future news-room, which, including the recesses for conversation or reading, will be 175 ft. long, by a clear width of 90 ft. This room forms the subject of the view given in this number. The height to the top of the dome is 75 ft. The pilasters and columns will be of Irish red marble; the plinth and dado round the room of Bardilla marble. The walls are to be lined with Caen stone. The floor will be in oak, teak, and pitch pine, so as to repeat, more or less, the lines of the ceiling. This floor will be laid on wrought-iron joists and concrete. In this wing the underwriters are to be temporarily housed until their new room in the eastern wing is built.

The public-sales room, a large restaurant, and several large sets of offices for brokers and insurance companies are also included in this division. This wing, we may add, is to be completed by May, 1866.

The total extent of stone frontages next the Flags and public streets will, when the whole design is complete, exceed 1,500 ft. lineal.

FOLIAGE AND HEALTH.

MANY would esteem it an act of vandalism to remove a well-grown tree from the neighbourhood of a dwelling. But, although we love the pleasant green trees as much as any one, observations made from time to time in various situations show that, in respect of health, a large quantity of foliage too close to a house is not desirable. In the first instance, it leads to dampness; the drip, without very careful drainage saps the foundations; and, under the branches, long after the sun or wind has dried up the other surface, all remains dank, and in some seasons uncomfortable. The foliage also abstracts the light to a greater extent than might at first be supposed. Those accustomed to the apartments do not notice this so particularly; but strangers seldom fail to note the unusual dimness, even at midday. The leaves and boughs also stop the proper current of air, and prevent ventilation; and in autumn, if the dead leaves are not carefully removed, there is the chance of a bad atmosphere, which has often been a cause of fever and sickness.

It is almost as easy a matter to part with a favourite dog as with a tree to which the eye has been for long accustomed; and many will run the risk of some damage to health rather than incur this loss. With skillful and tasteful woodcraft, much of the objection may be removed, and still a pleasant and picturesque piece of greenery allowed to remain. It requires, however, an artistic eye and able hand to manage this properly; and, while the branches which intercept the air and light are lopped away, so as to give admission to those necessities for health, the best of the natural forms should be kept with all possible care.

In many instances dampness and decay of both brick and stone work are seen to arise from allowing trees to grow against buildings. To this may be occasionally traced damp corners in churches; and sometimes damage is done by the branches fixing themselves into the joints of the masonry; but notwithstanding these disadvantages, there is a great charm in the conjunction of the vari-tinted foliage with ancient time-worn stone-work, and beautiful effects are produced by the occasional branch of a tree being allowed to grow in at some crack of a window, and flourish inside a sacred structure. Some years ago—it may be remaining yet—

a large part of a tree was flourishing most healthily near the altar of the church at Ross; it was said to overshadow the spot in which the "Man of Ross" was wont to take his seat.

Some creeping plants are more injurious to stone and brick than others. In several instances we have found ivy to act as a preservative. A few years since, in the King's-road, Camden-town, there stood a brick house, completely covered with ivy. This afforded a harbour for a multitude of sparrows, which in the pairing and breeding time made such a din, that it was some annoyance to the inhabitant, who made several attempts to drive away the colony by pulling out the nests; but this proving of no avail, he had the ivy altogether removed, and, underneath, the wall was found to be perfectly dry, and although the face of it had a north-east direction, there was not a single weather-stain on the whole of its extensive surface. Amid ruins the ivy preserves parts in an extraordinary manner; and although by its clinging it sometimes strangles the sturdy oak, it often serves a useful purpose, in binding together delicate mullions and tracery, and keeping intact portions of choice architectural ornamentation, which, but for its clinging arms, would have fallen many years before.

CONSUMPTION AND AIR.

In a series of letters on pulmonary consumption and its proximate causes, published by a physician, in a manner, perhaps, not quite liked by his professional brethren, the writer points to the peculiarities of this fatal disease, which, says the doctor, causes in this country one-fourth of the deaths in respect of those who have passed the age of puberty. After directing attention to the dangerous effects of neglected colds and bronchitis, and explaining, amongst other matters, the construction of the air-tubes and the difficulty which there is of getting medicine administered which will act effectually, he proposes the inhalation of medicated vapours, which, together with the air, will be passed to those parts of the bronchial tubes and lungs that require medical treatment.

When we consider the large number of stone-masons and others connected with the building trades who suffer from affections of the lungs, the following seems to deserve attention:—"I have told you," says the writer, "that catarrh is a chronic inflammation of the mucous membrane lining the nose. The secretion which forms in the posterior nares falls into the throat and rapidly extends the irritation to the entrance of the wind-pipe. When once it has reached to this point, every slight change in the weather, every exposure to dust, increases the irritation and carries it onward to the larynx, producing slight hoarseness, and into the bronchial tubes, causing the secretion of sticky, bluish-white mucus. You see, then, that a catarrh produces the irritation on which this mucus depends. The wind-pipe and the bronchia in which it forms, are the tubes through which the lungs receive the air necessary for the removal of the carbon from the blood. Do you suppose you can obstruct these tubes and yet not diminish the air drawn through them at each respiration? If you diminish the air received into the air-cells, you cause a portion of the carbon to remain in the blood. The moment the air is shut off from a cluster of air-cells, the capillaries of those cells become gorged with imperfectly decarbonised blood, and are liable to become tuberculous. Kind nature may be patient with us for a long time, but sooner or later a deposit of carbon takes place in the obstructed part, and from that moment the disease has changed from a simple catarrh or bronchitis to the most fatal disease known to our race."

Looking at pulmonary consumption from this point of view, it is clear that while timely attention to the approximate causes of consumption above referred to is a necessity, the breathing at all of a sufficient quantity of pure air must also have a beneficial effect on the prevention of consumption; and it is also worth while to mention that the tubercles are little granular bodies deposited from the blood. They are most frequently located beneath the mucous membrane of the air-tubes; but they are also deposited in the air-cells, and on the free surface of the mucous membrane. When they are found on the mucous membrane of the air-tubes, it is not uncommon for small portions to become detached and be expectorated by the patient long before any part of the lung has been ulcerated.

FINISHED WORK.

Οὐ γὰρ ἰσχύει τὸ ψῆφισμα χαλκῶν ἰσχυρῶν σίμων.
Homer.

It stands at last—the vision of a dream—
Of my long dream, in timber and in stone—
Of my long toil with compass and with rule,
How silent now, where lately, day by day,
And week by week, the grating of the saw,
The chipping of the chisel ceaselessly
And deafening ring of many hammers woke
A thousand echoes from the hollow ribs
And sharp reverberant timber of the roof;
And all day long, the busy bee-hive hum
Of workmen plying each his proper task
Resounded in the yet unhalloed aisles.
Far other echoes they shall hear to-morrow!
The pure-voiced children's chant antiphonal,
Soft hymn, and holy prayer, and benison
Shall breathe around, till transept, nave, and choir,
That yet have been but consecrate in thought,
Be made for ever holy to the Lord;
Hallow'd from all profane and common use,
A home of prayer, none other than the house
Of God Himself, the very gate of Heaven.
How clear and white against the evening sky
(All disencumber'd of its scaffolding)
The steeple rears its slender height to heaven;
Its holy symbol glittering in the light,
To wake to-morrow with a joyous clang
And herald in their dedication morn.

The lengthen'd beams of the declining sun
Pour through the western window like a flood,
Lighting the chancel with a glorious gleam,
Gilding the cross upon the chancel screen,
Gilding afresh the altar's broider'd gold,
Gilding the quaintly-pattern'd organ-pipes
So soon to peel in rushing harmony;
Lighting the carved woodwork, bringing out
The floral emblems on the capitals,
The cunning tracery of the poppy-heads,
The angel-headed bosses, and the scrolls,
The holy texts engraven on the walls,
And all the hidden mouldings of the roof.
I did not think to see my work so fair,
And yet I look upon it not in pride,
As knowing best my own unworthiness:
Rather, with something of that loving awe
And trembling thankfulness a mother feels
Who gazes on her infant unbaptized,
And knows, that ere a few short hours have run,
The healing dew, the touch of holy hands
Shall make him clean and pure, a child of Heaven,
A living temple of the Holyest.

I gaze upon my work unconceal'd.
Yet as I gaze, there comes unto mine ear
A stealthy whisper on the evening air,
A sullen whisper of the world's cold breath,
Saying, "Unto what purpose all this toil
Of brain and hand, of compass and of tool,
This spendthrift scattering of costly art
Where scarcely one shall see it, one regard?
We bade him build a church for common men
To meet in, and to worship and to pray,
And not a gallery of deep research
For mystic wise and learned antiquary.
Who else shall read his high-toned symbolism?
Deems he our prayers shall be the more devout
Because our church's plan displays a cross,
Because we kneel on tessellated tiles?
Or will our organ give out sweeter sounds
For all the quaint devices on the pipes?
Or will our choir-boys be more reverent
For all the carving of the chancel-screen
And cunning tracery of the poppy-heads?
These make not worship pleasing unto Him
Who dwelleth not in temples made with hands,
Who looks not on the appearance, but the heart.
Even if the man would build himself a name,
A mighty monument, like him of Paul's,
That men might look around and marvel at him,
He has not gone the wisest way to work.
Who does he think will peer in every nook
And hidden corner of his fair design
To seek the impress of his master-mind
And master-hand?"

I answer, "Not for this—
I have not sought to build myself a name—
To rear a gallery of deep research
For mystic wise and learned antiquary;
Nor only, though in part, a place for men
To meet in, and to worship and to pray;
But more, a House where He vouchsafes to dwell,
Whom Heav'n containeth not; where He Himself,
In His own written Word, will speak with men,
Or by the mouth of His own chosen priests,
Or in the highest mysteries of our Faith.
And thus my work has been a work for God,
And being such, it is the very least
And poorest I could offer unto Him;
Ay, were it ten times fairer, all too mean
And all too poor for such an offering.
Ye that have given your wealth ungrudgingly
Regrudge me not the little I can give,
I have not gold and silver to bestow,
And yet I would not offer unto Him
Of that which costs me nothing. He hath spread
His microscopic wonders over earth,
And air and water, painted wondrously
Each little blade and flower that grows unseen,
To teach us men, that what we take in our hands
Ourselves should make as perfect and as fair
(Though after our poor measure) as we may;
Then surely chiefest when we work for Him.
If He hath given His servant eyes to see,
A mind to know 'the glorious from the base,'
A hand to guide the compass and the pen,
These are His gifts entrusted to my care,
A trust for which I have to give account.
Whether I strive to use it unto Him,
Or in my own conceits, or worse than all,
Keep the one talent buried in the earth
And worthless.

If your prayers shall be more pure
I know not, nor your organ-strains more sweet,
Or if your choir shall be more reverent,
Because the place is fair wherein ye kneel;
These things are yours to answer and to heed.
But I would fain ye should not lack herein
For holy signs and reminiscences.
For marks and symbols of our common Faith

To catch the wandering eye, and to bring back
The wandering thought from earthly things to heaven.
And I would fain, that, if ye held your peace,
Each stone, beneath, around you, should cry out
'Erasmus' saith Him, and every beam
Out of the vaulted timber answer it;
And every nook and every hidden spot
Where scarcely eye of mortal man will look
Should yet be perfect in its inmost part;
Should bear some impress, not of me, but Him
Who gives His servants all they have to give.
I do not seek to build myself a name.
A monument, that men may look around
And marvel at my genius and my skill:
Yet I would ask, of those who worship here,
Not to be unremember'd in their prayers,
If there shall be, of those who worship here,
One of CHURCH's little ones, to whom the sight
Of lofty fane or storied glass has made
Some holy lesson plainer to his thought;—
Or if there be, among the worshippers,
One childlike heart, a little one of soul,
One who disdains not little outward helps,
To whom a holy picture, text, or sign
Seems like an angel whispering of heaven,
Then let him offer, of his charity,
A prayer before the Throne of Grace for him
Whose hand, unworthy, near'd the sacred pile;
That however here, by many a blow
Of earthly sorrow, many a scripture keen
Of earthly chastening, polish'd the hand
Of Him in love who chastens all He loves,
He prove not quite rejected at the last;
But of CHURCH's mercy, in the glorious Church,
The new Jerusalem, a living stone,
His resting-place, however lowly, find."

VOLUNTARY ARCHITECTURAL
EXAMINATION.

EVERY one who wishes well for the success of
the above scheme must regret its failure this
year. I will not now occupy your space by de-
tail the causes which I believe deter many
from presenting themselves as candidates, but
will simply note down what appear the most
prominent objections:—

1. The time required (six consecutive days,
should they require to pass both), which few
could spare from their daily avocations.
2. The total absence of *visu voce* examination.
3. The great mass of subjects, and the limited
time for examination in each subject, causing a
complete "drive" to get through a sufficiency
of the allotted work, leaving not a moment for
thought or deliberation; whilst a greater portion
of the work could be far better explained *visu
voce*, with the aid of rough diagrams on paper
or a black board, and in about one-sixth the
time.
4. The diversified nature of the subjects for
examination, some in branches probably neg-
lected by the candidate since leaving school, and
for which he has (at the expense of time he
might devote to professional studies, practical,
theoretical, or artistic) to grind up, probably to
drop them again the day after the examination.
5. The misnomer of "Class of Distinction,"
impossible in architecture without years of study
and experience, and resting gracefully only upon
older heads than will present themselves for the
examination.
6. The total absence of any certificate or defi-
nite result, candidates being expected to study
and present themselves for a varied but perfectly
aimless examination.

I would beg to suggest the following as outlines
for somewhat reconsidering the scheme:—

1. Let there be six examinations in the year,
consisting of one day in each alternate month,
each in a distinct branch of study.
2. The examination to be partly written and
partly *visu voce*.
3. A certain number of marks to be taken as
a maximum, and a certain scale of deductions
to be made for all errors during the examination.
4. A memorandum to be given, in each sub-
ject, to all who gain the requisite number of
marks.
5. The "Class of Distinction" to be abolished,
and "class lists" established; viz., Class I.,
Class II., Class III.
6. To be placed in Class I., a candidate must
have gained (say) 80 per cent. of the marks
allotted in each of the various branches of the
five days' examination, and also at least half the
number on the sixth day, which would be set
apart more especially for the higher branches
and languages.
7. To be placed in Class II., 60 per cent. of
the marks in each of the first five days' exami-
nation would be necessary; but attendance on
the sixth would not be required.
8. To be placed in Class III., a candidate
must have gained at least half the allotted
number of marks in each subject on any four
days out of the six he selected to present himself
for examination.

9. A final certificate of having passed the
examination, stating the "class," signed by the
examiners, and countersigned by the president
of the Institute, together with a copy of the
published class list to be given to each successful
competitor.

I trust some able pen will take the matter in
hand, and make more detailed suggestions, for I
cannot help thinking that the division of the
examination into parts has in it the elements of
success; that a large number of candidates
would present themselves; and that in a short
time the "Institute Class Lists" would be as
eagerly scanned and quoted by the profession as
the University class lists now are by others.

A. B.

BRITISH ARCHÆOLOGICAL
ASSOCIATION.

At the meeting on March 8, Dr. Copland in
the chair, Mr. Guaston exhibited a collection of
lead signacula, recently found in London,
especially on the site of the Old Steel-yard,
Upper Thames-street; and Mr. Cuming read a
paper upon their peculiarities. Many of them
were exceedingly interesting, formed of pewter,
calculated to hold the blood or other relics of
martyrs, and had representations of the murder
of St. Thomas à Becket. One vessel exhibited
a figure of St. Erasmus, with his emblematical
windlass. An image of St. Edmund the Con-
fessor was found near the place of his burial at
Westminster. The costume of the king fixes
this at the second half of the fourteenth cen-
tury. The remainder were of St. John the
Baptist and the Saviour. The latter as a nimbed
infant, the face only being visible, the body
covered with a rich pall. It had probably be-
longed to some relics of the Nativity, and is of
the fourteenth century. The image of St. John
the Baptist is late in the fourteenth century, and
was found in the progress of works now going on
for the Thames Embankment. It is presumed
to have been worn as an amulet.

A paper, by Mr. Read, of Ipswich, relating to
Joseph Grove's MSS. concerning Cardinal
Wolsey, was read; and, from the manner in which
his works appeared, accounted for the difficulty
of obtaining a complete copy. Miss Holden, of
Swathing Grange, exhibited three pennies of
William the Conqueror (William Rufus), form-
ing a portion of the remarkable find, in 1838, at
Beauworth, near Winchester. Mr. Berghes sent
a minute description of the coins, showing them
to have been severally minted at Norwich,
Tantonn, and Dorchester.

A paper from the Rev. Mr. Kell was read, on
"The Discovery of a Roman Building at Gur-
nard's Bay, Isle of Wight," by Mr. J. C. Smith,
who sent a plan of the building, tessellated pave-
ments, &c.; specimens and drawings of the pot-
tery, and other utensils obtained. The paper
gave rise to considerable discussion, and the
examination will be further pursued.

RATING IN THE METROPOLIS.

WHEN we consider the enormous amount of
taxation levied upon the metropolis and the
amount of rates for improvements, some of
which seem to have a national as well as a local
interest, and mark the strong and often ill-
tempered opposition which has been made by
provincial Members of Parliament to any assist-
ance being granted from the national exche-
quer, it is not wonderful that cases in which
property of various kinds belonging to the
nation, generally, situate in the metropolitan
districts and elsewhere, should be exempt from
the usual amount of local taxation. In con-
nexion with this question, a large and influen-
tial deputation has waited upon the Lords of
the Treasury, and directed attention to the fact,
that the parish of Chelsea contains 771 acres of
land, of which 761, or nearly one-tenth of the
whole area, were taken up by lands belonging to
the Crown or occupied for national purposes,
and were therefore withdrawn from parochial
rating; and this, as urged, operates as a detri-
ment to the ratepayers by increasing the com-
mon burden, whatever might be the amount of
expenditure. At the conference with Mr. F. Peel,
on the part of the Lords of the Treasury, Mr.
Titie rightly remarked that the public establish-
ments at Chelsea, unlike Portsmouth, Chatham,
Deptford, Woolwich, Plymouth, Devonport, and
other places, were of a class which, instead of
benefiting the locality, not only operated as
detractions from the rateable property, but by

their indirect effects added to the burden of pauperism, or further diminished the productive-ness of the rates.

The rateable value of the assessed property in the parish at the last valuation was 235,899*l.*, and the amount of the rates at 4*s.* 4*d.* in the pound was 51,256*l.*; and what the deputation contended for was, that Chelsea should be treated in the same way as other places which were mentioned, and that the sum voted should be adequately proportioned to the parochial rates. Taking Plymouth as a criterion, where the rateable value was 198,421*l.*, and the average rate 6*s.* 2*d.* in the pound, and which received a subsidy of about 6,000*l.* from Parliamentary grant, Chelsea would be entitled to receive about 6,000*l.* instead of 700*l.* Taking, however, the principle of assessment adopted over the whole parish to be equitable, and the total assessment of the parish were increased, as it should be, by 54,600*l.*, then the same amount of money, which is raised by a 4*s.* 11*d.* rate, would be obtained by one of 4*s.* in the pound, and the annual equivalent for the property occupied by the Government would be about 19,000*l.* In reply to a question by Mr. Peel, Mr. Tite produced a plan of the parish, and said that upon the land occupied by the Government (78½ acres), 1,540 houses suitable to the neighbourhood could be erected, the rateable value of which would amount to about 54,600*l.* Mr. Peel expressed doubts about the space referred to being likely to be occupied by houses in the manner mentioned. Mr. Tite, however, said he had no doubt that the whole or part of the land would have been occupied by eligible and rateable property.

Mr. Finch contended that the grant of 700*l.* a year which the Lords of the Treasury gave in aid of the local rates, was not at all an equivalent for the very large amount of land occupied and the very deep injury inflicted by this class of Government establishments in their district. A portion of the site occupied by them was a most valuable river frontage, as well as some of the best parts of their district, and the character of the establishments brought pauperism into the parish, and a large amount of immorality. Indeed, they were overburdened in more ways than one. Thus they were bounded by the palatial residences of St. George on one side, and those of Kensington on the other; and the working class who had been erecting these residences made Chelsea their home, and when out of employment were thrown upon the parish.

Mr. Peel, in the usual official manner, endeavoured to show that no loss had been sustained by the parish.

Mr. Hall mentioned, that had not the Government taken the frontages of some of the best roads of the district, it was the intention of Mr. Brett, the owner, himself to have built some very fine residences.

Earl Cadogan urged that it was not only injury arising from exemption of the Government establishments from rating of which they complained, but the burden as well as the immorality this inflicted upon the parish. The Royal Hospital induced pensioners to flock from all parts of the country in the hope of obtaining admission; they brought their wives and children with them, and became located in the neighbourhood; and in the event of failure, and sickness, and death intervening, they became chargeable to the poor-rates. The same remark applied to the Royal Military Asylum, and the recently erected barracks also added to the parochial evils.

After some further discussion, Mr. Peel admitting that there was something in the last points urged, promised to refer the matter to the consideration of the Lords of the Treasury.

RENTAL VALUE OF HOUSES—WHERE WILL IT STOP?

WITHIN ten years there has been a considerable increase in the rents of houses, which, as the metropolis extended and buildings multiplied, have become dearer to the occupier. About the year 1850, the rent might have been computed, on an average, at 5*l.* a room per annum, unless in exceptional positions;—for an eight-roomed house, 40*l.* per annum; one of ten rooms, 50*l.*; of twelve rooms, 60*l.*; and so on; but as the capital has spread out and swollen, the original and central portions have assumed a value that could never have been anticipated. The aggregation of residents from our own prosperous colonies, as well as from all other countries, tends to the further inflation and increase of population

in this mighty city, which, having housed two million souls fifty years back, now harbours three millions, and contains over 300,000 houses. Where this may stop it is difficult to imagine, as also how it can be possible that, if such growth and progression be continued, the metropolis shall still retain its attractions, or the supplies required by such multitudes can be provided through the ministrations of commerce, or even the mediation of railways.

In the outer boundaries of London, on all sides, there are still ranges of fair and clean-built dwellings, planned to suit persons of moderate income, at the rate of about 5*l.* a room; but these must be sought outside the circle, three miles from Charing Cross, within which range the enhancement of cost prohibits all the industrial and operative classes, some only in the old narrow streets, by-lanes, and more repulsive, because unimproved positions. Into these also the progress of amendment advances; and although there is much noise and stir about erecting model lodging-houses and abodes for the working classes within the bills of mortality, nothing commensurate to the occasion has been carried out in practice, or even been attempted. What little has been done by humanitarian associations is scarce a feather in the balance of exigent necessity. The efforts of the civic corporation to meet the growing evil have resulted in the allocation of a plot in Farringdon-road, and the drawing out of a plan for a structure to shelter a hundred families.

The interests of railway boards in reducing fares for operatives by cheap trains in the morning and evening, or while going to and returning from employment, is the more feasible and probable method to render some compensation for the extrusion of multitudes and subversion of whole districts of houses. In Paris the demolition of crowded quarters is met by a provision of suitable buildings in the suburban and less valuable parts. There, however, a ruling authority assumes the power and carries out the system. Here all rests with the parties interested in the localities affected.

As the intrinsic value of fixed property has of late so much increased, so the management, also, has received a different treatment. Formerly houses to let were ticketed and reference made direct to the proprietor or his agent. The class of negotiators called house agents were little known. Perhaps in all London there might have been a score, now there are much over a thousand! Although requiring no diploma, it has become a profession. Many there are who publish monthly lists of houses in town and country, mansions, parks, estates, villas, and suburban retreats. They engross the whole market, and, in order to enhance the value of their own peculiar office, it is suggested to proprietors to demand 5, 10, or 20 per cent. increased rent. Or, as of late, it has become common enough to require the rent of a year or two in hand by way of premium. This, of course, bestows a value on this mediation, and cannot be unacceptable to a landlord, while it secures the preference of employment.

Suggestions of this kind are often made; but there is a respectable class of agents who do not practise it; for in house agency, as in other settlements between parties in negotiation, there is, or ought to be, an equitable respect for the interests of either side, adjusting responsibilities and reciprocating liabilities. To these new agencies, however, is in a great measure due the enormous increase in the value of house property, which, within eight years, has advanced in many instances 50 per cent., and, in general, full 20 per cent. throughout the metropolis.

Seeing that 5 per cent. for the first 100*l.* of rental, and also of premium is charged, besides the fees on agreements or leases, which house agents now draw out, instead of lawyers, the profits of this new trade make it a good one; and, as the repairs are not infrequently entrusted to the same party, it would be difficult to estimate his share of the rental.

To stay or modify the enormous rise of rents and building sites in central positions or fashionable quarters would be impossible while the population increases and commerce flourishes in the present ratio; but it may be possible that the interests of house-owners in outer circles are not improved by the late advance of twenty per cent., which constrains five out of six house-holders to let out and subdivide their domicile; thus changing the old-fashioned notion that each man's house was his castle.

Whatever the cause may be, it is clear that the French plan of erecting many mansions in

one house is fast obtaining place in London: the success of chambers in Victoria-street and other districts, and the preference shown by the high rents they command, prove that such a system, even though accompanied by the controlling supervision of a "concierge," must find its place here also, from the grandest pile to the model lodging-house, or to the smaller abode of twelve or twenty rooms, by subdivision: economy in rent is met by safer returns and larger profit to the landlord, that is, in all cases where houses were planned and designed for the purpose. There are, of course, classes who will always require town mansions or private and reserved houses; but the industrial classes, the employes of trade, and those retired on limited means, must find cheap lodging, and the great mass of the community is composed of such.

QUONDAM.

THE NEW COURTS OF JUSTICE.

SIR,—Referring to the proposed limitation of the competition in this matter, may I ask you are to be regarded as the "architects who stand high in their profession?" We of course know some of those who have the good fortune to stand at the very top of the tree, but where is the line to be drawn, and justly by whom? What is to be considered the standard of eligibility in such a case? Is the limit to be marked immediately outside the circle of a favoured few in London (as, for instance, those invited to compete for the Prince Consort Memorial)? Or is a provincial element to be admitted? If it is not in some way, a grave injustice will be done; if it is, where is the line to be drawn there?

Any limitation whatever in a public matter of this kind would appear to be as unnecessary as it is injudicious.

I would venture to suggest, if there be no possibility of the authorities being induced to throw the matter open to public competition, that, as a modification of the extremely limited system, the principal architectural societies throughout the kingdom should be permitted to nominate from their ranks a limited number of candidates to enter the lists in competition. J. D.

WESTMINSTER ABBEY.

By all means, let the Dean and Chapter expend their means on this work; but let a plea at the same time be put in that really something should be done to render their church somewhat better than an ice-house, for the benefit of those who attend the services and do not merely scamper through the building as an exhibition. Eight months out of the twelve, it is positive privation of ordinary comfort to attend there. The officials, vergers and beadsmen, need only be asked to learn what they experience.

St. Paul's Cathedral, once far worse in respect of damp, chill, and draughts, has been rendered the most satisfactory place of worship in this metropolis. Why should the western (quasi) cathedral remain unimproved? Equal talent is at command to insure equal success. Granted the facilities are not so great for effecting the change, still something might and ought to be done. Pray, Mr. Builder, do make some stir in the matter.

Additional internal doors of entrance, and a free use of gas stoves (the gas is laid on in the nave) throughout the building, would do something in aid. C.

THE ARCHITECTURAL MUSEUM PRIZE SCHEME.

SIR,—I shall be pleased if you will kindly allow me to say a word or two on the above subject, as I believe it will partially explain what I am sure will be a matter of regret to the council of the Architectural Museum.

In the award of prizes this year, the wood-carvings were all considered too poor to deserve any reward. With one exception I can quite agree with this decision; but, at the same time, I should like to speak in defence of the competitors.

The prizes for the previous year were distributed in March; the prospectus for last year (1864-5) did not appear till the last week in August, five months afterwards, and the competitive works were to be sent in by the 1st of December, thus allowing only three clear months for the following very formidable task,—an illustration of the parable of "The Good Sa-

maritan," carved in oak: not less than three figures, and one animal, with foliage, &c., the panel to be 2 ft. 3 in. by 1 ft. 10 in., exclusive of mouldings.

To art-works, who have only their evenings and odd hours to devote to the competition, such a task in such a short time would simply oblige them either to "scamp it" or not compete at all.

A friend of mine, writing to me on the subject, about a week after the prospectus appeared, said (I quote his own words).—"The time allowed is so ridiculously short, I could scarcely get a piece of seasoned wood in the time."

If, therefore, I might take the liberty of suggesting that less time be lost in issuing a prospectus, and more time allowed for undertaking such extensive jobs, the competitors would have time to devote some thought to their design, turn out their work creditably, and, if I am not greatly mistaken, the council of the Architectural Museum would have the satisfaction of seeing (what I am sure they wish) their prizes contested for in a more spirited manner.

I am afraid, sir, I am trespassing on your space; but you will be doing good service to the prize scheme if I successfully entreat you to notice this request of

A WOOD-CARVER.

DETECTION OF BURGLARS.

ALLOW me to suggest a contrivance for the better security of property, and by which a burglar might be detected at his work. A common gas lamp, provided with a red shade, similar to those used on the railways, should be suspended in the street in front of the bank or shop, where valuable articles are kept; the red shade should be held up above the lamp by a magnet, worked by a small electric battery, situate at any convenient place on the premises; the wire from the battery to the magnet should pass through the safe, doors, and drawers containing valuable articles; and as long as the connexion is complete between the battery and the magnet, the red shade would be held up in its place above the lamp, showing a white light; but as soon as the connexion was broken by opening any of the doors or cases, the magnet would immediately lose its power, and allow the shade to fall in front of the lamp, thus showing a red light, and giving notice to any one in the street that something was wrong inside; and when once the shade had fallen, it could not be replaced by the burglar. These magnets are very simple, being made of a piece of soft iron, bent in the form of a horse-shoe, with a coil of copper wire round the ends; and the cost of working the battery would be a trifle.

GEORGE E. ELLIOTT.

STREET AND HOUSE INDICATOR.

HAVING frequently experienced considerable difficulty, not only at night, but also by day, and particularly during foggy weather, in ascertaining the name of the street or square in which I happened to be—as well as being at a loss to identify the place I wished to find,—I have devised a simple and very inexpensive plan by which this provoking and dangerous difficulty can be removed, and so prevent the necessity of making personal inquiry, which, in many parts of London, and our large towns, is neither a safe nor a pleasant thing to do; for it at once shows "the stranger," and exposes him to all the sharp practices of the disreputable characters that prey on "the lost" and "the wanderer."

It consists in having the name of the street, square, public building, or house (if in the suburbs) cut out in perforated letters on a strip of zinc plate, 1½ inch wide, with the numbers of the approximate houses before and after the name, and hanging it up by a bit of wire at each end, into small wire eyes, soldered in the inside corners of each street or private lamp, which will be readable by day as well as by night, the light of the lamp shining through the perforated letters. There should be two of these plates in each street-lamp, which street, we will say for illustration, runs east and west, one on the north, the other on the south side of the lamp; so that looking at the lamp from either the foot or carriage way, the inquirer will, at a glance, not only see the name of the street, but also the direction in which the numbers of the houses run, and so at once know if the number he requires is above or below him. In the lamps that are placed at the corners of streets, there should be other two plates hung up on the

east and west faces of the lamp, with a perforated pointing hand, after the name of the cross or by-street. This would indicate to all passengers, foot or horse, the name of the street they were approaching at a considerable distance before arriving at it,—a thing of great advantage to strange coachmen and carters. In the suburbs of our towns the names of the villas, cottages, &c. might be placed in their respective private lamps. In parks and large public gardens the names of the walks and the direction of the pathways might be indicated by the help of the lamps; also, and not least, all railway stations might have their name placed in each of their lamps, so that should a sleeping traveller wake up, he could at once see, without feeling any distrust in the station-crier's call, if it be the station where the friend is expected or where the journey ends.

All existing lamps round a square only require the wire eyes soldered in their top corners to be available. As the strips of zinc hang in the lamps, they can be lifted up or unhooked, to clean the glass of the lamp. Should the glass be broken, the plate remains perfect; or, if bent, may be straightened by hand, and being in the inside, it is not acted upon by soot or water, and so will last almost for ever.

I have fitted up a street-lamp which, through the kindness of the chairman of the Metropolitan Board of Works, has been exhibited to the members of the vestries of London. It is now deposited in the South Kensington Museum, for patents, for public inspection and *pro bene publico*.

LAURANCE WILLIAMS.

A CIRCUS IN CORNHILL.

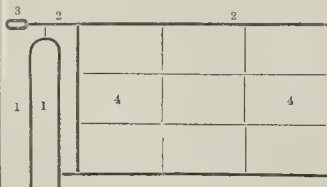
THERE is now a capital opportunity for making a circus at the junction of Cornhill and Leadenhall-street. Nearly all the houses have been removed on what should constitute the northern half of the circus, and, if allowed to be substantially rebuilt, the blockade, which is perpetual on this spot, will continue,—a disgrace to the City for all time to come.

O. D.

HANGING A FIELD GATE.

A CORRESPONDENT of the *Hereford Times* says, farmers know that our gates frequently drop or sink on their hinges, so that the end farthest from the "hanging post" drags upon the ground, making it difficult to close the gate, and the friction ultimately shakes it to pieces; and, further, the unbalanced state of our gates throws a severe strain upon all the joints, and if not strongly made these joints soon give way. The Belgian farmer adopts a plan which avoids these evils. He balances his gate like a scale-beam—rudely enough, certainly, but the same principle can be applied in a neater manner. In Belgium the top bar of the gate is frequently a tree, suspended upon the top of the hanging post in such a manner that the butt or heaviest part of the tree hangs upon one side of the post, and the stem or lightest part on the other side. This lightest part forms the top bar of the gate, and to this the remaining bars are fixed. When complete, the weight of the gate about balances the butt; thus there is no tendency in the gate to droop, and instead of having to build a gate whose joints give way from the strain produced by our way of hanging, the lower bars of the gate may simply be suspended from the top bar, and thus durability and economy be obtained.

A neater method than using a tree would be to balance the gate by a stone or iron weight fixed to a bar (a continuation of the top bar of the gate) and projecting behind the hanging post; and perhaps, without incurring the cost of a wood cut, you may, by the aid of type lines, give a sketch of such a gate:—



11, hanging post; 22, top bar of gate; 3, weight to balance the gate, 44.

A FEW FACTS CONNECTED WITH ISSUE OF PATENTS IN ENGLAND DURING THE PERIOD OF ELEVEN YEARS, FROM 1853 TO 1863 INCLUSIVE.

As you are evidently interested in any information connected with patents, I beg to send you an approximate compiled list of patents issued during the past eleven years, extending from 1853 to 1863 inclusive; in the abstracting of which from published report in the *Times* of February 9, 1865, I have been struck with the remarkable correspondence and coincidence of date, year by year, which reigns throughout, the fluctuations being scarcely perceptible, and exhibit a remarkable fact, that apparently there is a governing or regulating principle or code of action passing over the system of English patenting, which is certainly at the least very strange, and it may be interesting to your readers.

A PATENTER AND CIVIL ENGINEER.

The number of applications for patents averaged.	3,000 each year.
Out of these, with complete specifications, were	50 "
Leaving residue, provisional specifications	2,950 "
And of these were English inventions	2,300 "
Leaving residue, foreign inventions	700 "
Out of these were sealed	2,000 "
And paid the third year's duty of £60	650 "
Leaving as lapsed or forfeited, at third year	1,460 "
And paid the seventh year's duty of £100	190 "
Leaving as lapsed or forfeited, at seventh year, an additional	350 "
Showing that out of the 2,000 patents annually sealed, there were lost before the expiration of seventh year, or half the duration of the English patent	1,810 "
And that one patent out of four, of 2,000 sealed, paid the 5th, third year's duty	500 "
And that one patent out of eleven, of 2,000 sealed, paid the 100th, seventh year's duty.	

The termination of the year 1867 will develop the number of patents which will then have reached their fourteenth year of term, out of the 2,000 sealed in 1853.

THE CHURCHYARD CROSS AT CHEDDLETON.

WILL you allow me to intrude for one moment upon your columns, merely to mention that the design for the Churchyard Cross which you were so kind as to notice in your last number, is due, not to me, but to my son, G. G. Scott, jun.

GEORGE GILBERT SCOTT.

COMPENSATION CASES.

WILLIS v. METROPOLITAN RAILWAY.

ON February 28, a special jury was summoned before the Under Sheriff of Middlesex, to assess the compensation for Nos. 69 and 70, Acton-street, Bagnigge Wells-road.

Mr. Giffard and Mr. Harrison appeared for the claimant, and Mr. Lloyd and Mr. Holloway for the company. In the absence of the leaders, Mr. Harrison opened the case, by which it appeared that the claimant had an unexpired term of four years, at 217, a year, and that the premises were underlet, part yearly, at 40l., and part on lease, at 75l. The claim was for 2,200l., a considerable portion being for the reversion after the expiration of the underlease, on which much discussion took place; the company contending that the lessor ought not to reckon on breaking the underlease. The witnesses for the claimant were—Mr. E. Roberts, Mr. Haines, and Mr. Green; Mr. Townall and Mr. Lee, for the company. After a short time, the company agreed to a verdict of 1,900l.

DAMAGE SUSTAINED BY THE WORKING OF A RAILWAY. An important case to claimants was recently heard at the Navigation Sessions-house, before the Hon. George Denman, Q.C., assessor, and a special jury. Mr. Serjeant Parry, with Mr. Barnard, appeared for the claimant; Mr. Lloyd and Mr. Horace Lloyd for the railway company. William Henry Bala, a livery stable keeper, of 29, Amelside, Walworth, claimed from the London, Chatham, and Dover Railway Company a sum of 500l. for an alleged injury to his business, as livery stable keeper, by reason of the noise occasioned by the traffic on the line. His premises were 100 feet from the railway, and other property intervened. Structural damage to the house from vibration was also alleged, but was not proved. After hearing evidence of considerable length, the assessor directed the jury that upon the case recently decided of *Bicketts v. The Metropolitan Railway*, and the case of *Penny v. The Surrey Company*, the claimant was not entitled to any compensation for damage sustained by him consequent upon the working of a railway the traffic upon which was carried on under special powers conferred by the Legislature upon the railway company. The jury returned a verdict in accordance with that ruling.

SIR.—The report in your paper of the cases of Hart and Faulkner v. The Metropolitan Railway is not quite correct as regards the claims made against the company: I shall therefore feel obliged by your giving the exact amounts, which were as follows:

	Claim.	Award.
Hart	£2,434 0 0	£1,329 0 0
Faulkner	866 0 0	14 3

RAPHAEL BLANDON.

FROM IRELAND.

Dublin.—The allotments of space to the exhibitors in the United Kingdom, at the Dublin International Exhibition, have been issued, but the space demanded is seven times in excess of the whole quantity at the disposal of the executive committee. The corporation of the city of London, the National Academy, the Royal Academy, and numerous private individuals, lend pictures for the exhibition. Glass will also be well represented. The colonial and foreign contributions will be varied and attractive. The Emperor of the French has promised to send Sèvres china and other objects. A fine collection of textiles is promised from Rhenish Prussia; lamps and bronzes from Stobwasser, of Berlin; manufactures from Switzerland; and a good collection from Russia. A church has lately been erected, at the top of Rutland-square, for the use of Presbyterians. The cost of this building has been defrayed solely by Mr. Alexander Findlater, of Dublin. The architect was Mr. Andrew Heiton, of Perth, who had previously designed many churches in the Early English style. This is by far the largest Presbyterian church in the province of Leinster. About 1,000 persons can be conveniently seated in the interior. The pewing is constructed in the modern manner. There are stained-glass windows. Ventilation and heating are provided for. The chandeliers for gas-lighting consist of six Medieval coronas, of thirty burners each, suspended from the roof. The church has been opened for divine service. St. Jude's Church was recently erected by the Ecclesiastical Commissioners for Ireland, for the new parish of St. Jude, near the Phoenix Park. It consists of nave, 100 ft. long, with transepts, north and south, together 87 ft. long, and accommodates nearly 600 persons. The church was built by Messrs. Butler & Sons, from the designs of Messrs. Welland & Gillespie, and is in the Early English style. The chancel contains five stained-glass windows, by Messrs. Forrest & Sons, of Liverpool. The total cost of the building has been 4,000l. The site was a free gift from Mr. David M'Birney, a merchant and magistrate of the city of Dublin.

The ceremony of consecrating the new building erected on the site of the ancient Church of St. Douglagh has been performed by the Archbishop of Dublin. The old church having fallen into a very dilapidated condition, was obliged to be taken down; but the tower and oratory, and the portion immediately over the tomb of St. Douglagh, have been preserved. The ancient oratory now forms a vestry for the new building, which is similar to, though on a larger scale than, the old edifice, and as nearly as possible on the same site, the walls being raised in lines parallel to those of its predecessor. The new church is, in fact, symmetrically the same as the old, that being the chief object of the architects who designed it. The old church is supposed to have been founded in or previous to the reign of Henry II., and was originally a chapelry attached to Christ Church, amongst the records of which the original founder is styled "Episcopus et Confessor." The ancient church of St. Douglagh, says the *Dublin News Letter*, in describing it, was one of the few buildings in Ireland erected between the eighth and the twelfth centuries, and in a style of architecture different from any other to be found in Western Europe. They were evidently built in imitation of the original Christian churches of the South of Europe, modelled from the heathen temples of the Greeks and Romans, and which were probably introduced into this country by the clergy who may have retired thither on the irruption of the Goths and Vandals into the Roman Empire. These churches were all remarkably small, and that of St. Douglagh was no exception to the rule. They seldom exceeded 40 ft. in length and 20 ft. in breadth, and were covered with circular stone arches under stone pediment roofs. The walls and arches were not unfrequently decorated with columns and pilasters in rude imitation of the Corinthian and Doric orders. The entire cost was 700l., and sittings are afforded in the nave for one hundred, and in the chancel for thirty persons. The work was carried out under the direction of Messrs. Lanyon, Lynn, & Lanyon, by Mr. J. Douglas, of Dublin, contractor.

Limerick.—Considerable improvements and additions are in progress at the county gaol, to adapt it to a new system of discipline for prisoners. The authorities advertised for plans for the "remodelling of the old gaol," offering a premium of 50l. for the best. There were several

plans submitted by architects, and that of Mr. Atkins, of Cork, was selected for the reconstruction of the prison.

Down.—The new lunatic asylum for Down will probably be commenced in a short time. New tenders, on revised plans, had to be advertised for, and these tenders were not received by the Grand Jury Committee from the Board of Control until the 16th of December last. The committee lost no time in examining the tenders, and were prepared to accept that of Mr. Fras. M'Gaughy.

FROM SCOTLAND.

Paisley.—A new Roman Catholic School has been opened here. The building stands beside the old English School in School Wynd. Fronting the wynd, the Roman Catholic School building is two stories in height, the entrance floor being occupied by three class-rooms, and the upper floor being arranged for two lodgings for the male and female principal teachers. The building is in the Gothic style, with mullioned windows, tall dormer gables reaching up into the roof, and with a main front gable the whole height of the building, surmounted by an ornamental cross with the sacred letters "I. H. S." carved upon it. The architect of the buildings was Mr. J. J. Lamb, from whose designs the new grammar school was lately erected.

Maxwelltown (Dumfries).—The new church about to be erected by the Free Church congregation, Maxwelltown, is from plans by Mr. James Barbour, architect, Dumfries. The building will not be erected on the site of the present church, but in Rosemount Nursery, at the lower end of Lauricknowe. The ground is higher than the street, and the base of the church will be 7 ft. above the street, access being had by a flight of steps. The church will be in the Decorated Gothic style of the fourteenth century. The ground-plan is an oblong, 75 ft. 6 in. in length, by 49 ft. wide, over the walls; with a semi-octagonal recess or apse at the end next Corberry Hill, for a platform: behind the apse is a vestry. The side walls of the church are broken by a projection 3 ft. deep and 32 ft. wide, forming shallow transepts. The principal elevation is the gable fronting Lauricknowe. In it there are two windows, each 18 ft. high by 7 ft. wide; divided into three compartments by mullions; the tops being filled with flowing tracery. The windows will be filled with obscured plate glass, cast with diagonal lines, so as to resemble leaden frames with lozenge-shaped panes. The gable is narrowed to 38 ft., and at each corner is flanked by buttresses, terminating in a pinnacle, the total height of the pinnacles being 60 ft. From the gable rises a bell turret, supported by a pier on inside of wall. The spire terminates in a carved stone finial. The total height from the ground is 94 ft. There will be accommodation for 800 sitters. The material for the walls will be red freestone; the front will be built of course and gauge work; the other walls of broken course rubble, and the whole of the dressings will be polished.

Morebattle.—A new church has been contemplated by the congregation of the United Presbyterian Church here, and some practical steps have lately been taken in the matter, a plan for the new building having been recently adopted. The church will be of oblong form, with sittings for 415 people on the ground-floor, and in the gallery (which is confined to the end opposite the pulpit) there are 95 sittings. The principal elevation is to the north, and consists of three divisions. The centre, which is both wider and more lofty than the sides, projects 2 ft. The side elevations are kept low, and pierced with square-headed three-light windows. The cost of the whole is to be 1,000l. Mr. Filkington, of Kelso, is the architect.

Cupar.—The Burnside United Presbyterian congregation here are about to erect a church in the Bonnygate. Two plans by Messrs. Peddie & Kinnear, architects, Edinburgh, were submitted to a congregational meeting, and it was unanimously resolved to adopt one which was the more ornamental than the other. It will have a spire of 95 ft. high, and a front with wheel windows. It will accommodate 600, and is estimated to cost 2,000l.

St. Andrew's.—The gable of a new house has been blown down by a gale. The damage is estimated at upwards of 100l.

Kirkwall (Orkney).—At a recent meeting of the Kirkwall Harbour trustees, Mr. Davison, the engineer, attended, and the tenders—three in

number—for the new pier were opened. The lowest tender, amounting to 10,490l., was sent in by Messrs. Laidlaw & Son, Glasgow. This is considerably above the estimate of the engineer, and so high that the trustees, with the amount of funds at their disposal, considered that they could not accept of the offer. They calculated that, with engineer's expenses and extras, the outlay would exceed 11,000l., the full amount which they have power to borrow by the Act. It was unanimously agreed that they should take time to consider the matter before taking any further steps.

PROVINCIAL NEWS.

Oxford.—On Friday, the 24th ult., the University Masonic Hall, which has been erected for the Apollo Lodge of Freemasons, was consecrated and dedicated by the Provincial Grand Master of Oxfordshire, Lieut.-Colonel Henry Atkins Bowyer, in the presence of about 150 brethren. The new Lodge, designed by Mr. E. G. Bruton, of this city, architect, is situated at the west end of what was the Assembly-room at the Clarendon (late Star) Hotel, which has been shortened to the extent of about 27 ft. It is a vaulted room, of 53 ft. in length and 26 ft. in width and height, and it has one semicircular end. The walls, which are at present finished in coloured plaster, are formed into panels by pilasters, which are placed at intervals along the walls: upon these rest fluted brackets, which run into and break up a cornice at the springing of the vaulted ceiling. This ceiling is temporarily finished in blue plaster, and is nearly semicircular in section. The vault line is only broken by the ribs of the roof, which are at present painted in rainbow tints. The pilasters are placed on a deep plinth, and a raised platform runs along each side of the room. At the semicircular end of the room is a dais, rising a step above the platforms. In the centre of this there is a space still further raised by two more steps, to form a throne, and this, the place of the principal seat, is surmounted by two Corinthian columns of pedestals. The entrance doorway is marked by grouping the pilasters, and it is surmounted by a curved pediment, the tympanum of which is coloured. The centre of the floor is laid with tessellated pavement, having a fringe-like border, with tassels at the corners. The room being seldom used in the daytime has only a lantern light in the centre, but at night it is lighted by about a hundred jets of gas, ranged on each side just above the cornice. The heating is by means of hot water in pipes running under the platforms. Besides the Lodge proper there are waiting-rooms, robing-rooms, and other conveniences. The work was executed by Mr. Baker, of this city, builder. There are likewise two banquetting-rooms, one 63 ft. by 31 ft. and the other 33 ft. by 20 ft.; but as banquets and dinners are served by the Clarendon Hotel Company, the brethren have not the exclusive use of these rooms.

Stockport.—The subject of building a new Town-hall in this borough has been placed in the hands of the local General Purposes Committee, by the Town Council, for the purpose of making the necessary inquiries about an eligible site, cost, &c.

SURVEYORS' CHARGES.

In the Exchequer.—Hickson v. Whitehead and Davis.—This was an arbitration reference, before Master George Pollock. Claim, 340l. 8s. 10d., chiefly for services rendered in getting up and giving evidence on an arbitration between defendants and the Midland Railway Company, to assess damages for injuries done to land on Wilford road, Nottingham, known as "Turner's Estate." The Master sat in chambers on the 22nd, 23rd, 24th, and 25th ultimo. Mr. Cave appeared for plaintiff, and Mr. Peden (western circuit) for the defendants. Mr. Norris, Mr. Williamson, and Mr. Cassell (of London), gave evidence in support of the claim. They considered it a just and reasonable bill. Mr. Goddard (of Lincoln), Mr. Simpson, and Mr. Bakewell analysed the various items, and said they, for the greater part, were most excessive. Mr. Goddard said charges to the extent of 176l. had been made for plans and tracings; 78l. 6s. 6d. for consultations; 24l. 6s. for estimates; 19l. 8s. 6d., instructing witnesses; 16l. 10s. attending arbitration; 11l. 4s. 6d., surveys and levels; 5l. 5s., reports; 6l. 14s. 6d., copies of reports; 2l. 10s., journey to Derby; and 18s. 10d. cash paid. All the larger items were greatly overcharged. Mr. Goddard's valuation of the bill was 130l. 16s. 10d.; Mr. Simpson's, 103l. 0s. 2d.; and Mr. Bakewell's, 100l. Each of the three witnesses for defendants said the amount set down by him (witness) was much more than he himself should have charged. 160l. had been paid on account, and 40l. into court, making 200l., which defendants considered extravagant remuneration. On an adjourned sitting, on the 28th, the Master made the following award, namely:—"I find for the defendants in this action, and as to the costs of the reference, I direct that the plaintiff pay the costs of the defendants."

METROPOLITAN BOARD OF WORKS.

At the weekly meeting of this Board Mr. Taylor presented, in the names of his colleagues, to Mr. Thwaites, the chairman, a testimonial portrait of himself as a mark of their respect and appreciation of the uniform and courteous manner in which he had fulfilled, and continues to fulfil, the office of chairman.

The subject mainly discussed was a report from Mr. Coode and Mr. Rawlinson as to the material used for filling in behind the Thames Embankment. Mr. Carpmel said the sum and substance of the report which had been read was, that if the ballast taken out of the bed of the Thames were used for the filling-in in its wet condition, it would not be so effectual as it would be if it were allowed to dry first. He did not agree with the statement, and he begged, therefore, to move that it be printed, circulated, and referred to the Thames Embankment committee for their report. Mr. Samuda thought the gravel taken out of the river was the best material that could be used. The Chairman said the question was considerably narrowed because dredging was then going on at the particular spot, and he believed the material was all that could be desired.

Some further discussion ensued, and the question was ultimately referred to the Thames Embankment Committee for consideration.

The Streets Committee recommended the approval of designs for bridges to be erected at Battersea under the provisions of the London, Chatham, and Dover Act, 1864, and the London, Brighton, and South Coast Railway Act (Battersea Improvement), 1864, subject to certain conditions laid down by the engineer—namely, that the bridges should be made watertight, and should be so constructed as to deaden the sound of passing trains. Mr. Evans thought that the companies should be compelled to screen the traffic on these bridges. He said the objection made to this was, that heightening the bridges would make them ugly; but in his opinion nothing could make them uglier than at present. The sight of the passing train had caused several accidents, and he thought some remedy should be sought for this evil. The engineer said he believed the deadening of the sound would prevent accidents for the future. The report was adopted, and it was agreed to send a copy of it to the Board of Trade.

The Sewage Utilization and Essex Reclamation Company applied for permission to apply sewage to certain pieces of land adjoining the Northern Outfall Sewer. The engineer recommended that the application should be granted. Mr. Samuda said the sewage so applied would be a very great nuisance in the neighbourhood, and hoped the Board would not sanction such a proceeding. After some further discussion the application was referred to a committee.

SOCIETIES FOR IMPROVEMENT OF DWELLINGS.

The seventh and last half-yearly report of the directors of the London Labourers' Dwellings Society (limited) states that the net profit of the half-year exceeds that of the previous one by 40l. 18s. 6d., amounting to 279l. 2s. 9d., and is sufficient to pay a dividend at the rate of 6 per cent. per annum. After a trial of nearly four years, the directors state that they feel themselves justified in expressing an opinion, that (if nothing unforeseen occur) the rate of dividend which the members have hitherto received (viz., 5 per cent. per annum) will be fully maintained. "Doubtless," they continue, "there are investments which hold out to the capitalist the prospect of larger returns than this; but it is hoped that 5 per cent. per annum, with a secure investment, and the consciousness of doing a vast amount of good, will induce many persons to invest a portion of their capital in this society."—The thirteenth half-yearly report of the Hastings Cottage Improvement Society (limited) states, that during the last six half-years the society's average total income has been at the rate of 11.05 per cent. on the paid-up capital, and the net income has been at the annual rate of 5.83 per cent., out of which sum the shareholders have received an average dividend of 5.33l. per share, clear of income-tax (which is paid on the gross rental by the society), and the remainder has been added to the reserve fund. The present capital of the society consists of 17,000l., and is believed to be larger

than that of any similar society out of London. The total number of dwellings belonging to the society is now about 155, and the number of their tenants 183.

SCHOOLS OF ART.

The Warrington School.—The exhibition of the works of the students of this school has been held, in the reading-room of the Museum, previously to their being sent to South Kensington, for medal awards, as required by the new Art Code. The four days the exhibition was open, it was visited by nearly 4,000 people. The works arranged were almost as numerous, if not quite so, as on previous occasions, and consisted of many designs, chalk drawings from the flat and round, and a large number of paintings in oil and water-colour, from the round and nature. Sixty-nine of these works were selected for competition, and sent to London. Of the many works exhibited those by William Jenkin deserve mention, particularly his three paintings from nature in water-colour, consisting of a bird's nest and primrose, bird's nest and bramble-leaves, and a study of fruit.

CHURCH-BUILDING NEWS.

Hanslope (Bucks).—The parish church of St. James, Hanslope, has been re-opened for divine service, after the restoration, or rather the rebuilding of the chancel. The old chancel, which belongs to the lay impropriators, the corporation of the city of Lincoln, has been almost pulled down and a new chancel built. The roof was taken off, the walls lowered 5 ft., so as to bring them to their original height, and a high-pitched open timbered roof of red pine has been substituted for the old one. The roof has been slated with tiles. Two old Norman windows in the north and south walls have been restored from two halves that were found. In the course of the work many interesting features of the old architecture were discovered. During the progress of the work three sedilia and a piscina turned up, and have been restored. The size of the chancel is 48 ft. by 18 ft. The east window is a five-light one. There are seats for the choir in the chancel and two prayer desks. Mr. G. E. Street, of London, has been the architect, the whole cost of the restoration having been borne, with the assistance of some friends, by Mr. Reginald Walpole, of Hanslope Park, who has, in fact, been his own builder, and has superintended the work throughout. The cost has been about 600l., much of the labour having been done by the men on the estate. The work has been executed by Mr. R. Walpole, of Stony Stratford; the woodwork by Mr. Garde, of Leighton Buzzard. The seats in the chancel are of carved oak. A west gallery has been taken down, and some open seats have been placed in the nave. The tower arch has been opened.

Borgrove.—The church here has been re-opened, after having been closed for nearly twelve months, during which period it has undergone repairs and restorations under the superintendence of Mr. G. G. Scott; the contractor for the works being Mr. Cane, of Brighton. The high pews have been removed, and the church is now re-seated with solid oak benches arranged in a uniform and indistinct manner. Hot-water pipes have been laid down throughout the church, which is paved with red and black tiles. The exterior has undergone considerable repairs. All the walls have been underpinned; the west wall has been rebuilt: the flying buttresses, which were found in a dilapidated state, have also been rebuilt. These and other repairs, with the restoration, have occasioned an outlay of about 4,000l., which, with the exception of 400l. contributed by the parishioners and their friends, has been defrayed by the Duke of Richmond.

Corston (Somerset).—The parish church has been renovated and enlarged, from plans by Mr. Ferrey, architect, by Mr. Streeter as contractor. The sittings have been increased from 100 to 250. An aisle has been added to the old nave and chancel, which have been restored. A stained-glass window has been put up at the east end by Mr. Langton, M.P.

Orleton (Herefordshire).—The principal parts of the church here have been repaired and restored, and it is intended to complete the work so soon as funds can be realized. Mr. R. Drew, of London, was the architect employed, and Mr. J. Davis, of Leominster, the contractor. The

estimate was about 700l.; but it was found necessary as the work proceeded to take down the south wall and replace it; and other works were also requisite. In taking down the portions of the old work when the restoration was commenced, under the first coating of plaster, bands of blue and yellow, about 9 in. wide, were discovered, running in parallel lines round the walls of the whole building. This surface having been stripped off, a similar band of deep red was found; and stripping the walls further, tracery, either the *fleur de lis* or foliage, was brought to light, showing that in the days when that surface was uncovered the whole church was frescoed. Under these bands of colour, &c., which were under a very thick coat of plaster, stones were brought to view, upon which were some old paintings. The first portion of the stonework had on it a representation of Jacob watering a flock at a well; but the other paintings could not very well be distinguished. The removal of the western gallery brought to light the fact, that in 1720 some Puritan churchwarden drew upon the western wall a figure of Death, 7 ft. 6 in. high. This figure held in one hand a black coffin, the lid turning upon hinges of knuckle bones, and in the other a large spade. The inscription was "Memento mori." Both picture and gallery have been destroyed. It was found upon examination that the south wall must be taken down, as it had been built without foundations, and from the pressure of the heavy roof was no less than 22 in. out of the perpendicular. Again, upon stripping off the plaster from the chancel arch, cracks 4 or 5 in. in width were discovered, and it was found necessary to take that down also, and rebuild it, together with the south wall, erected this time upon a better foundation. The old decayed roof was removed, and an open one put in its place, Broseley tiles being used. The aisle running up the centre of the nave has been laid with red and black tiles from Staffordshire, with surrounding diamonds of the old stone. All the old seats have been removed, and free seats for 210 persons substituted, with an oak flooring.

DISSENTING CHURCH-BUILDING NEWS.

Arnold (Notts).—The foundation-stone of a new chapel and school has been laid at Arnold, in connexion with the Methodist New Connexion body. The new building will be situate in Front-street. Besides the usual large room for public worship, there will be vestries to be used for schools. The estimated cost is about 620l. Mr. Collyer, of Nottingham, is the architect, and Mr. Worrall the contractor. According to the plan exhibited the chapel will accommodate about 500 persons.

Wilmslow (Cheshire).—The Congregational chapel here has been re-opened, upon the completion of the additions and alterations. The old building has been taken down and rebuilt in the Early English style, with the additions of transepts, vestry, class-rooms, belfry on the south side, &c. The roof is of high pitch, with open framed principals. Galleries are provided in the transepts. All the seats are open, of red deal, and will accommodate 500 persons. The chapel is lighted by coronas from the roof, and has been warmed and ventilated by Messrs. Haden & Co., of Trowbridge. All the works have been executed by Messrs. Royle & Mellor, of Wilmslow, builders, at an outlay of 1,750l., under the superintendence of Mr. John Lowe, of Manchester, architect.

Stockport.—The foundation-stone of a new Congregational chapel has been laid in Wellington-road, Stockport. The building, consisting of nave, aisles, transepts, chancels, and west gallery, will be erected in the Early Decorated style. The site immediately faces the Stockport Grammar Schools. The peculiar nature of the site has been taken advantage of in the design; the tower, with its attendant spire, forming a north-west porch, being situate at the corner of Mottram-street, with Wellington-road, having an altitude of 125 ft. above the crown of the street. As a pendant to the tower and facing the road, will be another entrance, which contains a stone staircase leading to the west gallery. Accommodation is provided for about 900 sittings in open benches. In the chancel will be placed the choir, and fronting to the congregation provision will be made for the reception of an organ, in a chamber having arches opening to the body of the church. The walls will be faced with Pierrepoint wall-stone, mixed with stone bands and dressings. The architects

re Messrs. Speakman & Charlesworth, under whose direction Messrs. David Cochran & Co. will carry out the works.

Blackburn (Lancashire).—The foundation stone of a Presbyterian church and schools, dedicated to St. George, has been laid at Blackburn. The designs are by Mr. Patterson, of Blackburn, architect, and the buildings will cost from £7,000 to 8,000.

Pocklington (Yorkshire).—A new Wesleyan chapel has been opened here. The edifice is situated in Chapmangate, and is a design by Mr. J. Taylor, who has superintended its erection. The inner walls of the chapel are 66½ ft. by 47½ ft., and afford accommodation for a congregation of 700 persons. The lower pews are on a sloping floor from the entrance down to the pulpit at the opposite end, to which they radiate in a semicircular form. The pews in the gallery run round the whole of the building. Behind the chapel is a vestry, 28 ft. square, as well as three smaller class-rooms. The front of the chapel is finished with red stock brick, with dressings of stone, and is furnished with a portico and balustrade, supported by six Tuscan stone columns. There are three doors in front, and a side door leading to the vestry and also to the gallery. The building has a frontage of 45 ft. of grass and gravel, and this is inclosed in iron railings. Adjoining the chapel is a residence for the minister. There is also a small dwelling for the chapel keeper. The whole of the work has been executed by Mr. Robert Widdop, of Snaith, and its entire cost will be about 2,500.

Books Received.

The Year Book of Facts in Science and Art. By JOHN TIMBS, F.S.A. London: Lockwood & Co. 1865.

We need only announce the issue of this useful work, for 1865. Many an item of scientific and art progress is here preserved from utter oblivion, and brought under the notice of those who would otherwise have been totally ignorant of its occurrence. The present issue is preceded by a memoir of Major-General Sabine, R.A., the president of the Royal Society, illustrated by an engraving from a photograph of the president's pleasant countenance.

The Medieval Architecture of England and France. Illustrated by a series of Photographs of remarkable Buildings, principally of the Twelfth, Thirteenth, Fourteenth, and Fifteenth Centuries, with Historical and Archaeological Descriptions. By WILLIAM LIGHTLY, Candall & Co., New Bond-street.

For the purposes of the Architectural Photographic Association, Messrs. Candall & Co. were empowered to visit France, and obtain negatives from buildings, of which a list was furnished them. From the pictures thus made the committee selected as many as their funds allowed of. The rest, principally general views, remained in the publishers' hands; and these, with a certain number of views of English buildings of corresponding date, they have now begun to publish in parts as a separate work. Mr. William Lightly, the honorary secretary of the Association, has undertaken to edit them, giving to each some descriptive matter. Each part contains four views, and twelve parts will complete the work. The first two parts are very satisfactory. No. 1 contains two views of Bourges Cathedral, and two of the abbey church, at Vézelay. No. 2 contains two of Rivaux Abbey, and two of Kirkstall Abbey.

A Discourse upon Dilapidations, their Nature, and the Principles of Assessment succinctly demonstrated. By THOMAS MORRIS, Architect. London: Simpkin & Marshall. 1865.

In this little book, as in his "Clue to Railway Compensation," Mr. Morris has sought to give, in a pleasant readable form, an outline of the law of dilapidations, considering himself "free, under the license of a 'discourse,' to relieve and lighten, to make, if it were possible, a rugged subject even occasionally picturesque;" and, from his own point of view, has succeeded. We are forced, however, to retain an opinion before expressed, that agreeable little digests of this kind are quite useless to the professional student, who must himself go to the fountain-head. Still there may be many non-professional readers who may desire

to get a general notion of their liabilities or powers in respect of dilapidations, and to these we may recommend the "Discourse." It includes a few pages on "fixtures" and "fire insurance."

Miscellaneous.

THE ROYAL ACADEMY.—Mr. John Lewis, associate, has been elected Academician.

ST. DAVID'S CATHEDRAL.—The restoration of St. David's Cathedral has been commenced.

ARCHITECTS' BENEVOLENT SOCIETY.—The annual general meeting of this Society was held at the House in Conduit-street, on the 8th inst., Professor Smirke, R.A., presiding. The Report stated that the financial position of the Society was satisfactory as compared with that of previous years. The amount funded in 1864 was 69½; the balance in hand was 114½ 7s. 1d. Vacancies in the council were filled up, and votes of thanks were passed.

THE ART-DEPARTMENT MINUTE.—Resolutions in opposition to the new Minute have been passed by the Manchester School of Art, and by a meeting of gentlemen connected with the Yorkshire Schools of Art. By the latter it was arranged to send a deputation to Lord Granville.—Too late for consideration this week, we have received from Mr. Walter Smith, of Leeds, an angry reply to Mr. D. W. Raimbach's letter in our last.

SITE FOR THE COURTS OF LAW.—Mr. Bardwell, architect, under the direction of Mr. Rigby Wason, has published a plan, suggesting a site of seven acres (the area required) between Whitehall and the Embankment roadway. Amongst the advantages urged for it, it is said that it would prevent "the necessity of wasting nearly a million sterling in destroying the houses of above 4,000 of our fellow-creatures;" and that it would avoid deteriorating "the value of property in Westminster, in the vicinity of which the Courts of Law have existed for many centuries."

THE WORKING MEN'S COLLEGE.—At this institution, in Great Ormond-street—principal, the Rev. F. D. Maurice, M.A.,—the spring term has commenced. The mathematical classes are under the direction of Mr. Litchfield, Mr. Vernon Lushington, Mr. Tansley, and Mr. Cohen; language, under Mr. F. J. Furnivall, Mr. Godfrey Lushington, Mr. Oswald, Mr. E. S. Ford, Mr. Sonnenschein, Mr. Paterson, Mr. Mozley, and Mr. Albert Dicey; natural science, under Mr. Gruen and Mr. Ralph Tate; vocal music, under Mr. Litchfield; and drawing under Mr. W. Cave Thomas, Mr. Lewis Dickinson, and Mr. Ruskin. During the term, lectures will be delivered by Mr. W. Travers, F.R.C.S., Mr. N. S. Maskelyne, M.A., and the principal.

LIVERPOOL ARCHITECTURAL SOCIETY.—The twelfth meeting of the session was held on the 8th, Mr. J. Boulton in the chair. Mr. W. Hay asked if the secretary had received any answer to the letter he had forwarded to the promoters of the new church at Cloughton. The secretary said he had received a letter, but it was not a very satisfactory one. Mr. Hay said, to issue such instructions was nothing less than an insult to the profession. It was agreed that the secretary should forward to the Architectural Alliance the resolution of the society on the subject, and the correspondence that had taken place. Mr. George Audsley read a paper, "Practical Notes on Modern Medieval Architecture."

THE LIVERPOOL BUILDING SURVEYORSHIP.—At the last meeting of the town council a special committee recommended the appointment of Mr. Rollett as building surveyor in the place of the late Mr. Rishton, at a salary of 300*l.* per annum. Mr. Alderman Shell moved the adoption of the recommendation, and Mr. Clarke Aspinall seconded the motion. Mr. Robinson moved that Mr. Newlands be appointed building surveyor. Mr. Hughes seconded the amendment. Mr. Picton said he thought it absurd to suppose that Mr. Newlands could attend properly to both offices. Mr. Whitby desired it to be understood that the borough engineer was quite willing to undertake the additional duties. The amendment was put to the vote, and carried by 19 votes to 16. Mr. Newlands was therefore appointed building surveyor.

LIVERPOOL CORPORATION SALARIES.—Some tables recently published show that the Corporation salaries of Liverpool amounted in 1864 to 63,000*l.* In 1854 they amounted to not quite 56,000*l.* Analysed, it is seen that 61 persons receive 200*l.* and above; or an average per head of 410*l.* 10*s.* 482 persons receive below 200*l.*, averaging 79*l.* 17*s.* per head.

CAMBRIDGE ARCHITECTURAL SOCIETY.—At the meeting held on Thursday, March 2nd, the Rev. G. Williams in the chair, Mr. Russell read a paper on "The History and Manufacture of Mosaic." The paper was illustrated by some specimens of mosaic, made by Dr. Salviati, and lent by him. A discussion then ensued as to its application to the decoration of churches and public buildings. The society heard with great pleasure of its increasing use in this country.

THE PRINCESS'S THEATRE.—Pending the production of a fresh drama of interest, Mr. G. Vining has supplemented the continuing attraction of "The Streets of London" with two new farces,—one, "Heart Strings and Fiddle Strings," enabling Mr. David Fisher to display his versatile abilities, notably his skill as a violin player; and the other, "An Ample Apology," which affords Mr. Dominick Murray a part. Both are successful so far as they go.

THE PARIS EXHIBITION OF 1867.—A new feature of the Universal Exhibition of 1867 is to be living specimens of the human race, who are to accompany the productions of the remotest corners of the globe to Paris. The committee of the Exhibition is busily engaged in organizing means of transit for these novel goods. The committee meet at the Palais Royal, and have issued the necessary orders for the commencement of the buildings which will be required for the Exhibition; and as 160,000 metres of ground have to be covered in, there is no time to be lost.

A TEMPLE TO THE THAMES.—At the last meeting of the Ethnological Society, a paper by M. Larribe was read, giving an account of the discovery, some years ago, when he was sub-prefect of the department where the Seine takes its rise, of a Gallo-Roman temple at the sources of that river. The temple was dedicated to the Goddess of the Seine, and endeavours are being made in Paris to erect a monument on the spot. One of the objects of the writer was to suggest that a similar monument should be erected at the source of the Thames, and that search should be made there for the remains of some antique temple.

THE ROYAL SOCIETY.—The first of the two *conversations* given by General Sabine, as president of the Royal Society, took place on Saturday evening last, at Burlington House. The Prince of Wales was present. There was an interesting collection of philosophic instruments, apparatus, working models, objects of natural history, and works of art. Among these works of art were twelve original drawings by Bellini, Perugino, Albert Dürer, Claude Lorraine, &c., lent from the royal collection by permission of the Queen; a series of drawings by E. W. Cooke, R.A.; photographs of Turner's pictures, published by Messrs. Marion & Co.; Chinese enamels and bronzes, lent by Mr. Alfred Taylor; and an ancient statuette of Venus.

MONUMENTAL.—It is intended to erect a statue of James Watt in some public place in Birmingham. The idea was originated at a recent meeting of the Society of Mechanical Engineers, and a numerously signed requisition has since been presented to the mayor, asking him to call a meeting to carry out the suggestion. Several donations have been already promised.—Viscount Feilding and other gentlemen have been formed into a committee for the purpose of promoting a memorial of the late Cardinal Wiseman, and a meeting is shortly to be held at the Stafford Club. "The erection of a splendid cathedral," in what the Roman Catholics call the diocese of Westminster, of which the cardinal was the archbishop, is spoken of.—The long-talked-of monument to Tyndale, on North Nibley hill, is now said to be likely to be carried out, notwithstanding the former failure. Messrs. Whitfield, builders, of Wootton-under-Edge, have lately entered into a contract with the committee for the erection of the monument, and the work is to be commenced at once.—The marble statue of the French Emperor, ordered by the Duke de Morny from M. Iselin, has been placed in one of the halls of the Palais du Corps Législatif, just when the duke himself has died.

CHAUCER'S MONUMENT.—The Owl says.—We are glad to learn that there is an intention, for which the greater part of the necessary funds have been already provided, to restore Chaucer's monument in Poet's Corner, Westminster Abbey. At the same time, a rumour reaches us that a proposal has been made to fill the window over the present monument with stained glass in honour of the poet. We imagine, however, that difficulties will be found to interfere in carrying out the latter idea in an appropriate manner.

THE WHOLESALE AND IMPORT TIMBER COMPANY (LIMITED).—A new company is being formed in London under this designation with a capital of 250,000l. in 25,000 shares of 10l. each, with power to increase to one million. The company is for the ordinary purpose of purchasing British and foreign timber, deals, and other woods, for supplying, wholesale, the trade generally with wood goods of every description, and is said to be originated by parties of great experience in the timber trade, who regard such an undertaking as a necessity in trade at the present moment.

Gas.—The Chelmsford Gas Company announce a dividend of 10 per cent. per annum, free of income-tax, and a reduction of price to 4s. 7d., and for public lamps 4s. 2d.—The Stratford-on-Avon Gas Company have agreed to a dividend of 10 per cent. on ordinary shares, and 5 per cent. on preference shares.—The South Shields Gas Company have made so large an expenditure on the erection of new works, that their usual dividend is absorbed in the mean time. They also speak of an increase of 43 per cent. on the cost of coal, but an increase of revenue to the amount of 600l. more than covers that. A dividend of 4½ per cent. was declared.

THIN SHEETS OF IRON.—Brother Jonathan little thought what a hammering stir would be created in the old country when from Pittsburgh he sent that wonderful letter, written on a sheet made from iron, which took no less than 1,000 sheets to make 1 inch in thickness; the dimensions being 8 in. by 5½ in., or a surface of 44 in., and weighing 69 grains. Since then, Wales has been surpassing America, Staffordshire has been surpassing Wales, and Wales again surpassing Staffordshire, till at length Swansea has succeeded in making "a sheet of the finest appearance and thinnest that has ever yet been seen by mortal eye, 10 in. by 5½ in., or 55 in. in surface, and weighing but 20 grains; which, being brought to the standard of 8 in. by 5½ in., or 44 surface inches, is but 16 grains, or 30 per cent. less than any previous effort, and requiring at least 4,800 sheets to make 1 in. in thickness!" Some one should tell us how many sheets of gold-leaf and how many sheets of tin-foil go to the inch, so that the public, who are familiar with these, might form some visible if not tangible idea of what a sheet of iron 4,800 to the inch can mean.

LEARN OF THE SWALLOW.—Take the first and most obvious comparison. It is said that builders of mud walls (taught by experience, or perhaps by observation of the swallow's method) work only for a short time, and then desist till the mud has had time to dry and harden, lest the freshly added superincumbent mass should pull down by its weight the part already completed. It would be well if some of our railway architects or contractors would take a lesson from the same wise little teacher. We should then, perhaps, hear less frequently of the sudden collapse of arches and the downfall of viaducts. But probably we are all liable to the temptation of over-haste, when we have begun to meddle with bricks and mortar. Who has ever watched the building or altering of his own house, without wishing to push on the workmen with unreasonable speed? It has been my good fortune to witness the restoration of my parish church; yet, while it was a daily delight to visit the sacred edifice, and see it rising from its ruins into more than its original beauty, so scanty a trial to find so little progress made, so scanty a course of stonework added, between my frequent visits. The tower seemed as if it never grew, and at last a frost set in as the workmen had almost reached the battlements, and a delay of months was inevitable; but all the consolation I received was, that it would be very good for the building, as it would give it time to settle and harden, and render the work more compact and secure. It was the lesson of the swallow's nest; but man was slow to learn and loth to practise the wisdom of the little bird.—*The Churchman's Family Magazine.*

RESTORATION OF MELTON MOWBRAY CHURCH. It is proposed to restore this church, at a cost of about 4,000l., if the money can be raised, and to that end a committee, presided over by the Duke of Rutland, has been formed; a subscription list is in progress, and more than one-half of the money has been subscribed or promised. Mr. Scott has been employed to examine the building, which is of vast dimensions, covering about a third of an acre of ground. The roofs of the nave, aisles, and transepts, are all dilapidated, it appears, and repairs are requisite for the safety of the building. The tower requires considerable repair, and a settlement of the staircase has taken place in consequence of the cutting of doorways through the stonework within the last century. The stonework of the church generally is in a very dilapidated state, both externally and internally, and all the internal arrangements require renewal and the edifice to be provided with warming apparatus. The Rev. W. M. Colles, M.A., the vicar, who has been the prime mover in this matter, is the secretary to the restoration committee.

KNUTSFORD RACE STAND.—A new grand stand is to be erected at Knutsford. Sir Harry Mainwaring, bart., has just laid the foundation-stone. The plans having been prepared by Mr. R. T. Bellhouse, architect, Knutsford, they were submitted to Lord Egerton of Tatton, who is the principal freeholder in the town and lord of the manor, and they received his lordship's approval. The surrounding gentry interested themselves in the promotion of the scheme, and the proprietary includes many influential residents in the locality and in Manchester. The contract was taken by Mr. J. Paul, builder, and the structure will cost about 1,168l., exclusive of fittings. The capital of the (limited) company consists of 1,500l., in 300 shares of 5l. each. The building is to be finished in June, the races being fixed for the 3rd of August. The structure will be of red brick and iron, with a square Venetian tower, 60 ft. high, at one end. The ground-floor is enclosed with woodwork and glass panels. The greater part of the area will be devoted to the purpose of a general refreshment-room; but rooms are provided for the committee and jockeys, with all other requisite accommodation for the public. On the first-floor there is also a small refreshment-room. The remaining space is occupied by raised tiers of seats, enclosed by an ornamental balustrade. The second-floor is similarly protected; and both floors command a view of the whole of the course.

SPECULATIVE BUILDING.—A correspondent, Mr. Trueman, who has before now addressed us on this subject, writes, "There is no necessity for me to allude to the horrors of Bethnal-green dwellings, or to the fearful overcrowding and consequent immorality caused by railway demolitions, but to appeal to the wealthy ground landlords to cure an evil, namely, 'duffing buildings'." An eminent builder, recently, in open vestry, said, "A 30l. per annum house would tumble down in ten years;" but it is patent to all who read, that several have of late tumbled down before completion, even on ground with a ninety years' lease. One in Kingsland was lately blown down while in course of construction. If house-buyers have to meet such danger, they must and do charge the risk on the poor, striving, hard-working tenant; who, in too many cases, starves and starves himself and family to meet a heavy rent, and overcrows his stucco home with lodgers, to the injury of his own and his family's health. The editor of the *Builder* has devoted many pages to the evils of "sale houses," but small progress is made in stopping such vile erections. Why is it that the district surveyors, who receive nearly 30,000l. annually in fees, do not enforce some honest solidity in the bricklayers' work? When the vices of construction have been concealed by fine surfaces of paint and paper it is too late to employ a surveyor, whose services can only have a full and proper scope while the works are in progress; ergo, the fault rests with the ground-landlord's surveyor, who allows the estate to be covered with cheap, flashy, contract-built edifices, instead of good sturdy erections.

TENDERS

For alterations and additions to shop and premises, Brackley, Northamptonshire, for Messrs. Clarke. Mr. J. Usher, architect:—

Jacklin	2670 0 0
Hawkins	650 0 0
Hackett	563 0 0

* Simply because they have not the power to do so.—Ed.

For the restoration and enlargement of Baptist chapel, schoolroom, and vestry, Sharnbrook, Beds. Mr. J. Usher, architect:—

Scrivenor	2754 0 0
Joy	869 0 0
Curwin	675 0 0
Stonebanks	636 0 0
Winn & Foster	521 8 0
Gostwick & Tysoe	538 4 0

For building two residences at Mottingham, near Eltham, and an addition to another, allowing for all materials, Mr. Samuel Parr, architect:—

Gates	£8,621 0 0
Collis	7,862 0 0
McLaughlin	7,210 0 0
Sanders	7,014 0 0
Dove	6,905 0 0
Robinson	6,968 0 0

For chapel, and dwelling-house adjoining, Pigott-street, Limehouse. Mr. Joseph Harris, architect:—

Kilby	£2,459 0 0
Wood	2,443 0 0
Ennor	2,370 0 0
Forrest	2,328 0 0
Hick	2,287 0 0
Brown	2,157 0 0
Hearle	2,076 0 0

For alteration and addition to the Earl Russell Tavern, Gloucester-road, Croydon, for Mr. J. Murton. Mr. John Berney, architect:—

Smith	£390 0 0
Jerrett	354 0 0
Loss (accepted)	325 15 0

For erecting a house at East Sheen, for Mr. C. H. Sinclair. Mr. A. W. Blomfield, architect. Quantities supplied by Mr. J. A. Bunker:—

Bowling	£1,350 0 0
Turner & Sons	1,339 0 0
Sims	1,310 0 0

For roads and sewers on Mr. Partridge's estate at Plaistow, Essex. Mr. John M. Dean, surveyor:—

Cordery	£1,275 0 0
Ward	1,100 0 0
Kent	840 0 0
Pizzey	820 0 0
Harris (accepted)	797 0 0
Horn	722 0 0

For new church, Grove-road, Bow, for the Rev. Allan Curr. Mr. W. Wigginton, architect:—

Curry	£5,772 0 0
Love, Brothers	5,685 0 0
Hill & Co.	5,482 0 0
Ennor (accepted)	5,246 0 0

For repairing the exterior and tower of the parish church of St. Mary's, Whitechapel. Mr. John Hudson, architect:—

Mascos	£630 0 0
Pritchard	620 0 0
F. & F. J. Wood	583 0 0
Hill & Keddell	569 0 0
Head & Son	578 0 0
Dudley	576 0 0

For new cast-iron bell-frame and rehanging peal of bells:—

Mears & Co.	£155 0 0
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For the erection of three warehouses, Gun-square, for Mr. L. Zimmerman. Mr. T. C. Clarke, architect:—

Bel	£3,232 14 0
Pritchard	2,855 0 0
Axford	2,800 0 0
Sargent	2,835 0 0
Stevens & Robinson	2,844 0 0
King & Sons	2,780 0 0
Hack & Son	2,747 0 0
Conder	2,714 0 0
Turner & Sons	2,690 0 0
Anley	2,570 0 0

For the erection of four cottages, for Mr. James Baker, Hitchin. Mr. James Shilcock, architect:—

Field	£272 0 0
Stapleton	260 0 0
Jeeves	262 0 0
Andrews (accepted)	250 0 0

Carpenter and Joiner's Work.

Newton	£184 0 0
Poster	139 0 0
Anderson	138 0 0
Field (accepted)	132 10 0

For the erection and completion of houses in Culverston, Battersea Park, for Mr. Samuel Poupart. Mr. Charles Howes, architect:—

Gudbolt	£1,771 10 0
Baker	1,679 0 0
Lacy	1,637 0 0
Lathley (Brothers)	1,641 0 0

For the erection of stables, &c., in Hampshire-grove, Torrion-avenue, Camden-road, for Mr. H. C. Newton, Mr. F. F. Holsworth, architect:—

Tracy & Son	£347 0 0
Devries	770 0 0
I Anson	740 0 0
Pish	680 0 0
Dill	651 10 0
Manley & Rogers	577 0 0

For erecting two warehouses in Dancize-street and Garden-street, Manchester, for Mr. John Bancroft. Mr. Henry Sykes, architect. Pulling down old property and excavating by Mr. Leach not included. Levelling in concrete:—

Collier	£1,455 0 0
Clay	1,440 0 0
Farrall	1,368 0 0
Brookhurst	1,320 0 0
Burnell	1,315 0 0
Ledger (accepted)	1,300 0 0
Neill	1,299 0 0

The Builder.

VOL. XXIII.—No. 1155.



*Peerage-property
in London.*

THE High Court of Parliament of Great Britain and Ireland assembled in Sir Charles Barry's best monument, consists, as every school-boy knows, or should know, of three estates of the realm: Queen, Lords, and Commons; and every school-boy

teens ought to know, or be made to know, that neither Queen nor Lords have any control over the exchequer, the budget of the year, or the estimates. Few or none, however,—and we include men of learning and rank,—are aware that nine English peers, of the Upper House, or second estate, have greater landed and house property in London, west and north-west of Temple Bar, than any ninety or more Commoners, of the Lower House, or the third estate. Here are the names of the nine lucky lords:

1. The Duke of Bedford.
2. " " " Portland.
3. The Marquis of Exeter.
4. " " " Salisbury.
5. " " " Northampton.
6. " " " Westminster.
7. " " " Camden.
8. Earl Craven.
9. Earl of Portman.

No other nine peers or M.P.s, or London citizens of "credit and renown," can be *pitted*, we repeat, against these nine peers as owners of London property *vest* of Temple Bar and without the jurisdiction of the Right Hon. the Lord Mayor and the oaken truncheons of the *Peelers* of city police.

Mark what follows:—

No. 1. His Grace William Russell, eighth Duke of Bedford and Marquis of Tavistock, owns Covent Garden Market-places (rated to the poor at £5,000. a year, a prime minister's annual income), the whole of the parish of St. Paul's, Covent Garden, including Bedford, Russell, and Tavistock streets. Further still, to his Grace of Bedford belongs Bedford-square, Russell-square, Tavistock-square, and Woburn-square; Southampton-street and Bedford-street in the Strand; and then, as Cowley has it in his "Chronicle," a long *et cetera*.

No. 2. His Grace William John Cavendish Scott-Bentinck, fifth Duke of Portland, owns Cavendish-square, Portland-place, Bentinck-street, Welbeck-street, Harley-street, Cavendish-street, Vere-street, Holles-street, Bolsover-street, &c.: in truth, some two-thirds of Parliamentary Marylebone belong, through the families of Vere, Cavendish, and Harley, to his Grace of Portland.

No. 3. The Most Noble Brownlow-Cecil, Marquis of Exeter (topographically better known among Londoners as of Exeter Change, in the Strand), shares with

No. 4. The Most Noble James Brownlow William Gascoigne Cecil, Marquis of Salisbury, two-thirds of the Strand; indeed, the Strand may be safely called peerage property from No. 1, Charing Cross (or Northumberland House) to within a bowshot of Temple Bar. A Duke owns Northumberland House; an Earl owns the Craven-street property; a Cecil owns the Cecil and Salisbury-street property; the Savoy belongs to the Prince of Wales as Duke of Lancaster; the Crown owns Somerset House; Howard, Arundel, and Norfolk streets belong to Howard, Duke of Norfolk, &c.

No. 5. The Most Noble Charles Douglas Compton, Marquis of Northampton, owns more than a Dido bit of land, well covered with houses, in and about Clerkenwell and Islington.

No. 6. The Most Noble Richard Grosvenor, Marquis of Westminster, Earl Grosvenor, Viscount Belgrave, K.G., &c., owns Grosvenor-square, Belgrave-square, and about two-thirds of the City of Westminster, including Belgravia, Ebury, &c.

No. 7. The Most Noble George Charles Pratt, Marquis Camden; of Bayham Abbey, is the ground-landlord of Camden Town, with Pratt-street, Bayham-street, &c.

No. 8. The Right Hon. William Craven, Earl Craven, owns a thick and to be envied slice of the Strand, east of Northumberland House, with a little ring fence of improving rods and perches about Craven-yard, Drury-lane. My lord is the owner as well of a still more valuable property about Craven-hill, Bayswater.

No. 9. The Right Hon. Edward Berkeley, Baron Portman, of Bryanstone and Blandford, Dorsetshire, owns Blandford, Bryanstone, Dorset, and Portman squares, together with Portman Market and other land and brick rentals in and about Portman Market, yielding large and improving rentals.

Allow us, attentive reader, to indulge our topographical turn in relating, by way of episode, the results of some half-hours about peerage property, and heads of houses and owners and occupiers of houses in Great Britain and Ireland.

His Grace Walter Francis Montagu Douglas Scott, Duke of Buccleuch, K.G., &c. (a Scott by name and a Scot by birth), inhabits more houses in England and Scotland, and those his own, and fine ones withal, than any other man or woman in Great Britain and Ireland, her Most Gracious Majesty Queen Victoria not excepted. Her Majesty owns and inhabits—

1. Buckingham Palace.
2. St. James's Palace.
3. Windsor Castle.
4. Osborne.
5. Balmoral.

The "bold Buccleuch" owns and inhabits—

1. Montagu House, London.
2. Richmond, Surrey.
3. Boughton, Northamptonshire.
4. Dalkeith,
5. Drumlanrig, } in Scotland.
6. Bowhill.

With a Scott by name, and a Scot at heart—so firmly rooted in England—and a Scotland-yard of Metropolitan Police, the Thistle (*Nemome, &c.*), has taken a sturdy root in the garden of the English Rose. We cannot, however, say and sing with Allan Cunningham,

"The Thistle's grown above the Rose."

The Duke of Buccleuch was over-matched in the number of his houses in the three kingdoms by the late excellently all-accomplished William Cavendish, Duke of Devonshire, and K.G., who died in 1858. Here is a list of more houses than "Jack built," which the sculpture-loving duke

owned and kept up with very great taste and
regal liberality :—

1. Devonshire House, London (Kent, architect).
The finest site for a private house in London. The Piccadilly front, withdrawn by a court-yard from the rattle of Piccadilly, commands the Green Park, St. James's Park, Buckingham Palace, and the Surrey Hills.
2. Chiswick Villa, Middlesex, some six miles from London, the Palladian villa of the architect Earl of Burlington.
3. Chatsworth, Derbyshire (world-famous).
4. Hardwick Hall, in the same county, once Bess of Hardwick's, and a noble monument of Elizabethan architecture.
5. Bolton Abbey, Yorkshire, better known by Landseer's picture and Cousins's engraving.
6. Lonsdaleborough, Yorkshire; and
7. Lismore Castle, Ireland.

Chiswick is understood to have passed from the Dukes of Devonshire into the possession (for life or entirely, we know not which) of Harriet Duchess Dowager of Sutherland, a Carlisle Howard by birth, and one of the beauties and virtues of the court of Queen Victoria. Four "houses" are now the property of the Sutherland and Stafford Gowers :—

Stafford House, St. James's.
Trentham Hall, Staffordshire.
Cliefden House, Maidenhead.
Danrobin Castle, Sutherlandshire.

All more than comfortable and pleasant to inhabit,—not too small to live in (like General Wade's London house), and certainly much too large (carrying out Lord Chesterfield's witicism) to "hang to your watch."

UTILIZATION OF SEWAGE

ALL the operations of nature are incomprehensibly marvellous. We do not call them "miracles," because they take place every day, and every hour. But yet they are all as truly miraculous as those transcendent miracles by which the Divine Author of our religion showed His command over the laws of nature, and proved himself to be the God that had "made the worlds." For instance, a vine branch, in a few months, is enabled, by the laws of nature, to convert the colourless and tasteless raindrops into clusters of grapes, tinted to the eye, and sweet to the taste; the juice of which, if merely left to fester, is only a mixture, or any acid from man, becomes wine; and only grateful to the palate but gladdening to the heart. This yearly operation of Nature's laws is to us a thoughtful eye of faith, as great and divine a miracle as when the water mantled at once into wine, in the short interval between "Fill the water-pots with water," and "Draw out now."

But if the law of Nature is marvellous and divine which can develop such cherished qualities from the pure unflavoured raindrop, how still more evidently so is that law by which the stolid refusal of population, the excrementitious disfigurements of man and beast, the poisonous cause of disease and death in the town, can become a source of life, of vigour, of fertility, and of beauty in the country, making the herb more grateful to cattle, the flower more fragrant, and the fruit more delicate and more rich. Had Paley written his "Theology" in these more scientific and more sanitary times, he might have done well to enlist among his instances of design, and his proofs of the power, wisdom, and goodness of God, this marvellous instance of a law of nature which can thus convert so fearful an evil into so beneficent a good.

We have been led into this train of thought by the title of this article, "The Utilization of Sewage," a subject in former times unjustly neglected, and even shunned, as though it were unfit for the consideration of delicate and refined minds. But we may remember that Dean Swift pointed out that a man may be "so nice as to be nasty;" and a higher authority tells us that "to the pure all things are pure."

Lord Robert Montagu, as our readers know, has introduced a Bill into Parliament for better

enabling the inhabitants of towns to obey the laws of Nature which connect health with cleanliness, and disease with dirt.

The Bill is entitled, "A Bill for facilitating the more useful Application of Town Sewage in Great Britain and Ireland," and the preamble recites that "it is expedient to remove difficulties under which Local Boards and other bodies having the care of sewers in towns and populous places labour in disposing of the sewage of their districts, so as not to be a nuisance, and to give facilities to such authorities to make arrangements for the application of such sewage to land for agricultural purposes."

For this very desirable end a number of new powers are proposed to be given, the want of which has rendered it almost impracticable, in most instances, for towns to carry out the objects of this Bill.

All sewage and refuse are to be the property of the local authority, secured by penalties for their abstraction. Powers are given over the banks of rivers and the sea shore; and, with the sanction of the Secretary of State and after certain notices, compulsory powers of taking land for works are to be conferred. Powers, also, are proposed to be given of laying sewers and pipes under streets, &c., as in the Waterworks Clauses Act, 1847; of entering lands; of dealing with landowners and others; of forming for this purpose landowners' associations; of referring disputed arrangements to arbitration; of charging expenses on lands; of making by-laws; of selling the sewage to contractors for any period not exceeding ten years; and of borrowing money for carrying out works.

Considering that there is hardly a town in England, except Croydon and Worthing, where the town is systematically and thoroughly connected with the country by sewerage works and irrigating grounds, this Bill, if passed into a law, will occasion a very large circulation of capital, and very great employment for contractors and workmen for some years to come. Extensive brick culverts, innumerable pipe-sewers, and, in many cases, steam-engines, iron pipes, and other apparatus must be used.

But let us not regard this beneficial project merely as a measure of usefulness, which is its only pretension in the title of the Bill. Let us not merely consider whether the increased fertility of the land will repay in money the outlay in causing it; or even that preservation of the rivers of England and their fish requires such a measure. There is a far more valuable result than increase of crops or augmentation of riches, or the value of fisheries, namely, the improved health of those towns which shall in this mode fertilize their neighbouring fields. "Anything which a man has he will give for his life," and the intended Act cannot be properly applied to any town, built and formed and drained as towns are now, without a large saving of life in every case.

Croydon, for instance, is one of the towns that took the lead in this effort of sanitary progress. Every house is drained; no offensive refuse is retained in the town or parish; a farm of 300 acres, in the adjoining parish of Beddington, receives with benefit what the town is thankful to eject. The annual rent of this land has risen from 22s. to 5l. an acre, and if in hand would now let for even more; and the tenant, from land before yielding very small crops of grass, being a thin soil, on gravel, and soon burnt up, now cuts four heavy crops of grass in a year, each cutting yielding 13 tons to the acre. But the point to which we desire to direct our readers, is that before the sanitary arrangement was made (it began fourteen years ago) the average annual deaths in 1,000 persons, in the parish, for the preceding ten years, had been 22, whereas the average of the last ten years, ending Christmas last, was only 19; while that of Brighton, which ought to be the sanitarium of London, was 22. This improvement in the annual death-rate of Croydon, from 22 to 19 per 1,000 on its population of 40,000 persons, is a saving of 120 lives per annum; and if 120 persons every year are saved from death, how many more are relieved from deteriorated health and vigour? But this is not all; for besides this, the deaths that do happen are fewer than formerly at the useful ages between twenty-five and fifty, which is the interval in which death falls heaviest on a family, and indeed on the community. Compared with the state of health in the three great divisions of the kingdom which the Registrar General adopts, viz., "The Town Districts," "The Country Districts," and "All England," Croydon (being partly town and

partly country) ought to rank lower in the sanitary scale, that is, as less healthy than the country districts of the kingdom; but in the return of the Registrar General for the quarter ending Christmas last (which was an unhealthy one all over England) the average annual deaths per 1,000 are, in the town districts, 25.80; in all England, 23.85; in country districts, 21.16; but in Croydon, only 19.13.

Builders find the benefit of all this. They have no cesspools or sewers to construct; no wells to dig, or pumps to erect; water is supplied at only pumping price, without limit in quantity, and by a constant service, except during seven hours in the night; and as the result of this, houses are let before they are finished.

Whatever may be the benefit, in point of pecuniary result, in utilizing sewage by agriculture, the benefit of thus ridding the town of it is an advantage in point of health, which is beyond any money-value; and the proposed measure, therefore, is not so much one of utility as one of duty. At first the measure will be voluntary; but if any towns shall neglect to perform this duty of their own accord, then, as extramural burials are being now enforced upon populous places, there will be no hardship if a subsequent Act should enforce extramural utilization of sewage.

THE PEOPLE'S SHARE IN ART.

ARCHITECTURAL MUSEUM.

A MEETING of the members of the Architectural Museum was held on Tuesday evening last, at the Kensington Museum, for the distribution of prizes to art-workmen, and to hear an address "On the People's Share in Art," by Mr. Beresford Hope, president.

Mr. Hope said that, on previous occasions of a similar nature, he had been permitted to make some general remarks on questions of artistic interest, having reference especially to the objects to promote which the Architectural Museum was established. At the opening of the session of 1863, he had endeavoured to explain the peculiar phase of art which they were associated together to support,—not art simply nor architecture simply, but an intermediate something which they might call architectural art. Last year, having established what architectural art was the year before, he took up the art-workman's position—the position of the men who were the executive in the execution of architectural art—the art-producers, he now proposed to regard the whole question from another point of view, and to deal with it not so much as regarded the advancement or trade profit of the art-producer as from the point of view in which the interest and advantage of the art-consumer are concerned. He proposed to speak of the people's share in art; the share of those persons, some of whom might be able to practise more or less of art, but to do so for their own amusement and edification, and not as their calling in life. He desired to place before them, plainly and emphatically, a general test for a general qualification for art—as not one of those things to which they ought to be indifferent—one of those things which, as the world was now constituted, might or might not exist in a nation; but as a thing which ought to exist, if the nation meant adequately to fulfil its mission amongst the other peoples of the earth in a social, moral, intellectual, and material point of view. They should first inquire how far it was desirable or necessary to the well-being of a people that a general appreciation of art should be diffused; next, how far it was desirable towards this diffusion of taste in art that facilities for making acquaintance with art should be afforded to the general public. How far, in other words, should they take steps, not only that persons should to a certain extent be converted into carvers and draughtsmen, although carving and drawing might never be more to them than an amusement, or, at the outside, a very temporary and occasional employment. And, thirdly, he would apply the solution of the two questions to the peculiar circumstances of their own institution. First, how far ought a nation as a nation, and how far ought the individuals of that nation, to endeavour to make a general appreciation of art in all its branches—painting, sculpture, &c.—the general property of the people; not merely of the highly educated classes, but of those whose education and technical knowledge were comparatively limited;—in short, how far ought educa-

tion to be the education simply of the eye, and not so exclusively of the memory and the intellect. The question brought them back to principles of a deeper and wider character than mere consideration of artistic beauty. It resolved itself at once into that great first principle which all those who studied the philosophy of the human mind in no narrow, or bigoted, or dry spirit, were united in asserting; namely, that for the healthy development of the mind, the imagination, no less than the reason, must be cultivated. This is an age in which science has made gigantic progress,—an age in which the machinery of literature, so to speak—printing, journals, public speaking—had attained a position and acquired a power such as no previous time furnished any instance of. All these were,

in their way, antagonistic to the development of the imagination; but, on the other hand, they were good and right in themselves. How, then, was the imagination to be fostered? In former times more rude, and perhaps more stirring, the imagination was fostered through the means of the memory and popular poetry and ballads. Heroic action, except in time of great refinement, threw itself into the form of lyric or ballad poetry. The Homeric poems were the form in which the Greek mind treasured up for ages those gallant feats which it was fondly hoped were not altogether fabulous. The Romans had their ballads, such as those which Macaulay, in his "Lays of Ancient Rome," had attempted to revive. The Border forays, before England and Scotland,—although they only concerned cattle-stealing cases, which a justice of the peace would dispose of now,—produced the ballad of "Chevy Chase" and its compeers. In Ireland the influence of ballad poetry upon the imagination of the Celtic race there was very great; and the treasures of the ancient poetry of Brittany had lately been displayed by the facile muse of Mr. Tom Taylor. Coming down to the middle of last century, they knew how amongst the then half-civilized people in the Highlands of Scotland much stirring poetry contained in the land much stirring poetry contained in the Jacobin ballads had been enshrined. But take one more century and its heroic events—the great contest of right against wrong—the glorious, scientific, and successful feats of British arms; they only practically exist for us in the one ballad, "The Burial of Sir John Moore." Waterloo was unused; the Crimean War produced only Tennyson's "Charge of the Six Hundred," the Indian Mutiny, although fruitful of incidents displaying the daring courage and heroism and devotion of the British soldier, was absolutely barren of verse; the war in America had produced a good deal of writing, but not one verse that could live. On the side of the people struggling for independence there was one touching ballad; on the side of those fighting for empire there was the dolorous ditty, "John Brown's Body is Mouldering, and his Soul is Marching on." Where, then, did the present generation stand? Were they given over, body and mind, to the steam empire? Had the iron of the railway entered into their souls? Where is the food on which the imagination might be matured? The answer was twofold. Amongst those who had the time and means of obtaining a classical education there was still the system, and he trusted it would long continue, of becoming acquainted with the classic authors. He might be asked, what had a classic education to do with Gothic art, of which they were admirers? Well, he was treating of art from an educational, and not from a technical, point of view; and next it was in the name of Gothic art that he claimed its pre-eminence in the literature of Greece and Rome. Gothic art had shown them the more excellent way, but they should confess that that more excellent way had its foundation in the streets of Athens and Rome. One reason why they studied Mediaeval art with more profit and elasticity, and less of mere pedantry than their contemporaries in France and Germany, was, that in those countries the rival Classic and Gothic schools were pitted against each other bitterly and unreasonably. Well, it being admitted that the study of ancient literature developed the imagination, expanded the sphere of thought, he asked what were the masses, who had not time, or means, or facilities of learning these things, to do? What equivalent was to be given for the knowledge of Classic literature? What compensation for the fresh stream of ballad and popular poetry which their rude ancestors called their own? His answer was a simple one, and it brought him to the point of the lecture—for the masses, give freely, readily, and with an open hand the means of enjoying

art; give them plenty of opportunity of seeing art; give them the opportunity, too, of learning such simple principles of art as shall enable them to appreciate the merits or recognise the demerits of the specimens of art brought before them. It might also be asked, were they to take the rough sons of labour by the hand and hopefully to ask them to admire that which was so different from all that came within the ken of their ordinary life, and from the spirit of their ordinary pursuits? There might be difficulty in the way, but that ought not to deter them; for they should remember that the more the forms of beauty were strange to the ordinary life of the class to which he alluded, the more ought they to put them in the way of enjoying them when and as they could. One way in which they could do so was this, by giving them ample opportunity of studying copies, if they could not study the originals, of the masterpieces of art of a past time; and next, by keeping up a brisk supply of creditable art of modern production in and around amongst them. If they banished ancient art, they would cut off a great connexion with the past and an important branch of art education; on the other hand, if they confined themselves to the reproduction, in casts and models, of old masterpieces, they would not infuse the breath of life into the existing body. Modern art might be inferior to ancient, but it was their own; it was the form and embodiment of the day in which they lived; and unless they fostered the school of art of their own time, unless they were forbearing and not too exacting, unless they encouraged it in its first tottering footsteps, they would fail to fulfil a duty they owed to the time in which they lived. In short, they should give the people museums and schools of art, and something more,—scattered up and down, in the highways and byways of their towns and villages they should have the forms of sculptured art; in their public buildings they should have specimens of painted art, so that the idea of painting and sculpture should become as household thoughts to the mass of the population. This was found to be the case on the Continent, and what was to lead to its being the case at home? Simply to go on boring with the thing until they made something like an impression;—to go on displaying before the eyes of the people a successive series of representations of forms, not merely graceful forms, but forms that would recall great historical events of a past time;—and, again, by taking every opportunity of giving instruction in art. The question of art-instruction for the multitude was last year, and might be again, matter of discussion in those high quarters where public affairs were seriously debated. It was, he held, the duty of a civilized commonwealth, as soon as it had appreciated the necessity and advantages of a movement towards general art-education, to foster that movement with no niggard hand, as a thing in which advancement must be made from above, even while the acknowledgment from below must, for a time, at least, hardly correspond with the zeal with which the missionaries of the movement stirred themselves up to their work. There was a great agitation now for industrial exhibitions. They had almost a plethora of art-competition all over the country. What was required still was simply a regulating mind—a broad appreciation of art, not merely in its technical details, as good anatomical drawing, good foliage grouped in naturalistic or conventional forms, good adjustment of colour, and so forth,—all these were most essential,—but also as regarded its training directly with a view to its historical and poetical interest, and affording a rough-and-ready view of other times and countries. Take the great historical events of our own country. Where was the common Englishman, and how, to study them in pictures and sculpture? Such did not exist for the common man; and their not existing was, he considered, a great disgrace and detriment to the country. How, then, might they exist? They might exist not only in frescoes and in sculpture, but in cheap lithographic prints, which could be circulated by the million. In the Houses of Parliament, which, with all the faults that had been so maliciously exaggerated, were still, he considered, a splendid monument, they might see this art for the people displayed. They might see it in the crypt of St. Stephen's, which had lately been so gorgeously and beautifully restored; in the hall above, devoted to the statues of our worthies; in the painting of the grand old legend of Arthur; in the historical frescoes; they could also see it in the Assize Hall of Manchester,

which would shame many of the public buildings of London by its combined beauty and convenience; they could also see it in the new Orphanage at Birmingham, the donor of which had had a cloister underneath set apart as a play-ground for the children, the capitals of the columns of which were carved with fables, which were calculated to engage the minds of the children through the eye. Whether the walls of their churches would or would not be the vehicle of pictorial representations remained to be proved. Happily the idea that the Divine Being was dishonoured by representations of the great events of the Bible, that superstitious feeling, that idolatry of whitewash, was passing away, and the reasonable sense for representations of divine events was growing up. In Italy, in Germany, in Switzerland, they saw pictorial art,—of a very rude kind, no doubt,—ornamenting the walls of public buildings everywhere. Unhappily the same could not be said of Old England, with more opportunity for obtaining it now than ever before existed. And why? Partly from that superstitious dread of colouring which had been the Englishman's bugbear until now, and partly from the want of sufficient art-education in our governing classes, both of which causes were happily dying away. Again, if they wished to teach the people to appreciate art, they ought to teach them to do a little art themselves,—a little carving, a little drawing, and so forth. Drawing would give them a knowledge of proportion, which nothing else but a mathematical training could give them. Even children in village schools could be trained to a certain extent; they could have imparted to them instruction in the first principles of form and proportion which would be a valuable corrective to the irregularities of the mind in after-life. How it was to be done that was not the place to discuss. He merely throw out that there was a necessity for affording to the people education in art which would stimulate and train the imaginative side of their mind, and also confirm and strengthen that harder and more practical element,—that which might be called the mathematical side of the intellect,—both of which were involved in art-training. But how did all this apply to the art-workman whom it was the privilege of the Architectural Museum to bring forward? It was a question of supply and demand. Once educate the people to know a little something of, and to have a taste for, art,—hold out before them grand types of artistic progress in ancient days, and good specimens of modern art, and they would create a demand for art-objects,—cheap and inferior, perhaps,—but for objects which should be supplied to meet the demand. Who were to furnish those art-objects? They might not be the venison of art, but the wholesome jerked beef at 8d. per lb.; and this jerked beef of art was especially what the art-workman should supply. The frescoes, as they were called, of the old churches on the Continent, were run off in three or four colours: why could not art-workmen be found here to fill the churches and public buildings and vestry-halls of England with similar paintings? Why could they not do the sign-painting, which was now so much neglected,—make statuettes for chimney-pieces, vases for flowers, and many other art-objects which an art-educated people would require and demand? All these the art-workman could produce if he steadfastly stuck to his last. The creation of a general art-feeling was quite possible, and it was called for especially in this day, when materialism must be counteracted by cultivated imagination. That feeling once diffused, then the erection of museums and art-schools, and the adornment of highways and public buildings, as he had suggested, would turn to the financial advantage of the art-workman or working artist; for they could be artists as truly as those who wrote "R.A." after their names. The former might produce art-objects for the million, as the latter did for the higher classes, and that was the people's share in art. They were all engaged in a great joint-stock company, of which those whom he addressed were the trustees. They might make it by their efforts, or mar it by their neglect. He asked them not to be thrown back by the fallacy that England was not an artistic nation. Those who held that idea might ask him, had he ever looked at Trafalgar-square? He had, and he admitted that there was necessity for manifesting a gigantic penitence. They might lead the way and carry the tapers in the penitential procession; and, having done so, show their repentance by their works. They might come forward and encourage a movement towards a

better state of things; not in a pedantic spirit, but with a generous appreciation of the art of all times terminating in that great art of Europe and England—the art of the Middle Ages,—of which they were the heirs, and destined, he believed, to be the promoters, the improvers, and the remitters to posterity.

The president then proceeded to distribute the following prizes:—

For Silver Work.

Prize 1, 10l.—Henry Whitehouse, jun.
Prize 2, 5l. 6s.—Septimus Bayesford.
Extra Prize, 3l. 3s.—Geo. J. Langley.
Ditto, 1l. 1s. and a Book.—Walter Harrison.

For Transparent Enamels.

Prize 1, 7l.—H. de Koningh.
Prize 2, 3l.—Frederick Lowe.

For Opaque Enamels.

Prize of 10l.—Alfred Gray.

For Chinese Cloisonné Enamels.

Extra prize, a Book.—H. de Koningh.

"BLUE BOOKS MADE USEFUL."

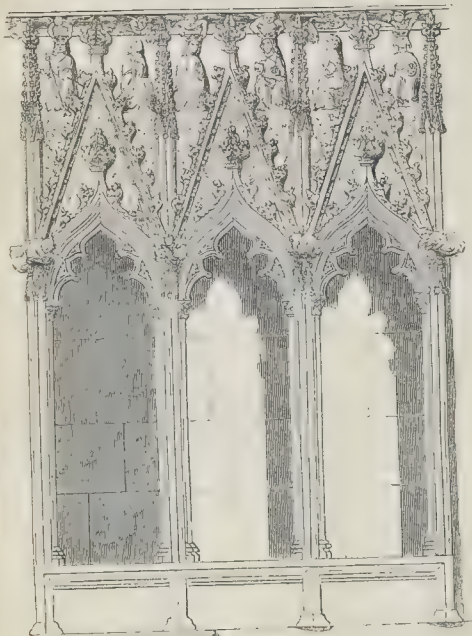
FIVE years ago, on the opening of a session of Parliament, and under a similar heading to that prefixed, seeing the increasing importance of Parliamentary papers to our class of readers,—which was paralleled by that to each other class, or to the general public,—we devoted an article to the question whether the proper advantage was realized from the very costly system of so-called publication of these documents, and to the suggestion of means by which it might be.* We endeavoured to show that elaborate machinery of the collection of evidence and the preparation of reports and returns, and charges for paper and printing, might be justified, but only on the supposition that a certain end was attained. Such object, we observed, was not the commercial one of profit from publication, or even the reimbursement of money. We showed that the amount realized from sale of these papers, was so little as not to deserve to be taken into an estimate; whilst that the price of them, nominally small, really helped to prevent the attainment of the object. The object primarily, as recognized by Mr. D'Israeli, was not the reduction of cost of printing and paper, but the dissemination of the information. We offered a suggestion of means by which the object might be attained, and even with a diminution possibly in the cost of paper and printing; and we concluded our article with an expression of hope that our observations might attract notice from Mr. Wm. Ewart, or some member of the committee of the House of Commons appointed to assist the Speaker in matters relating to printing.

From the date of our article in 1860, to the beginning of this month, we have looked for evidence of due attention to the subject, if not to our particular suggestion. But for the five years, excepting the proceedings of the Committee of 1862, we looked in vain; and what we understand is now to be brought before the House, though dictated by the feeling that advantage greater than there is, ought to be made to accrue from the Parliamentary Blue Books, and though desirable in itself, would only go a moderate distance towards the end, and not take away any of the arguments for our own proposition. Our suggestion, made after much consideration of the subject, and aiming at the diffusion of the information contained in Parliamentary papers, was to the effect that there should be a special public library, with a reading-room, for those documents. We supported the suggestion by arguments; and we are prepared with others.

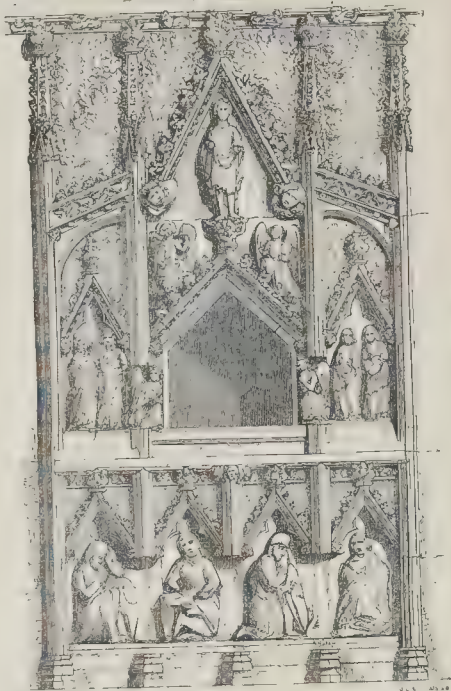
The other suggestion is contained in a notice which we have learned was lately given by Mr. Wm. Ewart, for a motion in the House of Commons, or,—“To call the attention of the Government to the public advantage which would result and the saving which would accrue from the publication of an abridgment or digest, to be issued from time to time, of all the Parliamentary Blue Books, and similar documents, on the same plan as that of the ‘Statistical Abstract’ issued by the Board of Trade since the year 1854.” We have seen nothing in the reports of proceedings of the House, of the motion as having been actually made.

According to a lucid statement which we believe was originally compiled by Mr. Leone Levi, and which may be found in the *Journal of the Society of Arts* of 3rd of March, there are upwards of 1,000 documents, extending altogether

ST. ANDREW'S CHURCH, HECKINGTON.



Scilla in Chancel.



The Holy Sepulchre.

to not less than 50,000 pages, published annually under the general head, Parliamentary Papers. The cost of printing such papers for the Houses of Parliament, was given in 1864 at 67,500l.—this being independent of the printing for the several departments of Government, amounting in all to upwards of 300,000l. Volumes of 800 folio pages are quite common: the report, to which we referred in 1860, on the Endowed Schools (Ireland), had 1,831 pages. The statement then goes on almost in the same words as we used. The papers are not read by members, for want of time: they are not read by the public, for want of facilities for getting at them: the sale of single copies is very small; there is no means by which the public can consult the documents in a collective form,—no private gentleman and no public institution being able conveniently to afford the space to keep them; and the bulk of the copies go for sale as waste paper. Documents are printed again and again repeating the same facts or opinions, given in evidence or in returns. Particulars of the national finances appear to be printed in six different returns. But this statement is wanting in something which we think want to complete our own. We referred to instances of documents of the greatest value, now scarcely procurable at any price. Amongst them was the report of the Commission on Iron applied to railroad-structures, and that on the Stone for the Houses of Parliament. It has been said that a report on stone, probably a portion of the document connected with the Houses of Parliament, which originally was sold for 6d., would now fetch a guinea.

Without the other impediments to the diffusion of the matter contained in Parliamentary Papers, there would be one comprised in the secrecy, as we cannot but call it, which is allowed to surround the publication. In the ordinary trade, were a publisher to refrain from letting the

public know of the publication of a book, he would fail to sell many copies of it; and he would be held to be rightly served in his eventual loss. The best books are in fact advertised the most extensively. The publisher does not trust to exposing them for sale, at his own place, or at the numerous shops of booksellers; but, for the Parliamentary papers, there is nothing of the nature of announcement of their publication, beyond a paragraph in a newspaper, when the subject concerns "the general reader," and the inclusion of the title in a printed list, of which the existence is known to few persons. This list however is reprinted regularly in the *Journal of the Society of Arts*.

The object of the expenditure in the compilation and printing of these documents, being to get them read by the public, or digested by those who form the public mind, it seems to us obvious that such object cannot be attained without the library. The money-receipt from the five persons once mentioned as making up the entire number of readers of a particular Blue Book, would scarcely justify the publication; but the gain to the public, of useful information, through the fifty writers, journalists, or "publicists," who would resort to the library, and give forth the matter of their researches and conclusions, might be sufficient to afford justification for the largest amount of cost. One advantage, to which we alluded in our original article, of the library, would be, that in some cases printing would be avoided altogether, or where an attested manuscript copy of a return would suffice, as for the object of a single member of Parliament.

We have only to repeat what our idea of such a library would be. It should be a public library, devoted specially to all Parliamentary papers, but containing also all papers issuing from the Court of Common Council of the City of London, the Metropolitan Board of Works,

the District Boards, and the water and gas companies. In it, there should be found the documents of the Legislature of France, which are regularly sent to that of Great Britain, the *Moniteur*, and the reports of the municipality of Paris. The institution should be located in the vicinity of the Houses of Parliament: it should be open throughout the year, and be a lending-library to certain persons; and it should have several copies of each paper of late date, and one of each of the series from the commencement, or the first introduction of the system of publication or printing. In comfort and convenience, the reading-room should equal that of the British Museum; and the catalogues should be equal to those of the Patent Office Library. There should be atlases, statistical charts, commercial and geographical dictionaries, and space for the display of maps illustrative of schemes before Parliament.

Through the existence of such an institution as we have sketched the plan of, we should expect that the sale of Parliamentary papers would not be diminished, but increased,—that the diffusion of the papers would be the result of the concentration in the library. But whether this result or not, the object for which alone great cost of preparation and printing of Parliamentary papers is justifiable, would have the chance of being attained; the useful matter could be got at, and read; and its diffusion would follow. How much of such matter, important to ourselves and our readers, there is in Parliamentary papers, and how much is utterly lost, we need not now say.

HORSHAM CHURCH, SUSSEX.—Mr. Howes, who contracted and undertook to carry out the church restoration works, has called his creditors together, so that the restoration works are likely to be delayed.

ST. ANDREW'S, HECKINGTON,
LINCOLNSHIRE.

HECKINGTON CHURCH is an exquisitely beautiful specimen of the Decorated period, and has fallen into a bad state, requiring the expenditure of a considerable sum of money. It needs re-roofing, re-seating, and other costly works to the extent of 5,000*l.*, and a committee has been formed to raise the necessary funds. More than 1,000*l.* have been subscribed by the parishioners, and an appeal is now justly made to the county, and indeed to the public generally, every Englishman being interested in keeping up for his country such a glorious monument of the skill and piety of his forefathers. We gladly assist in making public the appeal, and the engravings we insert* will serve to show those who do not already know it what manner of church this is. The building took the place of one here at the time of the Conquest, and is thought to have been commenced about 1320, Richard de Potesgrave (buried in the chancel) being vicar, and completed about 1380.

The Easter Sepulchre, of which there is a cast in the Crystal Palace, and the Sedilia, are well-known features of the interior. Of these we give views.

The sedilia on the southern side of the sacrum consist of recesses worked in the wall, flanked by small shafts, and surmounted by richly crocketed canopies. Between these are pinnacles, foliated work, and six figures. Those in the centre represent our Lord and the Virgin Mary, crowned; the next, on either side, St. Barbara regarding the suggested Church Tower, held by an angel. On the right is St. Catherine, and on the left St. Margaret. The whole is finished with a carved cornice, adorned with figures of angels. The vaulting within the recesses that served as seats, and other details, are admirable.

Nearly opposite the sedilia is the Easter Sepulchre. In canopied recesses below are sculptured four of the sleeping Roman guardians, bearing shields of English soldiers of the fourteenth century. Above this is the tomb proper. Over its hood-moulding are figures of angels kneeling and censing, and standing on the finial of the hood-mould is a representation of our Lord freshly risen. On each side of this miniature representation of the sepulchre is a kneeling angel and a canopied niche, in one of which are figures of two of the Marys, and in the other the third Mary and the announcing angel. Above these niches is some beautiful foliated work, and the whole is finished with a cornice, displaying little figures blowing flutes.

Surely there should be no difficulty in raising funds to place such a building as this in a proper condition, to secure it for posterity.

MR. FERGUSON AND BIBLICAL
ARCHITECTURE.

FROM the first broaching of Mr. Fergusson's views on the buildings of modern Jerusalem, I have maintained their soundness (*Builder*, vol. xix., p. 135) and still hold that architectural archaeology would be a mere delusion if it did not suffice to settle that the "Dome of the Rock" is a Roman Christian work. But while firmly believing his discovery that this is no other than the church erected by Helena over what she mistook for the Sepulchre of Christ (which, of course, a cave within 60 yards of the Temple's most frequented gate could not possibly be), I would beg to point out the great fallacy, or series of fallacies, into which, in his late lecture, he was led by the gratuitous assumption that the first Temple reproduced, or, in his own words, "copied literally," the mystic measures or ratios of the Tabernacle; in short, that Solomon, entirely contrary to Mr. Fergusson's own common-sense principles, built, for the sake of symbolism, very bad and mock architecture, instead of, as I think it can be proved, very good, or at least as original and distinct from the Tabernacle, both in proportions and arrangement, as a rational stone monument ought to be from an equally rational tent.

Of the earlier structure, we probably have the means of knowing more than of any other past human work without contemporary drawings. The twice-repeated specification, first of everything that was ordered to be made, and then of everything made, is so perfect, omitting, I

believe, no single necessary piece, either of wood, metal, cloth, or skin; so wondrously clear to even this distant age, in spite of one or two aberrantly mistranslated words in every version; so far less antiquated by the changes of thirty centuries than any other document of the kind by three; and so distinguished from any half as old, and containing half so many figures, by the unique marvel of containing (*pace* Dr. Colenso) neither "anomalies in dimensions" nor a single discrepant numeral; thus we might challenge the production of any modern architect's specification, telling us as much without one drawing; even for a present Bezalel's own guidance. But now, with regard to the Temple, first or second, widely different is our information, whether in the histories, Ezekiel, or Josephus. Whatever each of those author's objects, it is plain that, to all who might never see the structures, their accounts leave them practically undescribed, and a restorer's imagination as absolutely free as if hardly a word beyond the three internal dimensions of the cell had been written. There is just enough, I submit, *totally to disprove* Mr. Fergusson's fancy that the Tabernacle, or anything thereof, was "copied literally," and that is all. If these antiquated accounts were (as well as those of Moses) "written for our learning," surely the chief we can learn from them is the utter spiritual unimportance of the details of Solomon's splendour (which have not even been kept from the corruption of contradictory statements), and that the former structure *alone* was inspired to prophecy by its dimensions, pieces, and numbers, which were not reproduced (their purpose being answered when once recorded in writing); but the human contrivers of the later building being left to follow in all things, as those of the former did in all but these mystic particulars, the best principles of design they could, with the simplest (or what would now be called most *Gothic*) reference to its physical uses and dignity, and no thought even in the former case, probably, where some details were prescribed, that they were overruled to be symbols and prophecies, unknown to any that served therein, in all the ages it stood, yet to be oracular afterward to the end of time.

Mr. Fergusson tells us "every dimension" of the Tabernacle, except the roof-slope, "was a multiple of 5 cubits," because those of the Temple were multiples of 10; and he has laid it down *a priori* that it was a copy with "every dimension doubled." Now, the Temple's interior was 60 cubits long, 20 cubits broad, 30 cubits high (1 Kings, vi. 2). The Tabernacle (Ex. xxvi. 16, 18, 20, 22—25) was 30 cubits long, twelve broad, only ten high to the eaves, but full twenty to the ridge of the equilateral-pitched roof I shall show it to have had. The breadth 12 (instead of "a multiple of 5") happens to be stated in just eight places!—the last (Ezek. xli. 1) being the only reference, I believe, to this structure by later prophets. Again, its Holy of Holies, Mr. Fergusson says, was "a cube of 10 cubits," and its Holy Place "a double cube of 10." There is not a fact more plainly stated in the whole Bible than that these two apartments were equal, and neither less than twelve by fifteen! The veil dividing them was to be "under the taches" (Ex. xxvi. 33), which were buttons attaching the fifth of the ten breadths of tent-cloth (misnamed "curtains") to the sixth (ver. 3, 6), the reason for this seam alone being so buttoned being probably that one-half the covering might be carried and erected by common Levites, while only the Kohathites might touch what belonged, as the other half did, to the Holy of Holies (Numb. iii. 31). Now, how far any arrangement could shift this junction from the middle of the tent's length Mr. Fergusson has to show.

He next tells us "the porch" (being in the Temple, 20 by 10), was here "10 by 5." It may be clearly proved that, unless deformed by unequal intercolumns, its area was just 12 by 3. Five pillars are to bear a hanging before an aperture 12 cubits wide. If we place them in the aperture itself, "*in antis*," we make the six openings each less than 2 cubits, by a pillar's width, or too narrow for ingress. They, therefore must form a portico, either *prostyle* with all five in front, or *diptostyle* with only three in front. But the latter, having as many intercolumns on the flank as the front, would make the porch square, and the whole length of cell and porch, 42 cubits, while we have only 40 of tent-cloth to cover it. The only possible door arrangement

then was *mono-prostyle*, the front of four intercolumns, the flanks of one each, and the dimensions 12 by 3. There was no "verandah" anywhere of "5 cubits," and the only mention of such a dimension is for the height of the external court hangings.

Of course, the centre pillar of this porch bore the ridge-piece; but so, too, I believe did all the four internal pillars, the first standing in the centre of the Holy Place, the second at the middle of the veil, the third in the middle of the Holy of Holies, and the fourth close to the boards of its closed end. The expressions about the veil, "thou shalt hang it on four pillars" (xxvi. 32), and (xxvi. 36), "he made thereunto four pillars," do not imply they were all four to bear it *at once*. They were four identical or interchangeable pillars, any of which might serve for suspending the veil. That only one so served at a time, for they were all needed to bear the ridge (as in that honest New Zealanders' church, in the *Illustrated News*), is as plain to me as that the New Zealanders were better architects than Calmet or Palladio. Mr. Fergusson's next requirement of "nine" boards for the closed end is most unlucky. The statements about these (and therein of the Tabernacle's width) happen, as I have said to be seven:—

1. That the numbers ordered were six ordinary, and two stronger for the corners (xxvi. 22, 23).
 2. That the whole number ordered was eight (ver. 25).
 3. That two shoes under each would amount to sixteen (*Ibid.*).
 4. That the boards made were six ordinary and two for the corners (xxxvi. 27, 28).
 5. That the whole number made was eight (ver. 30).
 6. That sixteen shoes went under them, two to each (*Ibid.*).
 7. That the shoes for four pillars, forty other boards, and these, amounted to 100 (xxxviii. 27).
- Now, when Mr. Fergusson gets from these his "nine boards," none will even then avail to bear the ridge, for none were higher than the sides, the boards in general being all ordered to be but 10 cubits by 1½ (xxvi. 16; xxxvi. 21). They could not extend, therefore, into the gable, which at this end (and therefore probably at the front also) remained open, forming the two sole but antient windows, affording ventilation, and a sight to all without, of the cherub-embroidered roof-cloths.

The ridge-piece, the heaviest in the structure (as in the New Zealanders') is disguised in our version under the term "middle bar" (xxvi. 25; xxxvi. 33), and the latter reference should be translated, "He made the ridge-piece to overpass (or go beyond) the boards, both at one end and at the other." It had, I have shown, five supports, not by any "boards," and no longer bearing than 8 cubits; but its whole length was 38 or 39, according to how much we suppose the nine seams of the tent-pieces to overlap. These were stretched from the ridge by ten cords (that, by passing through the eyelets of their lapping selvages, would also serve to couple them) down to twenty pins or stakes in the ground; such being thrice mentioned in the brasswork, as needed not only for the court inclosure, but also the Tabernacle itself (xxvii. 19; xxxviii. 20, 31). Now it took cloths of 28 cubits to reach from eave to eave, across the ridge. This corresponds to a tent, of the pitch most common all the world over, the equilateral triangle, of 14 cubits base; and we have seen the room to be covered was 12 wide, leaving well-proportioned and necessary eave-projections. The two chambers then measuring together (for the porch was to all intents part of the first) 33 by 12, the roof covered 38 or 39 by 14, overhanging at the sides one cubit, but at the gables, *i.e.*, windows, 2½ or 3. Accordingly, the tent-covering next placed, of goats'-hair, is expressly said to have one cubit extra breadth to hang over each eave (xxvi. 13) as a valance, but half a breadth of stuff, or two cubits, over each gable (ver. 9, 12), the valance in each case about as deep as its projection.

This goats'-hair covering, though all visible, had no need to be weatherproof (at least where no rain drives from the east), for there was yet another double awning (xxvi. 14) of what we should call red morocco beneath, and badgerskins above, whose size is not given. Now I believe this to have been not less than 50 cubits or 60 cubits square, so that, bearing only on the ridge of the sacred cottage, which I have shown to stand (not "15 cubits, but) about 22 cubits above its silver bases, this awning would stretch, with quite enough slope for weathering, to the

heads, only 5 cubits high and 25 cubits distant, of the pillars of the outer court, the whole western half of which it would cover, and perhaps some verandah-like skirts even outside of it. The space sheltered was surely necessary for the Levites' services, and not so large as many a sheikh's leather tent covers now.

The Tabernacle, as a whole, presented then a white-curtained inclosure of some 80 ft. by 160 ft., and 8 ft. high, with the first half or square open to the sky, and the second coiled with scarlet leather, upheld only by the ridge of the snow-white goats'-hair roof of the sacred cottage in its centre. The wood everywhere was "overlaid," i.e., copiously bound and filleted with metal; that of the court being, except its bases, silver; and that of the cottage, except its bases, gold. The entrance-curtains to both were of blue and red embroidery, and each filling four openings, between five pillars. Perhaps the corner and middle pillars of the court, and every fifth in its long sides, bore the standards of the twelve tribes. At least there were four lofty ensigns somewhere, perhaps at the corners of the surrounding Levites' camp, that regulated the alignment of all tents beyond (Numb. ii.). They were not allowed to cluster unlimitedly in all directions, but only in four, crosswise; making the utmost distance from any to the open no more than half the central square's width, instead of half the whole camp, as Dr. Colenso fancied. The males who had a right to encamp in the east arm of the cross were 186,000; in the south arm, 151,000; in the north, 157,000; and in the west, only 108,000; but to assume all availed themselves of this right for long together, or were habitually more concentrated than the largest tribes in the same desert now, is preposterous.

If I might now suggest anything as to the symbolism, I should say the central structure, guarded by the enclosure of sixty pillars, as by the sixty sub-tribes of Israel, stands both for the Word incarnate, and also, as other types of Him do mediately, for the word written. In the former view, of course its ground dimensions of 12 by 33 correspond to the ages of the Temple of flesh, beginning and finishing His Father's business; and as three years were public, so 3 cubits of the 33 are open porch. But leaving this for the less mystic meaning, as foreshadowing the written word, whose beginning the structure signified, the five pillars of entry are as the Pentateuch, initiating us to that word. The forty boards of the sides answered one another, as those forty persons who thenceforward, through the ages of the Old Testament church, from Job and Moses, to Symeon and Anna, Elizabeth and the Baptist, were made to speak of Him who was to come. But the eight of the end are as the eight New Testament writers, closing in one generation the inspired word. The ridge-piece, overpassing all the boards "at one end and at the other," is of course the Alpha and Omega, the Branch, and "head stone of the corner." The ten cherub-embroidered cloths, upheld by this alone, and covering, embracing, but un-reached by all the rest, are the moral law. The four internal pillars, as the four mysterious living ones that are both "in the midst of the throne and round about the throne," are Divine perfections. As the ridge-piece, raised by them into the highest place, was yet unseen without, and perceived only by the plying of the eleven hair-cloths, so He that is above, entered within the veil, leaves eleven witnesses of His exaltation. Lastly, as on these came further coverings, without recorded measure, first of rams' skins and then of badgers', and the former dyed red; so has the Church unmeasured, of clean and unclean, and the former so by blood, been gathered upon the foundation of those eleven.

But much of all this would be falsified if we set aside the recorded specification to substitute figures deduced only, like Mr. Fergusson's, from a gratuitous and untenable theory.

E. L. GARBETT.

PARIAN CEMENT.—Sir: As a country builder of considerable experience, I can quite endorse the remarks of Messrs. Bellman & Ivey on Parian cement. I have hung the most delicate and expensive papers on Parian a few days after being finished; also painted immediately on it, and never yet met with a disappointment. I, however, make sure of the proper material, as all sorts of rubbish are made and sold as Parian cement. I advise consumers to make inquiries before purchasing.—WILLIAM A. GOSS.

THE DRAINAGE OF LONDON.

INSTITUTION OF CIVIL ENGINEERS.

ALTHOUGH we have from time to time fully informed our readers as to the metropolitan drainage works (our pages probably contain the most complete descriptions anywhere to be found), it may nevertheless be desirable that we should give a *resumé* of the accounts by Mr. Bazalgette, at the Institution of Civil Engineers, on the 14th inst.

In the year 1856 the present Metropolitan Board of Works was formed, being the first application, in the metropolis, of the system of local self-government. The author, having been appointed engineer to the Board, was instructed to prepare a plan for the Main Drainage, in which it was essential that ample means should be provided for the discharge of the increasing water-supply consequent on the universal adoption of closets, and of the ordinary rainfall and surface drainage at all times, except during extraordinary floods; and that it should afford to the low-lying districts a sufficiently deep outfall to allow of every house being effectually relieved of its fluid refuse. The objects sought to be attained by these works, now practically complete and in operation, were the interception, as far as practicable by gravitation, of the sewage, together with so much of the rainfall mixed with it as could be reasonably dealt with, so as to divert it from the river near London, and the substitution of a constant instead of an intermittent flow in the sewers; the abolition of stagnant and tide-locked sewers, with their consequent accumulation of deposit; and the provision of deep and improved outfalls, for the extension of sewerage into districts previously, for want of such outfalls, imperfectly drained. Prior to these works being undertaken, the London main sewers fell into the valley of the Thames, and the sewage was discharged into the river at the time of low-water. In the system now adopted, it had been sought to remove the evils thus created by the construction of new lines of sewers, at right angles to the existing sewers, and a little below their levels, so as to intercept their contents, and convey them to an outfall fourteen miles below London Bridge. As large a proportion of the sewage as practicable was thus carried away by gravitation, and for the remainder a constant discharge was effected by pumping. At the outlets the sewage was delivered into reservoirs on the banks of the Thames, placed at such a level as would enable them to discharge into the river at or about the time of high-water. By this arrangement the sewage was not only at once diluted by the large volume of water at high-tide, but it was also carried by the ebb to a point twenty-six miles below London Bridge, and its return by the following flood-tide within the metropolitan area was effectually prevented.

The points which required solution at the threshold of the inquiry, then successively noticed, were:—

1st. At what state of the tide could the sewage be discharged into the river so as not to return within the more densely inhabited portions of the metropolis.

2nd. What was the minimum fall which should be given to the intercepting sewers.

3rd. What was the quantity of sewage to be intercepted, and did it pass off in a uniform flow at all hours of the day and night, or in what manner.

4th. Was the rainfall to be mixed with the sewage; in what manner and quantities did it flow into the sewers; and was it also to be carried off into the intercepting sewers, or how was it to be provided for.

5th. Having regard to all these points, how were the sizes of the intercepting and main drainage sewers to be determined?

6th. What description of pumping-engines and pumps were best suited for lifting the sewage of London at the pumping-stations.

As regarded the position of the outfalls and the time of discharge, an extract was given from the Report of the late Mr. Robert Stephenson and Sir William Cubitt, dated the 11th December, 1854, referring to a series of experiments made with a float, by the late Mr. Frank Forster, and subsequently repeated by Captain Burstal, R.N., and the author, which proved that it was essential to go as far as Barking Creek, and that the discharge should take place at or near to high water. These experiments also demonstrated, that "the delivery of the sewage at high water into the river at any point is equivalent to its discharge at low water at a

point twelve miles lower down the river; therefore the construction of twelve miles of sewer is saved by discharging the sewage at high instead of at low water."

With respect to the velocity of flow and the minimum fall, it was difficult to lay down any general rule, because the condition of the sewers, as to the quantity of deposit and the volume of sewage, varied considerably; but the results arrived at by Mr. Wicksteed, Mr. Beardmore, Mr. John Phillips, and Professor Robison were quoted, in confirmation of the author's own observations and experience, which lead him to regard a mean velocity of $1\frac{1}{2}$ mile per hour, in a properly protected main sewer, when running half full, as sufficient, especially when the contents had previously passed through a pumping-station. Having thus determined the minimum velocity, it became necessary to ascertain the quantity of sewage to be carried off, before the fall requisite to produce that velocity could be estimated. That quantity varied but little from the water supply; and as it was contemplated that 314 gallons per head per diem might be supplied to a district of average density of population, containing 30,000 people to the square mile, except in outlying districts, where the number of inhabitants was reckoned at 20,000 per square mile, and as actual measurements showed that provision for one-half of the sewage to flow off within six hours of the day would be ample, the maximum quantity of sewage likely hereafter to enter the sewers at various parts of the metropolis had been arrived at.

It had been advocated, by theorists, that the rainfall should not be allowed to flow off with the sewage, but be dealt with by a separate system of sewers. This would have involved a double set of drains to every house, and the construction and maintenance of a second series of sewers in every street, at an expenditure of from ten to twelve millions sterling, at the least, besides the inconvenience. Observations of the quantity of rain falling on the metropolis within short periods showed that, on an average of several years, while there were about 155 days per annum on which rain fell, there were only about 25 days upon which the quantity amounted to $\frac{1}{2}$ of an inch in depth in 24 hours, or the 1-100th part of an inch per hour if spread over an entire day. Of such rainfalls a large proportion was evaporated or absorbed, and either did not pass through the sewers, or did not reach them until long after the rain had ceased; for it was shown, in the Report of Mr. Bidder, Mr. Hawksley, and the author, in 1858, that although the variations of atmospheric phenomena were too great to allow any philosophical proportions to be established between the rainfall and the sewer flow, yet, as a rule of averages, $\frac{1}{2}$ of an inch of rainfall would not contribute more than $\frac{1}{4}$ of an inch to the sewers, nor a fall of $\frac{1}{4}$ of an inch more than $\frac{1}{4}$ of an inch. There were, however, in almost every year, exceptional cases of heavy and violent rain-storms, which had measured 1 inch, and sometimes even 2 inches, in an hour. But it had been considered probable, that if the sewers were made capable of carrying off, during the six hours of the maximum flow of the sewage, a rainfall not exceeding $\frac{1}{2}$ of an inch in 24 hours on more than 25 days in a year, there would not be more than 12 days in a year on which the sewers would be overcharged, and then only for short periods during such days. The rare and excessive thunderstorms had been provided for by the construction of overflow weirs at the junctions of the intercepting sewers with the main valley lines, which would not as safety-valves in times of storm, when the surplus waters would be largely diluted, and, after the intercepting sewers were filled, would flow over the weirs, and by their original channels into the Thames.

Having thus ascertained the quantities of sewage and of rainfall to be carried off, and the rate of declivity of the sewer as limited only by considerations of the necessary velocity of flow, the sizes of the intercepting sewers were readily determined by the formulae of Prony, Eytelwein, and Du Buat, and the drainage sewers by the useful formula of Mr. Hawksley, which it was said, in the Report of the late Mr. R. Stephenson and Sir W. Cubitt, already referred to, were "applicable to almost every variety of condition which the complete drainage of large towns involves."

In regard to the sixth and last head of the inquiry, in 1859, numerous competing designs, involving the comparative advantages of Cornish or rotative engines, and the respective merits of centrifugal and screw pumps, chain pumps, lift-

ing bucket wheels, flash wheels, and every variety of suction or plunger pump and pump valve for raising the metropolitan sewage, were reported upon by Messrs. Stephenson, Field, Penn, Hawley, Bidder, and the author. Based upon the recommendations contained in that report, condensing double-acting rotative beam-engines, and plunger or ram pumps, had been adopted; the sewage being discharged from the pumps through a series of hanging valves. The contractors for the engines at Crossness and at Abbey Mills had guaranteed that they should, when working, raise 80 million pounds 1 ft. high, with 1 cwt. of Welsh coal.

It had already been stated, that a primary object sought to be attained by these works was, the removal of as much of the sewage as possible by gravitation, so as to reduce the amount of pumping to a minimum. To effect this, three lines of sewers had been constructed on each side of the river, termed respectively the High Level, the Middle Level, and the Low Level. The High and the Middle Level Sewers on both sides discharged by gravitation, but for the two Low-level Sewers the aid of pumping was necessary. The three lines of sewers north of the Thames converged to and were united at Abbey Mills, east of London, where the contents of the Low-level Sewer were pumped into the Upper-level Sewer; the aggregate stream would thence flow through the Northern Outfall Sewer, which was carried in a concrete embankment across the marshes to Barking Creek, where the sewage was discharged into the river by gravitation. On the south side, the three intercepting lines united at Deptford Creek, and the contents of the Low-level Sewer were there pumped to the Upper Level, whence the three streams would flow in one channel through Woolwich to Crossness Point in Erith Marshes. Here the whole mass of the sewage could flow into the Thames at low water, but would ordinarily be raised by pumping into the reservoir.

As the intercepting sewers carried off only 1-100th part of an inch of rain in an hour, and the volume of sewage passing through them was at all times considerable, the flow through these sewers was more uniform than in drainage sewers constructed to carry off heavy rain storms. The form, therefore, generally adopted for the intercepting sewers was circular, as combining the greatest strength and capacity with the smallest amount of brickwork and the least cost. In the minor branches, for district drainage, the egg-shaped sewer, with the narrow part downwards, was preferable; because the dry weather flow of the sewage being very small, the greatest hydraulic mean depth, consequently the greatest velocity of flow and scouring power, was obtained by that section in the bottom of the sewer, at the period when it was most required; and the broader section at the upper part allowed room for the passage of the storm waters, as also of the workmen engaged in repairing and cleansing these smaller sewers.

A more detailed description was then given of the several works, and of some of the peculiarities or difficulties met with during their construction.

On the north side of the Thames, the High-level Sewer varied in size from 4 ft. in diameter to 9 ft. 6 in. by 12 ft. Its fall was rapid, ranging at the upper end from 1 in 71 to 1 in 376, and at the lower end from 4 ft. to 5 ft. per mile. In its construction, much house property was successfully tunneled under at Hackney. Adjoining the railway station, a house was undermined and placed upon iron girders, and the sewer, being there 9 ft. 3 in. in diameter, was carried through the cellar. This sewer also passed close under Sir George Duckett's Canal; the distance between the soffit of the arch of the sewer and the water in the canal being only 24 in. The bottom of the canal and the top of the sewer were here formed of iron girders and plates with a thin coating of puddle, and no leakage had taken place. The Penstock and Weir Chamber, at the junction of the High and Middle Level Sewers at Old Ford, Bow, placed three-fourths of the northern sewage completely under command. It was built in brickwork, was 150 ft. in length by 40 ft. in breadth, and was, in places, 30 ft. in height. The principal difficulties in the prosecution of these works arose from combinations and strikes amongst the workmen, and from a long-continued wet season, preventing the manufacture of bricks; as well as from the great increase in prices of building materials and of labour.

The Middle-level Sewer was carried as near to the Thames as the contour of the ground would

permit, so as to limit the Low-level area, which was dependent upon pumping, to a minimum. The district intercepted by this sewer was 17½ square miles in extent, and was densely inhabited. The length of the main line was about 9½ miles, and of the Piccadilly branch 2 miles. The fall of the main line varied from 17½ ft. per mile at the upper end to 2 ft. per mile at the lower end. The sizes of this sewer ranged from 4 ft. 6 in. by 3 ft., to 10 ft. 6 in. in diameter, and lastly, to 9 ft. 6 in. by 12 ft. at the outlet. About 4 miles of the main line, and the whole of the Piccadilly branch, were constructed by tunnelling under the streets, at depths varying from 20 ft. to 60 ft. This sewer was formed mostly in the London clay; but to the east of Shore-ditch the ground was gravel. During the execution of the works under the Regent's Canal the water burst in; but by enclosing one-half of the width of the tunnel at a time within a cofferdam, and then by open cutting, the sewer was subsequently completed. The Middle-level Sewer was carried over the Metropolitan Railway, by a wrought-iron aqueduct 150 ft. span, weighing 240 tons. The depth between the underside of the aqueduct and the invert of the double line of sewers was only 2½ in.; and as the traffic of the railway could not be stopped during the construction of the aqueduct, which was designed to be only a few inches above the engine chimneys, the structure was built upon a stage at a height of 5 ft. above its intended level, and was afterwards lowered into its place by hydraulic rams. The sewers were here formed of wrought-iron plates, riveted together. The Middle-level Sewer was provided with weirs, or storm overflows, at its various junctions with all the main valley lines.

The length of the main line of the Low-level Sewer was 8½ miles, and its branches were about 4 miles in length. Its size varied from 6 ft. 9 in. to 10 ft. 3 in. in diameter, and its inclination ranged from 2 ft. to 3 ft. per mile: it was provided with storm overflows into the river. As well as being the intercepting sewer for the Low-level area, which contained 11 square miles, it was the main outlet for the drainage of the western suburb of London, a district of about 14½ square miles, which was so low, that its sewage had to be lifted at Chelsea, a height of 17½ ft., into the upper end of the Low-level Sewer. It was originally intended to deodorise or utilise the sewage of the western division in its own neighbourhood, rather than to incur the heavy cost of conveying it to Barking, and lifting it twice on its route to that place. But strong objections having been raised to this, the latter and more costly plan had been adopted. The works of this division were executed mainly through gravel, charged with such large volumes of water, that it was necessary to lay stoneware pipes under the inverts of the sewers, to lower the water in the ground, and to convey it to numerous steam pumps, before the sewers could be built.

The Northern Outfall Sewer was a work of peculiar construction; for, unlike ordinary sewers, it was raised above the level of the surrounding neighbourhood in an embankment, which was of sufficient strength to carry a roadway, or a railway, on the top, should it ever be required to do so, as was not improbable. Rivers, railways, streets, and roads, on the line of this sewer, were crossed by aqueducts. The North Woolwich and the Barking Railways were lowered to enable the sewer to pass over them; for the sewer, being reduced to a minimum uniform fall of 2 ft. per mile, could not be raised or depressed like a railway, to accommodate its levels to those of previously existing works. This constituted one of the chief difficulties in laying out the Outfall Sewer, for the district was already closely intersected by public works.

The Barking Reservoir had an average depth of 16½ ft., and was divided by partition walls, into four compartments, covering together an effective area of about 9½ acres. The ground over which it was built, being unfit to sustain the structure, the foundations of the piers and walls were carried down in concrete to a depth of nearly 20 ft. The external and partition walls were of brickwork, and the entire area was covered by brick arches supported upon brick piers, the floor being paved throughout with York stone.

The Abbey Mills Pumping Station,—the largest of the kind on the Main Drainage Works,—was furnished with engines of 1,140 collective horse power, for the purpose of lifting a maximum quantity of sewage and rainfall of 15,000 cubic feet per minute, a height of 26 ft. This station alone would consume about 9,700

tons of coal per annum; but the cost of pumping was not entirely in excess of former expenditure upon the drainage; for the removal of the deposit from the tide-locked and stagnant sewers in London previously led to an annual outlay of about 30,000£. The substitution of a constant flow through the sewers, now rendered possible, must necessarily largely reduce the deposit, and consequently the expense of cleansing.

On the south side of the Thames, the High-level Sewer and its southern branch, corresponding with the High and Middle Level Sewers on the north side of the river, together drained an area of about twenty square miles. Both lines were of sufficient capacity to carry off all the flood-waters, so that they might be entirely intercepted from the low and thickly-inhabited district, which was tide-locked and subject to floods. The Main Line varied in size from 4 ft. 6 in. by 3 ft. at the upper end, to a form 10 ft. 6 in. by 10 ft. 6 in. at the lower end, the latter having a circular crown and segmental sides and invert; its fall ranged from 53 ft., 26 ft., and 9 ft. per mile to the Effra, and thence to the outlet it was 2½ ft. per mile. The Branch Line was 4½ miles in length; its size varied from 7 ft. in diameter to 10 ft. 6 in. by 10 ft. 6 in., of the same form as the Main Line, by the side of which it was constructed. It had a fall of 30 ft. per mile at the upper end, and of 2½ ft. per mile at the lower end.

The Low-level Sewer drained a district of twenty square miles. The surface of this area was mostly below the level of high water, and was, in many places, 5 ft. or 6 ft. below it, having at one time been completely covered by the Thames. The sewers throughout the district had but little fall, and, excepting at the period of low water, were tide-locked and stagnant; consequently, after long-continued rain, they became overcharged, and were unable to empty themselves during the short period of low water. The want of flow, also caused large accumulations of deposit in the sewers, the removal of which was difficult and costly. These defects, added to the malaria arising from the stagnant sewage, contributed to render the district unhealthy; and it was with reference to its condition, that the late Mr. R. Stephenson and Sir W. Cubitt so forcibly described the effect of artificial drainage by pumping, as equivalent to raising the surface a height of 20 ft. The Low-level Sewer had rendered this district as dry and as healthy as any portion of the metropolis. Its length was about ten miles, and its size varied from a single sewer 4 ft. in diameter at the upper end, to two culverts each 7 ft. by 7 ft. at the lower end, their fall ranging from 4 ft. to 2 ft. per mile. The lift at the outlet of the sewer was 18 ft. Much difficulty was experienced in executing a portion of this work, close to and below the foundations of the arches of the Greenwich Railway and under Deptford Creek, owing to the immense volume of water there met with. This was, however, at last surmounted, by sinking two iron cylinders, each 10 ft. in diameter, through the sand to a depth of about 45 ft., the water being kept down by pumping at the rate of from 5,000 to 7,000 gallons per minute. The sewer was carried under Deptford Creek, and the navigation was kept open, by constructing a coffer-dam into the middle of the creek, and executing one-half of the work at a time.

The Deptford Pumping Station, where the sewage was lifted from the Low-level Sewer into the Outfall Sewer, was provided with four condensing, rotative beam engines, each of 125 horse-power, and capable together of raising 10,000 cubic feet of sewage per minute, a height of 18 ft.

The Southern Outfall Sewer conveyed the sewage which flowed into it from the High-level Sewer by gravitation, through four iron culverts laid under Deptford Creek, and that which was pumped into it from the Low-level Sewer, from Deptford through Greenwich and Woolwich to Crossness Point in the Erith Marshes. It was entirely underground for its whole length, 7½ miles; was 11 ft. 6 in. in diameter; and had a fall of 2 ft. per mile.

The Crossness Reservoir, which was 6½ acres in extent, was covered by brick arches supported on brick piers, and was furnished with overflow weirs and with a flushing culvert. Its height, level, and general construction were similar to that at Barking Creek. The ground upon which these works were constructed consisted of peat and sand, or soft silty clay, and afforded no sufficient foundation within 25 ft. of the surface. The outlet of the Southern Outfall



ST. ANDREW'S, HECKINGTON: SOUTH-EAST VIEW OF THE TOWER AND PORCH.

[See p. 205, ante.]

Sewer was ordinarily closed by a penstock, and its contents were raised by pumping into the reservoir, which stored the sewage except for the two hours of discharge after high water. The sewage was thus diverted from its direct course to the river into a side channel leading to the pump well, which formed part of the foundation for the engine-house. From this well it was lifted by four high-pressure condensing rotative beam engines, each of 125 horse-power, actuating, direct from the beam, two compound pumps, each having four plungers.

The bricks used in the works had been mostly picked stocks, frequently faced with gault clay bricks, and the inverts were occasionally faced with Staffordshire blue bricks. The brickwork was as a rule laid in blue lias lime mortar, mixed in the proportions of two of sand to one of lime, for two-thirds of the upper circumference of the sewers, and the lower third had been laid in Portland cement, mixed with an equal proportion of sand. A considerable length of sewer had been laid entirely in cement. A double test

of the quality of the cement had been employed, which had tended greatly to improve the manufacture of that material. The specifications provided that "the whole of the cement shall be Portland cement of the very best quality, ground extremely fine, weighing not less than 110 lb. to the bushel, and capable of maintaining a breaking weight of 500 lb. on $1\frac{1}{2}$ square inch, seven days after being made in an iron mould, of the form and dimensions shown on a drawing, and immersed in water during the interval of seven days."

There were about 1,300 miles of sewers in London, and eighty-two miles of Main Intersecting Sewers. The total pumping power employed was 2,380 nominal horse-power, with an average estimated consumption of 20,000 tons of coal per annum. The sewage on the north side of the Thames at present amounted to 10 million cubic ft. per day, and on the south side to 4 million cubic ft. per day; but provision was made for an anticipated increase up to $11\frac{1}{2}$ and $5\frac{1}{2}$ million cubic ft. per day respectively, in addition to a rainfall of $28\frac{1}{2}$ and $17\frac{1}{2}$ million

cubic ft. per day respectively, or a total of 63 million cubic ft. per day.

The total cost of the Main Drainage Works would be about £1,000,000. The works had been executed under the immediate superintendence of the assistant engineers, Messrs. Lovick, Grant, & Cooper. The principal contractors had been Messrs. Brassey, Ogilvie, & Harrison, Mr. Webster, Mr. Furness, Messrs. Aird & Sons, Mr. Moxon, Messrs. James Watt & Co., Messrs. Slaughter, and Messrs. Rothwell & Co. The works were now completed, with the exception of the Low-level Sewer on the north side of the river, which was being formed in connexion with the Thames Embankment and the new street to the Mansion House, and would therefore, probably, not come into operation for a couple of years. The proportion of the area drained by that sewer was one-seventh of the whole. Some sections of the works had been in operation from two to four years, and the largest portion for more than one year; so that the principles upon which they were based had been fairly tested.



PROPOSED ROYAL ARCADE, BRIGHTON, SUSSEX.—MR JOHN ELLIS, ARCHITECT.

ROYAL ARCADE, BRIGHTON.

An arcade on an improved system is about being erected in Brighton, on a plot of land running parallel with the Esplanade from West-street to Middle-street. It will be about 320 ft. in length, with a 25 ft. avenue, containing on both sides thirty shops; consisting each of kitchen, cellars, scullery, shop, show-room over, and two bed-rooms, with all requisite conveniences. Each front, as may be seen in our engraving, is included within an arch, and will be formed of bronze, granite, and Serpentine. The decorations will be principally in Majolica ware, expressly designed for this building, and the whole will be covered with an ornamental iron roof, which will ventilate the entire arcade. The necessity for a building of this kind has long been felt in Brighton, and the applications for leases of the shops have been very numerous, and will all shortly be granted, we are told, to first-class tenants, who also have establishments in London and Brighton. The ground is freehold, and building operations will be commenced as soon as possession can be obtained. A good dividend is anticipated. The cost will be about 30,000*l*. The arcade has been designed, and the works are to be carried out, under the direction of Mr. John Ellis, architect, London.

RATS.

This is an unpleasant subject; but in a sanitary point of view it must not be passed over without observation. The writer has often had opportunities of seeing the ravages of these vermin in large mansions, especially about thirty or forty years or so ago, when ill-constructed house-drains of brick were much in use, and when the trapping of closets was carelessly attended to, and in the servants' quarters left out altogether. In such cases the rats in many a stately dwelling mustered in multitudes, and committed no end of havoc. Then the rat-catcher, with his traps, poison, and other means of destruction, went his regular periodical rounds; and, after one of these visits, we have often seen a stack of rats 6 ft. or 7 ft. in height, and about the same in length and breadth, piled up as a monument of the ratcatcher's skill, and for the purpose of adjusting the amount of payment for work done. The damage which those thousands of rats caused to premises must have been enormous. They got into the poultry-houses and destroyed young birds; they often even had the power to break the shells of eggs and devour the contents. In the stack-yards, barns, stables, and larders, the extent of their depredations could not be well estimated; but in connexion with the foundations of large structures, the destruction was perhaps of still greater money value. Besides, there were outbreaks of pestilence and deaths, which were to be attributed to rats in unsuspected places eating holes through drains, and admitting the poisonous atmosphere into suites of apartments which, in the thought of the tenants, were safe from such dangerous intrusion.

In one respect, it must be admitted that the rats have done some service, for in the sewers of the metropolis and the large towns they have done a deal of scavenging, and removed much impurity. In the Fleet stream, before it was covered from the daylight, especially when so much slaughtering of animals was done about Saffron-hill, in the dark sewers, we have seen shoals of rats busy with their work. In those parts the persons who provide rats for the amusement of a certain class of young gentlemen, of no great credit to the present age, find the animals which are, as in the days gone by, intended to test the activity of their dogs.

Sometimes—we can speak for five or six years ago—there might be seen in the streets of London a tall picturesque-looking man, with an illuminated belt across his shoulders, on which were shown several rats, done in gold, and the royal arms, together with the notification that the wearer was "Rat-catcher to Her Majesty;" two or three grave and well-conducted looking dogs following closely behind. The royal rat-catcher also carried about with him bags of ferrets and other "properties" connected with his calling. It may be hoped, however, that at the present time, neither in connexion with the higher places in the realm nor elsewhere is the rat-catcher so important a functionary as he was a few reigns ago. Nevertheless, it is certain,

that far more has been done by the drain-maker in driving away rats from many important buildings, than by the operations of the rat-catcher; and in the metropolis, except in neglected places, the evil has been greatly mitigated. But still, as we know to our own cost, it too frequently happens, even in new districts, where the drainage is supposed to be properly cared for, that the inhabitant of one house has a predilection for home pets, fowls, rabbits, &c., which are cooped up in the back yard, whereby rats are enticed to find out the discrepancies in the sewerage, and the whole neighbourhood becomes a prey to their incursions. Kitchens and outhouses are undermined, and numerous inaccessible connexions with the drains open up the means of admitting the most poisonous gases; and though the owner of each house may incur great expense in endeavouring to stop the mischief, the seat of the disease is allowed to remain, the home pets increase, and the nuisance is unabated. The parish or Board of Health authorities should put a stop to all such encouragements of vermin, as well as the dust-bin accumulations, in the back yards of thickly-inhabited places.

Earthenware drain-pipes, trapped sinks and closets,—the traps at the points of communication with the main sewers,—are means of keeping many dwellings free from the unpleasant visitors; but independently of this, it is hoped that in the new main sewers no islands of sand or mud will be allowed to collect, to afford a standing or feeding place; if this be carefully seen to, the rats will be driven from the sewers altogether. On the banks of the canals, at the wharfs there, and along the sides of the Thames, in the docks, and elsewhere, these animals are still a source of mischief and annoyance; but as regards the Thames, there is hope that the evil will be abated when the impurities are intercepted which, by lying on the shores, attract and foster the rat tribe.

The disappearance of these pests is a sure sign of sanitary progress.

THE ART-DEPARTMENT MINUTE AND THE ART MASTERS.

Sir,—As you have allowed Mr. D. W. Raimbach, one of the ancient masters of schools of design, to express to the public his opinion of this iniquitous Minute, which opinion is one of approbation, I ask the privilege also of replying to that opinion, and of showing what it is worth.

It may be inferred, because Mr. Raimbach is connected with the Birmingham School of Art, that he is an art-master who approves of the new Minute. I believe such a creature does not exist, and I think I can explain Mr. D. W. Raimbach's cause of delight. We have heard of the story of the fox and the grapes, and, remembering that Mr. Raimbach is master of the important school at Birmingham, whilst possessing only the elementary certificate of third grade, it may suit his purpose to make light of the advanced-figure certificates which he has never been able to obtain.

I would not have the public believe that the elementary or first certificate does require an overwhelming amount of art knowledge. In fact, it is the qualification which I require my junior assistants to hold after one year's probationship. But this is the A B C of an art-master's qualification: Mr. Raimbach's experience reaching only to the A B C, he says the whole alphabet is simple, and represents no great knowledge; and as he knows nothing about the rest of the alphabet, he is delighted that it is no longer necessary for men in similar positions to that which he holds. It is the old story: if you cannot reach the height attained by other men, try and pull them down to your own level.

When schools of design were pronounced a failure, Mr. Raimbach was a master of a school of design; and when schools of art, which have been pronounced successful by the Select Committee of Parliament, began to require a more highly-qualified set of teachers than ever were employed in the schools of design, it became a general question, "What is to become of the old masters?" Some said, "Hang them in the National Gallery;" and others, that Nature, in her beneficence, would gradually remove them, and that otherwise they need not be disturbed. And thus it has been: some have died, others have retired, one is in a lunatic asylum,

and Mr. Raimbach remains, I believe, the last of his race, to rise up and vilify the successful descendants of his class who are now attaining in art education what he and his fellows only attempted.

Mr. Raimbach's approval of the Minute must be valued at its true estimate. Art-masters and the committees of provincial schools generally disapprove of it, because it will rob them. It takes on an average three-fourths of all grants from the country schools and country masters. But does it affect Mr. Raimbach equally? No. He has an income of 75*l*. a year as an old master of a school of design, for doing nothing. And as this comes from the taxes of the country, art-masters and others, I leave you to judge of the good taste he displays by siding with the oppressors, and vilifying art-masters, when the latter make a stand for justice and fair play. If the Minute had abolished his pension, as it takes double his pension from me, we should have heard nothing of the fairness of the new regulations; but as it leaves him untouched, and only operates on every art-master, he thinks it quite just.

On the character and qualifications of the masters of schools of art,—the men who possess the certificates, whose value, artistically and educationally, Mr. Raimbach repudiates,—Sir Charles Eastlake, who may perhaps be recognised as even a higher authority than Mr. Raimbach, made this statement before the select committee of Parliament:—

3584. "Are there not throughout the schools of the United Kingdom many men of real ability, both as artists and teachers, conducting these schools?" "Yes; I have no doubt of it."

3588. "Do you, therefore, think that suggestions coming from them ought to be treated with respect?" "Yes; no doubt."

In position to Mr. Raimbach's opinion that "the Minute will displace bad art-masters," I assert that it will only displace the good ones, and leave the bad ones. The men whose abilities and experience will fetch a fair price in the educational market, will leave the schools and sell their labour among the upper and middle classes who will pay for it, and those only whose culture and abilities cannot command this market will remain in the schools for the pauper prices which they can get. Good educationalists could not afford to remain in the schools to teach the working men at the artisan prices, unless assisted, as previously, by Government grants, or unless bolstered up by a pension.

I will quote an instance: I myself give to the public work in Leeds, for a little over 100*l*. per year, the time per week for which middle-class schools would pay me 300*l*. per year. But, with the State assistance to the schools, this labour of mine is paid for. Now, when three-fourths, at least, of this assistance is withdrawn, is it a likely measure to keep me in the school? Yet, a man holding one certificate, and without experience, might be kept in the school, because out of it he would have no chance of employment.

The measure would then either cause the discontinuance of instruction to working men,—the very class for which all the schools were established,—and convert the schools into merely middle-class drawing studios, or shut up the majority of the schools by the withdrawal of the more highly qualified master, leaving only the very lowest class.

And Mr. Raimbach must not apply his argument, that, because we in Leeds will be displaced by the Minute, we are bad art-masters; because I shall in return remind him that the return of the Birmingham school's success, in the last blue-book, credits the school with two national medals, thirty-three medals, and 403 successful students; and the last examination of the Leeds school credits it with four national medals, forty-one medals, and 983 successful students.

The idea that the effect of the Minute will be to cause a spread of drawing among night-classes and mechanics' institutions, is erroneous altogether. The Minute insists on three nights per week instruction in such institutions as a condition of the assistance given. Now, I think Yorkshire may be held to be a fair specimen of a county supporting mechanics' institutions; and as there are in the borough of Leeds ten of these institutions,—with the majority of which I have been at different times more or less connected,—I think we in Leeds have a right also to express an opinion on the point. Out of this number there is not one among them which ever has given, or could by any possibility devote, any portion of its

premises for three nights per week to a drawing-class, or afford to pay for the lessons. The majority cannot even give room for one night per week, preferring to use their very limited class-accommodation for such subjects as reading, writing, and arithmetic. Nor will the inducement held out by the Minute make it worth their while to establish such classes.

If the Minute offered the same encouragement to the institutes for one night's instruction per week as it does for three, provided the pupils passed the necessary examination, then real good would have been done. As it is, the scheme will be wholly inoperative.

With reference to the "irritating, harassing surveillance" experienced by the masters of schools, I can only say that there must have been something exceptionally wrong in Birmingham to make it necessary. I have held my appointment in this school for six years, during which it has been visited by four different art-inspectors and the secretary of the Art-Department, and I have never experienced any such surveillance, at the time of their visit or any other time. On the contrary, the visits of inspectors have been among the most pleasant and profitable events which have happened to me. You get the advice and experience of a highly-qualified man, who visits a large number of schools, and whose opinion on school management is valuable, and experience unquestioned; and I believe one of the very worst features of the Minute is that which dispenses with the services at examinations of these inspectors, and places the examinations of schools of art and elementary schools in the hands of an ever-changing agency, the committees, and whose qualifications for the office even courtesy itself would not be sponsor for.

In conclusion, I claim as much experience as an art-master as Mr. Raimbach, and regard the Minute as a wretched bungle, because it will destroy that which it proposes to foster.

Leds.

WALTER SMITH, Head Master.

P.S. Since writing the above, I have heard that Mr. Raimbach did not obtain even the first elementary certificate, when I supposed he did; so that he actually does not hold any certificate of qualification whatever.

THE ORDINARY OF NEWGATE.

MANY who had the opportunity of knowing the active and kindly working of the gentleman who for a number of years held this important office, heard with regret of the very sudden death of the Rev. J. Davis. In connexion with the central metropolitan prison, the name of the deceased gentleman has been much before the public at times when notorious criminals have suffered at Newgate. On these occasions, which unfortunately have been of too frequent occurrence, Mr. Davis spared no exertions to do good. But it was not on those sad occurrences only that the ordinary was called upon to do work which was painful: he was the means of saving many who had been cast into prison on the suspicion of crime, and of leading others to better ways.

The duties of the conscientious chaplain of a large prison are of far more consequence than is generally supposed. Besides the regular religious services at which all the prisoners who are in a sufficient state of health attend, the attentive chaplain pays solitary visits; and if there be good in either man or boy, woman or girl, he is likely to find it out, and has opportunities of interfering with relations and in various ways helping to place those who have strayed into a wrong path into the right way again.

To fill with good effect the office of a prison chaplain requires that the person appointed should have some degree of knowledge of the class of people who are likely to come into his care, and he must earnestly, and without thought of personal convenience, devote himself to this duty; there are also books to be kept and reports to be prepared.

While lamenting the death of Mr. Davis, we are glad to learn that the Rev. Thomas Pugh, the evening lecturer at St. Sepulchre's, Skinner-street, has been provisionally appointed by the Court of Aldermen to fill the post of Ordinary of Newgate. For this office Mr. Pugh is well fitted. The writer had opportunities of noting, years ago, when the cholera was raging in parts of the London district, the exertions made by Mr. Pugh, who was then curate of the poor neighbourhood attached to Old St. Pancras

Church. Besides attending to the church duties, the curate found the means of establishing a district sanitary committee, and made a minute inspection of the poorer parts of his neighbourhood. This led to much good in various ways; for, besides the sanitary improvements which were made, large numbers of children were sent to school and church. Afterwards Mr. Pugh undertook the duties of chaplain at the St. Pancras Workhouse, where there are usually about two thousand inmates; and here a very difficult task was satisfactorily performed, until a dispute chancing to take place between one of the medical officers and the guardians of the parish,—the medical attendant having confided a matter to Mr. Pugh in confidence,—the latter when called upon by the parish Board to give the particulars; declined to do so; and, in consequence, a rupture took place, and the parish lost an effective officer and the poor pent-up paupers a sincere friend. Since then, this gentleman has worked hard in several ways, and has not been idle in the neglected slums of St. Sepulchre's. Believing that the experience which he has gathered, often with much pain, and the earnest efforts which he would use in connexion with any labours which he might undertake, would render him most useful as the religious instructor in the City Prison, we hope that the Court of Aldermen will avail themselves of the opportunity of obtaining Mr. Pugh's services permanently.

REWARDS TO RAILWAY SERVANTS.

WITH reference to the impending Exhibitions in Dublin and Paris, Mr. W. H. V. Sankey desires to suggest, through our pages, the desirability of "rewarding such railway servants as, by the nature of their employment, have to fill positions of combined responsibility and risk, and who have by cool judgment, steadiness of habits, long service, and irreproachable conduct, merited well of the community." "These men," he goes on to say, "have an immense responsibility cast upon them. They have to brave the stormy elements in the worst seasons of the year, and they must be constantly sober; they must be a painstaking, cleanly, obedient, energetic, active, intelligent set of men; and it is to the interest of every one that they should have some incentive for performing their duty honourably and efficiently."

We share the feeling and belief that prompt the suggestion, but, for all that, cannot recommend it. If we are to give prizes to engine-drivers, pointmen, signal-men, and others engaged on railways, for doing their duty, on what ground are we to pass over sea engineers, pilots, and others, from whom equal energy, activity, power of endurance, and clearheadedness to a like end, are required? The man of medicine risks his life in an infected atmosphere; the exercise of his profession, without hesitation or comment. It is his duty, and he does it. He looks for no medal from the public; and if he did so, he certainly would not get it. The intelligent body of men employed on railways want no rewards for doing what they ought to do: they only want justice from their employers.

GUARDS' INDUSTRIAL HOME, WESTMINSTER.

UNDER this title a building has just been completed in Westminster, for the officers of the Brigade of Guards, from the design of Mr. H. A. Darbishire, architect.

It is intended for the education and maintenance of the daughters of non-commissioned officers and men of the Brigade of Guards. It will accommodate about forty girls, and is situated in Francis-street, Vauxhall Bridge-road, adjoining the Victoria Lodging House, which was built some years ago for the married soldiers of the brigade.

The basement story contains a large dining-room, kitchen, scullery, larder, and store-room, with vaults for coal-cellars, ash-pits, stores, &c. In the ground story are the brigade school, communicating with the Victoria Lodging House, with W.C., lavatory, &c.; an infants' nursery, where young children can be left with safety during the day while their mothers are occupied in washing or charring; a matron's room, lavatory, and separate porch entrance. The first-floor includes a large school-room, for the exclusive use of the house; a dormitory with four-

teen beds; a matron's parlour and bed-room, with lavatories and W.C.s. The second-floor contains two dormitories, each with sixteen beds; sub-matron's room, monitor's room, W.C.s, and lavatories. The third-floor has a sick-ward, with six beds, nurse's room, laundry, drying-room, ironing-room, clean and foul linen rooms, bath-room, W.C., and lavatory.

There is a good play-yard in the rear of the building; and the cost of the whole, exclusive of the site, will be about 3,000l.

THE ARCHITECTURAL ASSOCIATION.

THE usual meeting of members was held on Friday evening, the 17th instant, at the House in Conduit-street, Mr. Thomas Blashill in the chair.

Mr. R. P. Nottley, of Redcliffe-road, West Brompton, was elected a member of the Association.*

The hon. secretary of the Voluntary Architectural Examination Class brought up the report for the year 1864, which stated that the number of members was twenty-one, and the average attendance ten.

The Chairman expressed his hope that the members of the Association would more generally avail themselves of the advantages to be derived from attending this class.

Mr. Parnie inquired whether the memorial to the Royal Institute of British Architects on the subject of architectural examination, referred to at the last meeting, had as yet been presented. From what he had been able to collect with reference to it, he fancied it was not of a sufficiently practical character to be acted upon by the Institute. In February, 1863, he had brought the subject under the notice of the Association, as he had always been of opinion that the charges of architects should be settled by some competent representative body, and that their authority to practise ought to be recognised by a certificate or diploma, to be issued by the Institute. If an architect had nothing to show that he was an architect, he was in no way superior to the builder or bricklayer who might assert his claim to be a member of the profession.

The Chairman said that no opportunity had yet occurred to present the memorial to the Council of the Institute, and that it would be premature to discuss the subject further at present.

Mr. R. O. Harris observed, that at the last meeting he had given notice of his intention to bring under the notice of the Association certain announcements issued by a publishing and lithographing firm in the neighbourhood of Lincoln's-in-fields, offering to prepare competition drawings, architectural plans, &c. Since then he had been advised not to do so, the general impression being that no respectable architect would avail himself of such services as those offered.

A Member said, that he thought it would be very undignified of the Association to take any notice of the announcements of the company to whom Mr. Harris referred. As learning was not a limited quantity, they had a perfect right to execute plans and drawings for any one who might employ them.

A paper was then read by Mr. J. Webber, on "Limes and Cements."

GAS.

Two important reports have been printed by the city authorities on the metropolitan gas question. One of these is the "Report of the Special Committee of the Commissioners of Sewers on Gas," and is dated 28th February, 1865. The other is a "Report to the Special Gas Committee on the Existing Conditions and Circumstances affecting the Gas Supply in the City of London," by W. Haywood, C.E., and H. Letheby, M.B., the one engineer and the other gas analyst for the city. This report is dated 10th December, 1864. The members of the Special Committee were Messrs. De Jersey, Farrar, Teulon, Chaplin, Bone, Green, and Elliott. They recommend

1. That an offer should again be made to the companies for the commission to undertake the lighting, extinguishing, cleansing, and the entire charge of the public lamps, affixing meters to every twenty lamps or thereabouts, and adopting such other precautions as will ensure a fair average consumption.
2. That the companies be requested to affix, at their expense, governors or regulators to the whole of the public lamps.
3. That the further assistance of the police be, if possible, obtained in the supervision of the public lighting.
4. That the application of Mr. Greenfield in respect of his carburetted apparatus be not complied with.
5. That all legal measures to secure to the citizens gas, equal to the Act of Parliament standard of illuminating power and chemical purity, should be resorted to.
6. That an application be made to the Secretary of State for the Home Department, to institute inquiry as to the capitals of the several companies, and for the purpose of securing to the consumers all the advantages contemplated by the Metropolis Gas Act, 1860.
7. That after mature consideration of the subjects referred to us, we are of opinion, that it is inexpedient at the present time to take measures with the view to the Commission manufacturing and selling gas, but that appli-

* In notice of last meeting, amongst members elected for "G. Walsh" read "Geo. Welch."

cation be made to Parliament for a modification of the Metropolis Gas Act, 1860, so far as it affects the City of London, and especially with the view of obtaining, for the citizens, gas of a higher illuminating power, of greater chemical purity, and at a cheaper price than that now supplied, and such other powers as may be beneficial to the rate-payers and gas consumers in the City.

If these, our suggestions, be carried out, we believe the citizens of London will be supplied with gas at less cost, of a higher illuminating power, of greater purity than heretofore, and yet that the companies will continue to receive a 10 per cent. dividend on their capitals; but should the commission fall thus in its endeavours to benefit and to protect the public, we, unhesitatingly, advise that a respectful recommendation be made by your honourable court, to the Lord Mayor, aldermen, and common councilmen of the City, in common council assembled, to consider the propriety of its providing the means for constructing works, laying down distributing pipes, and undertaking the manufacture of gas for the citizens.

We are the less reluctant in recommending this course, because the commission possesses no funds from which to meet the cost, and would have to obtain additional powers of taxation for the purpose."

In a postscript the Special Committee say,—

"On the 14th day of February instant, when our labours were nearly at an end, and the preparation of the materials for this, our report, in hand, letters were received from the companies, stating that they intended reducing the price of gas to 4s. at Christmas next, although on the 28th of November last, the directors of the companies had declined to hold out to us hopes for any immediate reduction in the price. We have therefore to congratulate your honourable court on this, the first step towards the attainment of the objects so much sought for by our fellow citizens."

It is an extraordinary and most absurd fact that the present price per lamp per annum of gas for the City streets is about 4½ per cent. more than it was in 1823, when gas was at 15s. per 1,000 ft.

The private consumption of gas in the City is estimated to be about 1,000,000,000 cubic ft. per annum, so that excess of even 6d. per 1,000 ft. on that supply has cost the citizens 25,000l. per annum, or transferred that sum to the pockets of the companies.

A reprint of a series of articles on "The Gasworks of London,"* by Mr. Zerah Colburn, C.E., from the *Engineer* journal of 1862, has been issued. The matter has been corrected and extended beyond its original scope. Mr. Colburn, in his introduction, acknowledges his obligations "to almost every gas engineer in London" for information on the subject of the London gas manufacture; and the treatise may, therefore, be regarded as reflecting the views of the gas engineers and the companies who employ such engineers; and accordingly, in the face of facts throughout the country which clearly prove the possibility of reaping the highest allowable profits from far lower prices than the metropolitan, under much less favourable circumstances, Mr. Colburn is of opinion that "after all the agitation created by a certain class [who are the certain class but the gas consumers in the mass as a class] the only hope of cheaper gas [than 4s. 6d., be it noted] lies in one or all of three contingencies,—first, in diminished leakage; second, in making a great profit upon the residual products; and third, in a diminished profit upon the capital employed;" and that although "it is quite possible that all the ordinary gas burnt in the metropolis may yet be sold at 4s.," nevertheless "any diminution in price [from 4s. 6d.] must be the result of time." Now, the most significant comment which it is possible to make on this opinion is the fact that already, since this extended and corrected reprint of 1865 was issued, the companies are belying their own advocacy, by announcing the reduction of their price from 4s. 6d. to 4s., without waiting the "result" of much "time" experience; and they are likely to be compelled, very shortly, to make a still further sacrifice of both time and price, if "a certain class," and certain authorities, persist in their determination to have really cheap and good gas, and not, as it is even yet, both dear and bad. Moreover, why should the present enormous and hurtful leakage be permitted?

THE LOCK-OUT IN THE IRON TRADE.

THE only point requiring our notice this week is that at a meeting of trades' delegates, held in London, a resolution was carried to the effect, that the North Staffordshire men be recommended to go in, and thus end the lock-out, submitting their case, at the same time, to arbitration. It is even said that the men on strike have unanimously agreed to submit their case to arbitration; and the masters, it is hoped, will also agree. Great misery and loss to all would thus be saved.

* Spott, Bucklersbury.

DYE-HOUSE ROOFS: STEREOGRAPHY.

At a recent meeting of the Manchester Literary and Philosophical Society, a paper, "On a New Form of Roof for Dye-houses," by Mr. John Thom, communicated by the President, was read. The object of the communication was to describe the construction of a roof for buildings in which there is a good deal of vapour, so as to produce the minimum amount of condensation of such vapour inside the buildings, and thus avoid the production of drops, as well as the minor evil of an obscure atmosphere. At the same meeting Mr. Dancer read a paper "On the Exhibition, Stereoscopically, of Photography on a Large Scale,"—a desideratum suggested in the *Builder* when stereographs first appeared. Stereoscopic transparencies were cut in two, and each half placed in its position in an oxyhydrogen lantern mounted with achromatic object-glasses. The half stereographs were then projected in juxtaposition on a long screen, and to realize the proper stereoscopic effect, the members were supplied with achromatised prismatic stereoscopes which had been prepared expressly for the purpose. Mr. Brothers exhibited a stereoscopic picture of the Blue John Mine in Derbyshire, which he had taken by the aid of the magnesium light, giving an exposure of five minutes. The negative was slightly fogged, owing to the lenses not having been wiped, and the dense fumes of magnesia caused by so long an exposure prevented another trial.

SEWAGE OF GREAT CROSBY DISTRICT, LIVERPOOL.

A GOVERNMENT inquiry has been made on this subject, Mr. Robert Morgan, C.E., being the commissioner sent down to examine into the projected scheme of the Local Board for sewerage, the district by making the outfall on the shore. The sum required to be borrowed was 8,500l. Complaints of this scheme were made by the landowners adjoining the shore, the fouling of which, they urged, would ruin their property.

Amongst other witnesses examined was Mr. Tarbotton, C.E., surveyor to the corporation of Nottingham, who said that, after carefully examining the district and the plans, he thought the system proposed by Messrs. Reade & Goodison was, in point of outfall, superior to that proposed by the Local Board. On the ground of public propriety, decency, and health, and on engineering grounds, the outfall proposed by the Local Board was, he thought, calculated to do considerable mischief. He considered that the other scheme to which he referred was reasonably sufficient.

The commissioner afterwards proceeded to make an inspection of the district, and he will make his report to Sir George Grey in due course.

The plan of Messrs. Reade & Goodison has been reported on in a printed form. Its cost, they state, would only be 4,900l., and the outfall would be the natural outlet at Forby's Pool, which delivers at about high water of 16 ft. tides, and is consequently not liable to be locked up by the formation of shifting banks, fouling the shore, as the Local Board's scheme would be. The engineers require filtering tanks of simple construction to be placed in duplicate at the point of outlet in Dibb-lane. The plan suggested, they consider, would not only be the cheapest and least objectionable, but the most effectual,—pending the coming man!

SANITARY MATTERS.

Sidmouth.—The local Board have determined to construct a large outlet sewer into the sea, at low-water mark, so as to divert the present outlet from the river, and thereby prevent the accumulation of sewage matter at that point. The first part from the town drain will be a brick culvert of 130 ft., and the remainder 150 ft. by iron pipes of 2 ft. 6 in.: the increased fall of 4 ft. will enable the local Board in future years, by reconstructing the town drains, to drain the whole of the town.

The neighbouring towns of Budleigh Salterton, Exmouth, Dawlish, Teignmouth, and Torquay, have completed their outlet sewerage to the sea. Paignton and Brixham are about doing the same under the direction of Mr. Appleton, of Torquay.

Whitehaven.—It seems that there are 193 inhabited cellars in the town of Whitehaven, only

twenty of which come under the requirements of the Act as being fit for habitation. It is quite clear that there is a great want of accommodation for poor people in the town. It has been agreed by the Trustee Board that the closing of the cellars is very desirable, but that it is a move which ought to be made very gradually to avoid hardship. It is estimated that the population of the 193 habitations is not less than 562 persons.

The Epidemic in Russia.—It will have been noticed, that the contagious and epidemic fever which rages at present in St. Petersburg, carries off hundreds daily. The sanitary measures, prescribed by the Committee of Health, have been hitherto unefficacious, and the authorities have been obliged to place the barracks of the guards at the disposal of the patients. In this building 2,000 beds have been prepared, the accommodation in the ordinary hospitals being insufficient; and the Prince of Oldenburg, president of the Council of Public Assistance, has ordered 600 beds for the sick in the Alexander manufactory buildings. The Minister of War is also to give up some buildings in his department for the same purpose. Some cases have already appeared in Moscow, and it is feared from the facility of communication between St. Petersburg and Warsaw, that it will also spread to the latter town, and thence, perhaps, to the rest of the Continent. Thirty surgeons have been sent from Moscow and Nijni-Novgorod, to assist in arresting the progress of the disease at St. Petersburg.

IRON-FOIL, TIN-FOIL, AND GOLD-FOIL.

THE thickness of tin-foil and gold-leaf, desiderated at page 200 of the *Builder*, I find, from "3 of 'Manufactures in Metal' in Lardner's 'Cabinet Cyclopaedia,' pages 24 and 383, to be,—Tin-foil, the 1,000th of an inch; gold-leaf, the 252,000th of an inch.

Brother Jonathan perhaps considered that he had accomplished enough when he produced iron-foil as thin as tin-foil, not anticipating anything like the Swansea achievement of 4,800 leaves to the inch. JAS. WYLSON.

DECAY AND DEMOLITION OF ROOD SCREENS.

WRITING from the West of England, I regret that there is not kept in some central institution a record-book or folio, in which drawings of screens which have been destroyed or set aside as lumber, could be preserved.

Dulverton Church, Somerset, had remains of a very singular oak screen, with an ingeniously-contrived standard to mask its abutments on the piers. This, when the church was rebuilt, in 1853, from inability to renew it, was lost; so was Brompton Regis screen. Tiverton Church had a very rich example, with coloured flowerets in the panels of the groining. The upper, the best part of this, was, in the rebuilding of the church, sacrificed. Holcombe Rogus, not far distant, had some fine illuminated panelling and stumps of standards, boarded over for concealment. Colmington screen was repaired and re-illuminated about fifteen years since. Here "the place of a skull" is well carved in a beam retaining the mortise for the rood. Kentisbeare, near it, has a rich oak screen in good preservation; and Plymtree, a village in the same vicinity, a fine coloured example, with figures of saints. So has its neighbour, Bradninch Church; but here some liberties in paint have been taken.

Awliscombe has a Beer stone perpendicular screen, well preserved: a similar one seems to have been cut out in the neighbouring church of Gittisham, to make way for a classic composition. Honiton old church has a noble example.

In South Devon, Totnes has a grand Perpendicular coloured stone screen, encumbered with a gallery over it, and the bottom panels concealed by seats. It is of great height, 13 ft., and exhibits a variety in its carving, tracery, and groining. Dartmouth Church has a rich wood screen, of late date. There is a fine stone composition fencing off the "Kirkham Chantry," in Paignton Church, ruinous but not in danger; Churston Ferrers Church, near Paignton, has singular and rich examples: two of the screens are illuminated. It is feared, that in a rearrangement of seating, these will not meet with the care and reverence which their value demands. I hope to describe others, existent or demolished, in another letter.

CONSERVATIVE.

GOTHIC ARCHITECTURE IN SPAIN.

As my name is referred to in the *Builder* *critique* on Mr. Street's new work on Gothic Architecture in Spain, I am desirous of stating that I have published two works on Spain. The first, in conjunction with Mr. Maquoid, contains some of the best Renaissance bits, views, and detail in various parts of Spain; and this is the work apparently referred to by you. The other, consisting of over forty large lithographs, illustrates Burgon, Miraflores, and the neighbourhood. Mr. Street refers several times to this last; but, in describing the beautiful monument of Juan and Isabel at Miraflores, omits to state that it is fully illustrated in my work, and speaks only of "an illustration" of the tomb of Alfonso as being done by me, whereas this, also, is given in detail.

He then states that I call the small cloisters of Huelgas "Romanesque;" but, on reference to the letter-press, he will find the words "of a Romanesque character," they being, as he justly supposes, transitional. As regards San Pedro de Cardenas,—that old church still exists, but is of the plainest description, and well, or badly, whitewashed. It is curious that Mr. Fergusson, in the sketch of Spanish architecture in his "History of Architecture," omits any mention of either of my books on Spain, though both were published years ago; and, moreover, treats the public to copies of Villa-Amil's views, which, in the preface of each of my works, are expressly stated to be entirely untrustworthy.

Mr. Street has done excellently well in his new book, and leisure so employed he may well be proud of.

I may perhaps add, that in the *Builder* of 1852, several articles by me were given on Spanish Architecture, to the last of which, p. 197, I venture to ask Mr. Street's attention.

J. B. WARING.

WANTED, A CARPET-GROUND.

Will you kindly make known, through the medium of the *Builder*, the want now felt by most West-end carpenters and upholsterers, of a carpet-ground, or place where carpets could be beaten, within a reasonable distance,—say two or three miles of Charing-cross, south or west.

Every year the houses, and, I suppose, the carpets, are increasing; and every year the places to beat carpets are getting fewer and further apart. One at Westminster, two at Chelsea, and one at Battersea, have been built upon or closed within the last year or so. I know of only one left now, and that is beyond the Brompton Cemetery, and which is generally so crowded in fine weather, that the time spent in going and coming and waiting for your turn makes carpet-beating very expensive, besides having to be so very civil to the now independent proprietor. This was at one time a good paying branch of our business, when the grounds were nearer; but it must be a good customer to tempt a master now to send a couple of men with one or two carpets to beat, at anything like the old prices. Surely some enterprising capitalist or limited liability company could find a vacant piece of ground to establish a ground. The capital required would be small. Some dozen or two of brooms, as many sticks, a few poles set up, a secure shed to store the carpets and keep the things in, and one man to look after them and take money, and let it be made known to those in the trade, and the thing is done. I am sure the investment would be a good one, as the season is coming on when there will be thousands of carpets to beat, and but little room to beat them in. F. H.

THE FIRE AT STANGATE.

Sir,—Referring to the account of the fire which occurred on my works on Tuesday night (as reported in the morning papers), I beg to say the damage done is by no means so extensive as represented, as the stock in the different warehouses is unimpaired.

By large and cart I have nearly cleared the factory of the debris; by twelve o'clock to-day I had the steam up again, and the brass-foundry, although without a roof (at present), is in full operation; and I expect in a few days' time to resume business as usual.

As the reports published might cause customers to withhold orders, I trust you will give insertion to this letter, which I cannot close without tendering my best thanks to Messrs. Henry Lee & Sons, Messrs. George Baker & Sons, Mr. William Higgs, Messrs. Thomas Lambert & Sons, Messrs. Burton, Sons, & Waller, Mr. S. Egan Rosser, Mr. Henry Benthall, and all other gentlemen who have offered me the use of their wharves, premises, and machinery, to enable me to proceed with as little inconvenience as possible. GEORGE JENNINGS.

ABSORBENT WELLS.

HAVING been sadly troubled myself in getting rid of sewage on a large scale in a country district, without detriment to the waters of a neighbouring brook, I read the description of the "absorbent well" completed some time back at New Barnet, Herts, an account of which is published in your columns of March 18, with great interest; but, it appears to me, a grave mistake has been committed, and one to which attention should be drawn. If I understand Mr. Blenkarn's plan, it was this,—that, finding it difficult to get rid of the storm-water and sewage of a building district through the natural channel, he resorted to the expedient of boring through the London clay into the subjacent or plastic clay formation, and into this poured the water and filtered sewage. It is, of course, a satisfactory process to achieve success, and Mr. Blenkarn seems to have been perfectly successful so far; but has that gentleman sufficiently considered that his effluent water, even granting he can thoroughly cleanse it by filtration of all organic matter held in suspension, which I doubt, remains charged with most of the poisonous components of his sewage, and that it will assuredly impregnate the water-bearing strata of the formation into which it enters, and taint the source of many a deep well?

In this one instance the danger may be slight; but let this principle, as from its convenience and apparent success I fear it may, be multiplied, and I cannot conceive anything more pregnant with mischief. PURE WATER.

FROM SCOTLAND.

Leith.—The new wet dock at present in course of construction on the east sands has, during the past few months, been vigorously prosecuted by the contractor, and is already in a forward state of progress. About two-thirds of the embankment have passed through the preliminary stages of formation, the rough of the wall being nearly completed. The length of the embankment when finished will be 3,480 ft., and it will inclose an area of 36 acres of sands. Within this area will be constructed a wet dock of about 10½ acres in extent, the length of the dock being 1,100 ft., and the breadth 450 ft. There will be 3,940 ft. of quayage, and the width of the wharfs will be about 200 ft. The lock for entering the dock will be 350 ft. long by 60 ft. wide, and will have a depth of 26 ft. 5 in. of water on the sill during the high water of spring tides, being 2 ft. deeper than the depth on the sill of the Victoria Dock. The lock will open from a large entrance-basin, as the outer pool is too narrow to allow it to open directly from the harbour.

Hawick.—The new contracts for erecting the Corn-exchange building have now been made. Mr. Steel, of Leith, is the contractor for the mason work; and the joiner work has been contracted for by Mr. Inglis, Deanraes.

Arbroath.—At a meeting of shareholders and other persons interested in the movement for erecting a new public hall, the committee reported that the total amount subscribed was 2,445*l*. Two sites were reported upon—one at Brothock Bridge and the other in the High-street; and plans for each had been prepared. The former scheme would cost 6,037*l*., and the revenue from the hall, shops, &c., was estimated at 285*l*. The cost of the High-street scheme was calculated at 4,003*l*., and the revenue at 145*l*. The committee recommended the adoption of this latter scheme. According to it, there would be provided a large public hall, 90 ft. long by 46 ft. broad, library and reading-rooms, a smaller hall or supper-room, and above the large hall a room 90 ft. long by 23 ft. broad, for the accommodation of the museum, for which 400*l*. would be paid. The plans have been prepared by Mr. James M'Laren, architect, Dundee. The report was unanimously approved of. The Earl of Dalhousie has subscribed 100*l*. This would still leave 1,600*l*. to be raised. The meeting was adjourned for a fortnight, in order to afford an opportunity for additional subscriptions being received.

Dumfries.—In the town council, recently, the progress made in reference to the proposal to rebuild the New Church was considered. From the minutes of joint meetings of the Committee of Works and the committee from the congregation of the new church, it appeared that, on the 10th February, they agreed to advertise for

plans, and to offer a premium of 25*l*. for the best plan of a new edifice, the cost not to exceed 4,000*l*., and to accommodate 1,000 sitters. On the 21st February, it was stated that the sub-committee appointed to meet with the clerk in reference to advertising for plans, were of opinion that 4,000*l*. was too large a sum to state as the amount which the church was to cost, as the architect competing would put that sum into the building alone, whereas it was understood or intended not only to build the church, but to cover the expense of purchasing the old buildings in front of the church, and paying the architect's fee, and the extra expenses incident upon the erection of a new building. It was remitted to the clerk to see the proprietors of the old buildings in front of the church, and ascertain what price they ask for them, and a resolution was passed, that the cost of the intended new building shall be limited to 4,000*l*., which sum shall include the architect's fee and that of the clerk of works. Mr. Fraser, architect, was appointed to prepare a plan of the ground, showing the position of the building.

Peterhead.—The Commercial Bank of Scotland has erected a building here in Broad-street, for bank office and residence of agents. The material of which it is constructed is Murrayshire sandstone. To have built one of the native granite, after the same design, and with the same amount of cutting and carving, would have considerably enhanced the cost. It is the only building in this town of imported material, and contrasts somewhat strangely with the sparkling granite of other buildings, looking, indeed, as if it had been translated from the good old city of Elgin. The contractor and builder of the new bank was a townsman, Mr. A. Stewart; and the carpenter work and office furnishings were done by Mr. B. Cowie. Mr. Ogilvie was inspector and superintendent of the work. Mr. J. Henderson, painter, had the decorating and painting of the interior.

TOWN HALLS AND EXCHANGES.

Manchester.—The proprietors of the Manchester Royal Exchange have resolved to raise the capital required for the new exchange building,—firstly, by the creation of new stock, so as to raise the entire capital of 250,000*l*.; and secondly, by loans and debentures: the total sum borrowed not to exceed 125,000*l*. at any one time.

Pendleton.—It having been decided that a town-hall should be erected for the district of Pendleton, six architects of Manchester were invited by the finance and town-hall committee to furnish designs in competition for a building not exceeding 9,000*l*. in cost. After discussion, it was decided to adopt the design No. 1, in the Italian style, prepared by Mr. Darbishire, and that gentleman has been commissioned to proceed with the works, and the building is to be commenced forthwith under his superintendence. The building is to be erected on a plot of land situated at the corner of Broughton-road and Broad-street, with the principal front in Broughton-road looking to the church. The building will contain on the ground-floor the various committee-rooms and offices for the transaction of the district business, including the police department, the principal entrance being from Broughton-road, with another entrance in the Broad-street front, and both communicating with corridors leading to the grand staircase. The principal staircase is approached through a colonnade of arches, carried on polished Aberdeen granite columns, with carved capitals in Caen stone. This colonnade supports the landing above, leading into the large assembly-room. The staircase is constructed with a centre flight, and continued right and left. On the first-floor, the principal apartment is the assembly-room, 85 ft. by 39 ft. 6 in., and having a clear height of 30 ft. Near the platform is the ante-room for performers, lecturers, &c. Then follow the retiring-rooms for ladies and gentlemen, and the staircase leading to the second-floor at the back of the building, containing four large spare rooms, suitable for supper-rooms, refreshment-rooms, or offices. The whole of the basement is cellared, and provides a large kitchen, heating apparatus, lavatories, &c. The building will also contain a dwelling for the use of the hall-keeper. The style of the design is Italian, or rather a French treatment of the Italian, the chief feature being the assembly-room story, with its row of circular-headed windows, divided by pilasters, with carved caps supporting the main cornice, the frieze of which will be carved with

festoons of flowers and medallion heads. The apex of the pediment will be crowned by an allegorical figure carved in stone, and the acroteria will have vases also in stone. Over this pediment will rise a domical roof sustaining a clock turret, with balcony round. The roofs will be pitched high, and have turrets, surmounted with cresting at the three angles of the main streets. The principal entrance-doorway and portico will have coupled Corinthian columns on each side, and cornice with circular pediment over, filled with carving. The materials used will be stock bricks for the facing of the principal fronts, and all the dressings to windows, doors, &c., will be of stone, all the external stone being Yorkshire, polished and tooled according to its position in the elevations.

Stockport.—The subject of building a new town-hall in the borough of Stockport has been placed in the hands of the general purposes committee by the town council, for the purpose of making the necessary inquiries as to the probable cost and the possibility of obtaining a suitable site.

Towcester (Northants).—A committee has been formed from the shareholders of the town-hall and corn-exchange project, to consider the requirements of the town, and to meet the architect as to the plan of the proposed town-hall; the plan to be laid before a general meeting of the shareholders. A site at the southern end of the Market-place is to be purchased.

Hull.—The new town-hall, erected from the designs of Mr. Cuthbert Brodrick, is fast approaching completion. Alderman Hodge has resolved on presenting to the town a statue of Edward I., to whom the borough owes its charter of incorporation. The statue is to be placed in a niche in the grand hall of the new town-hall. Mr. Thomas Earle, of Brompton, has just completed the model from which the figure is to be carved in Sicilian marble. The king is represented wearing his cloak of state, his left hand resting on his sword-hilt, and the right holding out the charter of Hull's incorporation. The face is a portrait taken from old prints, and the costume has been copied from the records of the period. The statue is 7 ft. 3 in. high. A statue of Andrew Marvel might very properly fill another niche in the new town-hall.

PROVINCIAL NEWS.

Ipswich.—The project for a new Masonic Hall and Buildings, in Brook-street, Ipswich, has now assumed something like a definite shape. The hall will be erected at the back part of the premises, near St. Stephen's Church, and suitable buildings for shops will also be erected in that part facing Brook-street. The land was purchased by a member of the masonic body, and a scheme was proposed by him to raise 1,200l. by subscription of 1l. each. The sum required has been subscribed exclusively by members of "The Prince of Wales Lodge," and the plan of building already decided upon. The architects of the proposed hall are Messrs. Bacon & Bell. The hall and Masonic buildings will occupy a space of 102 ft. in length, and will comprise an entrance-hall and vestibule; robing, committee, and ante-rooms; banqueting-room, 40 ft. by 20 ft.; and hall, 45 ft. by 22 ft. 6 in., with a height of 22½ ft. The hall, which will be used for masonic purposes only, will be decorated, fitted with sofa-cushioned seats, and lighted from the roof by the sun-light. There will be a gallery at the western end (where it is proposed to erect an organ), supported by two granite columns of appropriate architectural design. The building will be heated by hot-water apparatus. All suitable offices, such as kitchens, lavatories, regalia, and store-rooms, will be included in the internal arrangements. At the western end of the building, and facing the churchyard, will be erected a dwelling-house for the tyler, or hall-keeper. The exterior of the building will be plain, the great object of the promoters being directed to the interior as regards comfort, convenience, and appropriateness of arrangement. The approach to the hall will be by an ornamental door-way in St. Stephen's Church-lane. Upon the vacant space next Brook-street it is intended to erect three shops, having a depth of 54 ft. each by 20 ft. frontage.

Sheffield.—The Council have sanctioned the plans of Messrs. Flockton & Abbott for the erection of a new police station and offices in Castle-green, and the work will be commenced as speedily as possible. The leading feature of

the plan is the separation of the three distinct departments,—the offices of the chief constable and his official staff, warrant officer, clerks, &c.; the police force; and the prison.

PARIS.

At the point formed by the Boulevards Magenta and Saint Martin, the edifice for the Orpheic *réunions* of schools is to be erected, after the plans of M. Davioud, architect of the Fontaine St. Michel, and the two theatres of the Châtelet. This place is to be decorated on the south and north-west sides with grass-plots and plantations, similar to those on the Faubourg du Temple and Boulevard des Amandiers, and the immense basin and fountain are to be displaced and transferred to the centre. When complete, this "square" will be a rectangle, 902 ft. 3 in. long, and 410 ft. broad, containing eight acres and a half.

The seventh public exhibition of the French Photographical Society is to be held at the Palais de l'Industrie, in Paris, from 1st of May next to 31st of July. The works of French and foreign photographers are invited, subject to the rules and conditions adopted by the committee of management. All objects are to be sent, free of carriage, addressed to "M. Martin Laverrie, Secrétaire-agent de la Société Française de Photographie, au Palais de l'Industrie, porte No. 1," from the 1st to the 10th of April.

The *Moniteur des Intérêts Matériels* states that M. Giraud, professor of physics at the Lyceum of Puy, has proposed a new method of preventing accidents from the explosion of firedamp in mines. His plan consists in setting fire to the gas by means of the electric spark, before any of the men descend the shaft, and thus purging the mine from any inflammable air. In each drift, or particular portion of drift, where the gas may be supposed to accumulate, M. Giraud proposes to lay down a double conducting-wire, insulated with india-rubber or gutta-percha, and furnished at its extremity with a porcelain knob, traversed by two pieces of platinum wire, arranged so as to give a spark when the electric circuit is complete. This wire, or many of them, if it should be deemed advisable for the security of the mine, can be connected with a simple induction coil of Ruhmkoff, so that before the workmen descend a spark can be passed down the pit and through the drifts. If there be small accumulations of gas, explosions will take place partially; if the whole pit be foul it will explode completely; but if no explosion takes place, the pit may be deemed safe for working.

THE THEATRES.

The Haymarket.—The scenery prepared for the new "Sensation," "The Woman in Mauve," is very picturesque and pretty, and does credit to Messrs. O'Connor & Morris, by whom it is painted. The disappearance of the first scene, a studio, and change to a garden sloping down to the Thames, with dilapidated sun-dial, pedestals, and garden-seats, is very well managed. The second act includes some mountain scenery at Chamouni and ruins, and the third ends with a view in the Colosseum, Rome, by sun-set. The piece itself has a great deal of fun in it, and, though it was misapprehended to a certain extent on the first night, it is now a good laugh from beginning to end. Mr. Buckstone as Mrs. Beetles, married to an *ex-Policeman*, Mr. Compton, and travelling to fit themselves for a "restaurant" in Leicester-square, "opposite the beautiful statue of George II.," is inexpressibly comic, and Mr. Sohem is able to exhibit the ease and readiness that distinguish him, the haziness of mind which he assumes so well, and that contrast between mock heroics and the language and manner of every day, in which, as in "Bunkum," he seems to take delight. Mr. W. Farran, as an imperious fire-eating *Russian Count*, and Miss Edith Stuart, new to the London stage, as the mysterious heroine, give force to their respective parts.

The Princess's.—"Arragh-na-Pogue," as represented here for the first time in London on Wednesday night last, includes an interesting and exciting story, excellent acting, great completeness in the minor parts, and some marvelously beautiful scenery. No wonder, then, that it achieved a great success, and that Mr. and Mrs. Boucicault, Mr. Dominick Murray, Miss M. Oliver, Mr. John Brougham, Mr. Seyton,—in fact, all concerned, received a succession of

honest plaudits. The piece may be described, without meaning anything invidious, as a cross between "Peep o' Day" and "The Colleen Bawn." The scene of the story is laid in Wicklow, and the period is 1798. An admirable view of Glendalough by Moonlight, with the ruins of St. Kevin's Abbey, painted by Mr. Telbin, opens the drama, and is succeeded by several other admirable works by the same artist. The great triumph, however, in this department belongs to Mr. F. Lloyds, for the last scene, where, from the battlements of the castle,—the watch-tower and walls built up on either side,—the sea, under a brilliant moon, stretches away almost to the top of the scene,—so that to be properly appreciated, it should, of course, be seen from the upper part of the theatre. A more beautiful effect we have never seen, and the artist was justly called on to hear evidence of the same opinion from a crowded audience.

Royal Italian Opera.—Mr. F. Gye has issued a statement of his arrangements for the coming season, which is to commence on the 28th, giving good assurance that those who love good music, well rendered, will be able to find it for some months to come. Eleven first appearances are promised, including Madame Galletti, well spoken of abroad; but we look rather to the fact that Mesdames A. Patti, Miolan Carvalho, Fricci, and Lucrezia, with Mario, Wachtel, Graziani, Schmid, and others, keep their places. Meyerbeer's *Africaine* is promised, with great scenery.

Books Received.

Vocabularies of Technical Terms, in Eight Languages.—Civil and Ecclesiastical Architecture: Military Architecture and Fortification: Civil Engineering and Surveying. By Henry Hall, Assistant Surveyor, War Department. London: E. Stanford, 6, Charing-cross. 1865.

In the present day, when so many large public and other works are carried on in foreign countries by English capitalists and workmen, the want of concise polyglot vocabularies of the principal technical terms in architecture, engineering, and the different branches of construction, is much felt; and it is with the view of supplying this deficiency that these very useful vocabularies have been prepared by Mr. Hall, who during a long period of foreign service has met workmen of many nations, and has collected, at various times, from them, the terms of their different trades, many of which terms are not to be found in ordinary dictionaries; and, even though they were, would not be so trustworthy nor so convenient as a series of limited vocabularies prepared by a professional man of so much experience as Mr. Hall.

Our readers are already able to judge for themselves of their value from the specimen of them originally given in the *Builder*. To the vocabulary of technical terms on civil and ecclesiastical architecture, there are now added the two others named at the head of this notice; and the author intends, shortly, to extend the series to building and construction, mechanical engineering, and various other subjects.

There is reason to believe that these vocabularies will be received by the council for military education as a useful aid in the studies of the professional branches of the army.

Scenes of Wonder and Curiosity in California: illustrated. By JAMES M. HUTCHINS. London: Chapman & Hall. 1865.

The rough work of the diggings and the bush appear to be pretty well followed up in California already by the more civilizing processes which associate it on a rank of equality with other states or countries; and now we have here something like the ordinary guide-book, in a more enlarged and interesting shape than ordinary, with no less than 100 engravings, many of them very good indeed, and all executed in San Francisco, from photographs of the scenes, and under the author's own superintendence.

One of the chief wonders of California (besides its golden stores) is the gigantic trees, the cutting down of which as an Old World remnant, has been so much bewailed,—it now appears unnecessarily; inasmuch as many more have recently been discovered. The largest of hundreds which still exist is described as a fallen one (which has probably reached the close of its natural period of existence). It is estimated to have

been about 400 ft. high! and 40 ft. in diameter, or 120 ft. in circumference! Another, which lay also on the ground, was hollowed by fire into a tunnel, through which the author's party rode on horseback, a length of 153 ft.! This tree also must have been over 100 ft. in circumference, and was probably 350 ft. high. It seems the name "Wellingtonia," (or in the States "Washingtonia"), must be given up, as the tree has been found to be not a new genus, but a species of the old genus *Sequoia Gigantea* (*sempervirens*).

The volume is both well written and interesting, and, with its illustrations, gives a vivid idea of California.

VARIORUM.

"The Shops and Companies of London, and the Trade and Manufactures of Great Britain," edited by Mr. Henry Mayhew (The Strand Publishing Company), has for object, it is stated, "not only to exalt work and manufacturing skill, but to uphold the dignity of trade itself." The difficulty will be to make the public believe it has not puffing proclivities. There is a great deal for money in the first part, and some amusing and interesting papers; especially an account of Messrs. Beaufoy's Vinegar Works, Lambeth. The wrapper is very well drawn.—"Debrett's Illustrated Peerage," and "Debrett's Illustrated Baronetage and Knightage," are now in the hands of Messrs. Dean & Son, of Ludgate-hill, and have been issued by them for 1865 in a cheap form. These books having kept their position for a century, little recommendation to the public is now needed. Care seems to have been taken to correct them to the last moment; a specification of the church livings of which peers, baronets, &c., are patrons, is given, and a chapter on the Orders of State and Degrees of Honor is added.—"Odds and Ends," No. 2 (Edmonston & Douglas, Edinburgh), treats of Convicts, by a Practical Hand. The tract shows knowledge of the inside of a prison, and is interesting, but does not seem to have any practical intention or bearing. The writer, who considers the present system of management much better than the old, does not believe that an old thief can be made an honest man by reformatory influences.—"For and Against Tobacco," by Dr. Richardson (Churchill & Son), appears to be the papers first published by the writer in the *Social Science Review*. Dr. Richardson must be placed amongst the defenders of smoking in moderation. The habit, good or bad, is not in need of defenders.—*The Social Science Review*; a quarterly journal of political economy and statistics. New York: Broadway. Vol. I., No. 1. January, 1865. It is almost a pity the Americans should have repeated a title already appropriated, although of course neither rivalry nor plagiarism need be charged against the New York proprietors and publishers. The present number is chiefly devoted to a critical dissection of the financial report of the Federal Treasury, under the title of "Mr. Fessenden's Report." The leading paper also is on "Government;" and there are others, on "Herbert Spencer;" and "M. About's Progrès."

Miscellaneous.

CAMBRIDGE HOUSE, PICCADILLY.—It is asserted that Cambridge House, the residence of Lord Palmerston, will be taken down to give a site for the talked-of Roman Catholic Cathedral in honour of the late Cardinal Wiseman. The story is that the lease is about to expire, and that the ground landlord, a Roman Catholic, has pledged himself to devote the site to religious purposes.

WOLSEY CHAPEL, WINDSOR CASTLE.—We understand that while Mr. Turnbull was accidentally examining a large window, with carved mullions, and with stone panels instead of glass, at the west end of the Wolsey Chapel, a piece fell out, and disclosed a portion of a painting. Three stone panels were then removed, and behind them were found full-length portraits of as many Knights of the Garter, painted on the wall, with strong iron bars before each picture. They were evidently inserted in the *vim* window, to give it the appearance of being filled with stained glass; and, should the rest of the stone slabs be removed (of which there must be upwards of twenty), the wall behind them will probably be found covered with the rest of the series of portraits.

CONSECRATION OF THE FIRST ENGLISH CHURCH IN NAPLES.—The newly-erected church for which a site was obtained from Garibaldi while he was dictator at Naples, by Mrs. Whyte, a resident, and of the design for which church we have already given engraved views in the *Builder*, has been consecrated by the Bishop of Gibraltar.

THE NEW GOVERNMENT ANNUITIES.—Mr. Gladstone's tables for granting annuities to the poor have been published. The main fact is this:—A working man, by paying a shilling a week from thirty to sixty, will secure himself an annuity from that date of 8s. a week for life; and with two shillings, of course twice that amount.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—Dr. Charles Dresser delivered an interesting lecture "On Ornamental Manufacture, more particularly of Glass and Crockery Ware," before a numerous meeting. The lecturer based the principle of all ornamental art upon the double consideration of the particular requirement of the article manufactured and the materials available for its production, drawing ingenious deductions from the rudest contrivances of savage life to the costly utensils of art-production in the most civilised conditions of society. A discussion followed the lecture.

A MONUMENT FOR THE CITY.—The Estates Committee of St. Lawrence Jewry, and St. Mary Magdalen, Milk-street, are inviting designs for the erection of a memorial in the churchyard on the south side of the Guildhall of the City of London. The cost of it is not to exceed the sum of 500*l.*, and the design is to include a drinking-fountain. They require a guaranteed estimate of the cost, and yet will not pledge themselves to adopt or carry out any of the suggestions or designs, nor to award premiums or payments for them; but in the event of a design being selected, they will recommend to the vestry that the author of it be entrusted with the work "at such guaranteed amount."

ROYAL MASONIC INSTITUTION FOR BOYS.—The sixty-seventh anniversary festival of this Institution has been held at the Freemasons' Hall, the Duke of Manchester, R.W.P.G.M. for Northampton and Hunts, in the chair. More than ordinary interest was attached to the festival of this year, in consequence of a sum of nearly 10,000*l.* being required to complete the new building at Wood-green, and open it entirely free from debt on the 1st of July next. The whole cost of this structure will be 24,000*l.* Already the Institution educates and maintains seventy-two boys, which number is to be increased, in April, to eighty; but the new schools are capable of accommodating 150. The secretary read the list of subscriptions, amounting in the whole to about 4,500*l.* The lists which some of the stewards sent in were very heavy, Brother S. May's, of Bow-street, alone being nearly 400*l.* It is said that with one exception—that of the London Hospital a few years ago—so large a subscription list at a dinner as 4,500*l.* is unexampled.

ARTISTS' BENEVOLENT FUND.—The annual general meeting of this Fund has been held in the Freemasons' Tavern, Great Queen-street, Lincoln's-inn-fields, Mr. Charles J. Dimond in the chair. The Report stated that since the formation of the Fund the sum of 26,310*l.* 18s. 3d. had been distributed in relieving widows and orphans of British artists, fifty-two widows having during the past year received annuities amounting to 751*l.* 5s., and ten orphans the sum of 43*l.* 11s. The total receipts during the year, including 251*l.* 7s. 1d. balance in hand commencing the year, was 1,366*l.* 12s. 7d.; total expenditure, 1,032*l.* 13s. 8d. The anniversary dinner of the institution is to take place on Saturday, the 27th May. It may not be uninteresting to re-state that the Artists' Benevolent Fund was established in the year 1810, and received from George IV. a royal charter of incorporation in 1827. It consists of two separate and distinct branches,—the Amnity Fund and the Benevolent Fund. The Artists' Amnity Fund is raised and wholly supported by the contributions of its members, for their own relief in sickness or superannuation: 300 artists are at present members of the Amnity Fund. All artists of merit in painting, sculpture, architecture, and engraving are eligible to become members. The Benevolent Fund is for the relief of the widows and orphans of the members of the Amnity Fund, and is supported by the donations and subscriptions of the patrons of the fine arts and artists, and the annual contributions of the members of the Amnity Fund.

A NEW PRISON.—The enlargement of Cold Bath Fields Prison, and the erection of a new one, are under the consideration of the Middlesex magistrates.

HERBERT HOSPITAL.—Sir: In reading your very interesting account of the Herbert Hospital, at Woolwich, it struck me that the general reader would have the impression that the water supply works on Shooter's Hill were included in the hospital contract, which is not the case: the contract has been carried out by me.

A. MATTHEWS.

THE NORWICH SURVEYORSHIP.—At a meeting of the Norwich Town Council, held last week, that body resolved itself into a board of health, and appointed Mr. Morant as surveyor to the board till the 9th of November next, at a salary of 250*l.* per annum, he finding thereon all competent assistance for the efficient discharge of his duties, and not to be permitted to take any private practice, nor to receive any fees or emoluments whatever. At the same meeting Mr. Benest was appointed surveyor to the Council till the 9th of November next, at a salary of 150*l.* per annum, with permission to take private practice.

INJURY TO TRADESMEN BY RAILWAY WORKS.—The tradesmen and inhabitants of the Euston, Tottenham Court, and Hampstead roads, have resolved to appeal to the House of Lords against a decision of the Court of Exchequer in the case of *Ricket v. The Metropolitan Railway Company*, which decides others, and whereby it is made to appear that however ruinous to a tradesman the adjoining works of a railway may be, he is not entitled to compensation. It may be useful for us to state that a full report of the Case in question will be found in the last number of *The Solicitors' Journal*.

THE HANGING OF FIELD-GATES.—Sir: The writer that you quoted in your last impression does not surmount the difficulty he describes; for on referring to the sketch it will be seen that the evil intended to be overcome would in fact be increased. The error is this. That the pivot on the top of the post is not directly over, but much beyond, the centre of the hinge below: the result is, that on opening the gate, it not only falls, but turns considerably out of the perpendicular; and besides this, the gate has a tendency to open instead of to shut. Permit me to suggest a slight improvement,—that the pivot be placed directly over the hinge (projecting from the post): this would not only remedy the evil, but make the counterbalance more effectual.—WALTER CHESTERTON.

WELSH MEMORIAL OF THE PRINCE CONSORT.—On the Castle Hill, at Tenby, workmen are engaged on the "cairn" which is to form the base of the monument to Prince Albert. This is about 75 ft. square at the base and 50 ft. on the top, in the centre of which a mass of solid masonry, grouted, 25 ft. square, has been built up from the solid rock to form the foundation on which the pedestal will be placed. The base of the pedestal will consist of three courses of large blocks of native marble, each course of which will form a step, 12 in. high, and upon the centre of the upper tier the pedestal will be placed. The pedestal will be also built of native marble, with the exception of the four panels: these will be of Sicilian marble; on one of which will be placed the arms of the Prince Consort, on another those of Wales, and the two remaining ones will be filled up with suitable inscriptions. The statue of the Prince, by Mr. Thomas, will be about 9 ft. high, so that the entire height of the memorial (not including the "cairn") will be 26 ft. There are now upwards of 1,000 subscribers to the fund.

FORTHCOMING ART EXHIBITION AT ALTON TOWERS.—The Earl of Shrewsbury and Talbot has placed Alton Towers at the disposal of the Wedgwood Memorial Committee, for the purpose of an art exhibition, to be held there in the ensuing autumn, in aid of the funds for the completion of the Wedgwood Institute, at Burslem; and the Committee of Council on Education have passed a minute, under the authority of which contributions will be furnished from the national collections at South Kensington. The Earl of Harrowby will contribute from the treasures of Sandon, and Mr. Beresford Hope has promised his aid, while Mr. Joseph Mayer, of Liverpool, will furnish specimens from his museum. Mr. George Helly will send his collection of Silver pottery, and Mr. Benson rare old Wedgwood ware. Paintings, carvings, and illustrations of art workmanship are also promised.

The Builder.

VOL. XXIII.—No. 1156.

The Architecture of Asia Minor.*

ENGLAND has contributed largely to the knowledge of Classic art; and the Society of Dilettanti, founded in 1734, continues its exertions to improve the public taste in architecture through the collection of information relative to the monuments of Grecian civilization in Eastern Europe and Western Asia.

Of recent years, Government aid has been afforded to exploration in different localities; and results are to be found in the British Museum. But of the researches by foreign nations, too little has been known. In our volume for 1862, in several articles, we gave particulars of some of the French researches that were then recent, yet did not notice all; nor did we do sufficient justice to those in Syria, that were under the direction of M. Renan. Of the published results of the researches in the last forty years, perhaps the most important are contained in the large work by M. Charles Texier on Asia Minor. M. Texier, in 1833, was commissioned by M. Guizot, then Minister of Public Instruction in France, to explore Asia Minor and Persia. He spent several years in those countries, passing through Bithynia and the central provinces, —as Galatia, the locality of the researches later of M. Perrot, of which we gave particulars in 1862,—and through Mysia, Bœlia, and Caria, on the west coast, and Lycia on the southern, making careful drawings of the finest works he met with. His "*Asie Mineure*" was published at the cost of the French Government, in three folio volumes. In a second expedition, M. Texier removed the friezes of the Temple of Diana Leucophryne at Magnesia ad Meandrum; and the vase from Pergamus; and fragments, including the frieze, of the Temple of Neptune at Assos, also were then obtained for the Louvre.

Important, however, as are the researches conducted by foreign governments, and worthy of British imitation, the manner and form of publication of the results, go to reduce considerably their value. The cost of the books, containing illustrations, published at the cost of the governments alluded to, is enormous. The size of volumes is not merely unnecessary for the actual size of plates, or for the explanatory matter in letterpress; the size and the weight,—the latter resulting, in fact, from an unnecessary thickness of paper,—are positively disadvantageous to the use of the volume, even not taking into consideration cost of purchasing it. Mr. C. W. Goodwin, a distinguished Egyptologist, recently, in a paper which he read at the Society of Antiquaries, mentioned that having to refer to the copy of a

papyrus given in a work of the class to which we allude, and where the transcript occupied only the centre of an atlas-folio page, he had found it necessary to have the copy re copied, in order that he might conveniently go through his labour. The Prussian works and the French, are much alike in this particular. The volumes, illustrative of M. Texier's researches are so expensive at least that they are not much consulted; and many of the buildings which they illustrate are less known to English architects than they should be.

With whatever the advantage derived from the exact delineation of the remains in Greece proper, in the islands, and in Magna Græcia and Sicily, much that is essential to the knowledge of Grecian architecture, has been left to be sought for in Asia. From the concentration of attention to the small number of examples,—of great excellence indeed,—which are to be found in Athens, the fertility of Grecian art has been underrated. The Society of Dilettanti did but touch the soil in those albeit valuable volumes commonly known as the "Ionian Antiquities;" however, portions of the interior and coast of Asia Minor continued to be explored by travellers, including Captain Beaufort and Mr. Cockerell, Colonel Leake, M. Texier, Mr. Hamilton, Sir Charles Fellows, Mr. Edward Falkener, Lieutenant Spratt, Professor Forbes and the Rev. J. Daniell; Mr. Ainsworth; and Mr. C. Newton, Lieutenant Smith, and Mr. R. P. Pullan. The importance of the researches by some of these travellers, to the history of architecture, is now even more apparent than it was. Since the Assyrian discoveries of Layard, and the commentary upon them by Mr. Fergusson, the fact of an Eastern influence upon Grecian architecture, such as may have helped to form the Ionic order, has been, we believe, generally admitted. In Galatia at least, as found by M. Perrot, there are remains of a description of art long anterior either to Gallo-Greek, or to the architecture of the Temple of Augustus at Ancyra. Different waves met to form the varied architecture of the peninsula. One, Assyro-Median, came from inland; others, from the coast, were the Egyptian, or Phœnician-Egyptian, and the Egypto-Greek, with the perfected Greek.

Whether we would understand the conditions under which styles of architecture are produced, or understand Greek art itself, study of the remains in Asia Minor may be deemed essential. It is true indeed that the number of the remains having a decorative character to be classed distinctively as Grecian, is small compared with the recorded names of the cities. Of the works of the early colonists from Greece, starting from the first settlement of the Æolians, Ionians, and Dorians, on the western coast, ten centuries before our era, the vestiges are few: for, Xerxes burnt most of the temples. He excepted the temple of Assos, as it belonged to the Persians. Generally the temples of Asia Minor date not earlier than Alexander; and in the majority of them there are features which are found in Roman works, and not in the Greek of the Periclean age; whilst the same examples are yet markedly Greek, compared with any recognised Roman works, as those in Rome, or Ba'albek, or even compared with Roman works in Athens. The buildings of the true Greek period, which have disappeared, included temples the largest in their dimensions, which existed. Of these were the Temple of Diana at Ephesus, estimated to have been 425 ft. in length by 220 ft. in breadth; the Hermæum of Samos, 346 ft. by 189 ft.; the Didymæum of Miletus, 295 ft. by 156 ft.; and the Temple of Cybele at Sardis, 261 ft. by 144 ft. Concerning them, or other structures which are represented only by heaps of stones, it is probable that much information would yet be disclosed by excavation; but the materials are found so convenient for modern building-purposes, that the

chance is rapidly passing away. Mr. Falkener's researches have not been forgotten by us.

Two aims are just now required of the lover of classic art,—the one, towards obtaining from foreign publications the information which has been collected in them,—and the other, the prosecution of those further researches which the extent of the still unworked field demands. To assist in these objects, Mr. Pullan was engaged, in 1861 and 1862, in an exploration of the western coast of Asia Minor, and in excavations and measurements of the Temple of Bacchus at Teos, for the Society of Dilettanti, and has now put together some of the illustrations from M. Texier's work, with abridged translations from its letterpress, and with some extracts from Hamilton, Beaufort, and others, and has prefixed a narrative of his journeys. The volume has therefore a composite character; and the matter that is quite new is rather topographical than architectural: but we are glad to have the particulars of the exploration, and the hope of the publication of details and a restoration of the temple at Teos, and likewise the selection from the "*Asie Mineure*." The illustrations from Texier relate to buildings at ten different localities, only four of which, namely Assos, Branchidas, Pergamus, and Iasus, were visited by Mr. Pullan; but quotations from Texier and others are interspersed with the narrative. For the illustrations, impressions appear to have been transferred to stone from the original plates. The dimensions however are given in what seem to be feet and decimals; and there is a scale of feet and tenths at the foot of each plate. Some explanation of this matter of the notation or dimensions, should have been given in the preface; and Mr. Pullan's absence from England whilst the work was at press, has led to an awkward error or two, as in a name, or data.

Mr. Pullan devotes an Introduction to what is a very useful summary of the different researches in Asia Minor precedent to his own. The first traveller mentioned as having described and illustrated the ruins, is the Frenchman, Paul Lucas, who was at Rhodes about the year 1699, and who visited many parts of Asia Minor five years later. After this traveller, Spon and Wheeler, at the end of the seventeenth century; Tournefort, afterwards; Pococke in the beginning of the eighteenth century; and Corancez in 1809 to 1812, visited and described the country. Dr. Chandler, and Messrs. Revett and Pars, for the Dilettanti, left England in June 1764, and returned in September 1766; and results were published in 1769—1797, in folio, by the Society; and in 1775 in the quarto volume of Dr. Chandler. In 1811, a second expedition, consisting of Sir William Gell, and the architects, Gandy and Bedford, was sent to Asia Minor and to several places in Greece; and the results appeared in a third volume of the "Ionian Antiquities," and in the "Inedited Antiquities of Attica." Choiseul-Gouffier had visited the country in 1772. Views with architectural details, were published in 1782, in his "Voyage Pittoresque." Captain Beaufort, the late Professor Cockerell, and Colonel Leake have been mentioned, as also have travellers who came after M. Texier. Mr. Newton's researches commenced soon after his appointment to the vice-consulship of Mitylene, which was in 1852. In 1855, he visited Badrum, and finding traces of fine sculpture, he asked assistance from the Government. The *Gorgon* frigate was sent, and an officer of the Royal Engineers, Lieut. Smith, with a detachment of sappers. In January, 1857, Mr. Newton ascertained the site of the Mausoleum; and before the end of the year, he procured data for a plan of the monument, and brought to light the sculpture now in the British Museum. In December, 1857, he visited Cnidus, and made excavations on the site of the Temple of Venus, at the Lion Tomb, the lower theatre, and the temple of Hecate. In 1857-58 Mr. Newton

* "The Principal Ruins of Asia Minor, illustrated and described. By Charles Texier, Member of the Institute of France; Member of the Royal Academy of Science of Munich; Honorary Fellow of the Royal Institute of British Architects; formerly Inspector of the Fine Art Establishments in France; and Commissioner of Public Works in Algeria; and R. Popplewell Pullan, F.R.I.B.A., Architect to the Badrum Expedition; Agent for the Dilettanti Society in Asia Minor." London: Day & Son, 1865. Folio, pp. viii., & 86; Map, & 51 Plates.

and Lieut. Smith explored the whole of that part of Caria, from Labranda and Euromus to the Bay of Marmorice, opposite Rhodes. The ruins of the Temple of Hecate at Lagina, with sculpture of the frieze in tolerable preservation, were discovered; the site of Labranda, where was the celebrated Temple of Jupiter, was identified; Mylasa, Myndus, and Bargalia were visited; and the island of Cos was explored. Mr. Newton also visited the ruins of the Temple of Apollo Branchidae, and brought from the Sacred Way the figures now in the British Museum. Mr. Pullan was sent, in 1857, to join the expedition; and he remained a year at Budrum and Chidus, and exploring the island of Cos. Coming home, he visited the site of Troy, and Thessalonica.

In 1861, the Society of Dilettanti, desirous to obtain information as to the condition of the sites of certain temples, commissioned Mr. Pullan to visit them, and to report as to the desirability of excavation. The buildings were the Temple of Bacchus at Teos, the Temple of Apollo Smintheus in the Troad, the Temple of Minerva at Priene, and the Temple of Apollo Branchidae at Ieronda near Miletus. In the journeys which were necessary, he completed the archaeological survey of the greater part of the western coast to the Troad, from the point which had been reached by Mr. Newton. In 1862, as we infer, having received instructions, he conducted the excavations at Teos, and obtained the materials for illustration of the architecture of the Temple of Bacchus.

He left England in July, 1861, with his wife, who seems to have accompanied him in each of his excursions from Smyrna, the head-quarters. A tent was pitched, as the sleeping accommodation, during the summer months: in the colder weather, when quarters had to be procured somewhere under a roof, there appears to have been less danger from "bad men," yet little comfort. The Admiralty charts seem to have been of much service; but, the map which forms the frontispiece to the work, is not a very satisfactory production: not even all the places mentioned in the narrative are to be found in it. In his excursions, he passed by numerous ruins and fragments of which we regret not to have illustrations. Thus he speaks of a slab of frieze noticed amongst the ruins of the Temple of Diana Leucophryne, as finer than any of the work in the Louvre.

In his report to the Society of Dilettanti, on the ruins visited, and the probable expense of excavating, Mr. Pullan set down the Temple of Apollo Smintheus first, "since it afforded an entirely unique example of the Ionic order, its architectural details being at the same time of good style." He placed next, the Temple of Minerva at Priene, superior in the character of its architecture to any of the other buildings, but previously explored and illustrated in the Society's work. Thirdly, came the Temple of Bacchus at Teos, where no excavations had been made, and respecting which therefore little information had been obtained. The profiles of the mouldings are described as fine, though inferior to those of the temples already mentioned. Fourthly, was the Temple of Apollo Branchidae at Ieronda. The architecture here was fine in style; and excavations would probably bring to light sculpture of great value; but the size of the blocks of marble might make the excavation too expensive except for a government.

The excavations at Teos occupied about three months, inclusive of the week's holiday of the Bairam; and five-and-twenty Turks and six Greeks were employed as workmen. Great part of the frieze was discovered; but the sculpture was not of high character. Two slabs were sent to the British Museum. The Temple of Bacchus at Teos, was one of those of which Hemogenes of Alabanda was architect. The Temple of Diana Leucophryne at Magnesia ad Mæandrum was another.

The plates from M. Texier's work are illustrative of the Temple at Assos, the Temple of Apollo Branchidae at Ieronda, the Temple of Jupiter at Aizani, the Augustæum at Ancrya, the Temple of Venus at Aphrodisias, the Theatre at Aspendus, the City of Iassus, the Theatre at Myra, a temple at Patara, and the Basilica at Pergamus. Of all the examples, none seems to us more important historically than the Temple at Assos, which was probably erected in the fifth century before the Christian era. It is remarked in the volume before us—"This temple is interesting as perhaps the earliest known example of the Greek Doric order;" and the proportions, and the character of the architecture,

warrant the supposition. "In the Temple of Corinth, which was formerly considered the oldest example existing," it is continued, "the column is 4.065 diameters, and the capital has a considerable curve. At Assos, the column is 4.250 diameters, but the curve of the capital is the greatest of any known example; and the projection of the abacus is nearly equal to half the upper diameter." In later buildings, including the Parthenon, the column is more than 5½ diameters, the capital is shallow, the abacus has little projection; and the curve of the echinus is quite flat. These characteristics, including the height of the column in proportion to the diameter, are still more marked in edifices considered to be of the Macedonian period, such as the Portico of Philip in the island of Delos (Mr. Pullan says "at Athens"), and the portico at Budrum. In the order at Assos, the column has ten flutes. There are no guttes to the muntles. Not only the metopes are decorated with sculpture, but the architrave is; and this sculpture is of an extraordinary character. Some of it has an Egyptian appearance rather than Greek. The architrave is terminated at the foot, by a fillet. At the extremities of the architrave are two bulls in the attitude of combat; and in the centre are two sphinxes. Portions of the sculpture, and a capital, are in the Louvre. There are other remains of an interesting character at Assos. Lining the street of tombs are immense sorts of red stone of the neighbourhood. From this stone, all tombs of the description and form of the sort derived their name. The stone was said to have the property of consuming bodies, with the exception of the teeth, in the period of forty years: hence the name *sarcophagus*. In the principal gateway of the town, the lintel, formed by two large blocks placed side by side, is relieved by a *quasi*-arch on each side, or one built on the horizontal principle; and one of those arches, that on the exterior, is pointed, whilst the other is semicircular. In another gateway, having a semicircular arch, the construction is with voussoirs. The difference leads to the inference of difference of dates, or to that of the existence of a period when the arch with voussoirs was not known. Assos lies on the southern coast of the Troad, opposite the island of Lesbos or Mytilene.

The temples of Asia Minor appear to have been distinguished from those in Greece of the age of Pericles, by their accessories, the peribolus, and the Sacred Way. Those of the age of Alexander, of chief importance, and of the Greco-Roman period generally, have the peribolus enclosing a large area of ground, and the wall internally enriched with columns. The same feature was produced by the Romans with their temples, as of Ba'albek, and received a large amount of decoration. Amongst the remains of late Greek works in Asia Minor are those of the Temple of Apollo Branchidae. It is described as the largest of all temples; but it was never roofed in. As the site of the most celebrated oracle of Asia, and the most renowned after Delphi, it was a great place of resort. Ieronda near which the remains are, is south of Miletus, in Caria, and opposite the peninsula in which are situated Myndus and Budrum. The architects of the building were Daphnis of Miletus, and Peonius of Ephesus, the latter of whom was chosen to complete the Temple of Diana at Ephesus. The peribolus was of great extent, and was filled with fine trees. There are no traces of its wall; but the whole course of the Sacred Way from the port, a distance of two miles, is distinctly visible. It was lined by seated figures and sphinxes in a very archaic style of art. Several of these, as before referred to, are now in the British Museum. The exact site is on the promontory of Poseidon; and the temple must have been seen on either side, from the sea, at several leagues' distance. Three columns are standing, one of them, unfinished, or not fluted, and still serve as landmarks. The facility of obtaining stones has led to the formation of a village on one side of the temple. The full length of the building is given in the text of the volume before us, as 306 ft. 6 in., and the breadth as 164 ft. 5 in.; but we cannot make these dimensions quite agree with those on the plan of M. Texier; and it is noted by Mr. Pullan that there is a discrepancy between this plan, and that of the "Ionian Antiquities." The temple was decastyle, and dipteral, and is considered to have been hypæthral. Even in the present state, the ruins are spoken of by Mr. Pullan as "the most imposing of their kind to be seen," and as giving a better idea "of the grandeur of Greek archi-

ture than any other existing ruins, even than those of the Temple of Jupiter Olympus at Athens." Notwithstanding the destruction by the villagers, exploration would doubtless lead to important discoveries. The blocks average 6 ft. by 3 ft. by 2 ft.; so that better appliances than are at hand are needed for the removal. The order may be considered as a good representative example of the Ionic of Asia Minor, and of late Greek date, differing from the Athenian Ionics of the Periclean period, and agreeing with the Roman, in the straight-lined arrangement of that part of the capital which is between the volutes,—or where in the Athenian examples, the hem of the volutes is carried across in a descending curve,—and also differing from the Athenian and agreeing with the Roman practice, by the introduction of the square plinth as the lower member of the base. In the forms of the oves, and elsewhere, the character is Greek. The pilaster-capitals from the interior, known from previous illustrations, and from copies of them in some modern buildings, are of fine character. The ends of the abacus are carried by small volutes terminating a band, with leaf-enrichment, which encloses a panel or space variously decorated, as with anthemions and scrolls, or chimæres,—the return ends below the volutes being also enriched with scrolls. Amongst the ruins lies a block, which has sculptured upon it, a genius with outspread wings, and scrolls. This fragment is of the finest character of Greek art.

The remains of the Temple of Jupiter at Aizani, at the period of M. Texier's researches, were even more important than those of the example last described. The site is in Phrygia, and was not visited by Mr. Pullan. The evidence on the spot, enabled M. Texier to make a satisfactory restoration. The *temenos*, or sacred enclosure was of great extent, the dimensions given by the terrace-walls being 520 ft. by 485 ft. Far within this was the peribolus proper, a double colonnade enclosing the paved area surrounding the actual temple. The terrace of the principal front was carried by arches, the line being broken in the centre by the first broad flight of steps. Having ascended these, and crossed the outer ground of the *temenos*,—which was no doubt planted with trees, interspersed with *cedres* and *trichinas*,—the great porch of the *stoa* or *peribolus* was passed through; and the temple itself, with its surrounding peristyle, appeared. The columns and pediment of this, however, seen from a distance, towered above the surrounding features of the plan. It may be noticed now, how essential to the knowledge of Grecian architecture is the study of something more than the temples of Athens, as well as how much light may be thrown upon the descriptions of the Jewish temple by remains of the temples of the Greeks and Romans. The temple at Aizani is thought to belong to about the second century of the Christian era. Beneath the cella of the temple proper, is a large chamber with a semicircular vault. It was approached by a staircase in the *posticum*, and lighted by two openings in the substage of the cella-wall. Eighteen columns with the entablature of the order, and with the *lacunaria* and cross-beams in a singularly perfect state, and a considerable portion of the cella, were standing in M. Texier's time. The architecture was of the Greco-Roman period; and the order is Ionic. The enrichment of the frieze, with volutes boldly projecting and carried by acanthus leaves, is very peculiar, but graceful. The cornice has modillions as well as dentils. The baluster-ends of the capitals are elaborate in their leaf-work enrichment. The arrangement of the volutes of the capital resembles generally that which we have characterized as Roman. In each flute, at the top of it, is an ornament in the form of a small vase with handles. The capitals of the ante are Composite in their general character; and the columns between the ante of the *posticum* have Composite capitals, and have no pinnths. The order of the peribolus was Corinthian.

At Aizani are considerable remains of the theatre. It was Greek in plan; that is to say, the side-wall of the cæva is at an angle with the face of the scene, instead of being parallel with it, as in the Roman theatres. The Greek plan however is preserved in theatres known to be Greco-Roman. M. Texier's plates include a plan and details of the proscenium. A peculiar Ionic capital, considered as unique, is employed. The volutes face four ways, or are placed angle-wise, as in the later Italian practice. There is an obliquely-set modillion at the angle of the cornice; and the lower portions of the flutes are

filled in with cabling. All these are characteristics of late Roman works; and amongst others are the forms of the oves in the cornice; whilst the oves to the architrave, and the fillets throughout, may be called Greek.

Of the Angustium at Ancyra in Galatia, illustrations, additional to those of M. Texier, should be now about being published from the measurements by M. Guillaume, the architect who was attached to the expedition conducted by M. Perrot. All that was visible at the time of M. Texier's exploration, comprised the two side walls of the *cella*, the ante terminating them, and the doorway, of Greek character. The blocks, of marble, are put together with bronze cramps. The capitals of the ante have winged figures of Victory in the midst of foliage; and from them an acanthus-scroll extends round the *cella*-walls to form a frieze. The order of the peristyle of this building was Corinthian. The date corresponds as nearly as possible with the commencement of the Christian era. The remains of the *naos* are valuable as showing the decorative character of the interior of a temple. Rusticated work is carried up to the height of 15 ft.,—but the vertical sunk-fillets are not kept regularly over one another; above this is a cornice-moulding with festoons; and the remainder of the height is now plain space, but was probably once decorated with paintings. On the external face before mentioned, of the pronaos-wall, the Greek character is found in the palm-leaf ornamentation, and the fret, which are in the base and substage mouldings.

In the Temple of Venus at Aphrodisias, near Mount Cadmus, in Caria, we have again an example of the Asiatic-Greek arrangement of accessories in plan, and a very fine one of the Ionic, Asiatic, or of Greco-Roman date. Upon the shaft of each column is a tablet with an inscription; but the inscriptions give no clue to the date, except in showing that the building was erected in Roman times. The temple proper stood in a large peribolus, which had coupled columns of the Corinthian order, projecting from the wall, the two columns carrying a pediment. Between these salient features, were small square-headed niches, similarly decorated with pilasters and pediments, but the pediments alternately curved and triangular. Within the peribolus, and in front of the temple proper, stood a double row or screen, of small Corinthian columns. Coming to this from the entrance of the peribolus, the way was flanked by two recumbent lions, and two large basins or piscines. The ornamentation of the Ionic capitals is equal to the best in Asia Minor. The Corinthian of the peribolus-wall has much more of the Roman character. The frieze, for example, is convex or pulvinate; and the dentils are small: there are no modillions to the cornice; and there are none to that of the small order of the screen, also Corinthian. Probably the screen and the peribolus are as late as Trojan.

The site of Apendus, on a mountain at the extremity of the plain of Perga, has the finest and best-preserved theatre in Asia Minor. The view of the interior forms one of the most striking subjects in the book. The building was erected in the time of Antoninus and Lucius Verus. An inscription in the interior records,—“The senate and the people have honoured Zeno, the architect of the theatre and of the works in the town, by erecting a statue in the theatre, and by giving him a garden situated near the Hippodrome.” The columns of the proscenium; the roof of the scene,—for the timbers of which the holes however are apparent; and the *velarium*, or awning,—for the masts of which, the perforated consoles are *in situ*,—comprise nearly all that is wanting. A theatre which is well preserved, is indicated on the plan of Iassus. At Myra, in Lycia, also is a fine Greek theatre, illustrated in the “*Asia Mineure*” and in the volume before us, and remaining in an almost perfect state. The order, Composite, and the other decorative features, are of very superior character. The most remarkable remains, however, are the tombs cut in the rock, and which seem to have been designed to imitate wooden buildings. M. Texier made a view of the well-known example which has the sculptured representation of a combat of a lion and a bull in the pediment, a common subject in Asia, and no doubt symbolic. Beaufort, as quoted by Mr. Pullan, says of Myra:—“My time would not permit me to examine this great emporium of precious relics; but Mr. Cockerell, a gentleman well known to the literary world by his

interesting discoveries in Greece, and who visited Myra the following year, found there the ruins of a considerable city. . . . The inhabitants are chiefly Turks, and he described them as more than ordinarily jealous and ferocious. While examining some statues, one of the mob exclaimed, ‘If the infidels are attracted here by these blasphemous figures, the temptation shall soon cease; for, when that dog is gone, I will destroy them.’” From Patara, in Lycia, where also there is a theatre (its proscenium being well preserved), M. Texier's illustrations include a peculiar capital, bearing a resemblance to that in the Temple of the Winds at Athens, but some time known, and details of the doorway of a tomb, “one of the most elegant doorways of the Greco-Roman period existing in Asia Minor.” The volume is terminated by illustrations of a building at Pergamus, which was probably a basilica.

Those who have access to the original volumes of M. Texier, may do well to prefer them to the abridgment. Those who have not them at hand, will find the present publication a convenient substitute. For the researches which Mr. Pullan himself has made, we offer him our thanks; and we look forward with interest to the publication of the work on the Temple of Bacchus at Teos.

CONDITION OF OUR TOWNS: PERTH.*

In our previous article on the fair city of Perth we exhausted, as far as we could in connexion with its extraordinary mortality, the physical conditions of the surrounding soil, the climate, and those meteorological phenomena with respect to the influence of which on the public health we held the inhabitants, or rather their local government, to be clearly exonerated. We now proceed to take up the general sanitary condition of the town itself, the consequences of which will be easier related to those who are the responsible agents.

We shall begin with the water-supply. The Perth Water Company obtain their supply by pumping from a well dug in the bed of the River Tay. When it was originally proposed to bring this water from the river, a curious difficulty arose, which is worth recording here. They began by digging pits close to the river, the object of which was to get the water filtered through the gravel of which the bed of the Tay is composed. But, however close to the river they dug these pits, the river-water was never obtained; it was always water impregnated with mineral salts—the same, in fact, as that which was found in the *hard wells* of the upper levels of the town. At length it occurred to Dr. Anderson, an eminent Perth academician (under whose superintendence the works were successfully constructed) to attempt the excavation *within the course* of the river, and so obtain the superincumbent pressure of the river-water itself. Accordingly a well was dug at the northern extremity of that large island which divides the stream immediately below the town; and into this well the river-water flowed freely, filtered and purified at the same time in its passage through the gravel. From this well the water is pumped in pipes laid under the bed of the river to a small ornamental reservoir on its western bank, containing a large circular iron tank, from which the town was, during some years, supplied. But there has recently been constructed a new reservoir at Dovecot Land, a small hamlet on the rising grounds to the west of the town, which is better calculated to supply the higher levels. To this point the water is forced up by the same engine that draws the supply from the river; which engine, we were told, works night and day.

The supply of water thus obtained is more than ample; and the service constant and uninterrupted. Even very poor houses have a separate supply; that is to say, houses which possess an annual rental of 6*l.* and upwards. But, besides this, Perth is more profusely supplied with public wells than any other town in Scotland. These Perth wells, which are of an exceedingly simple but tasteful design, are, we understand, being extensively adopted throughout the country. We may add here, that the plumber-work done in Perth is of a very high order. In the better class of houses, such as in some of the best mansions in the neighbourhood, there is hot and cold water laid on in every room; and the baths, waterclosets, and wash-hand basins,

with their complicated fittings and apparatus, might teach some of our Londoners a lesson in the art of hydraulic engineering. As a whole, the arrangement for the water supply of Perth is extremely creditable to the town; and yet the result, after all, may not be so; as we shall see.

For it is written that man shall not live on bread alone; neither can the economy of human health be wholly sustained by water, however pure and abundant. A thorough system of drainage must always accompany a system of water supply. But when we come to investigate the drainage of Perth, we are sorry to say that our report in the one case must consist of a violent contrast to the other. Indeed, it is clear that the facilities for the one matter do not imply equal facilities in the other; that is, a town may be favourably situated with respect to water-supply, and most unfavourably with respect to drainage. Such, in point of fact, is the case at Perth. Up till within the last two or three years, Perth does not seem to have had any thorough system of drainage at all. Since that period, two main drains have been carried through High-street and South-street; where their contents are discharged at right angles into the river, just immediately above the point at which the water is pumped up for supply of the town. Now, we must point out that a sewage outfall in this position is a very serious mistake. Although the water is doubtless filtered in its passage through the gravel of the bed of the river, it must be remembered that the process of filtering can only separate mechanical impurities; it is quite useless with respect to the separation of the chemical impurities which all sewage matter contains. It may be said that the large volume of water and the rapid flow of the river are sufficient precautions against this contamination. We are far from sure of that. The Tay is a tidal river like the Thames; and we all know how the Thames has its putrid and offensive matters carried up and down by the tide. Besides, there is always the greater risk of contamination during hot weather, in the height of the summer season, when the stream diminishes in volume and the bed of the river becomes contracted. It is also during this season that the greatest risk may be apprehended from the dye works and bleachfields which are situated higher up the river. But the outfall is not the worst of these main drains. The river rises at full tide far above the lower levels, and consequently dams up and carries back their noxious contents. There is no scientific provision made for this well-known contingency, such as boxes and sluice-valves, as we have had to make in the case of the under level sewers which intersect the Thames Embankment; and it does not seem to have struck the Engineer that there was any necessity for such provision.

And after all these two main sewers drain only a very small fraction of the area of the town. The Mill-lade of which we have spoken, or rather the canal or town aqueduct, which is supplied from the River Almond, and which constituted at one time the regular water supply of the ancient city, also serves the purpose of a sewer, if we may judge from its appearance after traversing the town.* But, with these exceptions, Perth seems to be utterly destitute of main sewers; and of course all the most densely-populated districts are absolutely undrained. The consequences of this are very apparent even on a cursory inspection of the town. We have already spoken of the excessively dirty condition of the streets and the depth of mud on the roads. At the time of our visit, we observed two old men feebly endeavouring, about the hour of noon, to remove the tons of sludge and filth which reposed in peace on the road-way of the High-street. But the High-street is a perfect paradise compared with some of the closes and lanes which branch from it. In the mill-wynd, for instance, which closely adjoins the Mill-lade, the roadway seems to be used as a common convenience, particularly by the junior portion of the population. In a town of 27,000 inhabitants, there are only four public conveniences. One of these, pointed out to us, was of rather a remarkable character and construction. The principal apartment was situated on the upper floor of a two-story building somewhat of the model of a coach-

* Speaking from recollection we may possibly be mixing up two separate channels in this statement. What we mean is, that open ditch which passes through the margin of the South Inch on our way to the railway station from South-street.

* See p. 182, ante.

house and hayloft. The seats were arranged along one side of this room, and the trough was partially filled with tanner's bark,—we presume as a sort of disinfectant, or deodoriser, or perhaps as both. When the trough was completely filled and the bark thoroughly saturated, this manure was scooped down through an orifice to a dung-cart which had backed into the apartment below, and was at once transported to the central depot. Near this arrangement was an equally curious dust-bin, which consisted of a square pit dug in the ground, covered with a trap-door. On the centre of this trap-door was constructed a sort of sheet-iron funnel, about 3 ft. high, through which the neighbouring inhabitants are supposed to shunt their ashes and other solid refuse. Generally speaking, the closes or "vennels" between South-street and Canal-street, and those between High-street and South-street, are unspeakably filthy. One, we remember, was full of slaughter-houses; another was crowded with cows (Shutfield close), the milk from which animals, we thought, could not be very wholesome or pure. But, at any rate, their proximity to such crowded sleeping-rooms is most pernicious.

These districts are all situated in the oldest parts of the town; but some of the outskirts are quite as bad in their sanitary condition. A sort of "clachan," or collection of weavers' houses, exists at the upper extremity of the High-street, near Claypot's-rynd, which, as far as we could judge, had reached the worst stages of neglect. The few we had time to inspect were low, mean, red-tiled cottages, of two floors (one sunk) and attics. In the best room the ceilings did not exceed 7 ft. in height; and window-openings of about 2 ft. square, with fixed sashes. The area in front was spanned by a series of rickety and dilapidated-looking stairs, the timbers of which were very far gone in decay. In these houses there was no water laid on, neither was there any other provision of a sanitary description. In the little plots of ground at the back of the houses we discovered a few privies and pigsties in intimate contact; but the state of the ground in too many instances showed still greater necessity for increased accommodation. The whole state of these houses we can only characterize as disgusting; yet they were all crowded with population, of which the majority, of course, were children.

We must remark here, with whatever reluctance, that the manner in which soil, ashes, refuse-matter, and surface filth of every description, are strewn about the streets and thoroughfares of Perth, is a great disgrace to the authorities; for they seem to regard their sanitary delinquencies as a lucrative source of revenue. Perth being situated in the very centre of a fertile agricultural country, where the farms are chiefly wrought under a system of very high tillage, its surface manure is unquestionably at a premium.* But we are just afraid that this common sewage has a greater value than common decency. The public health suffers in competition with the public manure!

Perth having thus polluted its surface to an extent which almost surpasses belief, has also made considerable progress in poisoning the subsoil. Some of the most populous and densely-crowded parts of the city, as we have said, are absolutely undrained. But this is not the greatest evil. Some of the most fashionable quarters, such as Marshall-place, in the South Inch, and Athole-crescent, in the North Inch, are only drained by cesspools. These cesspools, we must explain, are generally huge receptacles about 20 ft. or 30 ft. deep, in many cases the shafts of the former draw-wells which existed previously to the introduction of water to the town. The accumulation in these horrible pits will better be conceived than described, when we add that they are only emptied once in two, or sometimes three, years. They are generally emptied, too, during the night: just as if atmospheric poison were not more pernicious and fatal at night than it is during the day! It is in the highest degree fortunate for our argument, and for the cause which we have at heart, that we can adduce some local authority in support of our statement regarding these plague-spots;

* "Sale of Public Manure.—On Friday last, the whole dunghills within the manure depot at Tollyland were exposed to sale, by public roup. It being market-day there was a large attendance of farmers, and consequently the competition was very keen. There were in all 149 lots, which realised an average of 31.7s. each. The sale was conducted by Mr. Duncan Macfarlane, and the business-like manner in which he performed his duties was the subject of general remark."—Perth Reporter, January 30, 1865.

because we are perfectly conscious that many people conceive we have a tendency in these papers to make out a case. In the month of September last year, the commissioners of police had their attention directed to the subject, and Mr. Walsh, the inspector of nuisances (who is also the superintendent of police) submitted a report, from which we will make one or two quotations.

With reference to Marshall-place, it is stated that it consists of twenty-eight inhabited houses, to each of which there is a cesspool, and to the greater number two. These cesspools are situated at a greater or less distance from the houses, the farthest off being about 20 yards. Nearly all of the cesspools, although not found belching up, were full to the cover: in consequence of this the walls in some of the houses were damp, and in the back courts and areas the green moss and fungi were growing by the wall-sides and edges of the paving-stones,—evident symptoms that the sewage had found its way through the whole grounds. Indeed, the whole background lying betwixt the Dundee Railway and the houses is saturated and discoloured with sewage, and no one can go into the area without being sensibly affected by the offensive atmosphere. After adverting to the state of King-street and King's-place, which were nearly as bad, the report concludes by expressing an opinion, that before the inhabitants can expect to escape the diseases which spring from poisonous gases, a main drain must be laid down, of sufficient capacity to carry away the night-soil and sewage.

Mr. John Young, C.E., of Perth, supplemented this report by a plan and estimate of cost. He proposed to construct a main drain along King-street, King's-place, and Marshall-place, to the Tay, which would likewise be capable of receiving all the sewage from the upper western parts of the town. He estimated the cost of the works at 1,248*l.*; and as there were seventy proprietors along the route, the average cost to each would be 18*l.*

The above reports, we understand, were "laid on the table of the Commissioners of Police in the mean time;" and we have not heard anything of them since. But our readers may possibly divine what the commissioners are about from another local report just issued, viz., the report of the registrar (to which we were indebted for the vital statistics), who, in presenting his "mournful sheet," as he most justly calls it, to the town council, thus speaks:—"It would be presumption in me to go into any discussion as to the sanitary state of the town. The inspector of nuisances has already reported on the open pestiferous ditches and obstructive sewage on the west side of the town, and scores of obnoxious cesspools on the south. Can these account partly for the great mortality which has occurred? [The town council or the commissioners ought to answer this important question.] I beg also to call attention to the statistics kindly furnished to me by the Registrar-General of Scotland, from which it appears that the number of deaths in Perth bears a larger proportion to the number of births than it does in any other of the large towns in Scotland. Perth is the smallest of the districts which make such returns. We are not, therefore, pent in a populous city where sewers need annoy and vitiate the air. We have the finest river in Britain rolling past and washing our very walls; we have an ample supply of water in our Mill-lade, from which streams sweep all impurities from drains into the Tay; and thus we possess every means of making Perth the cleanest town in Scotland. I enter not here into the loss which some may argue is sustained from not saving our sewage. But what is that compared with the health of our inhabitants?" This is another most proper inquiry which the commissioners are bound to take up and dispose of. We must be permitted to share in the hope with which the registrar concludes his report that Perth will one day be known as the healthy city as well as the fair city.

Where such an earnest disposition to reform prevails on the part of the burgh officials, it would be alike ungenerous and unnecessary for us to prolong the case. But we have still a few remarks to make. One singular and melancholy fact we are bound to report as it reached us; and our readers will probably not feel surprised to hear it. Last year an addition had to be made to the Perth Infirmary for the purpose of accommodating the increase of fever patients! We need not recur to the death-rate of the town, particularly to the infantile death-rate, nor will we dwell on the medical reports. Dr. Bramwell, an intelligent physician of the city, showed last

year that the mortality of Perth would bear comparison with that of other towns during a visitation of cholera. Scarletina, typhus, typhoid, and gastric fevers, are all, in fact, constant visitors: in one word, the diseases which spring from foul and noxious emanations joined to those which result from overcrowding in uninhabitable rooms, are those which support the high mortality.

We have now, we suspect, done enough to show that Perth is suffering mortally from causes which are well known to be more or less preventable. The first question that occurs, therefore, is, what must be done? It is not so much our business in this inquiry to suggest practical remedies as to point out radical errors. Our presumption is that the local authorities are always equal to the emergency and necessities of reform. Yet, as we cannot but regard Perth as a sadly neglected case; and as we are sure anything we do suggest will be kindly received, we venture to point out the following measures as alike urgent and imperative.

In the first place, there must be a system of thorough drainage for the entire burghal area. Cesspools must be abolished.

Secondly, the sewage outfall should be changed, so as to avoid contaminating the river at the source of the water supply.

Thirdly, there ought to be a public slaughter-house.

Fourthly, a system of periodical flushing might be advantageously employed not only for their drains, but for the surface of their streets and closes. There is plenty of water for the purpose.

Fifthly, Better scavenging is much needed.

Finally, a thorough investigation and reform of the poorer class of dwellings are absolutely necessary. It is there the mortality bills find their most numerous supporters.

We make no suggestion as to the manner in which these improvements ought to be carried out. With regard to the mechanical difficulties, if there be any, the engineers of the Tay can surely solve them. And as to the legal difficulties, if there be any, an Act of Parliament is soon passed when life is in danger. But it will be strange if, among the multiplicity of Scottish Acts and Public Health Bills respecting Scotland, which every year pass through the Legislature, the lawyers of "bonnie Saint Johnstone" cannot discover a method of evading tailzies and teinds, fees and embezzlements, and other quips and quodlibets which stand in the way and impede their progress. There was, we may state, an application made by Sir George Grey of certain clauses in the General Police Bill for Scotland some time ago; but its practical operation, we suppose, has not yet commenced.

One word as to the municipal government of the town. We are somewhat at sea, we must own, with regard to its constitution. First of all we have the Lord Provost and magistrates, then the town-council, and then the police commissioners. Are these bodies fashioned according to the principle of *trio in uno*, or do they each possess a separate and independent jurisdiction? What is the Tay District Fishery Board? Has it any interest in the conservation of the river? and would it object to any system of thorough drainage? Who is the local authority under the Nuisances Removal Act? What powers have the Parochial Boards in the matter of epidemics? Who exercises the power of levying assessments? We are very glad to hear that the "Craigie Nuisance" has been arranged between the incorporation of glovers and the hospital managers. But which of the two bodies made the obstruction? It seems to be the fashion in Perth for magistrates and bailies to contract for the town's work, in open defiance of the 10th clause of the Burgh Financial Act.* Could some of them not contract to clean out the closes properly? Again, the superintendent of police is inspector of nuisances and master of the fire brigade; he is also, we believe, the procurator fiscal. These duties are surely not cognate; could they not be divided with good effect? There appear to be two city clerks in the town: this is surely one too many: could not one be exchanged for a medical officer of health?

The old proverb about too many cooks would seem to be very applicable to the condition of Perth at this moment. But, after all, we understand these are not the proper sort of cooks. There are a great many shopkeepers in the Perth Town Council; there are also a great many lawyers.

* See Bailie Jamieson's speech at the ordinary monthly meeting of the town council, September, 1863.

There is not a single builder, architect, or engineer. There is not, we were told, a blacksmith or a brassfounder. Even the amiable Sir David Ross follows the peaceful and useful occupation of a grocer. It is no disgrace to those burghers to say that though they may know something of the simple yet inevitable laws which govern the public health, they may at the same time be somewhat ignorant of the method of carrying those laws into effect. But we must not dwell over such circumstances. Our business is to tell the Town Council of Perth, which, from old services in the cause of liberty, has a just claim to popular esteem, that it must take heed and amend its ways. The time is rapidly coming when antiquated systems of government will be judged of by their practical usefulness; and if thus tried in the balance and found wanting, they will run a strong chance of being abrogated and swept away.

When we began these notes we soon saw that we should necessarily fall into violent collision with the novelist and the poet. Our readers will now judge who has the best of it. Perth, under different circumstances, would be one of the most desirable residences in all Scotland. But who, in his proper senses, would at present think of going there to pay scot and lot. We cannot but think that in a sanitary point of view it rather does a town damage to be continually flattered for its beauty. The local guide-books are bad enough; but even the staid old literary men who compile gazetteers are carried off their feet when they come to treat of this picturesque glory of Scotland, and write in the poetical language of the arcadians, or with the glowing metaphors of the troubadours. We beg to remind these gentlemen of the mortality tables. In future, while writing about the beauty, they must not forget the filth. A higher philosophy must teach them that there is no romance in bad drainage, and no chivalry in a high infantile death-rate.

ARCHÆOLOGIC ITEMS FROM ROME.

The first impression of Rome received by the traveller who approaches by the new railway-lines that sweep round the southern circuit of walls from the Tiber to the breach made in those battlemented structures for the railway-ingress near the Diocletian Thermae, is striking, and in some degree novel, even for those familiar with the local aspects. So contrasted indeed is this city with other Italian capitals,—in some respects so inferior as to refinement, comforts, civilization, in others so uniquely and nobly distinguished,—that one feels her outward physiognomy to be exceptional, strangely individualized as is her political destiny.

The resources of the Papal Government are, even with the unflinching auxiliary of the "Peter Pence," reduced to lamentable insufficiency; yet the vigour with which public works, and restorations of the Antique, have been carried on during the years ensuing since the dismemberment of those states, has been beyond the expectations even of friends, if not quite up to the level of deserts infernal from reports that always, in this quarter, partake of the grandiloquent, and almost always exaggerate. One result of the absolute denial of liberty to the press is, that its official organs cannot be trusted in regard to any claims on the gratitude or approval which may, or may not, be merited by authorities from a public only informed within certain limits of truth. The report lately published by the Ministry of Commerce, Fine Arts, and Public Works respecting restorations of monuments and civic improvements, from the beginning of 1850 to the end of 1864, though on the whole satisfactory, indeed honourable to this Government, is of a nature to raise ideas beyond realities, and is drawn up with details that are not all to be easily verified; some (we cannot but suspect) open to *quasi* refutation. We read of repairs effected in the fortifications of Servius Tullius, as well as in the *Agger* called after that king (that rampart having been, in part, broken and levelled with the ground, for railway purposes, within the period contemplated); repairs of the Pyramid of Cestius (its apex restored after the ancient one had been struck off by lightning); of the Tabularium, the Circus Maximus, the Pantheon, the Tomb of the Scipios, the Colosseum, the Forum of Augustus, the Arches of Constantine and Septimius Severus, the Column of Trajan, the Circus of Caracalla, the Portico of Octavia, the Aqueducts of Nero and Trajan, the Villa of Hadrian, the Thermae of

Titus and Caracalla, the Etruscan Tombs of Corneto (Tarquinii); and, moreover, the restorations of ancient ways,—the Latin, Prænestine, Appian, Claudian, besides the uninterrupted continuance of excavations in Ostia, in the Palatine, and at Prima Porta, and site of the Villa of Libia. Fourteen churches restored, and nineteen embellished with new paintings, evince the activity in the interests of those monuments naturally most precious in the eyes of this Government; and in order to display the movement of commerce in art-objects within this period, tables were supplied, from which we learn, besides particulars referring to earlier date, that in 1863 the ancient paintings exported from these states represented the value of 116,427 scudi; the ancient sculptures, that of 213,130 scudi; the entire amount of these exportations in the Fine-art Department, during six years, more than 8,000,000 francs. High-sounding and imposing is the above list; but if we confront it with realities, we shall find many of its items refer to things so trivial, many of the assumed "public works" confined to details so insignificant as to justify the charge against the ministerial report, of almost fallacious wording. Nothing has been restored at the Thermae of Titus or Caracalla, the Augustan Forum, or the triumphal arches, that can meet or declare itself to the eyes, without express particularization of every stone renewed or polished, every letter fresh cut in the epigraph. At the Column of Trajan, as at the Arch of Constantine, the only undertaking effected has been the execution of casts from the historic sculptures, at the same time ordered by this Government for Rome, as by the French for Paris; and one may be amazed at the archæologic sciences of this report, in reference to the "Circus of Caracalla"—the ruins implied having been long known to every toy since the distinct refutation of such misnomer, as the Circus of Maxentius, on the Appian Way. We visited that impressive scene, so picturesque in the Campagna solitude, a few days ago, for the first time after long absence, for perhaps the fortieth time since we first saw those interesting ruins, and certainly no perceptible traces of the restoring labours could we detect in any portion of the encircling walls, the extant *carceres*, the triumphal arch, or once-buried *spina*.

The discovery of an antique art-production pertaining to the highest order, is naturally an event to excite all attention, to become the subject of all talk and conjecture in this city, where other interests can be discussed so little at freedom; but it is long since any incident of the kind has made such sensation here as the exhuming, under the Pio Palace, of the magnificent Hercules statue, one of the priceless adornments of Pompey's Theatre, which has lately been removed from its original site for the requisite restoration (little more than one foot being wanted), by Tenerani, after which it is to have its place in the Vatican; we are not exactly informed in what locality of that museum. The Academicians of St. Luke, invited by the Pope to pronounce *ex cathedra* upon the merits and assignable value of this colossal work, dwell some time on the rather subtle question, whether it should be described of the *highest* or the *best* period in Greek art, the former definition having been (we understood) suggested by Mr. Gibson, but the latter unanimously adopted in the result. That theatre, connected with the curia of Pompey, which passed through such strange Medieval vicissitudes, and became eventually, with the curia, temple, and portico belonging to the same aggregate, completely buried underground beneath a labyrinth of obscure streets, near the present Campo de' Fiori, has from time to time yielded wealth, even from its hidden recesses, to enrich the Roman museums with some of their most prized contents. The Belvedere Torso (also a Hercules); the Hercules with the infant Ajax, a *Melpomene*, a *Euterpe* (all statues at the Vatican), besides the celebrated colossus of Pompey, at the base of which "great Caesar fell," were alike found on the site once occupied by those splendid Pompeian buildings. In that Pio Palace, the fortunate discoverer of the new antique, Cav. Righetti, is having the works of excavation continued, whilst the Government is carrying on similar researches under the houses adjacent, with a view to laying open the ruins of the curia and portico. An inner court, presenting the scene of neglect and decay common to Roman palaces, is the area where labourers are now employed under Righetti's directions; and here we look down, at considerable depth, on remains of walls and pavement,

from amidst which had been raised, just before our last visit, a female figure, headless, and, indeed, little more than a torso, in fine marble, and beautifully draped; turning from which spot to enter a chamber off this court, we see a multitude of marble fragments, some most precious in material, giallo and verde antico, porphyry, *fiore Persico*, Phrygian pamaozetto, &c., from the same locale where the Hercules was found; a variety of architectonic ornaments, antefixa, and others very rich in character; masses of bronze in state of fusion (the evidence of injury suffered by fire), several terra cotta drinking-vessels of the coarser kind, probably from some *popina* near Pompey's Theatre, and a few busts of not common character, one supposed, from its deathlike aspect, to be a mask taken from the human original after decease; another a female remarkable for the head-dress, with hair gathered behind in a net, like some of the Italian fashions still to be seen in rural districts.

In the excavations in the Palatine the most important of late discoveries among the buildings of imperial origin is a massive substructure, reduced to but a few courses of square-hewn lithard tufa, isolated by its elevation on a quadrangular platform, referred by Signor Rosa to the Temple of *Jupiter Propugnator*, and to all appearance an edifice of republican antiquity. The last-discovered work of art noticeable for high merit, is a torso of a fawn with a leopard-skin thrown over one shoulder, so grandly treated and firmly characterised in form as to have engendered the idea that this may be the veritable original by Praxiteles, often copied, and reproduced with more or less variation in several statues classed with the most valuable antiques of Rome's museums.

A remnant of the Servian walls in eight courses, at different lengths, of square-hewn stone blocks, brought to light in works for levelling the uneven space before the Quirinal Palace,—this structure belonging to a buttress that supported the slope above,—is among late discoveries to notice; but condemned, we believe, to demolition for improvement of the approach to the papal residence. In levelling for a new street to reach the central railway-station, opposite the Diocletian Thermae, have been opened several chambers in the inferior brickwork of those ruins, a more conspicuous hemicycle, and a larger hall containing baths, with verde antico pavement; but these, it appears, must share the fate of many antiques brought to light in the course of works for utilitarian purposes during recent years, by being sooner or later destroyed.

SOCIETY OF BRITISH ARTISTS.

THERE is little to distinguish this, the forty-second exhibition of the Society of British Artists, from those that have recurred from year to year for a long time past. Accepting it in its integrity, and looking for no novel feature to enhance its interest, it will be found to include the average amount of attractiveness the members have been wont to offer their several admirers; and if it afford no justification for congratulation to any very advanced position or promise of fresh vitality, such as might be obtained from young and able members of the profession joining their ranks, it at least testifies to the enduring qualities of whatever claims they may have to attention and consideration now patent to them.

The present collection is an unusually large one, comprising oil pictures, water-colour drawings, and sculpture, to the number of 1,042 works. The multiplicity of performances that will now shortly be in evidence before the public, will help by-and-by to raise an inquiry as to what becomes of this incessant and increasing supply of these not indispensable adjuncts to existence? And perhaps as soon as something like a satisfactory elucidation of the mystery attached to the ultimate fate of pins has been arrived at, it might be allowed to replace that puzzling question as one nearly equal to it, involving as much conjecture, and far more important consequences for statistical result, to any who would wish to see the influences of fine art spread with the generous breadth of sunshine over a wider radius than it yet has reached.

It must be evident to those who are at all inquisitive about the matter, that but a comparatively small proportion of most people's acquaintance, extensive as it may be, are in possession of pictures painted within the last

ten or twenty years, unless they happen to be fortunate Art Union prize-holders, and whilst they are well aware of the great demand for really good, and also in some cases really bad emanations from well-known and popular names, and the vast absorption of the best class of pictures by wealthy collectors, must wonder sometimes—making allowances for a fair distribution of taste and discretion,—where at least one-half the mass that most exhibitions consist of finds a market and a destiny—and think it almost a cause for regret that nearly all that is most desirable should become part and parcel of gathered numbers, when, if more widely distributed, each item would do more towards encouraging and improving that taste than all the most elaborate and exhaustive essays ever written on the subject, however much they may assist in directing it.

Tastes are known to differ; otherwise it would be easy to reduce the hypothesis of half the doubts that surround it, at least. Perhaps it is occasionally more necessary to ask for the exercise of discretion than that of taste; if it be not a discerning one: however ungracious the remark may be, and though it applies elsewhere as well as here, it too often happens that the favourable opportunities for comparison are by no means strong or frequent enough to mark the degrees of what is the reverse where there is such a preponderance of it.

In the absence of any material assistance such as their invitation to general contributors at times procures for them, the character of the annual display in Suffolk-street varies so little, and the specialities of the best known members have now become so thoroughly to be identified with their names, that it is supererogatory to say much more of the present collection than that the weight of it is evenly divided amongst them. Mr. F. Y. Hurlstone, the President, still devotes his resources to the representations of Italian beggar-boys so happy in their vagabondism and picturesque in their dirt. These "Descendants of Marius and the Gracchi amidst the ruins of the Roman Empire" (385) are the degenerate scions of hero ancestors easily recognised by northern appreciators of burly-gurdy music, who do not object to being reminded of a familiar association with monkeys and have no dread of fleas, though here they are to be seen at home with only some of such belongings—the least likely to inconvenience them—as they lie stretched in classic dust and all the glory of a temporary independence, sucking grapes; or sit cuddling their knees in abject repose. Very different from Mr. Hurlstone's sun-burnt types are Mr. Baxter's specimens of complexion "The Sisters" (47), one with the blue eyes and the other with the brown: how impossible it would be to decide upon a preference if the artist did not assist in some measure by throwing one into shade: so creamy, so delicately rosy and waxen-soft are these ineffable beauties of Mr. Baxter's that it is absolute cruelty on his part to send them out of doors without veils, unless he would like to see them tanned a little, which to some would appear to be a very laudable desire; or, perhaps, he knows that his cutaneous preparations are warranted to withstand all atmospheric or other uncertainties; for even in "Winter" (511) the possibility of a red nose (and no veil again!) is never so slightly hinted at. Mr. J. J. Hill adopts some of his precepts: "Innocence" (198) will show to what extent.

Mr. Salter contributes an illustration from English History, "Queen Elizabeth reproving Dean Nowell in the vestry of St. Paul's" (131) for presenting her with an illuminated service book by way of a new year's gift. It may be remembered that her majesty lived considerably before our time, and had some strict notions with regard to idolatry.

Mr. Woolmer is more dreamy and enigmatical than ever, though often suggestive in his perfectly imaginative creations. "Miranda Sleeping" (417), in an enchanted and enchanting attitude, and a graceful figure of a young girl disrobing, "Returned from the Ball" (664), are more satisfactory than another selection from "The Tempest," "Prospero's Isle"—Ferdinand and Miranda playing at Chess" (266), where too much is left to be understood by the spectator.

Mr. E. J. Cobbett's conspicuous group of peasant children, entitled "The Thorn" (108), is less pleasing than some of his numerous too similar treatments of too similar models. Mr. G. A. Holmes has a sweet little study of childhood. "The Blackbird's Song," "Oh, Blackbird, sing

me something well" (168), is one of the most complete pictures in the rooms, notwithstanding its small size and rather excessive prevalence of pink in the flesh-colour. Mr. W. Hemslay's "Grace before Meat" (58), is unaffectedly simple in its homeliness and well painted; and the same should be said of Mr. James Collinson's domestic incident, "The Bird's Nest" (67), for the conscientious pains that have been bestowed in both cases are alike deserving of the acknowledgment earned by either.

Mr. T. Roberts chooses his actors of every-day social life from a higher grade, and is none the less natural for the refinement that distinguishes his agreeable method of depicting them than those who ignore such aid: "The Family Pew" (64), though the family of family pews may be growing somewhat too large, is a very pleasing and companionable picture.

To note others, Miss E. Osborn's courtship of German lovers, "Of course she said Yes" (45), though the very tall fair one is in a very awkward position—physical as well as mental—deserves a better place; "The Pangs of Poverty" (176), by Mr. E. C. Barnes; "Sunday Afternoon" (185), by Mr. G. Pope, curiously and thoroughly indicative of quietude and repose; Miss Kate Swift's pretty little French girl with "A Lesson to Learn" (599), intent on getting it by heart—which she certainly and speedily will do; so bright is she by nature, and standing for further enlightenment still in a flood of bathing sunshine, she looks the realization of reflexion, and a charming little emblem of progress and knowledge besides.

Mr. G. Bonavia's "Child of the Country" (422) is arch and pretty, and, with Mr. C. Rosseter's "Gentle Help" (633), Mr. W. Bromley's "Grace" (666), and others of cognate merits, are sure to secure their share of praise.

There is something excessively good in Mr. F. Holl's "Knitting" (343); it shows close observation, and a power of investing trifles with art value quite rare enough to be remarkable; Mr. A. B. Donaldson's fine sense for colour condones the fault of affecting a mannerism all too prevalent. "The Empty Fountain" (307) is but a title to what may prove to be a source of promise; and Mr. W. Holyoake's love-lorn damsel, "Love Not; the Thing you love may change" (369), is too well painted to be overlooked.

The landscape department, including so many professors of established notoriety, has always been the more important section; and if there are no signalising instances of exceptional worth and interest, there are many that will help to support this old claim to superiority, although it is very reasonable to expect that if no recruits are forthcoming, each successive season will make it more apparent that the members have been too independent of natural consequences and too reliant on their own endurance, for it can never be concealed that time is inexorable to all of us, and shows little favour at the last.

Mr. J. B. Pyne's stately composition, embracing "The Roman Aqueducts, from the Palace and Church of St. John Lateran, with the Alban Hills, &c." (205), has afforded him ample opportunity for indulging in those glowing lines he delights in: this, with "The Church of San Giorgio Maggiore, with the Dogana, Venice" (495), well sustains his high reputation.

Mr. G. Cole is very forcibly represented. His brilliantly-illuminated landscapes dazzle the eyes, and leave them blind to anything that is unlooky enough to be in their neighbourhood. "Returning from the Harvest Field—Autumn Evening" (88) vies in the intensity of its effect with a real approach of sunset. Mr. H. J. Boddington, Mr. Alfred Clint, Mr. J. P. Pettitt, and Mr. J. J. Wilson are all announced in numerous examples of that particular forte that has long ago been accorded to them; and Mr. J. Syer, less remarkable for the number than the quality of his works, has provided one of the leaders, "A Mountain Hill" (541); Mr. W. S. Rose's cleverly-painted triptych, "Morning, Noon, and Night" (194), and "The Shower is Over" (262), by Mr. H. Shirley, are assistant items.

There are more water-colour drawings than the society habitually find room for, and so many of them are meritorious, that it was a wise step to provide the extra accommodation of a screen. We have room but to mention Mr. W. W. Gosling's "Flew-netting on the Thames" (749); Mr. T. F. Wainwright's carefully-drawn studies of sheep in "Winter on the Thames" (780); "The Reculvers, Kent," painted on the spot (795), by Mr. J. V. De Fleury; Mr. G. Wolfe's very suggestive and imposing drawing, "A Message from the Sea" (812); Mr. H. Corbould's cattle subject entitled "Lords of the Isles," (825); "On the Thames, near Wargrave" (826), by Miss S. S. Warren; Mr. G. Pope's "Rebecca admiring the Armet" (867); Mr. Wyke Baylis's "Westminster Abbey, view from the Chancel" (906); Mr. J. Hardy's capitally drawn and coloured study of dead partridges and pheasants, in "October" (913); "The Outskirts of the Forest, Sherwood" (945), by Mr. H. A. Harper; "An Abyssinian Negro" (967) by Mr. A. Hassam; "In the Woods at Ardencaple, Dumbartonshire" (987), by Mr. T. Fairbairn; "The Cottage Door" (989) by Mr. H. Webb; "The Gamekeeper's Cottage" (990) by Mr. H. T. Green; "Late Autumn" (995) by Mr. H. C. Warren, and "Le Maltraite" (1002) by Mr. S. T. Whiteford.*

OUR SUGGESTION FOR THE LIBRARY OF PARLIAMENTARY PAPERS.

ON Friday evening in last week, or subsequent to the publication of our number containing the article headed "Blue Books made Useful," wherein we suggested the establishment of a public and special library for Parliamentary Papers, Mr. William Ewart brought on his motion for a digest or abridgment of the papers of each session; when after some discussion, and in the absence of support from the Government, the motion had to be withdrawn. We need only observe that the arguments which secured the rejection of the particular proposal of Mr. Ewart, were insufficient; but that they cannot but be regarded as the strongest arguments for the library. The digest would not render unnecessary, reference to the documents themselves: the library would permit of this reference; which now cannot be made at all, in a large number of cases. Mr. Y. R. Yorke, in the course of the discussion, having mentioned that last year 50,000 pages were issued at a cost of 67,000*l.*, said,—"It was lamentable to reflect what a large proportion of this expenditure might be said to be entirely thrown away. He would suggest that the large number of copies now printed *in extenso* were not necessary, and that if a small number were printed and so placed as to be readily accessible for reference, that would be quite sufficient for all public purposes." Clearly however as this pointed to the library, that mode of attaining the object was not referred to by any speaker.

THE MACADAM ROAD-WAY OF PICCADILLY.

THE efficacy of the macadam roadway to sustain the traffic of a great metropolis has been thoroughly and shortly tested in the above-named great line of communication. The success attending the Regent-street roadway in its highly-improved condition,—as maintained under the contract system, as distinguished from that of parish work,—has, by reason of its smoothness and consequent noiselessness under the traffic, been found so great a benefit to the traders of this street as to induce the St. James's vestry to yield to the earnest solicitations of the traders of Piccadilly and Coventry-street to have the boon extended to them. The resolution of the vestry for this was come to in the early part of last year, but the vestry, seeing that there was another good year's service in the existing pavement, deferred the immediate execution of the order. The work of laying down the new roadway has, however, now been commenced, and is to be completed by Easter; and no interruption, in the meantime, to the free passage of the street is to take place.

The contract is taken by Mr. Browne (who also holds the Regent-street contract) for seven years, at 1,480*l.* per annum for maintenance, inclusive of scavenging and watering, with 870*l.* and the old stones for the conversion. The line of way thus to be treated commences at a point in Coventry-street a few paces west of Leicester-square, and terminates at the corner of St. James's-street; the part of Piccadilly lying west of the latter point being in the parish of St. George, Hanover-square.

* At the meeting of this society held for the election of members, on the 27th of March, Messrs. Wyke Baylis, E. C. Barnes, and E. Hayes were elected members.

THE PROJECTED POLAR EXPLORATION.

The hopeless and absurd attempt to discover a practicable "north-west passage" for ships into the Pacific Ocean, by way of the ice-bound regions of the extreme north of America, has been finally given up; and it is to be hoped that future explorations of the Arctic regions (for there must and will be further attempts to reach the pole) will cease to follow the old routes westward, or to allow the old impracticable notions of a north-west passage for shipping to have any such adverse influence as it has heretofore had in leading explorers away from the more interesting scientific object of arctic voyages,—the discovery of the north pole.

The warm gulf-stream runs north-eastward from the tropics by the British isles and Spitzbergen; then circulates round the pole; and then returns—as a cold current—chiefly through the north-westward regions about Baffin's Bay and Greenland, southwards by Nova Scotia and Newfoundland, where so many icebergs hence occur in summer. Thus, and from the stretching of land (which is always much colder than water) so far north towards the pole in America, the north-western region is pre-eminent the frozen region; and yet it has always been with the ostensible view of discovering a passage in this direction for ships, that our sailors have been sent into the arctic regions. Now, however, that the real, as well as the ostensible, reason for further explorations will henceforth be the actual discovery of the north pole, I hope that the suggestion made by me in the *Builder*, many years ago, that to follow the warm gulf-stream must be the most hopeful route to the pole, will be adopted. Some years since, Dr. Petermann claimed this suggestion; but I pointed out in the *Builder* at the time that it had previously been publicly suggested in its columns. Whether Dr. Petermann or the *Builder* were the first to publish the suggestion, however, does not much matter. It is of far more importance now for me to note that the suggested route has obtained the approval of such authorities as Sir Edward Belcher, Admiral Ommanney, Admiral Fitzroy, and Admiral Maury, all of whom have expressed their preference for that route, while discussing the subject, on Monday last, as you would observe, at a meeting of the Geographical Society, where a letter of Dr. Petermann, advocating the Spitzbergen route, was read.

In course of the discussion, Admiral Fitzroy referred to the records of the voyages of Dutch sailors in the fifteenth and sixteenth centuries, which stated that they had sailed as far north as 88 deg.; and he thought that these records were quite reliable. He entered into a consideration of the circumstances which might form a barrier of ice round the north pole, and leave an open sea within. He conceived that the action of centrifugal force would tend to impel the masses of floating ice towards the equator; and that, arresting a wind blowing in a contrary direction, the ice would be confined within a certain zone surrounding the pole, like an icy ring, but not extending to the pole itself. He stated that it had been observed, both in arctic and antarctic regions, that the mercury in the barometer falls on approaching the poles, thus indicating that the pressure of the atmosphere is less at the poles than at the equator.

In Dr. Petermann's letter, it was remarked that the argument in favour of finding an open sea near the north pole was greatly strengthened by the known condition of the ice in antarctic regions. It was an ascertained fact that there was much more ice near the south pole than there was towards the north, and that icebergs and masses of ice approached much nearer the equator in the south; nevertheless, Sir James Ross had succeeded in penetrating through a barrier of ice many miles in extent, and reached an open sea, and came in sight of an antarctic island or continent, with mountains 10,000 ft. high. If this could be accomplished near the south pole, where the ice was so much more abundant, it was contended that there would be little difficulty in penetrating to the north pole, where the ice is in summer broken up, and generally less abundant.

That an open sea does exist beyond the icy rampart which surrounds the north pole, and that land there also exists, as at the south pole, have already been proved by Dr. Kane and his party, who penetrated through the northern barrier, *via* Baffin's Bay to latitude 81° 22', in 1853-4, and "came to open water (I quote from my own notes, made at the time of the return of the

expedition), 81 miles north of the coast of Greenland, where the temperature rose to 56°; from an intense cold farther south, which produced lockjaw, and killed two men and fifty-seven dogs. Numerous animals, birds, &c., were seen at the open water, and a mountain was discerned at 82° 30' N., and called *Perry*." Here then was evidence not only of an open sea beyond the icy barrier, but of polar land like the antarctic, in that open sea, although Dr. Petermann maintains the probability that there is nothing but open sea within the northern ice barrier.

In adjoining the discussion, Sir Roderick Murchison said that at the next meeting a paper would be read, in which the author would undertake to prove, by reasoning from physical causes, that the temperature is warmer at the north pole than at a distance of several degrees from it. It was an opinion which had received the sanction of Sir John Herschel; and, on the discussion of that paper, the subject of the north polar exploration might be resumed.

It is to be hoped that in this promised paper it will not be forgotten that Dr. Kane has already attested the fact that it is warmer beyond the icy barrier, and that an open sea does there exist, with mountainous land in it polewards; and, with the warm gulf-stream constantly circulating through it, carrying in heat and bringing out cold, like a warming apparatus, how can it be otherwise?

Can it be possible that this polar sea-girt land, and its milder region beyond the icy barrier of the north, were known in ancient times? We have seen, from Admiral Fitzroy's remarks, that the Dutch voyagers of the fifteenth and sixteenth centuries seem to have got as far north as 88°; but my question relates to far more ancient times, and to a land "beyond the cold north wind,"—a hyperborean land, in short, of which there are records or fancies, in heathen mythology; but if merely fancies, they are certainly startling in their curious coincidence with our most advanced scientific ideas of the polar region.

Thus, we now find it reasonable to believe, without any reference to such traditional, or even be it merely mythological, notions, that the icy region of the north only surrounds, with its barrier, the stronghold of the mountain-studded oceanic polar basin, and does not extend into its mild and "open sea," which is full of animal life. Therefore, "the cold north wind" must originate in the icy ring or rampart around the milder polar region, and not extend to, or come from, or include, that polar region itself, which must hence be actually beyond these boreal blasts, or truly hyperborean,—an idea till now quite unintelligible; and seemingly in all respects, or to all appearance, impossible. Yet this is now, as I have said, the most advanced scientific idea that we have of the north polar region!

"The Hyperborei," says "Smith's Geographical Dictionary," "were believed to occupy the remote regions of the north, beyond boreas or the north wind. They never felt the cold north wind, but had their lot fixed in a happy climate, where, like an alpine summit, rising above [or beyond] the storms, they were surrounded by an atmosphere of calm and undisturbed serenity." They were a pious people, "living in perpetual serenity, in the service of their God for a thousand years!" There was "no doom of sickness or disease for this sacred race: they lived apart from toil and battles, undisturbed by exacting Nemesis. But, at length, tired out with this easy life, beheld the sun and the shade [six months in the light and six months in the shade], they leaped, crowned with garlands, from a rock, into the sea,"—the open hyperborean sea.* It is with allusion to the mythical Hyperborei that the Arimaspi are spoken of, who "steal the gold from the griffins," whatever that may mean; and who "live in a country where the men sleep half the year, and the air is filled with feathers." The myth, or tradition, as to the Hyperborei, was an Eastern no less than a Western one. Colonel Franklin, in noting the connexion between the mythoses of the East and those of the West, says of the Eastern;—"The gods are

* That the arctic region was "once upon a time" tropical, or even ultra-tropical, and hence capable of yielding "garlands," there can be no doubt; although that was certainly "a long time ago." Baily points attention to the fact, too, that the polar region must have been the first habitable part of the globe, as it cooled. But still, that must have also been a very long time ago. It is just worth noting, however, in connection with the text, and from the curiosity of the whole series of coincidences.

Merupa—Meropes of Homer,—signifying, in Sanscrit, Lords of Mount Meru, the north pole, of the Hindus, which is a circular spot, and the stronghold of the gods: it is called Ilia; or, in the derivative form, Ileyam, or Ilum."

Now, what I maintain is, that, making all allowance for mere mythological fancies, there is something very remarkable about these fancies and their coincidences with our most advanced ideas as to the north pole. The very notion that the polar mountainous land, in the open sea, beyond the cold region of the north, is "a circular spot," must itself be highly probable, if there be any land at all there, as Dr. Kane's observation of a mountain appears to indicate that there is; for the gulf-stream evidently circulates round the pole, and any land there must naturally have assumed the form of "a circular spot." Whether it ever was, or still is, "the stronghold of the gods," whose barrier walls or ramparts and fortifications are assuredly godlike in their magnitude and strength if not impregnable, we had better leave it to Captain Osborn to ascertain for us. But I sincerely trust that the gulf-stream may prove to be the clue of Ariadne, which shall lead him within those godlike barriers of eternal ice, and into that mild and serene hyperborean region of modern science, which is known to teem with animal life at least, if not with spiritual.

JOHN E. DOYE.

ON THE BETTER SUPPLY OF ANIMAL FOOD FOR THE PEOPLE.

OWING to various causes, there has been for some time past, and there is just now, a continued rise in the price of animal food; and the great masses of the industrious and poorer classes of the community are deprived of the means of providing a quantity of such food sufficient for the preservation of a proper duration of life, and insuring a right amount of that health and strength upon which the welfare of the country in so many ways depends.

While, at home, the price of butchers' meat is so high that its use has become an occasional luxury instead of a matter of daily consumption, in foreign lands there are immense quantities of the most nutritious food which is yearly allowed to be wasted, in a manner not only wicked, but also foolish. In Australia, for long, great flocks of sheep were slaughtered, and only the hides and the fat preserved. In that country there is now a greater demand for this kind of meat; but there are comparatively boundless expanses of land on which sheep and cattle only require to be placed, and a little cared for, in order to insure a supply of this important necessary sufficient for the need of a large part of Europe.

In South America almost countless hordes of wild cattle are killed for the sake of their hides, hoofs, and horns, and no doubt, if needful, the number of cattle produced in these regions might be increased to an extraordinary extent. In the Crimea and other parts of the Russian territories, and elsewhere, there are either already in existence, or there might soon be provided, great quantities of nutritious food; but it has unfortunately been the case that the distance of those extensive grazing grounds has rendered it impossible to bring this food to the populous parts of Europe in a fit condition, or at a cost which would render it serviceable. New means are now, however, being brought into use, and exertions made, which give promise of future good results. For instance, in parts of the prairies of South America, plans on a large scale have been adopted for the purpose of preparing the prime parts of the animals which abound there, so that they may be carried in a wholesome state by shipping to distant parts. And now we have accounts of the importation of considerable quantities of South American meat,—into London, Glasgow, Liverpool, and some other large towns,—which can be sold at 3d. a pound. It is said that this meat, which is prepared by a simple process of curing, and drying in the sun (which gives it, by the way, a not very inviting appearance, except to such, perhaps, as are familiar with the appearance of good dried ling fish, and prefer it to the soaked and lime-whitened rubbish which the Londoners prefer), is of excellent quality when brought to market, and medical and other authorities state that it is good and fit for the purpose of food. In cooking, it requires to be soaked in luke-warm water for three or four hours, and then it can be used in the ordinary ways. It makes very good soup, or, cut into

pieces and boiled with vegetables, a wholesome Irish stew, and is soon ready. Suitable pieces may be selected, rolled, stuffed with herbs, and well boiled. In many other ways a managing housewife will provide palatable and healthful dinners for families with this meat, at the price of 3d. a pound. Properly managed on a sufficiently large scale, the American beef will be most valuable in soup-kitchens, &c. In providing food at a very moderate cost for the poor, and in most families of the industrious classes, it may be made to serve a valuable purpose; but it seems that there is likely to be a difficulty for some time to come in getting a sufficient supply of the article into the proper market. In London alone, an enormous quantity of this beef would be likely to be consumed; but it will be necessary that people should have the means of seeing and purchasing small quantities of it, in order to judge properly of its quality. In London, few persons would know where to buy this meat, and it would be an advantage if those who are promoting this importation were to open, in the populous parts of the metropolis, depôts for the sale of the commodity, in connexion with which we believe that there is an extensive trade to be done; but, in the first instance, it is doubtful if this will be properly managed by the regular butchers, who are slow to recognise the introduction of any new commodities into their business. It would, therefore, be of advantage to establish agencies for the sale of this meat, at which quantities of from three to four and five pounds might be purchased, and where there may be no chance of disguising had kinds of English beef in something of the same shape as that imported.

In Ireland, there has been a considerable decline in the number of cattle yearly produced; and there is no doubt that there, as well as in large portions of Scotland, England, and Wales, there are opportunities for the production of animal food which are at present neglected. The utilization of the sewage may be a means of remedying this defect to a considerable extent, and the foreign traffic in live sheep and oxen, by steam and other carriage, is largely increasing. Notwithstanding this, however, as we have stated, the price continues to increase also, and it becomes, therefore, a matter of vast national importance to avail ourselves of new articles of food. And it should also be borne in mind that the extension of the culture of various kinds of poultry, fish, and even some descriptions of game, may be made a means of cheapening the price of butcher's meat and improving the food of the people.

Baron Liebig has recently communicated the particulars of a new extract of beef to the *Annalen der Chemie und Pharmacie*. Since the introduction of this extract of flesh, the *Lancet* reports on its great efficacy in numerous cases of debility, indigestion, &c. It appears that large quantities of this preparation are made in Uruguay, for use in Europe. To a certain extent the extract is used for domestic purposes: its present price is 2s. per ounce, and it is said that even poor persons who have once experienced its beneficial effects return to its use. Liebig says, that for the last fifteen years he has recommended the use of this preparation of meat to the dwellers in Buenos Ayres. On reading his account of this extract, Herr Geibert, an engineer of Hamburg, who had spent several years in South America and Uruguay, came to Munich to learn the process of making the extract, and afterwards proceeded to South America for the purpose of undertaking its manufacture on a large scale. As is usually the case in connection with all new introductions, numerous difficulties were thrown in the way of this gentleman, who was desirous of proving a benefactor, not only to the people of those distant countries, but to the world at large. Eventually Herr Geibert got Baron Liebig's conditional permission to use his name as patron of the extract. Recently 80lb. of the extract of beef, and 30lb. of extract of mutton have been sent from South America to Milan, and it is said that both quality and price are most satisfactory.

A few words on our metropolitan fish-markets will not be out of place here. For many years past we have had, in this great population of nearly three millions of people, only one fish-market which really deserves the name. At Hungerford, and one or two other localities, there were, and, to a certain extent, still are, places for the sale of fish; but Billingsgate is the great emporium where one of the most important articles of human food is bought and sold,

notwithstanding that most important changes have taken place in the manner of the transit of fish and other commodities. Not more than about a quarter of a century ago, the deep-sea and coast fish, the oysters, crabs, lobsters, periwinkles, and other shellfish, were brought for the use of the Londoners by water, in vessels of different descriptions: now enormous quantities of fish are brought from the coasts and rivers of Scotland, Ireland, and England, by railway. In the meanwhile the metropolis has branched off in every direction, and the demand has been increased in consequence of the advance of the population. The distance to which fish has to be carried has also materially increased. Still, Billingsgate continues to be the chief—indeed, almost the only mart, to which there is perhaps as much fish taken in waggons and other carriages, from the various railway termini, as is landed from the vessels, and in consequence the land-approaches to this celebrated but insufficient market present a scene of confusion during several hours of each day, which only those who have had the means of personal experience can appreciate.

With the greatest difficulty the goods are got into the hands of the salemen in their limited space; and, amid noise and tumult, the packages of fish are disposed of and taken by conveyances of many kinds, to the market at the New-cut, the Brill, and other well-known spots; and to the fish-shops in Bond-street and other aristocratic neighbourhoods, as well as to those of more humble pretensions. By these means there is frequently as much time spent in taking the fish from one of the railway termini to Billingsgate, and from thence to the distant places of sale, as there has been in the passage from the coast to the metropolis.

In regard to the wholesale dealing in fruit and vegetables, there is a similar just cause of complaint; and the price of potatoes and of some other articles which are in constant use, is increased by the distances to which they have to be removed. In order partly to obviate this inconvenience, so far as the Great Northern Railway is concerned, the managers of the line have recently opened a market for the sale of potatoes on a part of their premises in the York-road, near King's-Cross; and this has proved to be of so much benefit to the potato dealers and to all concerned, that it is contemplated to open a fish-market here also; and it is suggested that if this be carried out, not only here but also at other railway-stations, it will lessen the expense of the consigners and consignees, and will also be the means in certain districts of causing the fish to be delivered in better condition, and reducing the number of carts, vans, and costermongers' barrows, which block up Lower Thames-street and the adjoining thoroughfares.

When we take up the modern map of London, and glance at the immense space which within a very short time has been covered with human habitations, and by reference to the census reports learn the extent of the population, and take that of St. Pancras, Islington, Marylebone, &c., and compare these with the great English towns, such as Manchester, Liverpool, Birmingham, &c., as regards the extent of the market-places for provisions, it will be seen how much improvement is needed in London in this way; but as we have often before said, although this need of change is evident to all who have given thought to such matters, it is most difficult to get a movement made in the right direction. We hope, however, that the Great Northern Railway Company will persevere as regards the fish-market, believing that it will be so successful, that other railway companies may be induced by the results to imitate the example.

In further connexion with the subject of food-supply, we may here remark, before concluding, that in the *Veterinarian*, a lady correspondent, under the signature of "Humanitas," suggests that cows' milk might be made much more suitable to the tastes and stomachs of infants were the cows fed upon provender containing more of the elements of sugar, and of carbon and alkali, than is usual; the purpose being to make the milk (with water) more to resemble the food proper for infants. Experiments might be tried to this end, for which "Humanitas" suggests beetroot, or carrots, corn, bran mashies, and grains, or hay, in fitting proportions; but it may be that no modification of feeding would much alter the quality of the milk proper to calves; and even were it so altered, would such customers as the Londoners prefer it to the milk of which "Humanitas" complains that they use so little?

Perhaps not. Even as it is, they are said to prefer impure milk to pure, from being so accustomed to it in an impure state; and we are persuaded there is some truth in the anecdote as to a new milkman who provided purer milk than his predecessor, and was only grumbled at for giving his customers stuff which soon got "a nasty sour on it," such as they had never seen before in his regretted predecessor's time.

Since the preceding remarks were prepared, a paper "On the Preservation of Food, especially Fresh Meat and Fish, and the Best Form for Import and Provisioning Armies, Ships, and Expeditions," by Mr. G. C. Steel, F.R.C.S., has been read at the Society of Arts, Adelphi. Mr. Steel well appreciates the vast sources of animal food in South America and elsewhere, but expresses an unfavourable opinion on the mode as yet adopted in South America for preserving beef by drying it. Though the meat, *per se*, is of good quality, there is a rusty flavour about it, he has found, which renders it by no means likely to be saleable in this country. He gave a *resumé* of certain other processes for preserving meat, such as Mr. Morgan's method of injecting a whole carcass at once if need be, through the blood-vessels, with a saline liquid or brine; the method of preserving cooked meat in cases; and the inclosure of raw meat in an artificial atmosphere free of oxygen. Of this last method he says:—

"This process appears to be exceedingly applicable for the import of fresh raw provisions from countries where they can be obtained at small cost. It is available for putting up meat cut into joints suitable for the consumer, while it is not necessary to separate the meat from the bone, so that the shape and natural appearance of the joint are well preserved. The cases might be received in this country by the consignee, and the meat removed from them and dealt with as if just purchased at the carcass butchers, or, while in the cases, it might be transferred from town to town, as occasion might require; or, on the other hand, the meat would be in a ready and safe form for victualling armies or supplying ships. Indeed, whole carcasses might be packed singly or in numbers in tanks or in casks furnished with tape; these might be treated in exactly the same manner as the tin cases for joints: instead of soldering on the cap it could be made air-tight, by means of binding screws, washers, &c. Suppose, for the sake of illustration, that a factory was established in any district where animal food might be found in great plenty, all the best portions of the animals, the joints, might be preserved and put up raw by the atmospheric process, while the parts not available for that procedure could be made into steaks, curries, soups, ragouts, &c. These cases, both of raw and cooked food, might be then transferred hither and thither where most needed. Such a plan is about to be carried out by a company recently established, who will have a factory or factories abroad, and who are just starting a like business at home. They propose to purchase the cattle, pigs, poultry, fish, game, &c., at first hand, to slaughter and dress the cattle, and, after preserving the finest joints by the raw-meat process, to put up the remainder by the cooking method. This will insure all portions used not only to be fresh and free from taint, but to be obtained from healthy animals, and therefore most fit for human food, and conveying into the system the largest relative amount of nutrition."

It becomes a matter of necessity that this plan, or something like this, should be adopted, for we cannot shut our eyes to the growing wants of our population, and the increasing dearthness of animal food. Not only the South American prairies, but our own Australian and other colonies, might be thus made most useful to us; and even nearer home an immense supply of fresh butcher meat might be had from Russia, through the Mediterranean and the Baltic, as now we have it, and of the finest of all qualities, too, from the North of Scotland by railway, without any artificial process of preservation.

FRANCE.

A CERTAIN number of the departments of France, such as the Haut and Bas Rhin, Les Vosges, La Sarthe, Le Lot, &c., are actively engaged in transforming a portion of their great roads of communication into railways for vicinal traffic. The Bas Rhin led the way, and has given good results for the first three months of working.

A company has been just formed, in Paris, for the establishment of a Halle aux Cuirs, or Leather Market in Paris. Its capital is to be 130,000*l.*, divided into 6,500 shares of 20*l.*, and the intention is, 1st, to construct a *halle* and general warehouses and sale-rooms, to open an isolating thoroughfare all round of 49 ft. wide, and to execute all the works dependent upon the construction and carrying out of the establishment, appropriation of old buildings and lands, &c.; second, to carry on the exploitation of the *halls* and two sale-rooms for public sales of skins

* Dr. Letheby states that he has examined various samples of the charqui, and has always found that the fat was rancid, but the lean, of which he has partaken, quite wholesome.

and leathers of all sorts; third, to purchase all lands necessary for the present construction or for further requirements of these *halles*; fourth, to have the power of issuing warrants negotiable by the Bank of France or any other bank. The works are to be commenced at once, so that the establishment may be opened at the end of the year.

The water-supply of Paris,* furnished by the Seine, the Ourcq, the sources of Belleville and Arcueil, and the artesian well of Grenelle, and about to be increased by the waters of the Dhuie, the Marne, and the two artesian wells of La Chapelle and La Butte-aux-Cailles, is, it is stated, to receive a further addition, by a supply from the Vanne, a tributary of the Yonne. This water-course, fed by the streams of Moulin de Noé, Chigy, Thiel, Malhortie, Saint Philibert, and Armentières, can furnish 22,000,000 gallons of fresh water, but only at a height of 230 ft. above sea-level, and can be brought to a reservoir at Montrouge, whence the lower quarters of the town can be supplied up to the highest stories. Starting from the Vanne, near the Armentière Farm, in the department of the Aube, this canal can, if required, receive at a future period tributaries from the sources of Lunain, Orvanne, l'Abîme, Villemer, Fontaine-Carrée, Chaintreuveville, and the Gouffre de la Prairie.

The new reservoir at Menilmontant is expected to be finished in the month of May next, and will contain 22,000,000 gallons of spring-water, at a height of 864 ft. above the sea, and 7,700,000 gallons of water of the Marne, raised by the St. Maurice machines to a height of 328 ft. above the sea. The first half of the Telegraph Reservoir, at Belleville, is nearly completed also; this is to receive 33,000,000 gallons of spring-water at a height of 440-95 ft., and 6,500,000 gallons of water of the Marne, at a level of 430-12 ft. above sea-level. Already one of the compartments is supplied with Seine water by the pumps at Charonne. The works for the supply from the Dhuie are well advanced: in 1863 about 10 miles of aqueduct or siphons had been completed. In 1864 there were 69½ miles, so that only about 10 miles remain to be executed, and these are expected to be finished for service in May next.

A subscription has been opened at Château-Thierry for a monument commemorative of the battles of Champeaubert, Montmirail, Château-Thierry, and Vauchamps, fought on the 10th, 11th, 12th, and 14th February, 1814. The monument, consisting of a single column, of the Corinthian order, is to be erected on the boundary line between the two departments of L'Aisne and La Marne, in sight of Montmirail and Marchais, on the very spot occupied by Napoleon I. at the most decisive moment of the battle. The Emperor Napoleon III. has subscribed the sum of 4,000 f. (160l.) for this monument.

THE PARIS BRIDGES.

In the whole length of Paris as it now stands, *i.e.*, between the fortifications, about 7½ miles, there are eighteen communications between the north and south sides of the Seine: these, on account of the islands of the city proper and of Saint Louis consist of twenty-five independent bridges. Of this number, all except seven have been either altogether newly constructed, or have been rebuilt or repaired during the past few years.

The new Pont de Bercy has just been rebuilt of stone, in place of the suspension-bridge erected in 1835, so that no example of this sort of structure remains in Paris except the *passerelle*, or foot-bridge of Constantine, leading from the Halle aux Vins to the Ile St. Louis. The Pont d'Austerlitz, an iron bridge built in 1807 only, has been replaced by one with arches of masonry. Considerable repairs have been made to the Pont de la Tournelle, already enlarged in 1851. Pont Marie, built in 1635 by a contractor of that name, had its approaches and inclines ameliorated in 1851. Pont Louis Philippe, a suspension-bridge like that of Bercy, demolished, and a stone bridge erected in its place. Pont Rouge, or Pont de la Cité, also the Pont d'Arcole, suspension-bridges, removed, and iron bridges substituted. Pont Notre Dame, restored in 1659 under Louis XIV., reconstructed in 1853, and put on a level with the adjoining streets. Pont au Change,†

was formerly, like the Pont Notre Dame, a *dos d'âne* with steep ascents: this bridge was rebuilt in 1859 on another site in a line and on a level with the new boulevard. During the years 1852 and 1853 the Pont Neuf was completely restored, and the gradients improved, without for a moment interrupting the traffic. The Petit-Pont, leading from the Cité to the Rue St. Jacques, was entirely demolished in 1853, and rebuilt of one arch. Pont St. Michel, rebuilt in 1616; was again constructed a few years since. Pont des Invalides, suspension-bridge, built in 1825, removed in 1854, and a stone one substituted. Pont de Solferino and Alma,—these are altogether new constructions. Pont de Grenelle,—this is the bridge whose style of architecture the capital has least reason to be proud of, and the only toll-bridge. In the neighbourhood of Paris new bridges are to be built, next season; one at Pantin, over the Ourcq Canal; another between the Ile de la Grande-Jatte and the territory of Courbevoie over the large arm of the Seine in a line with that already existing between the island and the territory of Neuilly, and opposite the end of the Boulevard Bineau; lastly, at Clichy, over the Seine, to open a communication with the peninsula of Gennevilliers.

DRAWINGS OF ANCIENT PAINTED GLASS.

UNDER the auspices of the Archaeological Institute, an exhibition of drawings of ancient painted glass, by the late Mr. Chas. Winston, is now open, in the rooms of the Arundel Society, Old Bond-street. There are no fewer than 772 drawings, which are arranged, approximately under the heads,—(1) Early English, from (circa) A.D. 1150 to 1280; (2) Decorated, from 1280 to 1380; (3) Perpendicular, from 1380 to 1500; (4) Cinque-cento, from 1500 to 1550; and (5) Italian, styled by Mr. Winston Intermediate, from 1550 to the close of the seventeenth century. Mr. J. B. Waring, in a sensible preface attached to the catalogue, says,—“This classification is in a measure arbitrary, and applies mainly to England. The first period is distinguished by the use of coloured glass (pot metal), chiefly applied so as to form a mosaic work, and is characterized by great depth and splendour of colour, with figure subjects on a small scale, principally in medallions, the ornament being of a modified conventional Romanesque character. The second period presents a preponderating element in figures and architectural accessories, the ornament consisting mainly of foliage naturally treated. In the third period the colouring is less rich and powerful; the architectural and figure accessories become even still more important; the natural foliage of the second period is retained and conventionalized; heraldic ornaments abound, and the practice of *stippling* shadows, instead of smearing them, came into general use. In the fourth period, the early part of which Mr. Winston describes as “the golden age of glass-painting,” the pictorial treatment predominates; the colouring is of a most rich and splendid nature; perfect brilliancy and effect are aimed at and obtained; the figures and draperies are well drawn; the architecture and ornament become of secondary consideration, and the whole subject is distinguished by a profuse employment of rich yellow glass of varied tints: the accessories are of the Renaissance school. In the fifth period, enamel painting on glass mainly supersedes the use of the pot metal, and the general style follows the decline of most of the arts connected with architecture; but even in this period, and up to the close of the seventeenth century, Holland, South Germany, and Switzerland produced works in enamel colours of great power and brilliancy, especially for small subjects applicable to civic and domestic buildings. This last gleam of light, however, was of short duration, and the art, whether as a mosaic or painted process, became obscured and almost entirely lost by the first half of the eighteenth century.”

Mr. Waring's statement of his own view of the subject may be usefully quoted:—

“It is our own belief,” says the preface, “after having seen and duly appreciated most of the great examples of stained glass in Europe, from the noble but too confused and sombre works of the thirteenth century downwards, that none are more worthy of study and noticeable as models of style than the pieces left by the Italian artists of the fifteenth and sixteenth centuries, whether for colour, composition, or proper architectural effect. For colour, too, the Swiss and German

glass of the sixteenth and seventeenth centuries may be studied with advantage. We do not, however, pretend to lay down rules in matters of taste; there is nothing cast-iron about art: it is infinite in its plasticity and resources, and that is good which serves its particular purpose, and produces on the mind and imagination the desired effect. But we would make one remark, which is, that, until this present age in which we live, all art has been distinguished by the artist bringing to bear on such particular branch of it as he happened to be engaged on, the greatest powers he possessed. *He did his best*; and we see, in all the noblest works of the past, the highest point to which the architectural, sculptural, and pictorial genius of the period had advanced. It is to be greatly regretted that such is not the case at the present day, but that artists are too frequently found attempting, with much care and perverted talent, to imitate their predecessors in the infancy of those arts the progress of which they profess to advance, but which they thus in reality retard. The writer has the satisfaction of knowing that Mr. Winston's ideas on this subject were entirely in unison with his own, and that of late years so acutely did he feel how little his counsels were followed, as regards style, while his scientific researches were made use of, in the carrying out of principles entirely opposed to his own ideas of true art, that he retired very much from public notice in this department, and contented himself with practical studies in connexion with the material itself. In this respect his labours have indeed been invaluable; and to his experiments made, in common with a friend of great chemical knowledge (Mr. C. Harwood Clarke), may fairly be attributed the great excellence of the glass now obtainable in this country, which gives to its “pot metal” a superiority over the manufacture of any other country.”

The collection of drawings now on view is a remarkable one, and affords a striking evidence of the devotion with which Mr. Winston applied himself to the study of the art.

MAXWELL CHURCH, GLASGOW.

THIS church, which was opened on Sunday last, is situated at the junction of Pollok-street and Ardgowan-street. The style is Geometric, the principal front being to Pollok-street. The tower, which rises to the height of 140 ft., is to the side, at the immediate corner of the two above-named streets. The main feature in the front elevation is the four-light centre window over the principal doorway. The front doorway arch is supported by columns with carved caps and bases. The ridge to roof is surmounted by a cresting. The church inside is divided into nave and aisles by iron pillars on each side. These pillars support the galleries, and also the roof. They have moulded caps, from which spring arches of perforated woodwork. There are five doors of exit. The ceiling being partly ceiled, it was deemed necessary to relieve it with colour. In the centre, between the main couples, are pierced centre flowers, designed in character with the building. These will be used as ventilating outlets. The walls are tinted of a light salmon colour. The front of the galleries is of an ornamental design, and the panels are decorated. The principal features internally are the two windows, the one over the main door and the other over the pulpit. The pulpit, or rather platform, is of stained woodwork, the panels diapered in gold, on a crimson ground. The small carved caps and other carvings are hatched in gold. The arcade at the back of the platform is to be filled in with illuminated texts and the ten commandments. The organ will be placed in the end gallery, and will be divided half on each side of the large window, and so designed as to be an ornament to the church. The doors are to be covered with crimson cloth and ornamental brass hinges. The Maxwell Church is from the designs of Mr. G. H. O'Donoghue, of Glasgow, architect, under whose superintendence it has been erected. The contractors were—Messrs. Coghill, mason; Connell, wright; Brown, plasterer; Morrison, slater; and Barbour, plumber, all of Glasgow. Messrs. Fyfe, painters, and Messrs. Keir, were intrusted with the order for the coloured windows. Messrs. Combe furnished the heating apparatus, which works by means of hot water.

The interior measures 81 ft. from gable to gable, and 52 ft. within the side walls. The church holds nearly a thousand sittings. The cost is about 4,000l.

* See *Builder*, vol. xxi., p. 842.

† See a description of this old bridge in a previous volume of the *Builder*.



ST. ANDREW'S, HECKINGTON. — NORTH-EAST VIEW.

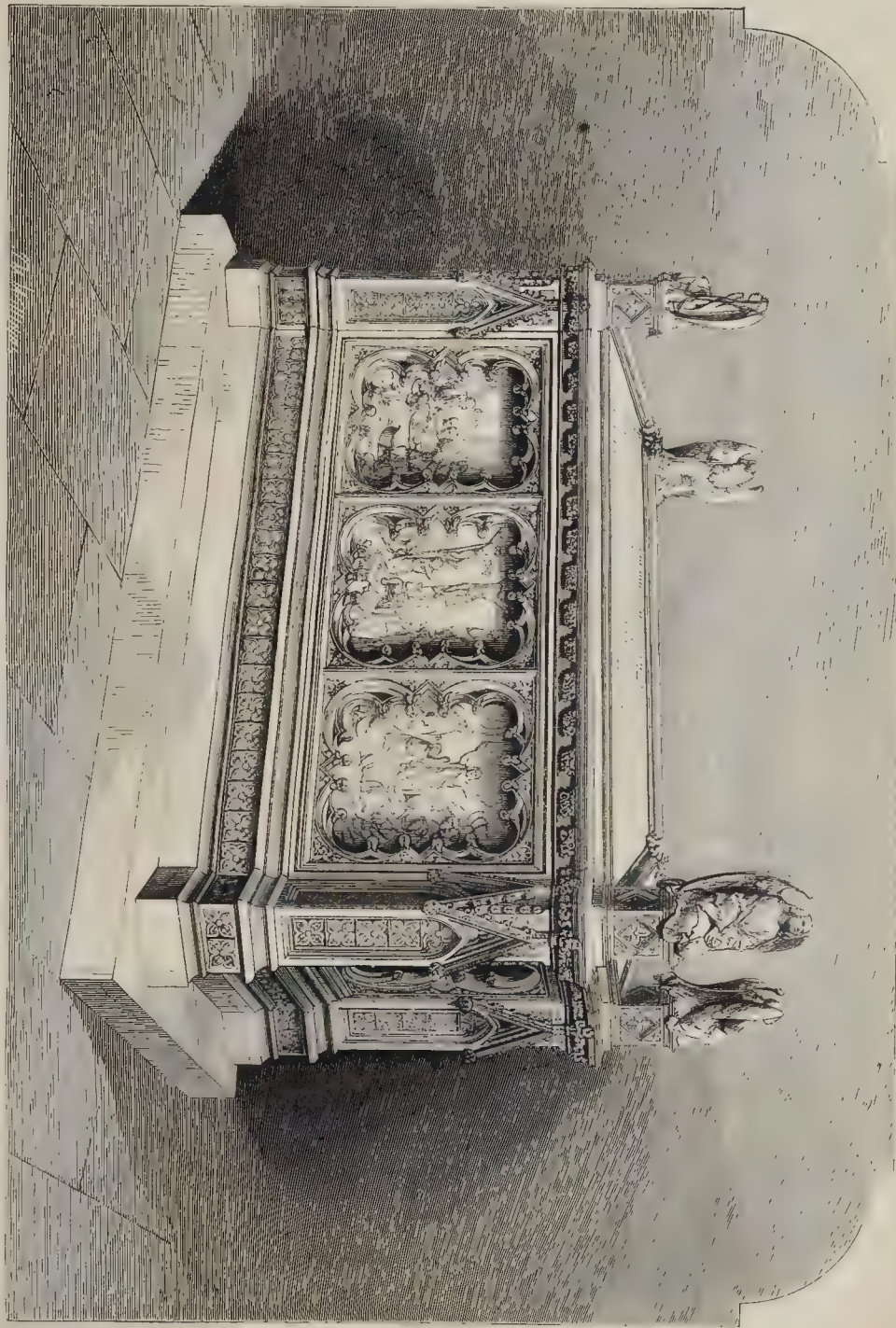
PROPOSED RESTORATION OF HECKINGTON CHURCH.

THE notice and illustrations in our last issue having excited interest on the part of some of our readers, we are led to add a view of the church from the north-east. This gives a good idea of the great window at the east end of the chancel, and of the adjacent building now used as a vestry. Beneath it is a vault or chamber lighted at the east end by what was originally a window, but has subsequently been converted into a doorway. Beyond are seen one of the fine pinnacles of the nave, and the eastern elevation of the north transept, which in part of age is the earliest and plainest portion of the building.

THE HILTON AND DE WINT MONUMENT IN LINCOLN CATHEDRAL.

THIS monument, erected to the memory of two artists, is about 8 ft. long by 4 ft. wide, and is 4 ft. 6 in. in height. It is executed in Caen stone, alabaster, and marble, in the style of the middle of the fourteenth century. The panels in front contain copies in low relief, from three of the most important works by the late Mr. Hilton. The first is, "Mary anointing the feet of our Lord," after a painting in St. Michael's church, College-hill, London. The second is after the large painting of the "Crucifixion," at Liverpool, of which an engraving was issued some years ago by the Art-Union of London. The third, the "Raising of Lazarus," is after a very large painting in the church of Newark. The west-end panel contains a sculptured representation of the west front of the cathedral, including the apse, and the tower of the north-west tower. This is a copy of the drawing by Mr. De Wint. The artist is now executing the idea of the monument in one memorial has been selected as a record of their own works, and the most appropriate they being brothers-in-law and much attached to each other. All these panels are executed in the purest white alabaster. The panels at the top are fitted with white marble, on which are the following inscriptions:—

"In memory of William Hilton, esq., R.A., one of the most eminent historical painters this country has produced. He was for many years keeper of the Royal Academy, in which office he was distinguished as well by his private worth, as the honourable and efficient discharge of his public duties. Born at Lincoln, 3rd of June, 1786. Died in London, 30th December, 1839. Buried in the Chapel Royal of the Savoy. Also of Peter De Wint, esq. He was one of the earliest members of the Society of Painters in Water Colours, founded in 1804, to whose exhibitions he was throughout life one of the most distinguished and popular contributors. In private life he was much and deservedly respected for his upright and honourable conduct, and sincerity of character. Born in Stafford-



THE HILTON AND DE WINT MONUMENT, LINCOLN CATHEDRAL.—MR. EDWARD BLORE, ARCHITECT. MR. J. FOSYTH, SCULPTOR.

shire, 21st January, 1784. Died in London, 30th June, 1849. Buried in the Chapel Royal of the Savoy."

The angle buttresses are surmounted by angels, representing Hope, Resignation, and Adoration. The monument has been erected by Mrs. De Wint, who was Mr. Hilton's sister, and Mr. De Wint's widow; and Lincoln's magnificent cathedral has been selected as the most appropriate locality, where it is placed on the south side, and under the east window of the presbytery, forming a pendant to some fine old monuments on the opposite side. Mr. Hilton was a native of the city, and the family have long resided there.

The monument is executed by Mr. James Forsyth, sculptor, after the design of Mr. Edward Blore, for many years the intimate friend and companion of the two distinguished artists to whose memory it has been erected. It is right further to record the liberality of the Dean and Chapter, who have allowed it a place in their cathedral without requiring the fees which are usual on such occasions, and have shown other acts of kindness and courtesy.

MODERN WARFARE.*

Among other kinds of knowledge formerly the domains of a privileged few, the art of warfare may also be said to be undergoing a kind of popularizing. The Volunteer movement in England has, to some extent, popularized the profession of arms, while the application of the modern resources of engineering to modern warfare, both at land and at sea, has been mainly carried out by civilians; and the annual list of patents for warlike inventions occasionally shows that shoemakers may sometimes leave their lasts with profit.

The work before us is an extremely interesting attempt by a military man to produce a book equally readable by military men and by civilians. Merely as a matter of pleasant reading, the work ought to get into many hands, and it gives another instance of the sensationalism of truth being more vivid than that of fiction. There are not many people, for instance, who are aware that Napoleon, when desirous "of remaining at Moscow, to the last possible moment, in the hope that proposals of peace by Russia would extricate him from his alarming position," employed the great mathematician Laplace to calculate, by his famous theory of probabilities, how long the army might remain at Moscow while yet leaving sufficient time to retreat in case of failure in the negotiations.

The philosopher ascertained that the chances were more than a hundred to one, calculated on the data of past seasons, that the extreme cold would not commence before the 25th November." The hundredth to one chance did however occur, and the winter set in on the 6th of November with more than usual severity, and with the result of upsetting the power of the then Dictator of Europe. But there are, besides, several portions of this book of a special technical interest. Amongst these is Colonel MacDougall's description of a form of floating breakwater, proposed by Captain Adderley Sleigh, a naval officer, "whose original object was to supersede the ruinously costly structures raised from the bottom of the sea for the protection of harbours." The proposed plan certainly seems worthy of some attention. The structure, as here described, appears to consist of a kind of hollow pontoon, probably made of iron plate, having a certain amount of free movement in the water backwards and forwards. This free movement is obtained in connexion with permanency of position, by attaching, at certain distances, along both the front and rear of the structure, very heavy chain cables, having a great deal of slack, which are fastened at the other end to permanent moorings, laid down at the bottom of the sea." In order to divert the force of the waves, the front surface of the sea-wall, instead of being vertical, is made with a slope of about 15° with the horizon,—a somewhat similar inclination as that "which a sea-beach naturally assumes under the action of the waves." In order to avoid the dangerous action on a cable from the vertical motion of floating structures, the breakwater is made some 17 ft. below the surface of the sea, or a depth where the water is always still,—at least, in the English Channel.

The chapter on street fighting is also of much interest, and we may here find more or less ex-

planation of the success and no success of the street battles and barricades which, within the last twenty years, have desolated almost all the capitals of the Continent. The abdication of Louis Philippe, and the consequent outburst of the revolutions of 1848, were due to the unskilful handling of the French troops against the Parisian barricades. "They were led to the attack of barricade after barricade, through high and narrow streets, the houses of which were swarming with foes, without any attempt being made to fight the insurgents with their own weapons." Instead of this direct system, the royal troops should have been directed to break into "the enclosing houses on both sides of a street, at the farther end of which a barricade existed, and push their way from one house to another, until the barricade was turned." The superior means at the disposal of regular troops, and their discipline, would thus have been made available instead of their being brought down to the level of the insurgents by fighting man to man at the barricades. Both the first and the second Napoleon have proved that regular troops, when well handled, can always defeat a street insurrection. It is, indeed, very questionable whether an insurrection of the kind is now possible in Paris, at least if it have to encounter ordinary management. The paving stones, so easily pulled up for barricades, are now replaced by asphalt, and the now wide and straight streets could be easily swept by cannon.

THE BATH-FORUM COMPETITION, BATH.

At the last meeting of the Bath town council, held on the 21st ultimo, the committee brought up a report in which they said,—

"The committee resolved to hear from Messrs. Wilson & Willcox, in the presence of Mr. Clark, the referee, on what grounds their estimate differed so widely from his. Their chief reason was that Mr. Clark had cubed the work at 54d. per foot, whereas they could show that they had erected buildings of the same style of work as that required by the Corporation for 4d. per foot, and they represented that this difference would bring the building proposed by them within the requisite limits. They also stated that if the corporation, approving generally of their plan, wished the principal rooms to be more lofty, the additional height could be gained by subtracting from the upper rooms without either altering the entire cost or producing any disadvantage.

It was obvious to the committee that, having heard this statement from Messrs. Wilson & Willcox, they were bound to give Mr. Davis an opportunity of submitting his case likewise. Accordingly they requested him to meet them for this purpose also, in the presence of the referee. Mr. Davis complied with the request, and expressed his opinion that the estimate of Mr. Clark should have been 4d. rather than 54d. per cube foot, and that if his plan were estimated at the lower sum the cost would be reduced very nearly to the sum named by the council. Mr. Davis's views, as well as those of Messrs. Wilson & Willcox, may be best presented in their own letters, from which the council can form an opinion as to the course recommended by the committee.

Taking into consideration all the facts of the case, the committee have come to the conclusion that the premiums ought now to be awarded as originally proposed—the first to Mr. Davis, the second to Messrs. Wilson & Willcox."

The mayor moved the adoption of the report and a long discussion followed. Alderman Gore moved as an amendment, "That the report of the committee be adopted, except so far as it related to the adjudication of the premiums, and that the first premium be awarded to Messrs. Wilson & Willcox."

Alderman Hunt said, he thought at their last meeting they would have been justified in deciding that none of the competitors had complied with the instructions, but their decision would have been in the face of some of the usages of the profession, and also of the press; for the *Builder*, in an article on the subject, had stated that if the council did not award the premiums, they would be acting the part of swindlers. The council were prepared to do what was right and just to all parties, and they had put themselves into the position to do so. He quoted the price per foot of the design of Mr. Davis (as set forth in his letter to the mayor), the total cost of which would be 15,624*l.*, and contended that so far from evading calculation, Mr. Davis went into it, and showed in what respects he demurred to Mr. Clark's calculation.

Ultimately, the amendment, awarding the first premium of 200*l.* to Messrs. Wilson & Willcox, was carried by 23 to 10.

The adjudication of the second premium was deferred until the next meeting of the council.

OPERATIVE COACHMAKERS' EXHIBITION.—The distribution of prizes of the first Operative Coachmakers' Industrial Exhibition will be made by Lord Truro in the Great Room of the Society of Arts, on Monday, April the 3rd.

BRISTOL.

The arrangements for the forthcoming Industrial Exhibition in Bristol are progressing favourably. The list of vice-presidents and supporters is influential, and intending exhibitors are preparing to contribute ingenious and skilful specimens of handicraft.—It is asserted that the tower of the Cathedral is in a dangerous state. The Ecclesiastical Commissioners sent an architect to report on it. We are told that he states there is no immediate danger; but that its safety would be much greater if—as the pressure upon the piers and arches is from the east side—there was a nave to support (in fact, to buttress) the building on the west. The discussion on the subject seems to have awakened a disposition on the part of some portion of the public, to begin a movement towards completing the collegiate church.—We understand that it has been arranged between the corporation and the dean and chapter that the road between St. Augustine's Church and College-street is to be lowered to the level of the floor of the Cathedral, and that the piece of ground to the west of the building is to be similarly dealt with. This would give increased architectural effect to the cathedral.—Clifton suspension-bridge has been rated to the relief of the poor of Clifton parish at 1,400*l.* This is for one-half the bridge, the portion supposed to belong to Gloucestershire, and a similar rating will be applied to the other or Somerset side.—The increase of large and costly houses observable at Clifton is remarkable.

MANCHESTER ARCHITECTURAL ASSOCIATION.

AFTER experiencing some difficulties, a new session has been opened by the Manchester Architectural Association, and the members are looking forward to a satisfactory future.

At the first meeting, Mr. J. Blackwell in the chair,—

The President, Mr. L. Booth, read an opening address. He said they were met for the purpose of forwarding the interests of an Association whose object was the advancement of its members in the study and practice of architecture; and the importance of the few remarks he had to offer would depend more upon the spirit in which they would be received by the members than upon any interests particularly of their own. It was to be feared that many of them were absorbed in the pursuit of individual gain and professional success to the exclusion of proper attention to the more general interests of the profession.

After referring to the various questions which were every day more and more pressing for a solution, and deprecating the spirit of mutual distrust and the unprofessional conduct at times exhibited by some of the local architects, he continued,—“There are those who contend that Associations like this are powerless for good, but here we see abuses which actually can never be rectified by isolated individual efforts, and which could not possibly exist to anything like the same extent in a body of men associated together and brought into personal contact for any common object.”

A discussion followed. After a vote of thanks to the reader, the hon. secretary, Mr. Darbyshire, gave notice that the paper for the next meeting would be read by Mr. H. Fisher, on "Strikes in the Building Trades."

THE VALUE OF STONE UNDER FIRE.

The superintendent of the London Fire-engine Establishment, in his last report, to which we have already alluded, comments on the errors and omissions of the Building Act. In the course of these observations he quotes,—

"Sec. 22. The lobbies, stairs, &c., of a certain class of buildings must be made of 'stone or other fire-proof material,' and says,—“This enactment involves an error, inasmuch as stone is in no sense fire-proof: on the contrary, it yields to fire sooner than almost any other building material, and much more rapidly than wood. It is true that it does not, like wood, add fuel to the fire, but it does worse, as its known tendency to split off from the walls, and fall down altogether, prevents the firemen from availing themselves of the best positions for their work, which they can almost always occupy where there are wooden staircases. For a staircase on

* "Modern Warfare, as influenced by Modern Artillery." By Colonel MacDougall. London: John Murray, 1864.

the outside of a building stone may be safely used, but its brittleness, when exposed to different degrees of heat in different parts, makes it an unsafe material for inside staircases or lobbies, which are liable in case of fire to undergo a sudden expansion in the tread or exposed part, while the support or part resting inside the wall is scarcely raised in temperature; or, if they escape this danger, and get hot so slowly as not to break, the water from the engines, or even in some cases the draught of cold air caused by opening a door or window, is quite sufficient to contract and split the stone. In both cases the fracture occurs in the same place, close in to the wall."

The reporter goes on to say,—"No staircase can be considered really fire-proof, unless constructed either of fire-bricks laid in fire-cement, which would be both costly and cumbersome, or of wrought iron, which, for appearance, comfort, or convenience, might be covered with slabs of slate, stone, or wood. In this latter case the real strength would consist, not in the stone or other covering, but in the wrought-iron framing; and such stairs, particularly if protected by plaster, which could be easily done, might safely be relied on in all ordinary fires, as the heat near a staircase being tempered with the cold draught from the outside is rarely sufficient to weaken wrought iron, which only fuses at about 3,000° Fahrenheit, and retains a considerable portion of its strength almost to the melting point. That paragraph, which asserts that stone is a fire-proof material suited for lobbies, stairs, &c., has done incalculable injury, as may be observed at the scene of any fire in a building so constructed, particularly if there have been both wooden and stone stairs, in which case it almost invariably happens that some portion of the wooden stairs is saved, while the stone is completely destroyed, and generally discovered afterwards among the ruins in the basement. It seems therefore, wrong, to continue any longer a compulsory law based on a grave error, and certain always to do, as it already has done, most serious injury to life and property. The only way in which a stone staircase can be saved in a building on fire is to flood it with water at an early stage, and this must always occupy the careful attention of the firemen at the very time when their efforts would otherwise be exerted in a totally different direction."

Of course, the experience of the superintendent in this direction has been considerable, but we should be glad, nevertheless, to have some additional evidence as to the behaviour of all stone staircases under fire.

THE MAGNESIUM LIGHT IN ST. STEPHEN'S CRYPT.

READERS of the *Builder* know that St. Stephen's crypt, in the Palace of Westminster, has been completely restored and decorated, under the direction of Mr. E. M. Barry. Every portion of the stone work is covered with colour and gilding, the columns are of Polished Purbeck marble, the lower part of the walls is lined with alabaster and mosaic work, the window openings are filled with stained glass, and the panels in the east wall, seen in the view of the crypt, published in our last year's volume (when we also gave some descriptive particulars*), now contain paintings, not unsatisfactory, of St. Peter, St. Stephen, St. Edward the Confessor, and others. On Monday last, under the auspices of the Chief Commissioner of Works, the Hon. William Cowper, this gorgeous monument was lighted for a time by means of the magnesium lamp, and every detail was brought so into view as it has not before been seen, and was gazed at admiringly by a considerable gathering of members of Parliament, with a sprinkling of her Majesty's ministers, and ladies. The elaborate beauty of the moulded and carved doorways, and of the bosses in the groining, was specially observable.

As respects the management of the light itself, improvement in the arrangements is still necessary. The lamp used on this occasion was fitted with simple clockwork, to force forward the wires, three in number, and was understood to provide for half an hour's continuous burning. For reasons, however, not at present fully understood, though a guess may be made as to them, the wire sometimes suddenly ceased to burn; resulting of course in darkness. The possibility

of this, as the wire is at present made, is a risk that would prevent the general use of the light. Every man, however, was once a baby, and we may expect before long to see the new light able to run alone. As one mode of obviating the difficulty we are speaking of, the introduction of a small spirit-lamp has been suggested, into the flame of which the wire would be continuously forced, so as to relight it in the event of occasional failure.

It is stated that Mr. Nadar is now photographing the interior of the Paris Catacombs by means of this light: and we shall soon hear of its use in other places and for other purposes.

THE SPIRE OF ST. ALDATE'S CHURCH, OXFORD.

A CORRESPONDENT writes,—"Seeing in your last impression a notice of the operations of Mr. Burns, 'Steeple Jack,' at Oxford, you will excuse my informing you that, at the same time, there was another 'Steeple-Jack' operation going on in the town. The work I am speaking of was not only to take off the weathercock of a spire, but to take the spire down to the level of the tower. This was performed by Messrs. Young & Co., builders, of this town, on the spire of St. Aldate's Church, which had become considerably out of the perpendicular and dangerous, and was effected without a scaffold and without accident: not even a slate was broken on the roofs of the church below. The spire was built of stone, on a tower about 56 ft. high, and the spire to weathercock 50 ft., and the top of the spire, which was solid about 10 ft. down, was all removed from ladders; and below that point the men could work and lower the stuff inside. A trough or spout was formed from the top of the tower to the top of the churchyard wall, and all materials were shot completely off the premises.

I may as well state my ideas as regards the construction of the spire, and the cause of its failure. There was a 1½-inch iron bar, coupled at the angles, inserted in the first course of stone at base of spire, the stone being 7 in. thick. The rusting of this bar (which was in some places literally rusted through) had burst the stone away both inside and out; and had it not been for the pinnacles or angles of the tower, the spire must have fallen years ago."

THE HOMES OF THE LONDON OPERATIVE BAKERS.

NOTWITHSTANDING the exertions of this numerous body of workmen, assisted by influential portions of the press, and backed by such men as the Duke of Argyll, Lord Ribblesdale, Mr. A. H. Layard, the Hon. W. Cowper, the Bishop of Oxford, the Dean of Westminster, and a host of others too numerous to mention, the operative bakers are still obliged to fight a hard battle with the prejudices of a considerable number of the masters. This is a matter to be regretted; but we hope that what has transpired so far may be a means of inducing the men to continue their exertions with increased vigour. At a recent meeting of bakers, held in the great hall of the Whittington Club, over which the Duke of Argyll presided, his grace regretted that the general attendance of the public was so scanty. After referring to those long hours of labour, the particulars of which have been before brought to the notice of our readers,—the duke mentioned the effects of bad ventilation in bake-houses upon health, expressing an opinion that the duration of the hours of labour should be a matter of combination of voluntary associations of the men, who would work out their wishes by conferences with employers, rather than by making this a matter for parliamentary interference; and an object of the meeting was to organize homes and reading-rooms for journey-men bakers; an object which would, if successful, be a means of strengthening the men in any desirable movement. In London alone, there are upwards of 14,000 journey-men bakers: many of these men are constantly arriving in the metropolis from Scotland, Germany, and some of the provincial towns of England, &c.; and while in search of employment, the only places of resort are the "call-houses," which are generally public-houses, and, to a considerable extent, supported by the drinking-money expended by the men. Instead of this very bad plan, it is proposed that in those homes

the journey-men shall meet, and in them a register of all situations vacant shall be kept; and where the men,—those employed and those unemployed,—may meet for conversation, without the necessity of going to a public-house. The Duke of Argyll hoped that the general public would assist this movement, but reminded the meeting that the real and ultimate success of the institution depended upon the amount of the support afforded by the journey-men bakers themselves, and the masters.

The secretary announced a general improvement in the condition of the bakers; and he considered that since 1860 their state had improved to the extent of twenty-five per cent. Wages had increased. Some masters had abolished night-work altogether, and a few had closed their shops on Sundays; and thus done away with labour on the Sunday altogether. Already a home and reading-room had been established in Rolls-buildings, Fetter-lane, and fitted up with a certain amount of useful accommodation; but some 250l. were required to complete the whole, and put the place in thorough and practical working order. They had a library of 140 volumes; and the assistance of both journey-men and masters might be usefully employed in providing what is needful in the commencement of this establishment, and making it a model which might be imitated in other districts.

Mr. Layard moved, "That the journey-men bakers are justified in using all the moral, legal, and constitutional means within their power to abolish the pernicious system of night-work and unlimited hours, in order that they may have a better opportunity of improving their intellectual capabilities, and to afford time for a little rational recreation and amusement." In reviewing the operation of the recent Act of Parliament, he said that one objection to the Act was, that it was not compulsory; and he would be glad if some means could be devised for making the exercise of the power for visiting bakehouses compulsory, and the appointment of a bakehouse inspector in a parish as compulsory as that of a sanitary inspector.

THE POSITION OF THE INSTITUTE OF ARCHITECTS.

MR. EDITOR,—If it would be any satisfaction to you to hear that the counsels that have turned this Institute into a Freemasons' Lodge, in spite of your well-founded objections, are fast leading it into a state of schism and disruption, you might now find it.*

The meeting of members on last Monday night gave pretty strong evidence of it. As you know, the council lately, on a division, recommended Mr. Butterfield for the Royal Medal. "Stuff and nonsense," said a general meeting, held to confirm the recommendation. "You are passing over better known men,—men who have done more work, men of more catholic views;" and so they voted the medal to Mr. Pennefather. The meeting on Monday night was called by those who felt aggrieved by this, ostensibly "to consider the manner in which the recommendation of the council as to the award of the Royal Gold Medal has been set aside, and also the steps which it is desirable to take with regard to its award for the future." Some very hard words were bandied, and it was easy to see that if care be not taken a split will take place. "Let us adjourn," said one wisely. "If you do, without fully discussing the question now before us," exclaimed a leading Gothic architect, "I quit the Institute for ever." A Fellow who had taken some part in the reversal of the council's recommendation, was reprimanded by one of the Gothic party (my party) for sending round a private letter, inviting the Fellows not to absent themselves. "Why should you object?" says one of the other side, "when you yourselves are at this moment sending round a private letter to secure the election, in May next, of a certain gentleman as president?" The meeting afterwards became pretty unanimous in passing a resolution calculated to prevent the unexpected reversal of the council's recommendation as to the Royal Medal; but it seems pretty clear to me that unless some of the wiser and wider-viewed members of the Institute lend their aid to prevent it, we shall fall into anarchy. Oh! for a session of the steady management of the Nelson-Lewis secretarship, and of earlier days!

A GOTH.

* We should find no satisfaction in any such thing: quite the reverse. It would be subject for deepest regret.—Ed.

VOLUNTARY ARCHITECTURAL
EXAMINATIONS.

SIR,—The Class of Proficiency I believe to be the only one to which the Institute can look for present success. That of Distinction now gives a title to which its possessor, according to current examinations, cannot be held to possess. Let the Class of Distinction bide its time, and when the examination in proficiency is compulsory, I think the Institute might, with some degree of reverence for our calling, establish a voluntary examination for distinction which shall be really in accordance with its title, and which will sit "gracefully" on the heads of the profession.

The suggestions which have been prepared by the Architectural Association, and which will be laid before the council of the Institute on the first day of its meeting, contains that which, if adopted, will probably establish the examination in proficiency on a basis of success. The ridiculously small space of time—three hours—given at the last examination for preparing plan, elevation, and sections of a vaulted library, with a private chapel over, ought to be regarded as a monstrosity. I am glad to find that additional time is now allowed. Again: the Examination Papers say, "Give an outline of the principal styles of European architecture." I know on authority that three-quarters of an hour was the time available for that purpose at the last examination, and I defy 90 out of every 100 of the Royal Institute of British Architects to sit down and perform the operation, satisfactorily, so as to possess any value as a test, in that time. The work to be done throughout is not too hard, but the time for doing it too short. The suggestion of the Association, that the examination should be held on alternate days, possesses advantages for town students; but those from the country might, perhaps, feel it to be a waste of time, and prolong their stay in town unnecessarily. Certainly the examination must not extend over a longer period than will be occupied by alternate days.

The question of architectural examination—"to be or not to be,"—is now virtually before us. If the Institute, at their next examination, adopt a system possessing the means of arriving at a fair and reasonable test of ability, it will, I hope, regain the confidence of students. On one point there is a strong feeling, viz., that some written recognition, but not a diploma, of having passed the examination should be given.

A MEMBER OF THE ARCHITECTURAL
ASSOCIATION.

PEERAGE PROPERTY IN LONDON.

SIR,—As a subscriber to the *Builder*, which I have taken in for some time, I wish to point out to you two inaccuracies, which you may wish to correct on some future occasion. On the first page, in the list of noblemen possessing London property, you mention, at No. 9, *Earl of Portman*, and soon after, *Baron Portman*, which he is. The other is the omission of *Lilleshall*, in Shropshire, one of the country houses of the Duke of Sutherland. A. W. J. CLIFFORD.
House of Lords.

SURREY THEATRE.

LIEUT.-COL. TEMPLE WEST, to whom the greater portion of the land in the neighbourhood belongs, has entrusted all the details and rebuilding of the new theatre to Mr. John Ellis, architect, Austin-friars. The works are to be immediately commenced, and carried out in the best manner, so that the building may be perfect by the 25th of September next.

EAST LONDON INDUSTRIAL EXHIBITION.

SOME of our readers may be glad to be told that the East London Working Classes' Industrial Exhibition, 1865, will be held at the St. Mary's Schools, Whitechapel. It will be opened on the 12th of July next, under the patronage of the Earl of Shaftesbury, the Earl of Maclesfield, Lord Ebury, the Chancellor of the Exchequer, Viscount Enfield, M.P., and others, who have become guarantors to the amount of 200l., if required, to defray the expenses. The committee meet on Monday evenings at the Christ Church Schools, Cannon-street-road, E. The chairman is the Rev. G. H. McGill. Applications for space should be made to the secretary, Mr. John Webb, at the schools.

THE TEMPERATURE OF WESTMINSTER
ABBEY.

SIR,—Your correspondent "O." in your impression of the 18th March, speaks of the desirability of warming Westminster Abbey, and alludes to the perfect way in which St. Paul's Cathedral has been treated.

As the engineer who accomplished the latter work, perhaps you will allow me to state that since its completion we have successfully warmed York, Lincoln, Ripon, Gloucester, Worcester, and various other Cathedrals, to say nothing of many hundreds of churches and other buildings; that there is no difficulty whatever to contend with in the case of Westminster Abbey; that the work could be done certainly, effectually, inexpensively, without detriment to the architecture (as the apparatus would be unseen); that an agreeable temperature would be secured throughout the whole building, involving no possible risk from fire; and that the interior of the edifice, together with the monuments contained therein, would be greatly preserved by the process.

WM. WOODCOCK,
London Warming Company.

"GRINDING MONEY"

SIR,—Knowing how deep an interest you take in all that relates to builders and their men, we send you the following case, which was tried at the Camberwell County Court, March 21st. The plaintiff, a carpenter, was in our employ. Not requiring his services any longer, we dismissed him. When he received his wages at one o'clock on February 25th, 1865, he asked for "grinding money." We refused to pay it, he receiving 7d. per hour. He then took out a summons to recover not only "grinding money," but also loss of time in fetching away his tools. The Judge, on hearing his statement, at once dismissed the case, "he having no claim." This may be useful to our trade.

J. & J. GOODMAN.

THE NEIGHBOURHOOD OF THE
POST OFFICE.

MAY I take the liberty of drawing your attention to the Postmaster General's application to the Legislature for power to purchase a large area now covered with houses, extending from Angel-street to Newgate-street, on the west side of St. Martin's-le-Grand, upon which it is proposed to erect buildings in extension of the General Post-office opposite?

It is not my present purpose to offer any remarks upon this proposal in itself, as I take it for granted that such an extension is considered indispensably necessary in connexion with the vastly-increased business and new functions of the Post-office; but simply to invoke your aid in converting the present awkward and somewhat chance-medley junction of several great thoroughfares into something befitting their importance and the dignity of the neighbouring buildings of St. Paul's and the Post-office. The proposed clearance affords an admirable opportunity for the formation of a central place, from which would radiate the several great thoroughfares, as well as opening up a new and grand view of what is generally admitted to be the *chef-d'œuvre* of English architects, St. Paul's.

The value of land in this vicinity is so great, that anything much beyond the present space is not to be looked for; but even that, somewhat augmented by a liberal rounding of corners and a re-arrangement, would give one of the noblest architectural views in the metropolis.

Let St. Martin's-le-Grand be continued into St. Paul's Churchyard by a gentle curve beginning at Angel-street, and having for its central point the great dome, with a liberal rounding of the corners east and west into the Churchyard. The street itself should be 80 ft. in width. This would necessitate the reconstruction of all the houses east of the new street to the present junction of Newgate-street and Cheapside, and would cause the prolongation of Cheapside at the expense of Paternoster-row. The block between the row and the churchyard would require to be reconstructed, on a site to be purchased of the dean and chapter, somewhat southward of its present site; and the roadway would encroach on the railled space of the churchyard. It would also follow that Sir Robert Peel's statue would have to be removed to the centre of the new place, that is, to a point not far from the junction of Panyers-alley with the Row. And this brings

me to a matter that is, perhaps, of more importance than even the present proposal.

When Newgate Market is removed to Smithfield, there will be a great motive in utilising its site by continuing Cheapside through it to Warwick-square, and thence westward between the Court-house and the prison across the Old Bailey and Farringdon-street to Carey-street, and again from that street, by a double curve, to the eastern end of Long-acre. The enormous value of the new frontage would go a long way in recouping the body who would have the management of such an improvement, which would be a noble undertaking for the Metropolitan Board of Works when they have got the Embankment and Main Drainage well out of hand. In the meantime, a slight concession from the Post-office would prepare the way without much, if any, sacrifice of land, as they would gain on the east side of the street the same space as they gave up on the west.

I venture to suggest the whole improvement to a joint-stock company (limited), in connexion with an underground railway in the street, which appears to be the only way in London of getting any comprehensive improvement. J. W.

THE BUILDING TRADES.

WHILE the Birmingham and other workmen are doing their best to come to a permanent good understanding with the masters, by means of arbitration of trade questions, the Manchester masons are flying in the face of all such means of arrangement, although they had agreed to it in 1862. They now inform the Masters' Association, that "no just arbitrator, apart from the employers and employed, can settle the difference between us in a just and equitable manner." It is evident their notions are not very clear on the subject. They have resolved that they "cannot entertain the principle of arbitration in any shape whatever." They threaten a strike, through which upwards of 600 men will throw themselves out of work, if a demand of an increase of wages, from 30s. to 33s. in summer, and from 27s. to 30s. in winter, be not agreed to by the masters. There is therefore no hope of any "just arbitrator" settling this question. The masters will not agree to the demand; but they have offered to meet the men half-way, to which offer the men refuse to listen.

Meanwhile, however, the principle of just arbitration which the Manchester masons repudiate is spreading elsewhere throughout the country. The masters and men of Wolverhampton have agreed to the principle, and have appointed the following delegates for the settlement of future disputes by means of arbitration:—For the joiners and carpenters, Messrs. Thomas Whittle, Joseph Humphries, Thomas Skett, John Jeavons, Walter Parry, and Thomas Crompton; for the masters, Messrs. George Higham, Lovatt, Heveningham, Burkitt, Elliott, and John Cockrill. The following resolution was then agreed to:—"That the employers and operatives mutually and severally agree to conform to and fulfil all rules agreed to by the majority of the delegates, or settled by the casting vote of the chairman or umpire appointed." At this point, says the report of the proceedings, the delegates from the men joined the masters on the platform, amidst the applause of the meeting. One of the delegates from the carpenters and joiners, Mr. Whittle, in seconding a vote of thanks to the mayor, remarked that he hoped a new era was now about to commence. He was much pleased to say that at the interviews they had had with the masters they had been most courteously and civilly received. It was not as dog meeting man—the former evincing a desire to bite the latter's nose off—but as man meeting man.

At Derby the bricklayers and labourers struck work recently, the former for an advance of 3s. per week, and the latter for 2s. 6d. The masters had offered the bricklayers, joiners, plasterers, and labourers, 2s. for nine months in the year, the wages remaining as before during the winter months. The offer was declined, and the masters then proposed arbitration, which was also refused; but it is said those on strike are now willing to adopt the principle of arbitration.

At a meeting held in Leeds, of deputation from the masters and the operative carpenters and joiners, an advance of a farthing per hour on the present rate of wages was offered and refused, the men holding out for an advance of a halfpenny on the present rate of 5½d. per hour.

A "strike" is not improbable on the 6th of May next, unless the men accede to the masters' proposal as to wages. The Leeds working painters have also had a meeting to consider a proposal of the employers with respect to wages. The men resolved not to accept less than 26s. per week during the summer, and 22s. during the winter months. A year ago the summer wages were increased from 25s. to 26s.

The Worcester operative carpenters and joiners have requested an advance of 2s. a week by the 1st of July next.

The Falmouth and Penryn carpenters and joiners seek an advance of 6d. a day.

The painters of Glasgow, in connexion with the Operative Painters' Association, are out on strike, or have been locked out, the cause of dispute being a demand for an increase of wages to the extent of a halfpenny per hour, or from 5d. to 5½d. About fifty painters, in the employment of Mr. Ramage, were the first to strike, while engaged in painting a large steamer, and without it, it has been said, any warning. A number of the masters then entered into an agreement, by which they became bound to support one another, and they have now dispensed with the services of the whole of their men connected with the union. They have also arranged among themselves that they should personally work at the ship, twelve at a time, till the painting shall be finished. They are also, it is understood, prepared to act on the same principle in the case of any job of a very pressing nature. The number of men at present on strike or locked out is said to be from 150 to 200.

The carpenters of Nairn are at present out on strike. They demand 18s. for fifty-seven hours' work.

METROPOLIS SEWAGE AND ESSEX RECLAMATION BILL.

THE report of the referees on the petition of the mayor, aldermen, and commoners of the City of London, says:—

"The company who are the promoters of the Bill propose to convey the sewage now collected in the main sewers of the Metropolitan Board of Works on the northern side of the river Thames, for the fertilisation of land lying to the east of London, and the surplus to be conveyed into the sea near the Foulness (or Maplin) and Dengie Sands, in the county of Essex, a distance of forty miles from the metropolis; and the said company also propose to reclaim certain parts of the Maplin and Dengie Sands.

The petitioners objected that the estimate was insufficient, and especially that the Maplin and Dengie Sands were so loose and unstable that the embankments could not be constructed upon them, unless at a much greater cost than the estimate would provide for, while they would neither be able to resist the sea on so exposed a coast, nor to prevent the filtration of the sea-water under them.

They also objected that there was not sufficient fall in the conduits for the proper flow of the sewage. As the pumping stations on the main conduit will raise the sewage 42 ft., 20 ft. and 33 ft. respectively, while the distance the sewage is to be conveyed in a direct line is forty-four miles, there will be a fall of about 1 ft. per mile to the points of discharge, which will give a velocity of about 1½ mile per hour.

The fall and velocity are sufficient for the proper flow of the sewage.

On the Maplin Sands it is proposed to inclose an area of 5,000 acres by an embankment twelve miles in length, and on the Dengie Sands it is proposed to inclose an area of 3,000 acres by a similar embankment of nine miles in length.

These embankments are to be placed from one and a half to two miles seaward of the present coast line.

They will be 15 ft. in height towards the sea, and will vary at the ends from that height to 6 ft., where they join the present sea-walls.

There will be 9 ft. of water on the embankment at spring-tides.

Those areas, containing 8,000 acres, it is proposed to reclaim and cultivate by means of the sewage.

The sand is of the same description at both places, and it was proved that it was solid and tenacious, having a considerable admixture of clay and other substances in it, which render it sufficiently firm for the construction of the embankments upon it.

There are no quicksands, and it is not likely there will be filtration from the sea under the embankments to any great extent.

The estimate is 2,100,000l.

The referees are of opinion there are no objections, in an engineering point of view, to the proposed works, and that the estimate is sufficient."

THE THAMES EMBANKMENT.

COPIES have been issued of the correspondence between the Board of Trade and the Metropolitan Board of Works, relative to the material used for filling in the Thames Embankment, and of the report of Messrs. Coode and Rawlinson to the Board of Trade. It appears that these gentlemen are of opinion that the materials dredged from the river are, if properly used, perfectly good materials for the embankment, with the exception, perhaps, of the filling in for 20 ft.

behind the wall; that the quantity needed for the embankment can, with proper arrangement, be obtained in ample time for the fulfilment of the contracts; and further, that if all the materials to be used henceforward for filling in the embankment are taken from the bed of the river, the quantity of water thus gained will not compensate the river for the water displaced by the embankment. [Is it not overlooked here that the embankment, by narrowing the stream, will itself help to deepen it, by increasing its force, thereby flushing its channel, as it were, continually, at the ebb?]

"Looking to the intentions of Parliament," writes the secretary to the Board of Trade to the chairman of the Metropolitan Board of Works, "in passing the Thames Embankment Act, with respect to the river and to the report, the Board of Trade cannot doubt but that the Metropolitan Board of Works will at once give directions that for the future the material to be used in filling in the embankment shall be taken by the contractors from the river, and not from the land. As the matter is one which admits of no delay, my lords will be glad to hear at once what steps the Board of Works propose to take."

The clerk to the Metropolitan Board replies, that they have referred the report made by Messrs. Coode and Rawlinson to the Thames Embankment Committee for consideration and report.

Mr. Bazalgette has made the following return of the quantity of filling-in materials supplied respectively from the land and river to the embankment, from the time of the first return being made, on the 9th of December last, to 15th March, the quantity being stated in cube yards: No. 1 contract—from land, 30,453; from river, 22,881. No. 2 contract—from land, 6,864; from river, 7,023. Total—from land, 37,317; from river, 29,904.

ACCIDENTS.

AN accident has occurred at the passenger station, in Ludgate-hill, of the London, Chatham, and Dover Railway, which happily has been unattended with serious consequences. At that part of the line northward beyond the present temporary station there were nine girders resting a dead weight upon the walls which were to support the iron roof intended to be placed there; but, it being considered advisable to have a lighter roof, that portion which had been fitted was removed and a derrick put up to support the girders in the unfinished state of the roof. An iron band went the whole length of the roof, and the derrick supported that band which held the girders. It is supposed that the high wind which prevailed must have acted on the face of the girders and shaken the derrick, which slipped and fell, the band of course giving way, and the girders coming down. The girders fell on to the line, and no further damage ensued. The superintendent of the line was soon on the spot, and went over the works with Mr. Thomas, the principal assistant to Mr. Cubitt, the engineer of the company; and the foreman to Mr. Lucas, the contractor, was also present. A very small portion merely of the scaffolding gave way, and no bricks were displaced from the external walls. The portion of the line where the accident happened was beyond the traffic part of the station.

At Croydon, for some time past, a number of men have been engaged in forming a new branch in the Epsom and Leatherhead line of the London, Brighton, and South Coast Railway, and for that purpose they had to remove a passenger bridge that crossed the Wellesley-road close to the Croydon station. The men had just proceeded to the bridge in order to pull it down before the trains commenced running, which would be one o'clock, as it was Sunday. They had a powerful steam-engine at work, and they were going to bore a hole through the centre of the bridge for the purpose of adjusting a chain, which they intended to fix to the engine and so to pull the bridge to pieces. Scarcely had the men, fourteen in number, begun to make the hole, before the whole mass fell down, burying beneath it five of the unfortunate men, two of whom were killed on the spot and one afterwards died at the hospital.

At Rochdale, during the late boisterous winds, the chimney belonging to the works of Mr. George Hume, machinist, of George-street and Norreys-street, Rochdale, was blown down to the ground. The debris fell upon the roof of one portion of the workshop, smashing it in and doing considerable damage to machinery. Two or three persons sustained injuries, but not of a serious nature.

SCHOOLS OF ART.

The School for Oxford.—A public meeting on behalf of the school proposed for Oxford has been held in the Town-hall, the Dean of Christ Church in the chair. A large number of drawings and designs, executed by pupils of Schools of Art, were hung round the hall. The chairman, in his address, said that, in the school which he hoped would shortly be established, he expected to see classes formed comprehending every rank of society, and thus both producers and patrons would reap an advantage. Some years ago an attempt was made, when the number of professorships was increased, to induce the University to found a Professorship of Art, but from a want of sympathy in the matter it failed. A School of Art was also set on foot by citizens, but its basis seemed to have been ill considered, and it fell to the ground. The present scheme was in connexion with the Educational Department of the Privy Council; and, though he knew there was some feeling against a central authority and the somewhat minute regulations supposed to be enforced, he understood that, by the recent minute of Council, the interference with local schools was considerably diminished, while at the same time the grants were also reduced. This, however, he did not consider to be of much consequence, as they might fairly expect sufficient support to set the school well about; and it would speedily become self-supporting, an indispensable qualification in the minds of the promoters. The report of the Provisional Committee stated that they believed there was every reason to expect that a School of Art would succeed as well in Oxford as in the many towns where such an institution had been established. They had obtained the use of an apartment from the Curators of the Taylor Institution for the school. Mr. Holman Hunt and various other gentlemen addressed the meeting, and appropriate resolutions were passed, and office-bearers appointed. The Duke of Marlborough has been named as president of the school.

THE CENSUS.

THE registration of the people, the account of the births, marriages, and deaths of the population of Great Britain, the periodical numbering of the population, and other statistics of health, life, and death, which are prepared under the Registrar-General, at Somerset House, are of the greatest value, provided that the figures can be perfectly relied upon; but without this, the very large sums which are granted by the Government for a most important purpose must be viewed as in a great measure wasted.

We believe that most praiseworthy care is taken in respect of the general registration of life and death, by not only the district, but the sub-district registrars; and we know of cases, in London, of ignorance or neglect, in which the registrar has proceeded from his office with book, pen, and inkhorn, to poor homes, and then himself made out the returns. Still, there are many persons (children especially), who do not find a record in the vital statistics of the nation, and additional care is requisite in this respect.

As regards the taking of the census, we hope that in the metropolis and the large towns especially, measures will be adopted to test the accuracy of the enumerators. If a supervision of this kind were extensively carried out, it would be the means of causing a more strict inquiry to be made in connexion with the numbers of persons in thickly populated houses. We have before hinted that there was a want of exactness on this point in 1861; but although knowing this, we have felt surprise at a statement which has appeared in most of the leading papers, that in Liverpool, 3,200 inhabited places, for which the corporation rates were paid at the time, were omitted from the census returns of 1861, making, it is calculated, a difference of 20,000 in the population of the borough.

If this be not true, it should be at once contradicted, or explained by the Registrar-General; and if it be a fact, we ought to know how such an error could possibly be allowed: if inquiry be made, it would be well to ascertain the exact population of this corporation property, and obtain the exact death-rate.

It is just worth while to notice, that the ink used for the registration of Great Britain, not only at Somerset House, but also in the offices of all the registrars throughout the kingdom, is of the same quality, so that a uniform and unmistakable distinctness may pervade all the

reports throughout. We do not know who the maker of this ink is, but it is of an excellent description. The black colour of entries which were made with it several years ago is fully retained.

PROVINCIAL NEWS.

Cheltenham.—A further enlargement of Cheltenham College has been determined upon by the council, who have resolved upon the erection of three additional schoolrooms for the junior department. The new rooms will be built on to the present quadrangle in the rear of the large room of the classical department.

Chester.—Five tenders have been sent in for the proposed new town-hall. The town-hall committee opened them, but deferred consideration of them.

Cottingham.—The new town-hall for this village has been formally opened by Mr. John Crossley, of Halifax. The hall is in the Italian style. It comprises a large hall, to be used as a lecture-room, schoolroom, and mechanics' institute. Entering from the front door on the left side is a room for a library and reading and club room. On the right side is a room to be used as a vestry. The lecture-hall is further in the passage. The hall is estimated to hold 700 persons. The room on the left of the passage is so constructed that, by the opening of a sliding door, it can immediately be thrown into a part of the hall when required. The school-room is one large room, nearly square, and is estimated to seat as many as the lecture-room. The design of the building was provided by Mr. Samuel Jackson, of Bradford, and the following were the contractors:—Messrs. Denbigh & Johnson, 414L. 4s. 10d.; joiner, W. Whitley, Bingley, 303L. 15s. 6d.; slater, T. Thornton, Bingley, 58L. 10s.; plumbers, Walton & Bear, Bradford, 25L.; plasterer, J. Murgatroyd, 25L.; warming apparatus, J. Longbottom, 40L.

CHURCH-BUILDING NEWS.

Rusper (Sussex).—The chancel of the new church, built by the Rev. J. Broadwood, of Lyne, only ten years ago, had been sinking for some time past, and the walls beginning to show wide cracks, the top ornament at the end getting much out of place, it was resolved to attempt to get a new foundation. Many workmen were employed for a considerable time in doing it, but it is now completed.

Reading.—St. Stephen's Church, which has been erected in New Town, as a chapel-of-ease to the parish church of St. Giles, has been consecrated. The church consists of a chancel nearly 30 ft. long, and a nave nearly twice that length, with aisles to the chancel and nave on the north side, and a north porch. It is built of red bricks, with a few buff and black bricks introduced in patterns. The window-tracery is of Bath stone. The jambs and labels of the arches and windows are of bricks moulded for the purpose. The style is after the manner of the early part of the fourteenth century. There is a western bell-gable consisting of two arched openings, surmounted by a high-pitched gable: beneath this, between the two buttresses supporting it, is a four-light window with pierced tracery: the east window is of five graduated lights. The area of the church is fitted with light open benches, standing on a floor of wood blocks, laid herring-bone fashion, solid on concrete. The timber roofs are open, of somewhat light construction. The roofs generally are covered with plain red tiles and crimped ridges; but the north aisle, which is nearly flat, is covered with lead in order to give a greater height of wall. The building was designed by Mr. White, of London, architect. The cost of the structure is rather more than 2,000L. Messrs. Wheeler were the builders, and Mr. J. Matthews carried out the carpenter's work.

Taplow (Bucks).—The parish church, which for ten months past has undergone alterations and improvements of an extensive character, has been re-opened. The principal portion of the work has been the erection of a new chancel in the Gothic style, in accordance with a design by Mr. Scott. The structure affords increased accommodation. The seats for the choir, the pulpit, reading-desk, and other fittings in the chancel, are of oak, and carved. A recess for an organ has been formed in the rear of the choir's seats, and Mr. Walker, of London, is building the instrument. The gallery has been removed, and open seats have been substituted for the old pews. The roof has been altered,

imparting to the edifice a more lofty aspect. Two new windows have been opened on either side of the chancel, and other improvements effected. The contractor for the erection of the chancel was Mr. Snowball; and Mr. James Rutland undertook the work in the body of the church.

Saul (Gloucestershire).—Saul Parish Church has been re-opened. The old church had fallen very much out of repair. The only parts of the original building that remain are the tower, the south wall, and the nave roof. This latter, with its network of old oaken beams, contrasts with the stained roof of the other parts. The old brick chancel has been taken down and rebuilt of stone. The north aisle is new. A north transept has been built. The arcade dividing the nave from the aisle is new. The old box pews, some of them 5 ft. high, have been replaced by open sittings, made after the model of about a dozen seats found in the old church. The bench-ends are oak, and the seats elm. The style of the chancel is very Early Decorated. The moulding of the chancel-arch rests on columns of polished Devonshire marble, and the corbels are carved with figures of angels. The floors, both of the chancel and of the nave, are paved with Godwin's tiles. The window of the chancel is a memorial to the late Captain Clegram. The cost has been about 70L. The window comprises three long lights, separated by mullions and the tracery under the arch; these have been filled with painted glass. Being an altar and a memorial window, the principal subject is that of our Lord's Resurrection, shown in the centre light. The space on the right and left of the picture is occupied by the angel sitting over against the open tomb, and the three crosses on Calvary. The subject in the first compartment of the window is the Nativity. The third light has for its subject the Adoration of the Wise Men. The three groups are depicted under architectural canopies, the shafts of which extend down the sides of the lights and rest upon pedestals or bases. The panels in the tracery are filled with stained glass. The cinquefoil at the apex is occupied by a figure of our Lord seated in majesty, surrounded by a halo of rays in a vesiciform, outside of which are angels in adoration. The whole is encompassed by a border of ruby and emerald glass. The artist was Mr. Wailes, of Newcastle. Beneath the tower there is a small new stained-glass window. Outside the building is all new, with the exception of the tower and the south side, which have been repaired. The bell-framing of the tower has been repaired. The building has been well-nigh re-roofed. The church is warmed by one of Gurney's stoves. About a rood and twelve perches have been added to the old burial-ground. The architect of the restoration was Mr. Fuljames, and the builder Mr. Estcourt, both of Gloucester. The carving has been done by Mr. Purday. The cost has been upwards of 1,000L.

Nottingham.—The vane has been affixed to the spire of the new church of All Saints, which Mr. W. Windley has given to the town. The vane stands 8 ft. 2 in. from the masonry of the spire, and the cock is at a height of 177 ft. 9 in. from the surface of the ground. Mr. Speed, the clerk of the works, under Messrs. Hine & Evans, the architects, adjusted the vane, assisted by the representative of Messrs. A. & B. Dennett, the contractors. The church is now complete with the exception of the organ and peal of bells. A new peal of eight bells has been cast for the church by Messrs. Taylor & Co., of Loughborough. The bells are in the key of E natural, the tenor weighing 17 cwt. 11 lb. It is thought they will most probably be placed in the tower by Easter.

Colwick (Notts).—It is the intention of the rector of Colwick, to restore, re-seat, and otherwise improve the parish church of that village. The plans have already been prepared by Mr. S. D. Walker. They comprise the addition of a new aisle, priests' and choristers' vestries, the opening of the tower arch so as to allow the ground story of the tower to be used as a baptistery, new eastern window enriched with stained glass, low chancel screen, organ chamber, &c.

Ardrick (Lancashire).—St. Matthew's School Church, Ardrick, has been opened for divine service. The plan consists of a nave (to be used in the week for a school-room) and shallow chancel, with a transept for children. The nave is 61 ft. long and 30 ft. wide. At the west end is an infants' school, 33 ft. by 16 ft. There is a vestry and a kitchen, or boiler-room, at the opposite end of the building. The edifice has an

open-timbered roof of stained deal. Low open benches, with backs, are provided for the service on Sundays. The chancel is fitted with a simple moulded altar-rail, communion-table standing on a footpace, and prayer desk and sedilia. The east window is of stone, and is filled with tinted glass arranged in geometrical patterns. The chancel floor is laid with Broseley tiles. The material is chiefly red brick, banded with blue. Over the chancel arch is a slated bell turret of simple design, in which a bell is hung. The cost is about 930L, and the large room will seat about 346 persons. The building has been erected by Messrs. Barnes & Howe, of Ardrick, builders, from the design of the architect, Mr. J. Medland Taylor.

Barton-on-Irwell (Lancashire).—The reported erection of a church at Barton-on-Irwell by Sir H. de Trafford, at a cost of 20,000L, is so far in error that the building, we hear, is intended for Roman Catholics.

Reddish.—A church, recently erected at Reddish, near Stockport, has been consecrated by the Bishop of Manchester. The edifice has cost about 2,000L, which has been obtained principally by subscriptions in the neighbourhood, assisted by a grant from the Manchester Diocesan Society of 100L. There is likewise an endowment of 1,000L, and 200L. have been invested for the sustentation of the fabric. The church is intended to accommodate 400 persons, 154 free. The building, which is of stone, is in the Early Geometric style; and the architects are Messrs. Shellard & Brown, of Manchester.

DISSENTING CHURCH-BUILDING NEWS.

Peckham.—The new Wesleyan Chapel at Peckham has been opened. The style is Early Decorated, from a design by Mr. W. F. Poulton, of Reading. A view and description appeared in the *Builder* of 30th April, 1864; but we may here briefly note a few particulars of the edifice as completed. The chapel stands at the junction of the Hadders-road with the Queen's-road. The tower and spire are at the angle abutting on the Queen's-road, and are, together, 120 ft. in height. The main front of the chapel contains a large five-light traceried window, and the elevation is flanked by a turret 54 ft. high, on the Hadders-road side. The materials used for the external walls are Kentish rag, with Bath stone dressings, and Bath stone bands are introduced at intervals on the rag stones. The spire is constructed entirely of Bath stone. The roofs of the chapel and turret are slated, in both cases rows of blue and red slates being alternated. The chapel, a parallelogram in shape, is 81 ft. in internal length, and 43 ft. 8 in. wide. An apse at the back of the chapel, 11 ft. 6 in. deep, while adding to the apparent length of the building, provides a space for the erection of an organ, and for the use of the choir. On the side of the apse, next the Queen's-road, is a vestry 10 ft. by 14 ft. 6 in. There are galleries both to the sides and ends of the chapel. The gallery front is inclosed halfway up, and the upper half is filled with ornamental iron. The ceiling is of a slightly arched form, the height in the centre being 37 ft., and at the sides 24 ft., and is throughout divided into panels by wooden ribs. The roof principals are partly visible below the ceiling line, the form of which they follow, and terminate in an arched outline on stone corbels let into the wall some distance below the plate level. The apse ceiling is groined over, and the groining, walls, and ceiling panels, are throughout relieved with enrichments in distemper. All visible woodwork and pew fittings are stained and varnished. The total accommodation is for 1,000 persons. There is ample room left on the site for the future erection of schools and class-rooms. The contract for the building (exclusive of lighting, by Hart & Son, and heating, by Haden & Son, Trowbridge,) was taken by Mr. Sawyer, of Dulwich, at the sum of 4,427L; but the total cost, including land, fencing, and every other expense, is expected to be about 7,000L.

Bedford.—The new Moravian chapel, St. Peter's Green, has been consecrated. The plans and specifications were prepared by Mr. James Horsford, of this town. The style of architecture is Roman, and the building is of brick, with stone quoins and window frames. The arrangements of the interior are simple: a gallery occupies the south end, the pulpit is placed in a position at the extreme north, and there is a recess for the organ about midway in the western wall. Pews occupy a portion of the space beneath the gallery, the remainder of the available space being

reserved for free and other sittings in accordance with the plans usually adopted by the Moravians. Messrs. James Francis & Son were the principal contractors; Mr. S. Joy executed the carpentry; Mr. S. Jarvis the masonry; and Mr. G. Small the painting.

Ringwood (Hampshire).—The memorial stone for a new Congregational Church at Ringwood has been laid. The building will be erected after the Early English style of architecture, built of white brick, with Bath stone dressings. Two spires will be carried up 65 ft. high, and at each of the front angles will be a pinnacle. The church will be lighted by five lancet windows on either side, and a large four-light tracery window in the front. The seating will be by open benches, the pulpit will be of cement, and the communion pew, the two aisles, and the entrances will be paved with tessellated tiles. At the end of the church is a minister's vestry, and adjoining it the appliances for heating the building. Over the vestry and the apparatus-room will be an organ-loft. There will be a roof proper and a masked roof. The entire length of the church, exclusive of the vestry, will be 60 ft., and 37 ft. wide, and the edifice will accommodate about 450 persons. It will be lighted with gas. The contract for the building has been taken at 1,000 guineas, but this does not include the conversion of the old chapel into school-rooms, nor the heating appliances of the new chapel, and other *et cetera*. The land has been given by Messrs. A. Carter & Co. When the work is finished the church premises will cost, it is estimated, nearly 2,000l. The architect is Mr. H. T. Hellyer, of Ryde; and the contractors are Messrs. Tuck & Carley.

STAINED GLASS.

Albury Church, Herts.—A west window has been presented to this church by Mr. A. Gibbs, of Bedford-square. It represents Christ's charge to St. Peter. The upper part of the light is filled with foliage.

Pill Church, near Bristol.—A memorial window late Mrs. Moore, wife of the Rev. P. Moore, incumbent of Pill, has just been placed in the south side of the chancel of Pill Church. The window is a single lancet, the subject, "The Resurrection," below which, and in a medallion, is an angel bearing a scroll. The artists are Messrs. Horwood, of Mells, near Frome.

St. Mary's Church, Leicester.—A three-light window has recently been erected in Dr. Noble's Chapel, in this church, the gift of Miss E. A. Noble. The subjects are as follow:—The Holy Women at the Tomb, the Adoration of the Magi, and our Lord appearing to St. Mary Magdalene after the Resurrection. The window was supplied from the works of Mr. Preedy, of London.

Oldham Church.—The nave of this church has recently been enriched by the insertion of two more memorial stained glass windows, being the design and execution of the Messrs. O'Connor, of London, the artists who prepared the "Rowntree" window in the same church. Both the windows are on the south side, and are composed of three main lights, each of considerable dimensions. The window which is nearest to the east has been erected to the memory of three sons of the late Mr. Barker, of Frank-hill,—whose monumental tablet is close adjacent,—and the subject of it is the "Atonement" or "Passion" of the Saviour; the groupings (six in number) being so contrived as to form one picture in effect, though separately enshrined in forms composed of the vine foliage. The outer groups of the lower part represent on one side the birth of the Saviour, and on the other his body laid in the sepulchre. At the base of the centre is a group consisting of Mary Magdalene, the Virgin Mary, and St. John, weeping at the foot of the cross, while the whole upper portion of the three lights shows our Lord upon the cross, surrounded by weeping angels; all these upper figures being depicted on a groundwork of rays of glory. Along the three lights at the base of these groups are the words "He suffered for our salvation." The other window is at the west end, and has been erected to the memory of the late Mr. Bellott and two deceased sons. It has for its subject "The Resurrection of the Just," and is also arranged in a grouping of six, the whole forming one complete picture. The base of the centre lights has groups of figures ascending from open sepulchres, and borne by guardian angels towards the Saviour, who appears seated in the upper part of the window, and attended by angels on either

side. The light on the left hand represents the raising of the widow's son (Luke vii.), and that on the right hand the raising of Lazarus (John xi.), each light forming a separate picture. Along the base of the whole is the text, "I am the Resurrection and the Life."

York Guildhall.—Mr. R. Farrer, who a few years since filled the office of Sheriff of York, has, we understand, intimated his willingness to present a window for the Guildhall. Besides that which has already been placed in this edifice in memory of the late Mr. Ald. Meek, five others had been promised; thus, with Mr. Farrer's, seven of the windows will shortly be filled up. The whole of these are to form a series historical in their design of past events connected with the city.

Wigton Church.—The parish church of Wigton has been enriched by the presentation of a stained-glass window, which is placed in the chancel. It is the gift of Mr. Banks, of Highmore House, and is intended to commemorate the coming of age of his eldest son. The window is formed of a large central opening, with semicircular head, and rectangular openings on each side. In the main opening is a representation of Our Saviour Blessing Little Children. In a circular panel above the subject, our Saviour is seated in his sovereignty, surrounded with cherubim of many-coloured wings: the interspaces are filled with foliated ornament, and the sacred monograms I.H.S. and X.P.C. The whole is banded with a border, and above the window, in the wall, is written, "Glory to God in the Highest." The side-openings contain respectively representations of the Last Supper and the Baptism, and in medallions, busts of the four evangelists, with their suitable emblems. These are placed on a ground-work of mosaic. The artists were Messrs. R. Edmundson & Son, of Manchester.

SCHOOL-BUILDING NEWS.

Witley (Sussex).—The foundation stone of King Edward's School, at Witley, has been laid. The schools are in connexion with the Bridewell Hospital, London. The site is on the summit of the hill, a few hundred yards from the railway station at Witley. The design was furnished by Mr. Sidney Smirke. The style is based upon the Elizabethan, but partakes largely of a more modern character. The carrying out of the plans has been entrusted to Messrs. Mansfield & Sons, of London. The building will be of three stories. The material used is red brick, with Bath-stone facings. The school itself will cover two acres of ground, and with two lodges and a lawn in front, and an extensive play-ground behind, some three acres and a half will be used in all. The principal front faces the turnpike road leading to Witley and Milford, and is 209 ft. long. The height to the top of the bell-turret, which will rise above the principal entrance in the front of the building, will be 73 ft. The frontage includes chaplain's house at the left corner, board-room, waiting-room, storekeeper's rooms, offices, and master's house at the right corner. The arrangements on the ground floor include four large school-rooms, each measuring 45 ft. by 24 ft.; a large dining-room, measuring 45 ft. by 40 ft.; a day-room, 70 ft. by 24 ft.; two plunge-baths, &c.; and the dormitories above will be of ample dimensions to correspond. The cost of the whole will be, we are informed, some 30,000l.

Chelveston (Northants).—The new schools have been opened. The total cost will be about 800l. The site and stones of the building were given by Mr. H. C. Wise, of Woodcote Hall, Warwickshire, and Miss Deaborough, of Walton Hall, Derbyshire. The school-room, in plan, is in the form of a T, and is capable of accommodating 120 children. The master's house adjoins the school. The whole is built of native lime-stone, with Bath-stone dressings. It is in the Old English style, with good pointed gables, square-headed mullioned windows, with label or hood mouldings over them. The architects were Messrs. E. F. Law & Sons, of Northampton; and the builder, Mr. Ball, of Wellingborough. The cost of the whole, exclusive of site and the building stone, but including the architect's commission, is 800l.

Nottingham.—The chief stone of St. Paul's Schools, Nottingham, has been laid. The building is of two stories, of an English Gothic character, and formed of stone and coloured brickwork. The north elevation, fronting Platt-street and Cross-street, presents a gable of two triple lancet windows, the upper one with a

deeply-pointed arch and simple tracery, the lower being a mullion transom window, with a flat arch head. Between the gable and doorway to the upper school is a bell-turret, in which there is another entrance to the school-rooms. This also forms the lobby, and contains three tiers of windows. There will be accommodation for 300 children, and the room on the ground-floor measures 56 ft. by 20 ft. There is other accommodation on both stories, and the building has two elevations, one to the north, the other to the west, both ornamental. The architects are Messrs. Jackson & Heazell, of Nottingham; and Mr. White, of Keyworth, is the general contractor.

Birkenhead.—The Albert Memorial Industrial Ragged Schools, which are situated in Corporation-road, near St. James's Church and the Dock Cottages, at Birkenhead, are approaching completion. The schools are being erected at the sale cost of Mr. William Jackson, M.P., and are intended to accommodate 200 children, 100 of which number will be residents. The basement floor contains the large dining-hall and kitchen offices, with work-rooms for industrial pursuits, plunge baths, lavatories, laundries, and other conveniences requisite for establishments of this class, special attention having been paid to light and ventilation. The ground-floor comprises large school and class rooms for boys and girls, teachers' apartments, offices, and board-room, with central as well as separate stone staircases to each wing, in direct communication with the main corridor. The superintendent's apartments are placed on interval floor over the main entrance, being equi-distant from all parts of the building, so as to insure perfect supervision. The first and second floors contain the children's dormitories, which are placed immediately over school-rooms in each wing, the front being occupied by the superintendent's and teachers' bed-rooms, sick-wards, store-rooms, &c. The classification of sexes has received especial care, the staircases and entrances being so arranged that they cannot intermix. Large play-grounds, with covered play-sheds, are obtained in the rear of the building. The style adopted has been termed Victorian, and is dependent for its effect mainly upon its breadth of proportion and broken skyline, rather than closeness of the material with which it is erected. The architect is Mr. David Walker, of Liverpool; the contractor being Mr. Neill, of Chester, and Mr. Laycock the clerk of the works. The workmen employed in its erection have been recently entertained at the usual "rearing" dinner, when about ninety persons sat down.

Rhyl.—The New British Schools in Vale-road have been opened. There are two schools, mixed and an infants' school. The mixed school consists of two rooms opening into each other, the length being about 39 ft. by 18 ft. wide each. The infants' school is 27 ft. long by 18 ft. wide. There are also class-rooms, lobbies, cloak-room, and lavatories. They are built to accommodate 230 children, say 60 infants and 170 boys and girls. The land was given by Mr. W. Shipley Conwy, and the cost of erection is about 7500l. Mr. F. D. Johnson, of Birmingham, was the architect; Mr. J. Rhyddwen Jones, of Rhyl, was the builder.

York.—The chief stone of the new Primitive Methodist Sunday School, in York, has been laid in Nunnerly-lane, in the suburbs of this city. The new school-room will cost nearly 7000l. The land on which the school is to be erected has a frontage of 110 ft., and a depth of 50 ft. The building is arranged in the centre of the plot, and the school-room will be 60 ft. long and 30 ft. wide. Separate entrances will be provided for the boys and girls, together with lobbies and other conveniences. There will be two class-rooms at the back of the building, each 15 ft. by 12 ft. Iron palisading will extend along the frontage. The walls of the school will be faced with white brick, and the arches and strings will be built of red pressed bricks. Each side of the school-room inside will form a series of arches, and the ceiling will be a flat one, divided into compartments, with a cornice round. The room will be about 18 ft. 6 in. high. Special means of ventilation will be adopted, and accommodation provided for 400 children. The school-room will be lighted by four two-light windows in the front, and two behind. The architect employed to superintend the work is Mr. H. Fippard, of this city, and the contractors for the work, who all reside in York, are the following:—Mr. Shattoke, for brick and stone; Mr. Dennison, of Marygate, for joiner's work; Messrs. Shouk-smith, for plumber and smiths' work; Mr. H.

Young, plasterer; Mr. B. Baynes, slater; and Mr. Westgarth, painter.

Bradford.—New Ragged Schools have been erected on ground abutting upon Vaughan-street and Rebecca-street, in Westgate, and formally opened. The schools have been built from the designs of Messrs. Knowles & Wilcock, architects. The following shows the arrangement of the ground and building:—Basement-floor: cooking kitchen, 17 ft. by 16 ft.; dining-room, 33 ft. by 24 ft.; bath-room, 18 ft. by 13 ft.; girls' playground; boys' playground; committee-room, 14 ft. by 12½ ft.; parlour, 15 ft. by 14 ft.; living-room, 15 ft. by 14 ft.; wash-kitchen, 14 ft. by 10 ft.; masters' yard and conveniences. First-floor: girls' school, 30 ft. by 24 ft.; infants' school, 24 ft. by 21 ft.; boys' school, 41 ft. by 24 ft.; class-room, 17 ft. by 16 ft.; bed-room, 14 ft. by 12½ ft.; bed-room, 14 ft. by 14 ft.; and bed-room, 15 ft. by 14 ft. Top-floor: bed-room, 29 ft. by 14 ft.; bed-room, 24 ft. by 15 ft.; and bed-room, 17 ft. by 15 ft. Such architectural features as the buildings possess are of a simple Gothic character, and based on the construction of the various parts. The site slopes considerably, and presented at first view difficulties and disadvantages. The cost of the schools and land has been £2,700. The following were the contractors:—Messrs. Kershaw & Co., masons; Mr. Wm. Branton, joiner; Mr. J. Schofield, plumber; Mr. E. Thornton, slater; Mr. Wm. Sogden, plasterer; Mr. Wm. Hird, painter; and Messrs. Byrne & Co., ironmongers. The clerk of the works was Mr. J. Craven, of Bingley.

Books Received.

Contributions to English Literature by the Civil Servants of the Crown and East-India Company. From 1794 to 1863. With Occasional Biographical Notes. By LEOPOLD CHARLES MARTIN, of Her Majesty's Stationery Office. Longman, Green, & Co. 1865.

THE son of one of whom England has reason to be proud,—John Martin,—seeks by this little book to show the important services rendered to the State by the civil servants of the Crown and the East-India Company, independently of their duties and exertions in an official capacity, and that "so far from being overpaid and underworked, some of the noblest names in every branch of English literature, and some of our most laborious authors, have been in the official employment of the Government." The catalogue is confined to the works of those who have been officially employed since 1794, and nevertheless contains the names of 207 authors. Looking through the list it strikes us that many of these are rather civil servants obtained from the profession of literature than literary men produced by the Civil Service. Nevertheless Mr. Leopold Martin, who is himself of her Majesty's Stationery Office, has made a good case, and is especially entitled to the thanks of the Civil Servants of the Crown.

Miscellaneous.

CAMBRIDGE HOUSE.—We find the following in the *Record*.—"It is said that Lord Palmerston's attention was recently called to a paragraph in the *Builder* stating that Cambridge House was to be pulled down to make way for a Roman Catholic Cathedral. 'Well,' said his lordship, 'I can't tell what may be done with it when my time is up, but I am happy to tell you that I have a lease for fifteen years.'" We mentioned the statement as "a story" that was going about.

ANOTHER "SURREY THEATRE" BURNED DOWN.—At Sheffield, on Saturday morning last, the "Surrey Theatre," the property of Mr. T. Yondan, of Westbar, was rapidly destroyed by fire. The sensational representation of a fire in "The Streets of London" is believed to have been the cause of the fire, although it was not observed till two a.m., when it suddenly blazed out, and in less than half an hour reduced the theatre to a mere wreck. From the first there was not the slightest chance of saving it, and the engines could only play upon adjoining buildings, to prevent extension of the fire. The theatre and its contents had cost from £25,000. to £30,000. They were insured for £13,000.

THE WELLINGTON MONUMENT FOR ST. PAUL'S. Loud complaints again being heard, Mr. Cowper was forced to state in the House of Commons, the other night, that Mr. Stephens had not completed the model which he had been commissioned to prepare. He had addressed frequent remonstrances to him, but was not able at present to say when the model would be ready. We are amongst the last who would hurry an artist, but surely, in the present case, it is now time something should be ready.

MODEL HOUSES INDUSTRIAL EXHIBITION.—Not to be behind hand, "The Society for Improving the Condition of the Labouring Classes" have organized an Exhibition seeking to promote the useful employment of leisure time amongst the tenants of the Society's houses, and an interchange of kind feelings between landlord and tenant. Prizes, varying in amount from 10l. to 1l. for adults, and from 2l. to 10s. for children under the age of fourteen, have been offered to the producers of useful articles or ingenious designs. The Exhibition will be opened upon Tuesday, April 4th, in St. Martin's Hall, and will continue open for a fortnight.

"THE BRITISH WORKMAN."—The new number of *The British Workman*, full of excellent engravings as usual (a famous pennyworth), includes a good word for Cabmen, by Mrs. S. C. Hall, in the shape of an account of the "Cabman's Cat at the Pelham Crescent Stand," told with that lady's usual taste and feeling. The original cat fostered by the men is dead, it seems, but they have adopted another. The London Cabmen, as a body, are a better set of fellows than some people think. We have had a fight for them ourselves before now, and showed with what difficulty it is they earn enough to live on after paying the hire of their horse and vehicle. They live a hard life, and deserve consideration at the hands of the public.

THE THAMES AND ITS NAVIGATION.—The general committee of the up-stream navigation, beyond Staines, have memorialised Parliament on the almost hopeless state of decay into which the locks and embankment are falling since railways in a great measure superseded this route. The revenue has declined from 14,000l. in 1845, to 3,087l. in 1864. They pray for an inquiry by committee of the House, or by Royal Commission. Mr. Milner Gibson, on the part of the Government, said they had no objection to the appointment of a committee, or even the advance of public money by way of loan; but he had been informed that the construction of the locks was bad, and that the charges were too high. Reductions of tolls had greatly increased the tonnage below Staines; but the old tolls were still charged above Staines.

NEW WAREHOUSES AT THE TYNE DOCKS.—The new large warehouses at these docks are expected to be opened shortly. They are six stories high, the ground floor being intended to be used for general merchandise, and the five upper stories for grain, of which they will contain between 20,000 and 30,000 quarters. The lines of rail are carried through the ground floor of the warehouse from one end to the other, and each ascending floor or warehouse is provided with a trap-door and hoist; and on the side of the warehouse facing the docks each floor is provided with a covered-in platform, where also will be fixed a hoist. Other warehouses are to be built on the west side of the dock. The North-Eastern Railway Company, it is said, purpose building about eighty new houses, in the vicinity of the Tyne Docks, as residences for their workmen.

IMPROVEMENT IN ORGANS AND HARMONIUMS.—An important invention has just been patented by Mr. Daves, of Leeds, engineer. The principle is this, that the highest note of any chord played on the key-board is made to predominate with greater power than the harmony. Thus the melody always stands out prominently, as if produced by another instrument. The effect, it is said, is sometimes marvellous, converting a comparatively dull and tuneless instrument into a brilliant and enjoyable one. It is said to be the one essential improvement which will make harmoniums fit for places of worship as well as for the home circle. The invention is already patented in England, France, and Belgium. The patentee has given the name of "Melodie Céleste" to his invention, which is exceedingly simple, and can be applied, it is said, to any instrument for about 5l. Could he not be contented with some English words?

HEALTH OF LONDON.—In the week that ended Saturday before last, the births in London and nine other cities or boroughs of the United Kingdom were 4,368; the deaths, 2,982. The annual rate of mortality in the week in those ten large towns was 28 per 1,000 persons living, and was less than in the previous week, when it was 29.

BUILDERS' CLERKS.—A correspondent wishes to be informed "if there is a society in existence calculated to benefit builders' clerks in regulating their hours of labour, &c.," as he thinks the hours insisted on by many firms excessive, viz., from eight till eight, or other hours making twelve, while the pay is often not so much as that of a mechanic, and the responsibility and labour both of head and of hand are much greater.

MONUMENTAL.—The formal inauguration of the statues of Allan Ramsay and Professor Wilson, at Edinburgh, has taken place, amidst much rejoicing. The statue of Wilson is in bronze, and about 11 ft. 8 in. in height. It occupies a position near the western entrance to the East Princes-street Gardens. The Ramsay memorial is in white marble, 10 ft. 8 in. in height, and is placed at the eastern entrance to the West Princes-street Gardens—the two statues being thus placed one at each side of the Royal Institution. Both statues have been executed by Mr. John Steell, R.S.A., the well-known sculptor. We may say something about them next week.

DOMESTIC ACCOMPLISHMENTS OF THE SPINNING-WHEEL ORDER REVIVED.—An elegant loom, with all the necessary properties, has been constructed by Messrs. Stewart, of Kilmarnock, for the Countess of Eglinton, who intends to manufacture her own dresses. The frame is of yellow pine, highly polished, of convenient dimensions, and completely isolated, so that it can be set down and lifted at pleasure. It works either twilled or plain; and the apparatus has "a self-acting motion," and therefore requires small care. A printed lace web has been put in, and some specimens of work shot on for her ladyship's guidance.

GAS.—In consequence of a determined opposition by the town authorities of Leamington to a new Bill promoted by the Leamington Priors Gaslight and Coke Company, in Parliament, before a committee of the House of Lords, the maximum price of gas at Leamington, from the 31st March, will be reduced from 5s. 5d. to 4s. The company had for a period of nearly thirty years leased their works, although they had no power so to do under their Act of Parliament, for which the Lords Committee said they were "certainly liable to censure." The illuminating power has also been increased from twelve to fourteen sperm candles. The company have given notice that much further reduction in the price will from time to time be made, as the future consumption and the increase of profits will warrant.

THE PROFITS OF GAS.—The shareholders in the Phoenix Gas Company had a return last year, in the shape of dividend, bonus, &c., of no less than 38 per cent. The ordinary dividend was 10 per cent.; back dividend (1858) 1 per cent.; a share of the value of 16l., bearing 5 per cent. interest, was allotted to every holder of an original share of 60l.; and to each of whom was also given the opportunity of taking 40l. of a new stock at 7½ per cent. interest; the total result being, as we have stated, a profit of 38 per cent. in the year.—*City Press*.

THE STRIKE AND LOCK-OUT IN THE IRON TRADE. A meeting of the North Staffordshire iron-workers and their masters, in the presence of Lord Lichfield, took place, on Wednesday, at Stoke. It seems to have ended abortively. The masters insisted, as a *sine qua non*, that the men should go to work at the reduced rate of wages, and that then the differences between them should be referred to arbitration. To this the men declined to agree. They would not go to work at the wages the South Staffordshire men had accepted, and the quarrel seems now as far from being healed as ever. The London trades' delegates, too, met again on Wednesday, and passed resolutions approving of the conduct of the North Staffordshire men, and promising them support; so that their former resolution, advising the men to submit their case to arbitration, was somewhat equivocal, and hence was generally misunderstood. Nevertheless we have hopes the lock-out will not last long.

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The Builder.

VOL. XXIII.—No. 1157.

Woman's Work in the Art-world.



T scarcely seems fair to discuss the subject of female influence on art without admitting reference to the fair sisterhood of the present day. There has been such a wonderful stride made in this matter in the lifetime of this generation that thousands of eyes must flash fire and thousands of lips curl scornfully at an exclusion that so materially affects the facts of the case. It is as though we were to treat of musketry and bring our subject to an end with an account of the capabilities of Brown Bess, leaving all the improvements of the modern war-smiths out of the question. In art, as in arms, the work of the day tells of the bursting of bounds, the breaking up of barriers, the opening out of floodgates, and

of new lights and new powers starting up in every direction. There is, moreover, so strong a tendency to suffer the ashes of forgetfulness to collect on the memory of those who have passed from us that we may be sure it is but a very small proportion of the names of great workers in their generations that have come down to us. We have proof of the truth of this conclusion in our possession of ancient works of art whose authors are unknown; and what applies to men applies to women. The exigencies of living interests—the mighty waters of to-day—carry most things before them, wash away traces of the great, fill up places left by the good, and reduce to insignificance much that was once esteemed of consequence. We must bear this tendency in mind when we attempt to compute the influence of the female sex in the art-world.

Granting, however, no reference to living talent, we may see, if we like to give the matter thought, that art has benefited more by woman than we are generally disposed to allow. As far as we can see back into the history of the human race, there appear to have always been channels of taste, or grooves, in which the aspirations of intellect were directed, not, as in our own day, of fleeting fashion, but of long endurance, the result ripening, and ultimately rotting, in the sands of centuries; and in all those successions of intellectual endeavour, woman has taken due part. In the days of the prophets there were prophetesses of equal sanctity and esteem; in the mythological era there were the sibyls, whose god-counsel was obeyed by trembling Trojans and by the awe-struck Roman senate; temples were served by priestesses and vestals, as well as priests. In the early days of Christianity there were holy women teaching with as much vigour and practising as much austerity as any convert of the stronger sex; and in the steadfast declaration of Christianity, in the face and in the fulfilment of martyrdom, women bore their full part. In fine, since the world began, we find women have occupied governing points and wielded great influences, instead of having been slaves in the first instance, and housekeepers and

nurses in the second, as some are apt unctuously to assert, with complacent comparison with the present state of things.

If we cannot trace to women the genesis of song,—the triumphal utterance of Lamech on seeing the sword his son had forged being conceded to be the first on record,—we must acknowledge the early evidence of her power of song in that of Deborah. This gifted woman sang with a majesty and power scarcely exceeded; her vigorous cadences ring again like trumpet-calls, and depict many "great thoughts of heart." Although Barak is accredited with a share of the authorship of this poem, some of the best passages in it are incontestably hers,—as, for instance, the proud boast of being a mother in Israel, and the tender transition from the tent in which Jael set the "lordly dish" before the fugitive Sisera and killed him while he slept after his repast, to his longing mother watching at the window and crying at the lattice for his return. That this outpouring was not a solitary example we may conclude from the solemn and spiritual song of Hannah. We will look, however, more especially at those names lighted up by the phosphorescence of genius among the buried nameless myriads of Mediæval times. Many of these irradiated names are feminine. They first appear in Italy, France, Spain, and ultimately in England and North Europe, marking thereby woman's active participation in the gradual enlargement of the regions owning the impalpable but elevating sway of the fine arts. In the cluster of Italian poetesses Vittoria Colonna shines apart as having executed the most and the best work. Nor were her pearls cast before swine. She was almost idolised by her contemporaries, who bestowed upon her by acclamation the title of *Divina*; Michelangelo, Galeazzo di Tarsia, and others addressed many of their sonnets to her, princes offered her their hands in marriage, and four editions of her poems were issued in her lifetime (1490–1547). French literature may not yield so dazzling an example, but it contains several instances of very early poetesses possessing more than average ability; and it is delightful to find that the possessors of these talents were as pious and pure—in ages of great laxity—as Vittoria Colonna. Birds of gaudy plumage and flaunting mien in those days were as songless as their modern representatives. Docte de Troies mentioned in the "Bible Guyot de Provins," as in the court of the Emperor Conrad, at Mentz,—

"De Troye la bele Docte
Y chantaït cettie chanoïnette,
Quant revient la saison
Que l'herbe reverdoie,"

is an example of a French poetess in the days of trouvères, jongleurs, and troubadours. The work of Barbe de Verrue, of about the same date, must always be quoted in any attempt to illustrate the literature of those days, and is pithy and pointed among productions that are 500 years newer. In the first half of the thirteenth century Beatrix de Savoie, la Comtesse de Provence, sang songs in praise of wedded love, and was herself much praised by her contemporaries. Claire d'Andaze wrote verses still in esteem. Clotilde de Surville, when quite young, translated an ode of Petrarck with so much grace of diction that Christine de Pisanne declared that he must yield to her all his right to the sceptre of Parnassus. Being left a widow, by the death of her husband at the siege of Orleans, only seven years after her marriage in 1421, she devoted herself to the education of young women who possessed poetical talents. Margaret of Scotland, wife of Louis the Dauphin, sent Clotilde a crown of artificial laurel surmounted by twelve pearls with golden studs and silver leaves, with the device, "Margaret of Scotland to the Marguerite (pearl) of Helicon," proving that female talents enjoyed feminine admiration and recognition. Clemence Isaura, known as the Sappho of

Toulouse, still appeals to us out of this long-ago past. Her life was identified with flowers, for, having lost her father when young, she was brought up in seclusion, and allowed to spend much of her time in her garden. A troubadour, Raoul, lived near, and becoming intensely in love with her, acquainted her with his passion in song. She replied with flowers; and when her lover fell in battle, she devoted her fortune to the revival of the floral games, once esteemed by the troubadours, but which had fallen into disregard. Her ode to Spring is perfumed with roses. Louise Labé was a later light. Her works, consisting of a "Dispute between Love and Folly," three elegies, and twenty-four sonnets, first appeared in 1556. Her character was of a different cast from that of the gentle Isaura. She excelled in physical feats; and under the name of Captain Lois was present at the siege of Perpignan: but her accomplishments and conversation were none the less charming, for her house was the centre of cultivated society in Lyons: the street in which she lived was called by her name.

Two queens in the sixteenth century gave the world specimens of considerable literary ability. Marguerite de Valois, queen of Navarre, prepared mysteries for representation; wrote the "Mirror of the Sinful Soul," a collection of stories called "*Heptameron, ou Sept Journées de la Reyne de Navarre*," and a number of poems published in 1547, as the "*Marquises de la Marguerite des Princesses*." The second royal poetess was Mary Stuart, Queen of Scots, who wrote both Latin and French poetry with elegance. Nearer our own time the works of Mesdames Sévigné, Staël, and de Genlis will bear examination. Mary Stuart brings to mind the equally unfortunate and more to be regretted Lady Jane Grey, who would have left a larger legacy to the art-world if her life had been prolonged. The sister of Sir Philip Sydney, Countess Pembroke, was a genius of the first water. The four daughters of Sir Anthony Cooke—Lady Burleigh, Lady Bacon, Lady Russell, and Lady Killigrew—are celebrated instances in which the genius of a family ran in the approved channel of taste. These ladies were all good Greek and Latin scholars,—Lady Burleigh adding Hebrew to her list of accomplishments; the mother of the illustrious Bacon translated twenty-five sermons from the Italian of Barnardine Ochine, and the "Apology for the Church of England," from the Latin of Bishop Jewel; Lady Russell was especially clever at epitaphs and elegies in Greek, Latin, and English verse; and the youngest was a good Hebraist, and wrote in Greek and Latin.

Queen Elizabeth's intellect was cultivated in the same direction, we know. The taste prevailed into Stuart times. Evelyn mentions many ladies much accomplished in these Classic tongues, and describes his own little son to have had a passion for Greek when he was but five years old. These word-studies died out of sight as fiction dawned upon the art-world; and we find the feminine intellect adapting itself to the creation of heroes and heroines quite as easily as that of the other sex. The literary work of Jane Porter, that once spanned all Britain with sympathy for the woes of Poland; of Mrs. Anne Radcliffe, that thrilled all nerves after dark, and peopled every corridor with phantom forms; of Miss Burney, enjoyed by George III., his Queen, and the Royal children, besides Johnson, Reynolds, Burke, and all the *beau monde* of that day; of Anna Seward, incorporated by Sir Walter Scott in his choicest collections; of Hannah More, Mary Wollstonecraft, Miss Edgeworth, Miss Austen, Miss Mitford, Miss Opie, Mrs. Barbauld, and Miss Brontë, is independent of any allowance for the sex of the writers. And here, in connexion with the last-mentioned name, we cannot but note a practice induced by our assumption of superiority of workmanship. Several of the most able and spirited of modern writers, French

as well as English, have challenged criticism disguised in masculine *noms-de-plume*, a defiant, ironical *coup de main* we can scarcely condemn as long as we have two degrees of comparison and criticism for the work of the respective sexes. Our string of pearls would not be complete without mention of the following poetesses:—Charlotte Smith, Mrs. Grant, Johanna Baillie, Caroline Bowles (whose work is the concentrated essence of pathos); Felicia Hemans and Elizabeth Barrett Browning, both winners of the world's highest sympathies; Letitia Elizabeth Landon, who stands out conspicuously from the more numerous smaller heads, amongst which there are still such names as Mrs. Hunter, Mrs. Tighe, Jane Taylor, Maria Jewsbury, Charlotte and Emily Brontë, excluding the bright galaxy of the day.

It cannot be denied that woman has ennobled and enriched dramatic art most bountifully in the two centuries that have elapsed since she set her foot upon the stage. Consider what Shakespeare's heroines have received at her hands. How much of the beauty of Desdemona and Ophelia would be lost by their impersonation by youths, even supposing that they were all as handsome as Kynaston, the young man who represented them in Colley Cibber's remembrance. In this department of art, at least, there are no names that glitter so inextinguishably as those of Mrs. Bracegirdle, Mrs. Oldfield, Miss O'Neill, and Mrs. Siddons: in comparison with these stars, the fame of the male actors of the same periods is but the sheen of a spangle on Harlequin's scaly coat.

But not only as a performer has woman dignified the stage. The "Busy Body" of Mrs. Centlivre was a brilliant success, when Congreve's "Way of the World" was a failure. Garrick took his farewell in one of her plays; and the London managers, notwithstanding all their press of canvas from rising actors, have not yet shelved some two or three out of the score she wrote. The association of the stage with the name and memory of Mrs. Inchbald, actress, dramatist, and authoress of the "Simple Story," gives it more attraction to minds admiring diligent virtue in the constant exercise of self-denying charity than all its scenic wonders; but regarding only the art-phase of her life, it was beautiful. Her first production was the *Mogul tale*. This was so successful in drawing the town, as the phrase went, that Colman assured her she might earn any money as a dramatist. Like Mrs. Centlivre, she wrote about a score of plays, one of which, "Every Man has his Fault," brought her 700*l.*; and another, "To Marry or not to Marry," 600*l.*; and this only a short time before Coleridge was writing for Cottle, the Bristol bookseller, at the rate of a guinea and a half for every 150 lines of poetry, and but a short time after poor Chatterton wrote as many as sixteen songs for half a guinea. Theatricals appear to have occupied the throne of fashion between the setting of the taste for Greek and Latin compositions among intellectually-gifted people, and the rise of novels and romances. Mrs. Inchbald could turn from one to the other, her "Nature and Art" and "Simple Story" having as much fascination as her histrionic abilities.

We contend that if music had occupied the same place in public esteem as poetry, classic scholarship, theatrical performances, and novel writing have done, successively, there would have been as bright a galaxy of female musicians to point to as there are artists in those departments; and of this we have corroborative assurance in the fact, that when a prize was offered for a new part-song, it was carried off by Miss Elizabeth Stirling's startlingly original, "All among the barley." And so, too, Kaufmann was almost a solitary example of a last century painter attaining excellence of workmanship, it is because female talent was turning its attention to a very different subject. But we have undergone another change of taste, and painting and sculpture are now the popular forms of expressing creative power and artistic feeling; consequently woman is dividing the laurels with us in these fields as she did with our fathers in those formerly frequented. Thus it is why it seems scarcely fair that we should discuss the subject at all, without reference to living artists. There died, however, in 1830, broken hearted, it is believed, a female sculptor, who has special claims on our regard for devoting her gifted labour to the decoration of architecture. This was Propertius Rossi. She fitted herself for the task by studying architecture and perspective; and her chief

work, the angels on the façade of the church of St. Petronia, is of admitted excellence. French studios have given the art-world three female sculptors, Madame Julien Charpentier, Madame Antoinette G. Desfonta, and Madame Milot. And among her English contemporaries Miss C. Adams is generally allotted a recognised position.

At the sale of the Pourtales Collection, a few days ago, a marble monument, by Mlle. Felicia de Feauvean, on which was represented the history of Francesca de Rimini and Paolo, was sold for 2,920 francs.

A more lengthy examination of the quality and quantity of woman's work in the art-world would, doubtless, reveal more that should be placed to her account. We have aimed, however, only at breaking a lance in honour of violet memories likely to be passed over unheeded, but for some such effort.

COMPLETION OF THE SOUTHERN METROPOLITAN SEWERAGE.

The works of the outfall of the London sewerage, south of the Thames, being complete, the ceremony of their inauguration took place on Tuesday last, when the pumping-engines were started by the Prince of Wales, in presence of many members of the two Houses of Parliament, the Lord Mayor, and numerous other visitors. Though one important division of the system, namely the Low-level Sewer of the northern side of the river, is only commenced,—and though there are even left to be settled, questions, affecting the whole of London, which are no less than those of first principles of town-sewerage,—the occasion of last week was an appropriate one for the celebration of a successful termination of what has, from the first acceptance of the system, or throughout the progress of the works, been most skillfully directed and supervised. During the first inception of the schemes that, by arrangements similar in principle to those which Mr. Bazalgette has at length carried into effect, sought an adjustment of the Metropolitan Sewerage difficulty, and since the principle was decided upon, and the commencement of the works made in the Northern High-level sewer, we have minutely described all the divisions of the work completed, with but one important exception, the Crossness Outfall itself; and that one has so often had its relation to the general system of the southern side mentioned, and has so often been referred to when speaking of the Northern Outfall, that our readers cannot be unacquainted with its general features. The details of contrivance for the placing the sewage in the reservoir, and for ejecting it into the river, indeed, are such as we have felt could not be explained without diagrams; but, these we hope shortly to publish, when minute description of the arrangements and construction can be given best for being understood. Of the reservoir alone, but omitting a certain peculiarity of its foundations, some idea may be formed from the description in our last volume, of that of the Northern Outfall,—though there is considerable difference in dimensions. Each reservoir is divided into four compartments; and the two reservoirs have the same method of construction of piers and arches, and covering, culverts and sluices for flushing, and well-heads for the overflow when a compartment is fully charged. The differences which there are between the Northern Outfall and the Southern, result from the difference of level of the sewage at the place of arrival in the two cases. On the north side, the sewage, arrived at the river-bank, is at such a level that it can all pass into the river by gravitation, the storage having for object only the interception of flow into the river during the time of rising tide, or when it would have been carried up to the metropolis. On the south side, the sewage arrives at such a low level that it has to be, of whole of it, pumped into the reservoir; from which it has to flow into the river. The Northern Low-level sewage is pumped at Abbey-Mills to the level which is that of the High and Middle-level lines or culverts,—the three being continued parallel with one another. On the south side, the Low-level sewage is pumped into the High-level at Deptford; whence the whole sewage of the High and Low Levels continues, joined in its course by that of Woolwich, and finally arrives at Crossness, at the level which has been referred to,—9 ft. below low-water level, or stating the level of invert of the sewer, about

28 ft. 6 in. below high-water. Whilst there are three culverts to the outfall on the north side; on the south side there is but one, or from Deptford to Crossness.

The culverts serving for the passage of the sewage between the Outfall-Sewer and the pumps, between the pumps and the reservoir, and between the reservoir and the river, are, for the most part, built together in three stages or stories; so that expense in foundations is saved. The low-level culvert of the three, passes the sewage to the pumps; then the high-level culvert distributes it and allows it to flow through penstocks, or sluices, into the reservoir; and lastly, the middle-level culvert allows it to pass to two low-water outlets in the river, or to the deep outlet; which last is furnished with twelve iron pipes, and is so placed in prolongation of the Outfall Sewer, that in case of emergency, such as an accident to all the pumps, the sewer could discharge into the river direct, that is on the old system. It should be observed that the arrangement of the conduction of the sewage of the north side of the Thames, from Abbey Mills to the outfall, in three channels or culverts, allows of the diversion from any one of them into the others when repairs are required; whilst the arrangement on the south side, below Deptford, where there is only one channel, would seem to involve a prospect of difficulty.

So much in the way of description and comparison was required for the sake of those who may not be able instantly to refer to what has already appeared in our pages.

The outfall into the Thames at Crossness, without the reservoir and pumping machinery, has been in use imperfectly, for some time approaching a year. It has been used subject to the old evils of tide-locked sewage. The invert of the sewer being 9 ft. below low-water, there was always sewage, or water, in the sewer, up to a length of four miles from the outlet; and on the rise of the tide, a peststock had to be let down; or the low-lands, and perhaps inhabited districts, would have been flooded through the openings of ventilators and gullies. This provisional use of the Outfall Sewer can hardly have been beneficial to Woolwich; though to Bermoudey it may have been.

The Crossness reservoir has an area of about 64 acres,—the northern reservoir having an area of about 10 acres. It is 17 ft. deep; and the four compartments into which it is divided, each measuring 560 ft. by 130 ft. 6 in., or 132 ft. 6 in., are together capable of holding 4,340,000 cubic feet, or 27,000,000 gallons of sewage. The entire area of the works, including adjoining and reclaimed land, is about 36 acres.

Even Mr. Bazalgette's own description in the *resumé* which we lately gave of the paper read at the Institution of Civil Engineers, omits mention of most of the structural details, and of all the decorative,—for, there are the latter. Particulars of the whole would be interesting to our readers, or useful for purposes of comparison; but we must reserve most of them. We may state here that the engines, four in number, double-acting condensing, make up a nominal power of 500 horses. Each engine works two single-acting ram-pumps or sets of plungers. The cylinder of each engine is 4 ft. in diameter and 9 ft. stroke; and the plungers (eight to each engine) are 4 ft. 6 in. diameter, half of them with 4 ft. 6 in. stroke, and the remainder with 2 ft. 3 in. stroke. The pump-cases are 12 ft. diameter. The two delivery-troughs, or outlets from the pumps, are each 32 ft. long, 11 ft. 6 in. wide, and 10 ft. high. Substances that might get into the valves of the pumps are intercepted by a grating, and are lifted by scrapers and combs attached to an endless chain, working vertically. There are twelve boilers; and they are each 30 feet in length and 6 ft. in diameter. The engine-house is about 154 ft. in length and 53 ft. in width. There is an amount of decoration in carved stone to the doorways and other parts, that may be deemed great, considering the situation of the building. The general character is Mediaeval with Byzantine and Norman features. The boiler-house, adjoining the engine-house on the south, or between it and the reservoir, is about 112 ft. by 64 ft. The decorative chimney-shaft is about 200 ft. in height. Coal-sheds extend along one side of the reservoir for a length of about 530 ft., and are 43 ft. in width. The contract-price for the reservoir and buildings was 300,000*l.*; and the engines, by Messrs. Watt & Co., were contracted for at 44,900*l.*

The statements which have appeared as to the proportion of sewage of the metropolis, yet

remaining to be intercepted, one-seventh, are doubtless correct; but the amount and importance of the work of the Northern Low-level Sewer, seem to us to have been underrated. The eastern portion of the line is well advanced; but of the lengths reaching to the embankment where Mr. Rison's contract commences, at Whitefriars, we have heard nothing. The progress of the embankment, for a great part of its length, is not satisfactory; and this portion of the line includes, as our description showed, a large amount of work in connexion with storm-water outfalls of the sewage of the Middle and High Level districts. Westward of Westminster Bridge to a spot near Cremorne Gardens, and including a pumping-station, nothing had been decided upon when we last looked into the matter. The western sewerage has been efficiently accomplished; but, pending the completion of the works lower down, it discharges into the river.

Since the construction of the aqueduct over the Metropolitan Railway, however, the Northern Middle-level sewage in its entire volume passes on with the High-level to Barking Creek; so that the bulk of the accumulation in the low-levels, from the tide-locked mouths of the original outfalls in the river, is prevented. Along with this measure of improvement, and the completion of the southern division, and with the use of pumping, a regular flow is kept up, being substituted for the intermittent one which produced deposit, and entailed the enormous cost and other evils of manual cleansing. The gain must be immense, unless counterbalanced by evil such as might be comprised in the abstraction of water from the river, or the substitution for the Thames, of a smaller but concentrated stream of sewage. As regards tributaries to the stream, the intercepting system, in place of restoring the original brooks, has kept them as sewers, and has also diverted them, excepting at times of great rainfall. Contemporaneously with this, the intake from the Thames, of the water-companies, has become such apparently as to not only injure the navigation, but to add to the sewage-nuisance itself. The quantity intercepted may be less important than has sometimes been assumed; but the question, what is going on in the case of London, is important not entirely for the sake of the metropolis, but for the case of other towns wherein the intercepting system may be adopted. As to the capability of the new channels for giving off deleterious effluvia through ventilators and gullies, we believe that Mr. Bazalgette claims to have accomplished his design, which was to produce such a flow as, preventing deposit, would not allow the time for decomposition. According to one theory, that has been supported by experience, it is possible by sufficient fall, and by proper form of section of a sewer, for the solids to be passed through a considerable length of sewerage, without maceration, or decomposition, that is without deposit or deleterious effluvia. It is claimed for the new sewers that they have accomplished the desired objects referred to. In the account of the Northern Outfall-sewer in our last volume, we looked to the evidence on some of these points, both at the outfall, and in the sewer, but found it rather contradictory. In the sewer, the middle of the invert was perfectly clean; whilst the remainder of the invert, and a portion of the height of the curved sides, had some deposit; though the time since the sewer had first been in use had not allowed the deposit to become great.

When the scheme of the Metropolitan Board of Works, for the sewerage of London, was put forth, we said that it could not be regarded as the solution of the difficulty. We have had to repeat this since; and, now, towards the completion of the works, we see no reason to alter our view. Mr. Bazalgette may have accomplished his design, as he has most efficiently perfected the details of it: but the question for the inland towns like Manchester and Birmingham is not much helped; and the issue, so far, of what was commenced for London, may be due to having attempted little, comparatively speaking.

Regarding the question as Londoners should be it observed that the proper horizon extends far wider than the boundary of the jurisdiction of the Metropolitan Board. For the purification of the Thames, it is not sufficient that the sewage of the Board's London should be intercepted; the sewage of the farther metropolis which includes Richmond and Kingston must be intercepted, or dealt with, likewise. And the same measure, or aim, must be extended to the sewage of all the towns up the river, towns

whose sewage we actually drink. And similarly for the Lea. As we foresaw years ago, the question, at last, is between a sewer for all the towns to the sea, and the discovery of some outfall other than into rivers. The point which logically regarded, stood first, was staved off to the last: there may have been no help for that; but the sewage-utilization question forces itself uppermost, and will make a costly levy against the arrears of attention to it.

The scheme of the Metropolitan Board comprised an area less than that of the plan of the Referees, Capt. Galton, and Messrs. Simpson & Blackwell, and much less than would seem to be necessary if intercepting sewerage is to be combined with the proposed jurisdiction of a Board over an entire water-shed. But the complaints as to pollution of the river above the jurisdiction of the Metropolitan Board, show there is something lacking in the constitution of such a Board as the latter, or in the principles of sewerage that should be recognised. In designing a system of sewerage, the first question is—Outfall, where or how shall it be? The Board's scheme did not supply the solution of that question. It still kept to an outfall on the river, to the prejudice, we should think, of Erith and Gravesend; and it did not extend its line of sewer to the sea, or the mouth of the river, as did the scheme of the Referees. But it has joined with a scheme, which both adopts utilization, and proposes an outfall-sewer of even greater length than that of the Referees. This sewer would start from Abbey Mills; so that if the new scheme be successful, the line thence to the Thames, and the reservoir near Barking Creek would seem to be useless.

The course we have taken since Mr. Bazalgette commenced his work, is sufficiently known to prevent any idea that we are now finding fault with the Board or their engineer. We remarked at the outset of the scheme, that a costly experiment might be necessary; and no one now is in a position to show, with sufficient precision, what else could have been done. The case of London was not that of a new town, but of a vast metropolis previously sewered. During the progress of the works of the Metropolitan Board, the question of sewage-utilization has, it seems to us, advanced somewhat; but even now, there is room for doubt whether the Board, representing the rate-payers, could have rightly promoted any undertaking, less clear of accomplishment than that which has still preserved outfall into the river. Amongst the questions that experience will now test, is the question of the return of the sewage on the rising tide, one which is not so clear as it should be. That the Board has been admirably served by Mr. Bazalgette, and all the engineering staff, we need not say: the fact is shown by structural work that is the admiration of all who have seen it.

THE PRESIDENCY OF THE INSTITUTE OF ARCHITECTS.

A PAPER WAR appears to have commenced. In reply to the circular touching the presidency, to which reference was made by a correspondent last week, Professor Donaldson, the president, has written a letter, and circulated it amongst the members. In this the Professor expresses his astonishment that members of the Institute should take upon themselves to anticipate the council, to whom, for many years, the Institute has given the right of recommendation; and goes on to say:—"The Institute has, by its votes, for successive years declared the expediency of having a professional man as president, and since the death of the Earl de Grey has acted upon this principle, which you would now set aside. In this assumption I see an attempt to override the feelings of the great body of the members, and to establish a rule of government in this Institute of an intolerable nature, that would elevate one class at the expense of the other, and be intolerant to all else. I think it, therefore, time for the members to rally round this fundamental rule of action and high feeling for true art in the most general sense; to elect a leading member of the profession as president, irrespective of his personal predilections (which he may fairly and honourably entertain, whether Medievalist or Classicist), under the recognised obligation that he shall be impartial,—not a party man,—ready to further the study of architecture in whatever style,—to promote good fellowship and forbearance; and not to make the Institute a platform for party strife and oppression of one class of art over the other."

To this Mr. Street replies, and prints his letter, in which he thinks it worth while to say, that sixteen years ago the Professor considered it advantageous to have a non-professional president. He is stronger, however, in pointing out that,—“When the charter was granted to the Institute, it was with the permission, if not with the intention, that the president should be a non-professional man; for which purpose the class of honorary fellows seems to have been expressly created.” He goes on to say,—“I reply to you therefore in your own words, and say openly, that in this letter of yours, just as in the award of the gold medal the other day, all unprejudiced men may see ‘an attempt to override the feelings of the great body of the members, and to establish a rule of government in this Institute of an intolerable nature, that would elevate one class at the expense of the other, and be intolerant to all else;’ and ‘I think it therefore time for the members to rally’ in support of the ‘fundamental rules’ of the Institute, and to select their president with a ‘high feeling for true art in the most general sense,’ i.e. with a view to the fitness of the person proposed, and not with regard to the persons who propose him, or the nature of his legal qualification for the office.”

Afterwards, comes out a letter from Mr. Scott, assuming that Mr. Hope will be among the candidates to be considered by the council, and asking permission to lay before the members the reasons why he thinks all might unite in this choice; first and foremost amongst which is, of course, the provision in the laws already referred to, that the president may be elected from among the honorary fellows. He goes on to say,—“Secondly. Though it is, no doubt, desirable that our presidents should, in a majority of instances, be professional architects, I feel it to be equally the case that it is desirable to establish a community of feeling between the professional and non-professional promoters of our art by, from time to time, doing honour to those who, without professional impulse, devote themselves to the same study with ourselves. We have now elected three professional presidents in succession, and I cannot but feel that it would be a graceful act now to give a fair turn to our lay members, and to show them that their privileges are not a name only but a reality.”

In conclusion, Mr. Scott writes,—“I am strongly convinced that nothing would so much tend to the harmony and good working of our Institute as the unopposed acceptance, on this occasion, of Mr. Hope as our president; and I am equally convinced that he would accept the honour as a pledge of harmony and good feeling, and would fill the position with the strictest impartiality, and as the representative of our art in its unity and integrity, and in no degree of one individual branch of it; while those who are anxious that he should on this occasion preside over our Institute, would view the withdrawal of opposition to his election as the best pledge of future harmony and mutual good-feeling.”

Years ago we urged zealously, and we have reason to believe not without effect, that the president of the Institute should be one of its professional members; and the successive election of the late Professor Cockerell, Mr. Tite, and Professor Donaldson, since the death of Earl de Grey, would seem to show that the principle has been accepted by the body. We are not able to change our opinion. What we believed then we believe now. We have the greatest regard for Mr. Hope personally, the fullest appreciation of his services to art, which, indeed, place him in an almost exceptional position; but we still think that a member of the profession should fill the presidential chair. At the present moment, when a competition for a great national building looms in the distance, on the jury for which the president of the Institute would doubtless be placed *ex officio*, it is even specially desirable.

Mr. Scott unites in himself many qualifications for the office; and, moreover, would probably sufficiently meet the views of even those members of the Institute who seem to think that, unless an architect ridicule and despise all other styles, he can have no knowledge or love of Gothic architecture. We shall be glad to find him a candidate, or willing to be put up as one. Professor Smirke, R.A., has been spoken of; and it has been stated that, should both these gentlemen decline, Mr. Tite, if requested, might probably be induced to serve again. The question at present, as we understand it, is simply as between a professional and non-professional president.

THE MISUNDERSTANDING AT THE INSTITUTE OF ARCHITECTS.

SIR.—It is not advisable that any paper war should be set on foot about this matter; but the remark of your very sensible correspondent, "A Goth," that a *split* seems impending, must be contradicted. Matters will soon right themselves now; as it is impossible to believe that the annual election next month can pass over without a definite settlement. The dispute is not between Classic and Gothic, but between a handful of revolutionists and the entire remainder of peaceful, practical men of business,—between, at the utmost, five-and-twenty on the one hand, and, at the least, five times as many on the other. Let any person tell down the list of Fellows, and he cannot come to any other conclusion. The majority is composed of men of all shades of opinion, whose motto is, *The common weal*. The minority is formed, to say the least, on some different motive. That this minority, insignificant as it is, should obtain temporary power in the council, is an accident easily understood; but it is a thing quite as easily remedied.

COMMON SENSE.

WESTMINSTER ABBEY.

THE condition of this edifice, as observed by a correspondent in the *Builder*, p. 195, is certainly most deplorable as to its arrangement for congregational worship; for, during the winter months, to remain two hours within the precincts is a service of danger; and, despite the attractions of the fine choir, the pealing organ, the accumulated sacred relics with characteristic statuary, and the college of dignitaries who represent our grandest metropolitan dean and chapter, it is positively deserted, or frequented chiefly by visitors through curiosity rather than by residents for worship. It may be said that the defaults of proper ventilation and warmth may be easily corrected, and so they may; although this enormous and massive fabric stands on a level with the adjacent causeway—not having a basement story, like *St. Paul's*; but there are other shortcomings and defects in this great national shrine, which in the present day of metropolitan improvements become more flagrant and inexcusable, since a citizen of a sister metropolis has expended out of his private fortune 150,000*l.* to restore and embellish the ancient cathedral of St. Patrick.

The dean and chapter of Westminster have an immense income, and, besides that, most valuable patronage,—quite enough to subsidize all their canons, dignitaries, and officers, as well as to sustain the structure in a condition worthy of its dedication. How do we find it?—chill and dank as the Church of Corinth,—neglected and rude as the tombs of Egypt. On one side, the north, it is open to St. Margaret's Churchyard, and to the fine, though as yet unfinished thoroughfare, of the Broad Sanctuary, and Victoria-street. On the east—Henry VII.'s Chapel, fronting Old Palace Yard and Houses of Parliament; there is an open space, which is suitable in all respects; but on the south, only separated by a narrow footway, some small antiquated houses in the August pile, which is again allowed to be desecrated by the temporal abodes of vergers and officers, in close and compact connexion with the venerable fane! Whilst, again, in Palace Yard, confronting the House of Lords, six old mansions screen off the view! Were these mean erections, with their curtilages, the inalienable property of their freeholders, it might be expected that the guild spiritual of the Abbey should purchase them out, for the purpose of clearing away all secular contaminations, and to isolate the building, with the view of bestowing upon it unity of aspect, and an elevation on all sides worthy the principal cathedral of reformed England; but all the precincts, including Dean's-yard, the Cloisters, and the two intrusive stacks of architects' offices, are the estate and property of the dean and chapter! The very fact that they are so accounts for the decaying and forlorn condition of the whole vicinage; for Church lands and possessions, wheresoever found, are the most notable exceptions, if not actually obstacles, in the way of improvement and amelioration. Property to a great extent on this side, extending nearly to Vincent-square, belongs also to the Capital Estate; and now that the most important improvements of London meet just at this glorious site, where

Barry's splendid achievement of St. Stephen's Palace had pre-determined the grand centre of State intercourse, surely it is time that so great a blot as those mean parasitic buildings which cluster about the Abbey should be cleared away, and that its complete integrity be effectuated.

On the north range, which, with Henry VII.'s Chapel, measures about 165 yards, the open space of St. Margaret's Churchyard and the Broad Sanctuary, confer upon the grand entrance facade a fair aspect. On the east, Palace-yard equally favours by its ample width the pleasing contrast exhibited by the two best examples that we possess of ancient and modern art. On the west the opening from Victoria-street reveals about two third parts of the elevation, including the two restored towers; the other portion being screened off by a block of six houses of recent erection, which back Dean's-yard, and are occupied by professional men, or as chambers. This stack is certainly finished in a style not very discordant with the Abbey; but, being on the estate of the dean and chapter, it was let as all Church lands are let, to a speculating builder, and thus, from that aspect, the view of the cathedral is sealed up and shut out. On the south side, however, there is still scope enough left for opening out and exhibiting the building in a becoming way; and, considering the present onward march of improvements and renovations which are to connect the City by the river embankment with the West-End, the time has arrived to necessitate the demolition and clearance of the old purlieus and closes that in its origin circumscribed the Abbey, and which now block in and conceal the finest portion of its elevation. On this side the open spaces and buildings all belong to the Capital Estate, as also the whole extent of house property between Dean-street and Palace-yard from east to west, and between the Abbey and College-street from north to south.

Within these boundaries we find Dean's-yard, an open square surrounded by houses,—seventeen of them occupied by externs, and four or five by members of the Capital establishment, measuring clear of the buildings about 180 yards by 90 yards,—as large as Cavendish or Hanover square; next the dean's garden, an open turfed expanse of about 280 ft. square; then three open squares surrounded by venerable and not unpleasing cloisters, which are surmounted by a most incongruous series of heterogeneous buildings, arranged as domiciles for a dozen canons and officers of the cathedral; some are of brick, some of plaster,—modern and ancient mixed; the doors of access in the cloisters, with names on brass plates, as also tablets and inscriptions of the departed functionaries and worthies who were interred in the adjacent spaces,—these are all in squares along the cloistered galleries.

The far-famed and justly celebrated school, nestling close to the foundation, occupies an old and misshapen structure, the only merit whereof as a fit place for the studies of 150 pupils is its registered prestige, and the inscriptions chiselled by thousands of departed and living pupils of their names in simple Roman character,—as chambers appropriate for study, or for continued occupation during six or eight hours daily,—no other foundation in London is worse provided; for, despite the hot-ir-pipes, and the gas-light throughout a winter's day, it is gloomy, dank, and most inconvenient. Again, an Infirmary of decent architecture and large proportions, now a school, occupies a considerable space about the central position, near College-street; and herein we find lecture-rooms on the ground-floor, and chambers for forty boys over. But the greatest blemish on these wide possessions, is the too close proximity of houses under the shadow of the August pile, and within 15 ft. of Henry VII.'s Chapel in Poets' Corner. Here, too, the range of houses in Palace-yard commences, cutting off the view of the whole cathedral and grounds, and screening off the Houses of Parliament. This range bounds the quadrangle on the east side, as does Dean-street on the west, and College-street on the south; the whole interval being in possession of the dean and chapter, what a glorious opportunity is afforded to them to open out, improve, and remodel their cathedral!—to pull away unsightly gables and masses, but to preserve ancient cloisters and arcades, and all that is venerable or suitable to the sacred precincts. There is ample space for schools, for an infirmary, ay, for domiciles to lodge the whole chapter and its adherents; but away with the rubbish. By judicious planning and outlaying of these central, but now inscrutable lairs, a noble site for man-

sions or public establishments might be secured with profit in this "*justa milia*" of intercourse—central, easily accessible, and germane to palaces, marts of commerce, and aristocratic quarters.

This is not an ecclesiastical; it is a national question. In Italy, in France, as well as in Ireland, not only the erection of new churches, but, most of all, the reconstruction and embellishment of old cathedrals, is being actively pursued; and where the church estates are of regal proportions, some enterprise and fair liberality ought to be devoted to the work by churchmen, without waiting for a princely dead-end.

An opening is now offered for the resuscitation from a long sleep of these venerable reliques. Let the whole block of houses in Poets' Corner, Palace-yard, and Abingdon-street, together with the back Stable-lane be swept away, and a proper iron fence substituted, with suitable entrances. This will reveal, from the Houses of Parliament to Dean-street, a space exceeding twelve acres. Widen throughout its length Great College-street in a direct line; this, if continued, will fructify from Victoria-street, at the junction of Strutton ground, opposite Christchurch-yard, passing along Pye-street, the worst and meanest slum of Westminster,—a block of inferior houses, for about 100 ft., between Smith-street and Dean-street, will have to be out through. Thence the line will pass at the back of Dean's-yard houses, forming one side of a delta terminating close to the Victoria Tower.

Here, built upon the Abbey grounds along a causeway 80 ft. wide, a range of modern houses will accommodate the dean, all the masters, and the canons residentiary; while ample space will remain for an appropriate school foundation, and, if need be, for a hospital. All these will then bound, and not obstruct, a hallowed *campo santo*—preserving all that is valuable for its antiquity, remove or restore all that is unsightly; open walks throughout, with grass and shrub where available; have the cloistered walks of celibate monks relieved of their superincumbent deformities; in fine, let the chapter take a lesson from the Marquis of Westminster in his clearances. A little worldly wisdom may be gained therefrom, showing how to make the estate pay. This, together with the clearances and new routes now about inception, would at once double the value of the whole property in houses, extending to Vincent-square, and wherever modernization is carried out.

If, however, the opening out of College-street and Pye-street, in the direct line of Victoria-street, is ever to be effectuated, there is not a moment to be lost; for all the building frontages are let, save only that one which is requisite at the corner of Strutton-ground; and should the new street now in progress, and opening into Orchard-street, be completed and built in, it may then be too late.

The Chapter House, once a chapel, its enormous windows and flying buttresses built in with rude brickwork, leans against the south transept: having been used as a record repository, it is now vacant; the external masonry wasting and smouldering to ruin. Another votive shrine, built against the south wall of the aisle, is now a kitchen and "trattorio," where forty Queen's scholars daily dine. These and the cloisters are the most ancient relics of the monastery, much impaired by time, but more by ruthless Gothism: to restore them would be a new consecration.

Such is the condition of the exterior, which, except in these instances, and also where concealed and built in by household habitations, has been fairly restored and eased up with block-stone and ashlar. But for the interior, what has been done? Here we possess a sacred treasury of art,—a sanctuary of antique relics, the embodiment of a nation's devotional history. It is humiliating to compare its aspect with that of any other great metropolitan shrine: the stupendous routes, the tracery, the whole superficies are left to time and chance: nothing has been done to illustrate or illuminate the sacred temple that we may "enter these courts with praise,"—sheltered only from the external elements: time, smoke, and damp vapours are suffered to waste and obfuscate all that is remarkable and graceful in ecclesiastical architecture!

What, then, is easier than to preserve the whole fabric by a proper system of ventilation and warmth, as has been done at St. Paul's, York, and other cathedrals, and in numerous churches? Free entrance may be given to all; but until a genial atmosphere is secured through-

out the gorgeous dome, the permission favours only the curious, and not those who would "go their way into these gates with thanksgiving,"—
QUONDAM.

CHURCH BELLS: THEIR ANTIQUITIES AND CONNEXION WITH ARCHITECTURE.*

So much has been said and written of late years on Church Bells, that, notwithstanding this is the first time the subject has been brought before the Architectural Institute in the shape of a lecture, it is by no means easy to discourse upon it with any charm of novelty to the scientific audience which I now have the honour to address, many of you being probably as well up in the subject as your lecturer. Campanology, however, is a science (I use this term advisedly) which most appropriately holds a place in an association like our own, whose object is to develop and enunciate the close and inseparable connexion of high art with the Catholic faith, for no musical instrument has ever exercised so great an influence upon architecture as the church bell. To it we owe the most striking external features of our churches, whether in the varied groups of the many-towered city, or the country spire pointing amidst the trees to the skies, or rearing itself heavenward like a ladder of fire, as seen in the horizontal rays of the rising or setting sun against the same horizon of the fen country of East Anglia. Then, again, there are the hundred different forms of cot and gable which crest the humbler village church.

Sometimes we find large towers standing altogether detached from the churches to which they belong; the campanile at Chichester is a well-known example to most of us. Canterbury and Salisbury also yielded similar examples, the latter having been wantonly destroyed almost within the memory of those still living. Beccles, in Suffolk, is another notable example; so is Ledbury, in Herefordshire, and West Walton, in Norfolk, the latter forming a noble entrance gateway to the churchyard. I might name a dozen smaller ones. Now these towers were not built for mere fancy or picturesque effect, but to contain heavy bells, the vibration of which would have a gradually ruinous effect upon the general fabric of the churches to which they belonged, were they an integral portion of them. For the same reason the central towers of minsters and other large churches were intended to be lanterns proper, and not campanies. The experiment was tried in a few instances, and great was the ruin that followed where the bells were at all heavy, as at Winchester and Ely. Bell-towers proper were invariably as little connected as possible with their churches. With the exception of Hereford, which fell down; Ely, which never had a large bell; Wimbourne Minster; and two or three other examples, we never see a minster proper even with a *bond fide* west tower; and yet we may be sure that their architects would most gladly have had them could it have been possible, for the greater space allowed for fenestration permitted by their absence is no equivalent (viewed internally at least) for the noble western arch which their existence would have afforded. The same internal western perspectives of Winchester or Norwich will hardly bear comparison with the western tower churches, even of the smaller type of Boston or Wymondham. Bell-towers were placed either westward of the aisles or on one side of them, as at Exeter, on purpose to lessen their connexion with the building, and guard against the ruinous shake of vibration. A virtue may, indeed, be said to have arisen out of the necessity, and an elegance and dignity to have been conveyed externally, by the double western tower; but this must, I think, be viewed as an effect necessitated by a cause rather than as an original creation untried by circumstances.

Whether you agree to this theory about western towers or not, we shall all, I think, concur in this, that our forefathers did not build towers and spires only to put into them the very small and ill-sounding article, the cлик of which is a standing nuisance to the western half of the metropolis. Most old churches were furnished with such bells over and above the chiming bells; they occupied either the eastern gable of the nave as a sanctus bell, or they hung in some picturesque little louvre, outside the tower or spire. Specimens of this latter treatment may be

seen at Hadleigh in Suffolk, Ichleton, and Hinxton in Cambridgeshire. Sometimes they hung in the weather-boarding of the belfry windows; but this latter arrangement is much more common on the Continent than in England, whole chimes being thus exposed to view in the belfries of the south of France, Italy, &c. Though no larger than the modern call-bell of a London district church, their tone was sweet and silvery. Neither, again, did our ancestors build their towers as a very convenient smoke-flue, as was so common twenty years since, till we were bold enough to venture upon the good, open, honest, undisguised chimney. I would urge upon all connected with church building that the object of towers is to contain bells, spires being merely their ornamental capping; and that, unless there is a good and reasonable prospect of more bells than one, the money would be far better expended in adding height and dignity to the interior, which in a town church, where we have now to contend with the rapidly-increasing bulk of secular architecture, is becoming more than ever a vital point.

However, we must fall back upon the bell itself. In the first place, it is a satisfaction to be able to claim an unmistakably Christian origin for an instrument which has laid so mighty a hold upon ecclesiastical architecture. The earliest names for bells—"nola" and "campana"—would seem to point to Nola, in Campania, as their birthplace, and the fifth and sixth century as their earliest date. A favourite and expressive Medieval name for a church bell was "signum," I not long ago read in one of the newly-printed Record publications, but I have unfortunately mislaid the extract giving names and dates; but the fact is this, a certain Irish bishop, who was also suffragan to the see of Worcester, was sent over to Tewkesbury to consecrate two new bells for the abbey church in that town, and the legal term employed for them is "duo magna signa."

The very earliest bells were probably mere sheets of metal curled into a circular shape, and riveted together at their junction, the top being flattened in. These were struck on the outside by a hammer, having no connexion with the bell itself. This, of course, produced no very exquisite tone. Once started, bells soon developed into shape and size somewhat analogous to those now in use. The art of working and fusing metals together was a very early invention; and the sister one of melting and casting not long in following. We know that both tin and copper ore were worked in Britain during the Roman occupation of the island, probably still earlier in more civilised Europe. There is no reasonable doubt that a bell, or even bells, in important places, formed a portion of the furniture of every church before the Norman Conquest. Judging from the vast size of Norman towers, I think it highly probable that church bells had at that time reached their largest dimensions in this country, and also attained a perfection not since surpassed. The fact of no bells of ascertained Norman date remaining at the present day, when we consider the 101 different accidents to which such an instrument is subject, is no proof in the case whatever. Considering the bell as an instrument of percussion, it is only a cause of wonder that so many examples, even of the thirteenth, fourteenth, and fifteenth centuries, have come down to us uninjured.

Then, again, there are other causes for change besides breakage, fashions as to shape and size, and number changed also, just as churches themselves were always more or less under alteration and supposed improvement.

The lecturer here read a short MS. account of the bells in Canterbury Cathedral (Canterbury, vol. i. p. 91, No. 453) as one example out of many of this constant change; and though perhaps churches of less note and smaller revenues were favourable exceptions, still this rule of change remained in a very large percentage. From this account you will see, amongst other things, that bells, as I said before, attained very large dimensions in the eleventh and twelfth centuries. They so continued till the Reformation; soon after which, the art of change-ringing coming in, completely overturned the existing order of things. Under the old system bells were few and heavy, dignity of tone and solemnity being the main desideratum, and, as they were only chimed, lightness was not an object. Cathedral churches were not allowed to possess more than five or seven bells, and these often not placed together for simultaneous use; collegiate and parish churches not more than three besides the sanctus bell. There is a curious

injunction extant relative to the village churches on the coast of Kent and Sussex, to the effect that they should not possess more than one bell each, lest they should present an object of plunder to opposite neighbours; church bells not running readily movable like plate, vestments, and lighter articles. It is curious that to this day the same rule seems in force, for in no other district in England are there so many one-bell churches as along that coast, while directly we get a few miles inland, peals of three and five are the prevailing number.

The oldest bells that have come down to us bear simply the names of the saints to whom they are dedicated—the tenor, or heaviest bell, usually representing the patron saint of the church; the others, for the most part, the names of those saints who had altars below; and I very strongly suspect that each bell was tolled for mass at the altar of its own dedication. This is a point I should much like to have cleared up by some one learned in Medieval ritual. At present I would only throw it out as a probability, from the fact that out of a number of such cases which I have examined, I have found a considerable balance in favour of the connexion between the names of bells and the records of altars so dedicated. At Durham, for instance, there were four great bells in the Galilee tower, and three smaller ones in the lantern-tower, dedicated, the largest to St. Cuthbert, another to Christ and the Blessed Virgin, a third to St. Margaret, another to St. Benedict, another to St. Michael, another to St. Oswald, another to the Venerable Bede; all of whom were commemorated either in the nine altars or elsewhere in the church. I will take one other example. At the church of St. Bartholomew-the-Great, Smithfield, now undergoing its interesting restoration, is a little peal of five bells, dating from the close of the fifteenth century. Here the treble is dedicated to the patron saint, the others to St. Katherine, St. Anne, St. John the Baptist, and St. Peter, each dedication ending, as was usual at that period, with an "*ora pro nobis*." Possibly there may be documents yet remaining which may connect this peal with some subsidiary altars in that church. If some of you do not mind doing a little chimney-sweep's work, you will be rewarded for your trouble by personally inspecting these bells; also a similar peal of three in the adjoining church of St. Bartholomew-the-Less. These are almost the only ancient bells remaining in London. I would recommend you, however, to send a man up two or three hours beforehand with a broom to remove the soot from their crosses. The bells at St. Bartholomew-the-Less are dedicated to St. Augustine, St. Vincent, and St. Michael, the legends being in full—1. "Vox Augustini sonat in aure Dei;" 2. "Vincentius revocat at campana potius tollat;" 3. "Intonat de celis vox campana Michaelis." The two smaller ones are by a well-known Medieval manufacturer, William the Founder, and have his arms on them, a Δ between three ewers. The tenor, about the same date, has the initials S. O., with a cross between them on a shield. It has not yet been identified.

While upon London bells, I may mention that King Edward III. erected a clochier, or bell-tower, and placed in it three bells for the use of St. Stephen's Chapel, at Westminster. On the tenor was inscribed,—

"King Ed. made me thirty thousand weight and 3,
Take me down and wey me and more you will find me."

This, by the way, if true, is the earliest example known of an inscription in English. They were taken down in the reign of Henry VIII., when some one wrote underneath, in chalk,—

"But Henry the Eight
Will bailt me of my weight."

Stow tells the story explaining that Sir Miles Partridge staked 100*l.*, and won them of Henry VIII. at a cast of dice. He, however, affixes it to a clochier standing on the site of the present St. Paul's School, and says that there were four bells, the greatest in England, and called the Jesus Bells.

It is exceedingly difficult to guess the exact date of the oldest bells that have come down to our times. Dates there are none at that early period, rarely even the founder's mark, or lettering, which may give the exact one. In bells of the fourteenth and fifteenth centuries there is not this difficulty; for, though they are rarely dated, they invariably have shields, lettering, and other architectural devices, which enable us to form a tolerably correct guess at their date. These marks, however, are by no means infallible guides to the uninitiated in such matters; for

* By the Rev. John H. Sperling, M.A. Read at the Architectural Museum.

foundries often went on for generations, and marks and stamps were handed down from father to son often for a century or more. A little close inspection, however, will usually afford some slight addition, either in the stopping or moulding, which decides against the hoped-for antiquity. I have myself several times seen Medieval shields and lettering upon bells only dating early in the seventeenth century: a date in Arabic numerals often unravels the mystery. Dates came in about 1570 in England, and have been continued ever since. In foreign countries they are met with much earlier. The earliest known dated bell is at Freyburg. Its diameter at the mouth, according to Mr. Tyssen, is 67 in.; height, 5 ft. 5 in.; weight, about 2 tons. The inscription is, "O Rex Glorie venti cum pace, me resonante pia populo succurre Maria."—A.D. 1258." At Duneton, in Sussex, is a bell which Mr. Tyssen supposes to be the earliest dated bell in England. The date on this is 1319. This also is of foreign manufacture. At All Hallows, Sustaining, London, is another, with an inscription in honour of St. Martin, dated 1468.

We come now to the prolific subject of inscriptions. The oldest known bells, as I have already said, bear the simple name of the saint to whom they were dedicated. After this came "ad laudem" or "in honorem" St. So-and-so. Then set in the everlasting "Ora pro nobis," which was the stereotype of the fourteenth century and very common even up to the Reformation. There were, during the fifteenth century, two celebrated foundries in East Anglia, one at Norwich, another at Bury St. Edmund's. Both of them, I believe, were more or less connected with monasteries, and they issued a much superior style of inscription, usually cast into the form of a Latin hexameter, laudatory or imprecatory of the saint to whom the bell was dedicated, and often commemorated one of his or her supposed attributes. Some of these are so good that I will read you a selection from them:—

"To our Saviour:—

1. Rex colorum Christo
2. Placat tibi choruse iate.
3. Filius Virginis Marie
- Det nobis gaudia vite.

To the Blessed Virgin:—

- Sum Resa pulchra Mundi Maria vocata.
- Virgine egerge vocar campana Marie.
- Stella Maria Miris succurre piam nobis.
- Virgo serena due nos ad regna beata.

St. Mary Magd.:

1. Dona repende pia
2. Rogo Magdalena Maria.
- Subiecist domum
3. Domus hanc Katerina.

St. Katharine:

1. Celesti manna tua proles
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Anne:

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Margaret:

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Michael:

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Gabriel:

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Giles:

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Edmund:

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. J. Bap.

1. Nos ellet Anna.
2. Nos ellet Anna.
3. Nos ellet Anna.

St. Peter:

1. Nos ellet Anna.
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3. Nos ellet Anna.

St. Thomas:

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St. Peter:

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St. Anthony:

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STARVED TO DEATH.

It is time that an important problem in connexion with London society was solved, and that we should know whether it is to the way in which the poor-rates are managed by the parochial authorities, or to what other causes we are to attribute the terrible instances of destitution which are constantly making themselves heard of in the eastern districts of the metropolis. There is no doubt whatever of the existence of a great evil, and we trust that the present session of Parliament will not be brought to a close before some members, who will take the trouble to make themselves acquainted with the subject, bring the matter in an effective way into notice. More especially it should be the duty of the metropolitan members to attend to this. Certain local peculiarities especially affect large masses of the poorer classes, particularly those who have been driven into a most abject condition of poverty, often by changes in our manufacturing industry, or by other causes over which they have no control.

Take up the newspapers when you may, it is rare to find one without some account of death happening from actual starvation, and in nine instances out of ten, these occur in Bethnal-green, St. George's-in-the-East, and other parts of the eastern region of London. Certainly the news reporters in these parts are not more active than those in Clerkenwell, Islington, St. Pancras, and elsewhere: yet the deaths from destitution, of which we read accounts in other districts besides the east, are few and far between. It is not that poverty of the worst kind does not exist, but we believe that the hardness of this is rendered more tolerable by the liberal and kindly spirit in which an often painful duty is performed by the guardians and others who have charge of the poor.

We take up by chance a weekly paper, and find, under the heading "Death of a Needlewoman," which occurred in St. George's in the East, that the deceased earned a scanty livelihood by needlework (the stitching of waterproof capes for a warehouse). She lived with another woman, and the average earnings of the two were about 4s. a week. They paid 2s. a week for the rent of a room in which they lived, or, rather, starved, together. Their chief support was one pound of bread and a cup of tea daily. About once a month they had meat, which consisted of bullock's cheek. They never applied to the parish for relief, and slept on some straw on the floor: and here it is to be noticed that we find the common objection to make any application for help at the workhouse. To this cause we attribute many deaths. On a Wednesday morning the deceased went to a pawnbroker's to endeavour to pledge a petticoat for sixpence; but the pawnbroker would not make the desired advance; she then, on attempting to leave the shop, fell down in a state of insensibility, was removed home, and a surgeon was called in, who found her in an exhausted state: he ordered wine and other stimulants, but the poor woman never rallied, and died on the following morning. The medical testimony, to which the jury agreed, and gave a verdict accordingly,—was, that death was caused by effusion of blood into the ventricles of the brain, brought on by want and long privation.

In the same paper an account is given of another death,—this one in Bethnal-green. The deceased had been many months under the care of Dr. Gayton, one of the medical officers of the parish, who attended him three times, but did not visit him again, but requested the deceased to come to him. This it appears, he was not able to do, and never had any further out-door relief. The deceased was removed, by an order, to the workhouse, in a very weak state, and died on the following morning. The wife supported the deceased and herself by her earnings of 6s. 6d. a week. Mr. Moore, surgeon, said that he was called in, and found the deceased in a very low condition: he died on the next morning. He had since made a post-mortem examination, and externally the body was much emaciated. There were other signs of disease, but the cause of death was no doubt accelerated by the absence of nourishment and want of sufficient warmth during the inclement weather. Dr. Gayton had also seen the deceased, and desired him to call at his surgery; and, not having done so, thought he had gone to work; but Mrs. Hyams, the man's wife, said that, when she called upon Dr. Gayton, and when that gentleman visited her husband for the last time, he said that he was sinking, but after that he

never came near her husband. She then applied to the relieving officer, when the deceased was removed by an order of the Board. In reply to a question by the foreman of the jury, the wife said she did not remove the deceased to the workhouse in consequence of the objection which he had to go into this workhouse. The jury were of opinion that Mrs. Hyams was to blame for having so long delayed getting her husband admitted into the workhouse. The coroner, however, expressed an opinion, in which we quite agree, that the wife had done the best she could, according to her earnings as a shoe-binder, but deceased did not get sufficient nourishment. In answer to a question by the coroner, the wife replied that she had obtained an order for out-door relief, which only lasted a fortnight; and, at the expiration of that time, the deceased was ordered into the workhouse, but he refused to go.

The verdict of the jury was that the deceased died from disease of the lungs, accelerated by want of proper nourishment and warmth.

THE RAILWAY AND BUILDING MOVEMENT, AND THE DEMOLITION OF DWELLINGS.

The Earl of Shaftesbury has more than once brought this subject before the notice of the House of Lords, and on a recent occasion he particularly dwelt upon the extensive demolition of labourers' dwellings by the making of metropolitan railways and other great works. His lordship stated that the number of persons who had been displaced in the present year by the Railway and other Acts was no less than 20,000, and the number of houses to be pulled down was about 3,500. The persons thus affected consisted chiefly of skilled artisans and day-labourers; and no provision had been made or existed either in the model lodging-houses or in the old kind of houses, suitable to such persons, or within their means, as domiciles. "Indeed," continued Lord Shaftesbury, "such houses as are at present to be let would not accommodate a hundredth part of the numbers displaced. In fact, the places fit for the poor working class to live in were actually overcrowded already, and the result was injurious both to the pockets of this class and to their health, and no doubt increased pauperism. The suddenness of some displacements, too, acted with great severity, and not unfrequently drove them to take shelter in the common lodging-houses, and places where they had to pay higher for worse accommodation than in their former homes. Numbers had thus been brought down from a condition of honest livelihood to a state of pauperism and vagrancy, and that by no fault of their own, but by this most unjust and abominable system of demolition."

Lord Shaftesbury told the peers that he had visited a room which, in many respects, resembles certain "pleasant lodgings" in the west part of London, described by us some time ago.* The room visited by the noble earl was inhabited by a young couple and their baby. The walls were full of holes: the place was exactly over the main-drain; and the wife told Lord Shaftesbury that she and her husband, Jack, sat up all night alternately, because such swarms of rats infested the place that they were afraid they would eat up the baby. On complaining to the landlord, he had told them that they might go if they liked, for he could get plenty of other tenants immediately.

Lord Shaftesbury again asked the important question "What is the remedy?" It was easy to reply,—"Build more model lodging-houses." But where were the 600,000l. to come from which would be necessary to build such houses for 20,000 people? Besides, model lodging-houses were for a superior class to many turned out of their homes, and such houses were by no means remunerative, seldom paying so much as 5 per cent., and never exceeding it. "Suburban villages at a cheap rate had been proposed; but his inquiries showed him that they were not in a position to build such villages. Cheap trains were still an experiment; but he was happy to learn that it was likely to be a successful one, and would turn out ultimately to the advantage of the working classes, but it would scarcely mitigate the evil in the present generation." His lordship concluded by moving a new stand-

* It is satisfactory to notice that since our account was written, the dwellers in that neglected tenement have, much to their astonishment and satisfaction, been visited by the landlord, and useful and very necessary repairs made.

ing order on the subject, requiring that notice be given to Parliament before the end of December, by the promoters of any bill to take fifteen or more houses inhabited by the working classes; that notice to be given eight weeks before taking the houses, to the heads of families inhabiting the same, and by placard and hand-bill displayed in the vicinity; and also, that no house should be so taken until a justice of the peace should have certified that the provisions of the order had been complied with.

To a certain extent, the proposition of Lord Shaftesbury would be an advantage; but it would be but a very small instalment indeed of what is due and requisite. Even this, however, as is the case with most of the well-intentioned propositions of his lordship, met with opposition; and when matters are brought under notice in the House of Peers which materially affect large masses of the poorer part of the community, lords who have liberal opinions, as many have, are not in their places to support Lord Shaftesbury, who has carefully studied and made himself acquainted with this painful but most important subject.

LOCAL ART AND PORTRAIT GALLERIES.

We are well pleased to notice that an idea, at which we have often hinted, is likely to a certain extent to be carried out in the busy and important town of Birmingham. The *Birmingham Gazette* expresses a belief that, at the Midland Institute *soirée*, there would be a proposition made which, if carried out in a spirited manner, will not only be of great importance to the inhabitants, but will tend to raise the artistic character of the town itself in the opinion of all who love and can appreciate true art. The proposition is to decorate the various panels of the ceiling of the new art gallery with portraits of a series of Birmingham and Warwickshire men, whose memory has been made dear by noble works done or noble words written. There are twenty-eight of such panels; and, fortunately for the history of the town and country, there will be no lack of fitting subjects to furnish them all. In order to test the effect of the proposed plan of decoration, a cartoon, by Mr. S. E. Evans, commemorative of Shakespeare, is to be placed in one of the panels. So says our authority; and we can only hope that this appropriate plan of decorating part of an art gallery will be well and tastefully carried out. But it should not be forgotten that ceiling decorations in apartments are of a very perishable and frail nature in this country; and that although it was the practice, especially in the reigns of Charles I. and II., and Queen Anne, to paint the ceilings with allegorical and other figures, it cannot be said that portraits painted on ceilings in panels had a good effect. Some of the reasons for this are, that the light upon the ceiling of a room is seldom good; that it is uncomfortable to look directly overhead at any object of interest which requires much examination; also the mass of white on a ceiling, however much it may be enriched by mouldings, diaper, and other patterns, is in most instances used as a means of improving the lighting by the power of reflection; and on the ceiling of a picture-gallery especially, there should be breadth and simplicity, instead of violent color, or light and shadow. In the present state of our information on this matter, it is but too likely that right principles will be deviated from; but we hope that the proposed plan of decorating this institute ceiling with portraits may be a step in the right direction, which will lead to the establishment of a far more permanent portrait gallery of Warwickshire men in Birmingham than this will be. We want to see authentic pictures of the famous poets, historians, artists, and men of science, the most eminent workers who have been instrumental in making the great hive of industry, now known throughout the civilized world as Birmingham, so famous as it is; and instead of the effigies of those worthies exalted to the ceilings, we would like to see them face to face, in such a position, and in such artistic skill in execution, that they would be likely, with care, to last for some centuries yet to come. In combination with the portrait gallery,* there might also be arranged a local picture gallery, and we hope that Bir-

* We have before suggested that the town-halls of provincial cities, &c., and the vestry-halls of the metropolitan parishes, are the right places for the formation of portrait galleries, in those places where there is no permanent place for the exhibition of local and other pictures.

mingham will ere long set an example in this way to other towns.

We have long thought of this subject, which is of more importance than many people at present believe, and which, as time rolls on and intelligence advances, will increase in interest; and we have a clear conviction that it only requires a movement to be made in this direction in two or three of our chief towns, to cause galleries of this kind to be generally brought into fashion.

Will Birmingham, Manchester, Liverpool, Newcastle-on-Tyne, or some other town lead the way?

THE ART EXHIBITION AT WINDSOR.

ON Monday evening the Art Exhibition in connexion with the Windsor and Eton Literary Institution was opened by Mr. R. W. Harris, the mayor, at the Town-hall, Windsor. The exhibition consists of a choice collection of articles of *virtu*, and works of art of a highly interesting description. Among the articles contributed by the Queen were a group of Indian gods and goddesses, carved in ivory, a case containing a number of silver busts of Continental sovereigns, and two panels, each containing four curiously painted subjects, from the "History of St. George and the Dragon." The Prince and Princess of Wales exhibited their costly wedding caskets, together with the gifts presented by the Corporation of the City of London, the Fishmongers' and Mercers' Companies, the ladies of York, Edinburgh, and New South Wales.

The opening of the exhibition was celebrated by a *conversazione*.

CHRIST CHURCH, MAYFAIR.

THE new church recently erected in Dacre-street, Piccadilly, was consecrated on Monday, the 27th ult., by the Bishop of London. Only a portion of the church has yet been built, as the whole of the site cannot at present be acquired. The church will accommodate about 800 persons when it is completed: at present there are seats for 420.

The style is Flowing Middle Pointed, with details drawn from Continental examples. The site is very limited and peculiar in form, necessitating an exceptional mode of treatment in the plan.

The nave is 50 ft. long and 34 ft. wide. There is a north transept, 28 ft. long and 22 ft. wide; and transept aisle, 28 ft. long by 16 ft. wide.

The church is of lofty proportions, the nave being 35 ft. high to the roof-plate, and 66 ft. 6 in. to the ridge. The roof is of Memel timber, stained, covered with boarding laid diagonally. The east window is of seven lights, with geometric tracery; and the windows on south side of nave are of three lights, thrown into dormers for the sake of greater altitude. The endeavour has been, by a bold treatment of the several parts, to rescue the church from being dwarfed by the houses in the immediate vicinity. The tower and spire at the north-east angle will, when finished, be about 130 ft. in height, the spire being covered with slate worked in pattern, and saddle-back in form, and terminated by an ornamental iron cresting and vane. The building is faced externally with Kentish rag-stone, and Bath stone dressings; and, internally, with red, black, and white bricks, worked in pattern, the window-jambs, arches, &c., being of Bath stone. The piers to transept are of Portland stone, with detached shafts in red Mansfield. It is proposed to insert encaustic tiles in the walls as bands, when funds permit, the brickwork having been set back for this purpose. The chief enrichments at present in the church are the stained-glass window at the east end, with the stone screen or reredos underneath, both of which have been presented by Mrs. Hope, of Piccadilly, to the memory of her late husband, Mr. H. T. Hope, of Deepdene. The window has been executed by Messrs. Clayton & Bell, and represents the Crucifixion and Last Supper, with rich canopies, angels, and emblems, occupying the tracery above. The screen is of Caen stone, and consists of a series of arched panels, deeply recessed, with angels bearing scrolls in the spandrels; carved crockets of the passion-flower, lily, &c.; with shields bearing suitable emblems and devices, supported on shafts of Devonshire marble. The six compartments immediately over the altar are filled with carved representations of the six acts of mercy.

This work has been executed from the designs of the architects by Mr. F. G. Anstey, of Lisson-grove.

The builder of the church was Mr. Charles Fish, of Pimlico: the architects were Messrs. F. & H. Francis.

NEW POLYTECHNIC INSTITUTION AT STUTTGART.

ARCHITECTURAL EDUCATION ABROAD.

A NEW and very extensive Polytechnic Institution has recently been completed and inaugurated in Stuttgart. The title has not the same meaning that we are accustomed to attach to it as a place of entertainment; or, as in the case of the Ecole Polytechnique, at Paris, a college for military education only; but is given in Germany to colleges, where, under the supervision of Government, young men are educated as architects, civil engineers, analytical chemists, machine engineers, and in kindred arts and sciences are taught. There are several very large establishments of this kind in various parts of Germany, some with from 400 to 700 students, the chief being those of Berlin, Hanover, Karlsruhe, Munich, Zurich, and Stuttgart. A young man, intended for one of the professions above enumerated, is generally sent direct to one or other of these institutes directly he leaves school, and there enters the "mathematical" or preparatory department, in which he remains, on an average, for two years. After passing a rather severe examination in the higher branches of mathematics, including geometry and conic sections, he then enters a three years' course of studies, either as an architect, civil engineer, &c., as the case may be, and is then again subjected to a second examination, should he wish to become a candidate for Government employment. To the architect, intending to acquire a private practice, such an examination is, however, voluntary. A few words on the method of instruction may here be interesting, although the writer would confine himself to the "architectural" department, being able to speak from personal experience. This department generally consists of three, sometimes of four classes; the first being all but elementary, and confined almost entirely to the first initiatory mysteries of wielding the pencil, the pen, or the brush, with any degree of neatness. But that the mind may profit as well as the fingers, the student has to copy the series of sheets illustrating details of construction in wood, stone, brick, and iron. The walls and ceiling of the large room occupied by these students at Karlsruhe are "finished," or rather left partially unfinished, to show such constructions by ocular demonstration. The walls, divided into panels by plain slightly projecting pilasters, show various modes of external stone constructions: ashlar, flint, even and uneven courses, all are there; as also the various kinds of "bonds" employed in brickwork. The ceiling is divided into panels also, one panel showing the joists, another the struts, a third the ceiling-joists, a fourth the laths, &c. In the second class the student takes up statics, and attends lectures on the properties of the various building materials, and the process of their manufacture; archaeology, and the principles of designing; and illustrates his "Notes," which he is obliged to take, partly from dictation, by sketches made on the black board. The third and fourth classes are similar, the lectures being of a higher and more difficult kind; but one system holds good in all classes, that of leaving the entire afternoon free for drawing, no lecture being later than twelve o'clock. The hours from five to seven are employed in winter with modelling in wood, clay, or plaster of Paris; in summer, with figure-drawing (cast and life), and in constructing complicated and simple brick arches on piers in a yard especially set apart for this purpose, the students having to make their own contrivings. At Whitsuntide a fortnight is usually set apart for an excursion, when some twenty students start by train or otherwise under the guidance of one of the professors, who points out the various objects interesting either from a constructive or archaeological point of view, and assists them in selecting points for their sketches, most of which are coloured in on the spot.

In social respects the young men are entirely their own masters, living dispersed in families or lodgings; and as living in most of these cities is cheap, except, perhaps, at Berlin, the education, including college fees and living, need not exceed 60*l.* per annum.

But we have wandered from the description of the new Polytechnic Institute of Stuttgart, which has now been completed under the direction of Mr. Spindler. The building is 285 ft. long, 90 ft. projection of wings, and 65 ft. wide in its narrowest part. The height from pavement to top cornice is 62 ft., the top of the observatory dome being 46 ft. higher, or 108 ft. from the pavement. The chief façade-faces the north-west, and along it are ranged the drawing-rooms, whilst the lecture-rooms face the south. The whole building covers about 25,000 square feet of ground, and contains in its basement, ground-floor, and two stories, about twenty-five drawing and lecture rooms, most of them having an area of 1,200 to 1,600 square feet. Besides these, there are some forty rooms for professors, masters, committees, examinations, &c.; a theatre, and three laboratories; a large meeting-hall, a library, an observatory, and three wide stone staircases. The corridors are 11 ft. 6 in. wide, lighted from above by a series of flat domes, which give rounded, but ample, light from the large dome-covered wells of the staircases. The principal feature of the interior arrangement is the great meeting-hall, which contains an area of 2,500 square feet, by a height of 33 ft. The niches in this hall, as also on the staircases, will in time be filled with statues and portraits of men who have been famous in arts and sciences, and the panels will have frescoes illustrating scientific discoveries, &c. The style throughout is a free treatment of Italian Renaissance. The exterior is treated with two rows of arcades and pilasters upon a massive plinth, which forms the basement floor; and the field of the central pediment is filled with a finely-executed composition in high relief, by Professor Ploek, representing the tutelary deity of the kingdom descending from her throne in order to deliver a charter to a number of youths carrying building, engineering, and other implements. Medallions in the central building contain the heads of Fr. Gansz, Fraunhofer, Redtenbacher, &c., as an encouragement to native activity; whilst in the medallions in the wings we find Michelangelo, Gaspare Monge, Isaac Newton, and George Stephenson. Lavoisier, Watt, Kepler, and Albert Dürer are shortly to be added. Two female figures, representing "Science" and "Art," flank the chief entrance. The materials used in this building are sandstone; that of the basement and ground floor being red, whilst the rest is of a yellowish green colour. The costs of the whole were about 34,000*l.*

THE MEMORIAL OF THE LATE SIR TATTON SYKES, BART., FOR DRIFFIELD, YORKSHIRE.

PREPARATIONS are being made to have the first stone of this memorial set during the present month. The accompanying engraving represents the design, which was selected from one hundred and fifty-six competitive drawings sent in. The total height of the memorial will be 120 ft. by 28 ft. at the base. The material proposed is Box ground stone, with Whitby and Mansfield, the columns and strings being of the latter stone. The chief stage is devoted to sculpture, in which will be represented characteristically the late Baronet. Coats-of-arms, various devices, and sundry pieces of foliage in caps, cornices, and strings, with some ornamental ironwork, gilt, form the decorative parts of the design. In other respects the memorial is plain and bold. A staircase is provided, at the top of which is a room lighted by four oval windows, commanding views of the extensive and picturesque country around, including the residence of the late Sir Tatton. The committee anticipate the completion of the erection by the end of September; and, at the proposed inauguration, a great "meet" of the friends and admirers of the late Baronet will no doubt take place. The architect is Mr. John Gibbs, of Oxford.

THE LOCK-OUT IN THE IRON TRADE.—The lock-out is withdrawn to a certain extent. The South Staffordshire masters have passed a resolution to the effect that they will open their works on the men giving a pledge that they will neither directly nor indirectly support the North Staffordshire men who are on strike. The Glasgow ironworkers have wisely resolved to settle their dispute with the masters by arbitration. They recommend their brethren throughout the country to adopt the same course.



PROPOSED MEMORIAL OF THE LATE SIR TATTON SYKES; DRIFFIELD, YORKSHIRE.
MR. JOHN GIBBS, ARCHITECT.

FROM EDINBURGH.

It is merely a truism that "the architecture of any period exhibits the peculiarity of thought prevalent at the time," for architecture and the other arts are, like literature, an outcome and expression of that thought. The classical mania took firmer hold in Edinburgh than perhaps in any city of the kingdom. She was delighted to be called "the modern Athens," and her architects vied with each other in reproducing classical temples and quadrangles. The picturesque character of the Old Town suffered greatly at this period; ancient and interesting relics were ruthlessly swept away to give place to structures quite out of keeping with their surroundings. This spirit survived until very lately, and the last instance of it was the construction of a Corn Exchange in the style of an Italian Palazzo amidst the gables and turrets of the Grass-market, the scene of some of the most remarkable events in Scottish history. The more recent additions to the architecture of the Old Town are, in most instances, in accord with their position; and the reaction has been so great that the Gothicists have begun the invasion of the New Town, where, hitherto, no specimen of Gothic was to be seen in the street architecture. The daring innovator is Mr. George Beattie, and the scene of his operations is in West Register-street. The building upon which he has exercised his skill is a warehouse for the Messrs. Cowan, paper manufacturers, and the style he has adopted is late Venetian Gothic. The building is four stories in height, and has elevations to the east, south, and west; and the last although it only fronts a lane of about 6 ft. broad, is as richly treated as the others. The ground floor is occupied by shops having circular arched doorways and windows, the spandrels being carved; and above the shops is a horizontal band of blank arcading. The second story consists of ogee pointed and cusped windows, with the characteristic fillet mouldings. The windows of the third story are also ogee pointed, without the cusps. Pilasters are run up between these two rows of windows, and united by pointed arches. The fourth story has trefoil-headed windows; and the elevation is finished by a rich cornice and pierced parapet. The south elevation has in the centre a circular-headed archway leading to a central court, and above it a three-light window, with a circular arch above, contained under a pointed arch. Upon the impost of the gateway are medallion portraits, and a feeble attempt at the introduction of colour has been made at this point: the angles are cut off, and doorways and two light windows introduced. The whole structure is profusely decorated with carving of natural foliage, animals, &c., and the general effect is pleasing. There are some parts of the detail to which exception might be taken,—such as the blank arcading, which is not in good keeping with the style, and the windows of the third story, which would have been much better with cusps; but, as a first attempt in a new direction, these blemishes may be overlooked.

Two statues, both of them the work of Mr. John Steell, were inaugurated lately in this city, as we have already briefly mentioned; one of Professor Wilson (Christopher North), and the other of Allan Ramsay, the poet. They are placed in the Princes-street Gardens, flanking the Royal Institution,—that of Ramsay to the west of that building, and that of Wilson to the east. The situation is well chosen and the figures group advantageously with the surrounding buildings in almost every point of view. It is seldom that perfect harmony can be obtained, and the colossal bronze figure of Wilson, when looked at in a line with the Scott Monument, is hardly in unison with the fretted Gothic work of that structure. It is, however, a remarkably fine work of its kind. No sculptor could have had a better model than John Wilson, whose tall athletic figure, fine leonine head, and careless easy style of dress rendered him the most remarkable man in the city, "the observed of all observers." Mr. Steell has therefore wisely represented the man in his every-day costume, a loose frock-coat, and flowing plaid thrown negligently over his shoulders, bare neck and ample lying-down collar: the right hand is grasping the plaid, and the left holding a loose manuscript: a palm-tree trunk, indicative of his principal poem, supports the figure. The whole form is full of animation, and the position graceful, but not stiff; altogether, it presents one of the best instances of the adaptation of modern every-day costume to statuary in this country. The pedestal con-

sists of a square block of freestone, with base and cornice, having attached shafts at the angles.

The statue of Allan Ramsay, the gift of his descendant, the late Lord Murray, has been executed in Carrara marble, and is upwards of 10 ft. in height. The poet is represented in the quaint costume of the period in which he flourished;—a round cap (similar to that in the well-known portrait of Hogarth), large square-cut coat with huge pocket flaps and turned-up cuffs, ruffles at the wrists, deep vest to match, knee breeches, tight-fitting hose, with shoe and knee buckles. The position of the figure of Ramsay does not appear to us to be so successful as that of Wilson. The pose of the figure is rather constrained and leans backward, producing an effect as if he were supporting himself against the mass of drapery which falls from his left shoulder; and this flowing drapery we think a mistake, as it detracts from the quaintness that should have been the characteristic of a figure so costumed. The terrace of the west garden being much narrower than that of the east one, it was necessary, in order to bring the statues into line, to erect a platform upon which to place that of Ramsay; and this part of the work has been entrusted to Mr. David Bryce, architect. The dip of the ground is sudden and deep, and it was found necessary to make the foundations at a depth of 40 ft. below the level of Princes-street. Upon this foundation a square structure has been raised, which is corbelled out near the top, decorated with a roof-moulding and gargoyles, and formed into a flat platform for the pedestal, having a walk of 3 ft. in breadth all round, surrounded by a low stone balustrade. This platform is joined to the terrace by a narrow stone bridge. The effect of this arrangement is quaint and unique, and might have been still better had the whole structure been larger. The pedestal is exactly the same as that for Professor Wilson, with the addition of medallion portraits of Ramsay's most distinguished relatives, including one of Lord Murray.

PROPOSED TESTIMONIAL TO PROFESSOR DONALDSON.

In accordance with the movement we mentioned, 145 gentlemen have expressed their concurrence in the proposal. A meeting was held on the 25th ult., when a communication from Mr. Donaldson was read, expressing his high appreciation of the kind mark of approval of his services; stating, however, that he felt averse to any personal testimonial, but at the same time he freely offered the use of his name for any act that might benefit the profession and the art. It was ultimately,—

Resolved,—“That the meeting, conscious of the eminent services rendered to his colleagues in art and all sciences by Professor Donaldson (President of the Royal Institute of British Architects), and desirous to do him honour, considers it expedient that on his retirement from the Professional Chair of Architecture in University College, London, a medal be struck bearing his portrait, and that such medal be entrusted to the Royal Institute of British Architects, to be given to students in architecture annually, or at such other intervals of time as may be hereafter determined.”

Subscriptions continue to be received.

CHESTER NEW TOWN-HALL.

The tenders received for erecting the new Town-hall were as under:—

	With stone fronts, but without tower.	With stone fronts, including tower.	With brick fronts, and including tower.
	£ s. d.	£ s. d.	£ s. d.
Clarke	21,810 0 0	23,590 0 0	22,588 0 0
Horsman	23,007 15 5	24,866 10 3	23,109 8 8
Roberts	23,329 10 3	25,838 6 0	23,688 11 4
Owen	24,778 12 0	27,035 7 0	25,486 17 0
Hughes	22,635 0 0	24,611 0 0	22,735 0 0

Messrs. Clarke reside at Denbigh; Mr. Horsman, Wolverhampton; Mr. J. Roberts, Chester; Messrs. Owen, Chester; Mr. T. Hughes, Aldford. Mr. T. M. Lockwood, of Chester, architect, in a letter to the local *Chronicle*, says:—"Instead of the successful plan costing only 16,000*l.*, as it ought to do according to conditions Nos. 5 and 12 issued by the Council, the lowest tender now handed in amounts to 22,590*l.*, showing nearly 50 per cent. of partiality or advantage over its rivals, granted to it for some reason or other by the town-council of this city."

As Mr. Wyatt, the professional gentleman whom they called in to advise them, unfortunately jumbled up together the two questions of which design

ought to receive the premium and which would best suit the purpose of the city, the town council fell rather helplessly into a flagrant act of injustice. They awarded the premium to a design which evaded the chief difficulties of the conditions; and they cannot get a complete building unless they spend 7,500*l.* beyond the legitimate sum at their disposal. The building as projected, if built in its entirety, would be most appropriate in arrangement and style to the requirements of the city; but I do not for a moment admit that the design should have won the premium in the competition."

THE LIVERPOOL HEALTH REPORT.

DR. TRENCH, the medical officer of health for the borough of Liverpool, has made his annual report for 1864 to the local authorities, on the health of the borough, and the report has, as usual, been printed.

As was to be expected from what we have already recorded, the report, in respect to health, is by no means a favourable one. The sickness characterising the years 1862 and 1863 continued without intermission during the whole period of 1864, when the deaths in the borough amounted to 16,836, or to 1,626 above the corrected average of the preceding ten years, making its death-rate equal to 36 in every 1,000 of the inhabitants; that of the parish being 39·4 and of the out townships 30·9 in the 1,000. Typhus, or what is regarded by some medical men, but not by all, as typhoid and not typhoid fever, was the most extensively prevalent and fatal of the zymotic class of diseases; and indeed became a destructive epidemic in the last quarter of 1864. It will be remembered by our readers that in commenting on a special report on the health of Liverpool lately, in which it was said of this epidemic that no distinct cause could be adduced to account for its origin; overcrowding, and dirt, want of ventilation, and starvation, or the usual causes of typhus fever not having become in any way suddenly aggravated in course of last year; we drew attention to the fact that we had predicted an access of fever at the close of the year from the want of sufficient rain for natural cleansing purposes throughout the summer, as we had on more than one occasion noted such a sequence; and its contrary, an increase of health after wet summers; and indeed had therefore on previous occasions ventured to make the same prediction, the force and truth of which the daily press were not slow in appreciating. When, therefore, it was reported that the epidemic at Liverpool was mainly typhus, and not typhoid in its nature, we expressed an opinion that it must at least have been complicated or aggravated by the typhoid cause, namely, the prevalence of decomposing matter, as in drains, from the want of rain during the summer. Had we been medical, perhaps we might have even ventured to question the assertion that the fever was exclusively or chiefly typhus, our conviction of the probability of its having been at least aggravated by a typhoid cause being so clear and decided. And we now find, accordingly, that medical men themselves are not by any means unanimous in their opinion that it was purely typhus. On the contrary, although Dr. Trench is of that opinion, he very fairly points out the differences of opinion which, to some extent, exist among the Liverpool medical men on this question: indeed, he himself admits, that under the term typhus "our nosology includes every variety of continued fever." That, at all events, a typhoid cause has had something to do with the conversion of the fever into "a destructive epidemic" we cannot doubt. The progress of the fever is indicated by the series of annual deaths since 1860, which is taken as a period of average healthiness previously to the aggravation of the more normal state of the fever by such causes as want and overcrowding arising from the cotton famine. The deaths from typhus rose from 390 in 1860, consecutively, in the three following years, to 432, 780, and 1,304, while, in 1864, they reached to 1,774. Contagion, poverty, overcrowding, and filth are regarded in the report as the great causes of the fever in Liverpool as elsewhere. In regard to overcrowding, the conductor of this journal is glad to have Dr. Trench's "hearty adherence" to his proposal "that houses which are sublet should be registered, and the landlords obliged to comply with some simple requirements for proper ventilation, such as windows opening up and down, and zinc pierced panes where there are no chimneys."

A great want is to provide more available accommodation for the poor, and an endeavour to meet this, as our readers know, is being made in Liverpool; nevertheless there will always exist the overcrowding of indigence, and hence unfortunately there will always be need of some such regulations as we have suggested.

A WORKSHOP NEAR KING'S CROSS.

SOME time since, an engraving appeared in the *Builder*, showing the condition of a work-room in the neighbourhood of King's-Cross. This poisonous place, much as it was crowded, was above the surface; but, in another house, not far from the same locality, there is an even worse arrangement; for, in this instance, in a small room, the floor of which is upwards of 6 ft. below the surface of the roadway, from twenty-three to twenty-five (generally the latter) young women and girls are employed during many hours of each day in the making of artificial flowers. The house is only one room in depth, and, with the exception of a back door, which at the top of a flight of steps leads to a yard, there are no openings at the back; in fact, there can be few places more unwholesome than this is, in which so many people are for so long a time pent up. Besides the work-people, there are in the same house nine other persons.

In the work-room, which is as bad in sanitary arrangements as some of the cellar dwellings in Bethnal-green, there is a width of 9 ft., a length of 12 ft., and a height of 8 ft. This gives a cubic space of 864 ft. for the breathing of twenty-five people,—a space not sufficient for two persons, even if a fair amount of care were taken respecting the ventilation. As it is, however, there are not 35 ft. of breathing space for each living person who is here in critical years of life confined. How can we, under such circumstances, wonder

the influence of an ignorant and driving mistress, there were so many hands at work without air.

When we read accounts of the raging of pestilence, although the distance may be many thousands of miles, and we should be separated from the infected spots by immense tracts of water and land, we do not let the matter pass unheeded; for the plague of terrible and sudden death and the spread of diseases which in a great measure defy even the advanced skill of our present medical practitioners, are passed along by the breezes from country to country, in each of which it travels from town to town and from village to village, spreading death and terror along rivers and other water-courses, and marking with sure and fatal visitations the scenes of sanitary neglect. For many centuries back the origin of some of the most dreadful and most scourging plagues has been attributed to the eastern regions of the world; but respecting this question, on which there is much difference of opinion, we will not just now add to what we have said on former occasions, except to note that in a well-known cholera district there has appeared a malignant and most fatal disorder,—a sort of plague, in fact, although it is called at present the "Siberian pestilence." According to the accounts received, this terrible sickness has appeared at Chanew, on the Waldaj circle, and for a time did not seem of a very fatal character. Some medical men were sent from St. Petersburg, but on their arrival the epidemic assumed such a fatal form that the medical men who had been sent fell victims to it in the course of a few days: soon after other doctors were sent, who speedily shared the same fate. The next news which reached St. Petersburg by telegraph was, that the entire district of Chanew was depopulated, and great consternation prevails in St. Petersburg in consequence of several cases having appeared which bear a striking resemblance

to the Siberian disorder. In order to calm the alarm in the public mind, these attacks have been attributed to fever of a typhoid kind; but reports which come through Germany state, that the public mind in the Russian capital is by no means appeased, especially as "this typhus having declared itself in the Obukow hospital, in a very few days carried off, not only the greater part of the patients, but the whole of the sanitary and medical staff." It is stated that the Government of Russia have taken steps to invite to the metropolis several medical men of note, from Germany, France, and England, in order that the benefit of their counsels may be had.

In the face of the advent of such a pestilence elsewhere, we should see that all proper precautions are taken to ensure healthy conditions in our own country. Amongst other steps we should prevent the crowding together of poor women in such a workshop as that we have here illustrated, by means of which disease and death are caused, even without the existence of an epidemic.

INDUSTRIAL EXHIBITIONS.

South London Industrial Exhibition.—The prizes have been distributed by Lord Palmerston, who took "the Speaker's chair of the old House of Commons" on the occasion. The following is a summary of the awards:—First class, 35; second, 85; third, 123; honourable mention, 129—total, 372. Out of 120 first and second class prizeholders, 110 elected that a portion of their prize should consist of a medal, 77 choosing silver and 33 bronze mementoes of the exhibition.

The Operatives' Coachmakers' Industrial Exhibition.—The prizes awarded by the judges to the exhibitors in the above exhibition were delivered on Monday night to the different recipients by the Right Hon. Lord Truro, at the Society of Arts. Mr. Hooper stated that the

exhibition had met with a success that excelled the most sanguine expectations of the committee. The prizes for artistic merit were twenty-one; for mechanical contrivance, thirteen; and for manual skill, seventeen.

West London Working Classes' Industrial Exhibition.—A public meeting was held on Tuesday night at the St. James's Vestry Hall, Piccadilly, with the view of originating an industrial exhibition, to be held at the Floral Hall, Covent Garden, in the ensuing months of May, June, and July. The Hon. F. Byng occupied the chair. It is proposed that the exhibition should be kept open from the 1st of May to the end of July. The Prince of Wales, being a resident in the West of London, is to be solicited to preside at the opening ceremony on the 1st of May.

ARCHITECTURAL EXHIBITION.

THE annual report, just published, announces that last year's deficit in the cash account has been somewhat reduced; but the reduction is so small as to be scarcely worth mentioning. The receipts from admissions and other sources are a little more than last year's, and the expenses have been reduced: it may be hoped that the balance still due to the honorary secretaries, as shown in the accompanying balance-sheet, will be repaid entirely by the proceeds of the forthcoming Exhibition. The committee urge that employers would materially assist the interests of the Exhibition by distributing the season tickets, the price of which has been purposely fixed at the very small sum of half-a-crown, in order to obtain a very extended circulation. The drawings, photographs, models, &c., must be delivered on Monday, the 10th of April next, before six o'clock p.m.

The receipts at the doors, including receipts connected with the department of materials, &c., were 304l. 14s.; by season tickets, 28l. 15s.; and the annual subscriptions and donations, 112l. 6s. 6d. The expenses, including rent (200l.) are met by these sums, and there remains due to the honorary secretaries, 41l. 19s. 11d. The committee, however, hold shares in the Architectural Union Company to the extent of 100l., the gift of the late Earl de Grey and others.

CROPS ON THE CROYDON FARM.

INCREDULITY having been expressed as to the assertion in a recent article in our pages of the weight of the cutting of grass on the Croydon Board's Farm per acre, namely, thirteen tons, we have made further inquiry, and have the confirmation of the engineer that, as stated in our article, thirteen tons to the acre at one cutting in some places are produced. This, however, is a maximum; it is not so much as that on each cutting throughout: about ten tons per acre at each cutting is the average. The Italian ryegrass is 3 ft. long in the growth, and stands, bending, 2 ft. 6 in.; and, while neighbouring fields are whitened with daisies, or yellowed with buttercups, or reddened with sorrel, in the Italian ryegrass there is not one of those weeds, but the whole field is a bluish green. The tenant cuts it and carries it off green to London for horses and cows.

THE REGULATION OF THEATRES AND OTHER PLACES OF AMUSEMENT.

THE draft of a bill to amend the laws relating to theatres and other places of public amusement, which was brought in by Mr. Locke, on the 10th of last month, has just been published. Appended to the bill is a schedule of rules, intended to insure the safety of the public in theatres. One of them is left incomplete and unintelligible through an error of the press. The others provide: 1. That, with the exception of private box lobbies, to which the public have not free access, every hall or corridor shall be at least 5 ft. wide, and 1 ft. more in width for each hundred persons over five hundred who are to be accommodated in the part of the building to which it leads. 2. That in each part of the building there shall be doorway access of 6 ft. in width at least for each five hundred persons to be accommodated in that part, and 1 ft. more for each additional hundred; and that no box or internal doorway shall be less than 3 ft. wide. 3. That all doors shall be hung so as to open outwards,—that is, towards



A Workshop: Making and Destroying.

at the pale, cadaverous, and anxious-looking faces of those who are here engaged in sedentary work during twelve or fifteen hours a day? It is in this way that consumption, fever, and other diseases are generated. In this instance the evil effects have in several ways been made evident. Recently six of the work-people were ill at the same time at their homes, or at the Fever Hospital, suffering from a malignant attack.

In another place, in an overcrowded house, twelve children were removed, all ill of fever, in the course of one week. We have heard of several similar cases which have occurred lately, and show the need of that kind of inspection to which we have so often referred. That twenty-five young girls should be placed in such a space as has been mentioned is a monstrous abuse, and arrangements as bad and even worse may be met with in far too many places. No proper effectual change will be made until all workshops and rooms in which more than a certain number of people, particularly those of tender age, are engaged, are subject to inspection; and those who employ labour, as in millinery establishments, in cigar manufactories, artificial flower rooms, even in printing-houses, bakeries, &c., are forced to obtain a certificate of the fitness of the premises for carrying on their works. Cabmen require their special licence; taverns must also be made fit for the intended uses; and, when it is considered how many valuable lives depend on the sanitary state of workshops, there seems to be no reason why proper restrictions should not be insisted on in that direction.

At present there is no way to discover the evils which are shown in the engraving. The clergymen of the district do not know that in this particular house there is a concentrated poison both for the body and the mind; and it may be a question, as to whether or not the district surgeon is aware of the evil. Thousands of casual wayfarers might pass by this underground kitchen or cellar, and little dream that under

way of egress. 5. That all alleys and gangways in the audience part of the house shall be kept free from seats and every other obstruction to the free ingress and egress of the public. 6. That all gaslights in any part of the building which are, or may be at any time, within 2 ft. of any inflammable substance, shall be efficiently guarded, with wire-work or otherwise.

THE PRODUCTION OF SKILLED ARTISANS.

SIR,—It has been lately stated that many of our employers are compelled, by the scarcity of skilled artisans, to send some of their best work to the Continent to have it executed. The obvious inconvenience of this is exciting considerable inquiry amongst the parties interested, and they are anxiously casting about for information how this undesirable state of things is to be remedied.

Perhaps a few remarks on the subject, by a man working man, may not be out of place, or deemed undeserving of attention.

It is well known that our continental neighbours are indebted to their paternal government for encouragement and assistance in the articulation of the industrial classes. Every means that experience could suggest towards improving the taste and skill of the workers has been, and still, employed in such a way that the poorest *ouvrier* and his family have within their reach means for acquiring facility of design, skill essential to their calling, and of cultivating the love of the beautiful. The ranks of the continental artisans are thus replenished from their own children, specially trained for their future vocations. In England the case is very different. comparatively little has been done in cultivating the higher tastes of the people. That something has been done in this direction is very creditable to our rulers; and for small mercies I have been taught we should be thankful. But it is not enough. What has been done by Government should be followed up by employers. Hitherto the latter have trusted to mere chance, or fortuitous circumstances, for their supply of skilled artisans. No regular organised efforts have been made in this country to train up a superior class of workmen in those trades their natural tastes and capacities fit them for. Skilled labour is like everything else: if you want a superior quality it must be cultivated. It is not enough to say there is a demand for it: steps must be taken to produce it.

To this many large employers are indifferent: some are even opposed to it. The former will not be troubled with apprentices; the latter would abolish them altogether, and solely rely upon the spirit of competition, or an ambition to rise, for throwing up a supply of skilled workmen equal to the demand. I do not believe in the latter formula. Free, open competition is, no doubt, a healthy stimulus; but it will not, in this case, according to my belief, supersede regular systematic training. The one could be a slow unsatisfactory process, the other false and certain. Now I beg respectfully to submit a suggestion to large employers of skilled labour. Let them offer to take a certain number of apprentices *without premium*. These apprenticeships to be competed for solely by the sons of working men (labourers or mechanics). We would establish a system of examinations on a smaller principle than that instituted by the Society of Arts. Lads passing this examination should be selected to learn such trades as their acquirements and natural tastes they are best fitted for. Scores of lads are put to trades for which they are not fitted either by nature or education: the result is a batch of different workmen. We want to remedy this; and I hold that a first step is a careful selection, such as is proposed. When apprenticed, I should not make them the drudges they too often are now for the first year or two of their time. We would place them under the care of the cleverest and most intelligent man in the factory or workshop to instruct them in the use of tools, and the best and readiest modes of working; one-half or two-thirds of each day to be devoted to this duty: the remainder should be occupied in improving themselves in drawing, geometry, &c., &c., under the care of first-class instructors. With one or two years' special training of this kind, a youth of sixteen years of age would take his place in the workshop at the brightest of prospects; and I venture to think it would be strange, indeed, if such a system did not turn out some first-class skilled

artisans, fully equal to the requirements of the most fastidious or exacting employer.

Independently of the gain, I believe employers (and through them the public) would find, by adopting a plan of this kind, it would stimulate the general education of the industrial classes.

WILL JACKPLANE.

REVOLVING LIGHTS.

"Honour to whom honour is due."

THE saving of human life was the purpose of my late father, Adam Walker (lecturer on experimental philosophy), in the invention of the revolving lights now so familiar to us on every coast, and that purpose his invention has, under Divine providence, happily accomplished. Of his invention he gives the following account in his own manuscript:—

"About the year 1789 or 1790, I was applied to by the Corporation of the Trinity House to contrive a light that might be distinguished from all others, for a tower on St. Mary's Isle (one of the Scilly Islands), off the coast of Cornwall, as the Eddystone lighthouse, and several others, were in its neighbourhood, and were by East and West India ships often mistaken or confounded with one another. It was necessary that the light generally first made should have a character by which it could not be mistaken. Large lenses of different coloured glass, and several other devices, had been tried without effect. Coloured light, I found, was lost at a distance, and had no colour. I thought a large volume of intermittent light the most likely to answer the twofold purpose of being seen at a greater distance, and be unlike all others by revolving, and showing its light and dark sides alternately. I drew out the design. It was approved, and I was engaged to put it in immediate execution. I knew that reflected light would answer better than transmitted, so I had seven mirrors of copper silvered, each 22 in. diameter, formed parabolic, with each an Argand's lamp in the centre, so that the rays were sent out parallel from the mirrors. These mirrors were all fixed in a frame in a lantern of thick glass on the top of the tower, and communicated with the machine below by a stem. I calculated the size of each wheel, the number of teeth in each wheel, the weight to make the machine go sixteen hours (the length of the longest night), and to turn the above frame once round every two minutes. So there was a body of intense light, above 5 ft. in diameter, met the distant ship in full blaze, and then the light began gradually to diminish for one minute, when the light totally disappeared. This was only for two or three seconds, when a glimpse of light again appeared, and kept increasing, so that in another minute the full blaze again saluted the ship. Thus, the seaman had only to take out his watch, and observe that the light revolved once every two minutes, to be assured that it was the Scilly Light, for at that time there was no other light with that property. For this invention, and inspecting its execution, the Corporation of the Trinity House paid me 100*l.*; indeed, it was all I demanded, not doubting, if it succeeded, that a further remuneration would take place."

No further remuneration, however, was asked for or received, but wheresoever the revolving light is seen shining, it should be recognised as the best monument to his memory. There are many ways to fame, but few can compete with those which have for their object the public good.

DEANE F. WALKER.

RAIN-WATER PIPES.

Your correspondent "Octavius," in your number for March, 1865, page 159, has very truly described some of the causes for the stoppage and overflow of rain-water pipes; but I do not observe that he has referred to three conditions which are the most ordinary reasons for the injuries he refers to. The first is, that the rain-water pipes now generally used are much too small. Our old rain-water pipes were, so far as my experience extends, never less than 3 in. diameter net inside measure, and more commonly 3½ in. and 4 in.; while lead, being a malleable substance, would yield on pressure: now they are usually of iron, a hard and brittle material, and often not more than 2 in. or 2½ in. clear bore. I require mine always to be 4 in. at least, clear bore, and I find no stoppages. I am often told,—"Oh, so little water runs down this

pipe, that a 2-in. will carry all that is wanted." My reply is, "The less water carried down, the larger" (in reason) "the pipe should be, since a small quantity of water has not force enough to clear a small pipe, which therefore soon gets choked up."

The second is, that it is not uncommon to see a larger (old) pipe at top, and a smaller (new one) at bottom; this is often the case when the old pipe at top is lead, and the new one at bottom is iron: the iron metal being thicker than the lead, the pipe looks externally as large, though, in fact, much smaller inside. I always make my lower cast-iron pipes ¼ in. or more larger clear internal bore than the upper lead pipe. And the third is, the defective plan of making the rain-water pipe in bends, elbows, and knees, to follow the projections of mouldings, strings, plinths, &c.: these ought always to be avoided if possible, but if not possible, the rain-water pipe ought to be made larger at these bends, and the bends be made as gradual as possible, so as to present as small and sloping a ledge as possible, and too sloping for any dirt or rubbish to remain on. These precautions will prevent much of the injury complained of.

DECIMUS.

A CASE OF DRY ROT.

SIR,—I have a case of dry rot which I consider rather an extraordinary one. I have lately built a villa adjoining the town of Trowbridge. The situation is a very dry one, being on the side of a hill, and elevated above the lawn some 8 ft. The soil for the first 2 ft. is gravel, and underneath is about 3 ft. of hard rock. The turf, and about 6 in. of mould, were removed over the whole area upon which the house stands, this forming the level of the cellar. The walls were then built to the height of about 5½ ft., leaving the floors of the principal rooms 2½ ft. clear above this level. From the nature of the soil, and its being on a gentle slope, everything drained away from the house, so that there was not a damp corner even, in either of the cellars; but, strange to say, before the house was scarcely finished, the dry-rot appeared in the casements of the drawing-room, and in the course of a twelvemonth they have entirely perished for 2 ft. above the floor. I must here state that great care was taken to obtain good and well-seasoned timber for these particular casements. It was out not two years before used, and was of the very first quality, crown Meme, without either knots or sap, and, in appearance, next in durability to oak. As the house has been beautifully finished, and being afraid that (except quickly stopped) it will spread throughout the house, I have written, thinking you, or some of your experienced subscribers, may give me a hint on the subject, as I have been in business for nearly twenty years and nothing of the sort has occurred in my experience before. W. S.

ABSORBING WELLS.

It is not my intention to continue a profligate controversy with your anonymous correspondent, "Pure Water." I am as much interested in the subject of pure water as he is, but bare assertions and doubts must not be allowed to pass for proofs and facts. Although we are in possession of materials and data in abundance relative to the secondary formations, this is by no means the case with the Tertiary, or is likely to be: difficulties arise when inquiry has to be made, as to the area of the outcrop, the lithological structure, or the water-bearing capacity. It was thought formerly that the lower Tertiaries supplied most of the water of the deep wells, but this idea has been again and again refuted in cases where accurate accounts have been kept of the borings made into the chalk. Analysis has proved that the water from the Tertiaries is seldom or never so pure as that obtained from the chalk, and in many cases unfit for use.* It is often chalybeate to a degree perceptible to the taste, and it evolves sulphuretted hydrogen. The tertiary sands are not available

* It is a pity that chemists are not always geologists, for in many instances the water of the sands under the plastic clay takes the credit due to that from the chalk. Thus in the analysis of the water at Colney Hatch Lunatic Asylum (Shaw & Sons, publishers, 1861), it is gravely stated by the eminent analytical chemist, "That, in common with all the artesian wells on the London and plastic clay, the water is," &c. Now, the water supplying the asylum is from the chalk, and sand water is tubed out and prevented from entering the well. This is by no means a solitary instance of such mistakes.—J. B.

where a large quantity of water is required, and few deep wells depend on a supply from that source, but are sunk into the chalk.

With reference to the question of poisoning wells by the admission of filtered sewage into the strata, I take great care that the water shall be as perfectly filtered as possible, and a little reflection will show that such poisoning could never take place unless the wells were in very close proximity indeed, as the water must be purified and filtered in its passage through the sands, or whatever the strata may be, just as it is filtered as it is first received on the outcrop. It may be objected that this first infiltration is a process requiring much time, but we have no proof that it is so. We know that the outcrop of the Tertiaries forms a zone covered with rich vegetation, highly farmed land, decaying vegetable and animal matters, cesspools, and foul ponds occurring everywhere on the surface. We also know that the level at which the water stands in the wells is gradually lowered in dry seasons, and that after continuous snow or rain, it is found to rise, proving that the surface water is not so long descending as we should suppose, with all its nasty compounds along with it. It is a fact known to every well-borer and all engineers, that the water in the lower Tertiary sands, when first reached by boring or sinking, is very often so bad in quality, that it cannot be used; but that after continuous pumping it improves and becomes fit for domestic use. We can only understand this condition by assuming that the water as it is set free by pumping instead of being in a stagnant state, is filtered through the sands to the bore-hole, and that the more it is used the farther it is moved, and more perfect the filtration. In conclusion, let me observe that there is little or no communication between the dark grey sands of the low Tertiary formations and the chalk.

J. BLENKARN.

CONTINENTAL NEWS.

Paris.—The tower of the church of St. Germain l'Auxerrois is about to receive a very perfect chime, consisting of no less than forty bells, which will play twice every day; and the machinery setting them in motion is so arranged that any number of tunes may be played upon them. The well-known mechanician, Collin, has constructed a gas-engine, in which the air is condensed to twenty-one atmospheres, and thus sets in motion a number of small cylinders, which act upon the bells on the musical-box principle. M. Collin is now engaged upon a series of experiments in which electricity forms the motive power. A new method of obtaining brilliant effects for stained-glass windows is being tried by M. Marchal at Nancy. Pieces of differently-coloured glass are placed one behind another, and thus shades and half tones are produced which are said to be very effective. Several windows in the Cathedral of Metz are to be filled in this manner.

The French Book Post.—The director-general of the French Post-office, lately consulted as to his interpretation of the law of June, 1856, relative to the postage of manuscripts, has given the following decision, useful to be known by our correspondents. It is decided that literary or scientific manuscripts sent alone can be transmitted through the post at the ordinary rates of circulars or commercial papers. The rule generally adopted by the administration is this: except the case come under some formal restrictions prescribed by the instructions, nothing should be excluded from packets of commercial notes or papers of business, but those having the character or purport of personal correspondence.

Vienna.—The restorations now being carried on in the interior of the Dome have proved the fact that the walls were originally covered with frescoes, and those which have as yet been found are curious and worthy the attention of the connoisseur. Unfortunately, however, they have suffered so much by the repeated coatings of whitewash and distemper that their preservation is thought hardly advisable. The execution of the new buildings for the Imperial Society of Musicians has been entrusted to Mr. Hansen, and the works will be begun next autumn. The site chosen is next to the "Künstler Haus," or Imperial Academy. A public competition, which however

* Thus Mr. Mylne observes,—"Under these circumstances, either by continuous pumping, or after lengthened use, a progressive improvement in the quality of the water invariably takes place."

is confined to Austrian architects only, is announced for plans for the new "Rathhaus," or Hôtel de Ville. No less than ten premiums are offered, namely, three of 3,000 florins (250*l.*), three of 2,000 florins (166*l.*), and four of 1,000 florins (83*l.*) each. The author of the first of these ten premeditated designs is to carry out the buildings, and the time for sending in is fixed for the 31st March, 1866. Several donations are announced for the purpose of restoring the cathedral church of St. Martin, at Pesth, the ancient place of coronation of the kings of Hungary. Amongst these are the Emperor, with 1,000 florins; the Dowager Empress Caroline Augusta, with 4,000 florins; Archduke Charles, 500 florins, &c.

PROVINCIAL NEWS.

Dorking.—The tenders for three cottages, near the railway-station, Mr. F. J. Dibble, architect, quantities supplied, were as follows:—

Lynn & Dudley	2604 10 0
Inkpen	650 0 0
Hamblin	620 0 0

Warwick.—The additional buildings, at the rear of the Crown court, County-hall, comprising three rooms, are now nearly complete, the work having been performed by Mr. W. Gascoyne, builder, Leamington. One of these rooms, fitted up with a small lavatory and closets, will be set apart specially for the juries, and the other two are open for witnesses and the general public.

Bristol.—The proposal for erecting the new Assize Courts, Bristol, in the space (arched over) between the Stone Bridge and Draw Bridge, was carried by a majority of four over the Queen-square and ten over the Small-street sites. The opponents of the first-named plan contend it cannot be carried out without an Act of Parliament.

Doncaster.—The committee appointed by the inhabitants of Doncaster to decide as to the site, &c., of a public infirmary in that town, have agreed to accept the tender of Messrs. Anclay, of Doncaster, to erect the building for 3,803*l.* 9*s.* The highest tender was for 5,280*l.*

Whitehaven.—The following tenders have been received for the construction of the intended new dock at Whitehaven, on the north side of the harbour there:—Messrs. Nawells & Dcwra, 159,000*l.*; Nelson & Co., Carlisle, 175,000*l.*; Ritson & Co., 179,000*l.* There is a question whether the tender of Messrs. Nawells & Dcwra includes the engineer's commission. If not, it will be, like the other two, above Mr. Rendel's estimate.

THE BUILDING TRADES.

At Leeds, a deputation of the master painters have met a like body of the Operative House Painters Association, and the dispute existing in the trade with respect to wages has been amicably settled. It is said that while the committee of the operative carpenters and joiners suggested that their difference with the masters should be put to arbitration, this was declined by the employers.

In Blackburn, a strike of operative plumbers has taken place, owing to one of the master plumbers and glaziers having refused to comply with the resolution to increase the wages of the operative plumbers 2*s.* per week. All the other master plumbers conceded the increase.

The joiners of Gainsborough are to have a half-holiday on Saturdays. The cabinet-makers are to work till four o'clock on that day, with an increase of wages.

At Derby, after notice given to the operatives, six master builders, representing the association of master builders in Derby, held a meeting at the Bell Hotel, to meet six operative bricklayers appointed as a deputation by their body to fix upon a chairman to arbitrate the matters in dispute between the masters and men. The bricklayers, however, having no power to refer the matter to arbitration, the matter rests just where it was, and with the labourers by the same rule.

Some months since the Droitwich bricklayers formed a branch of the Operative Bricklayers' Society, and subsequently issued a notice to their masters, the purport of which was, that after the 25th of March they should require an advance in wages of 8*d.* per day and a decrease in the number of hours for labour. In accordance with this notice, the whole of the bricklayers (those in the employ of the Salt Company excepted) ceased work, and they afterwards

waited on the masters with the view of ascertaining their intentions, but the latter have expressed their determination not to comply in the slightest degree with the terms contained in the document. The average wages given in this place has been 1*l.* to a guinea per week.

At a meeting of Dundee master plasterers and other master tradesmen, for the purpose of considering the present movement among the journeymen plasterers, to reduce the hours of labour from fifty-seven to fifty-one hours per week, there was a large attendance—the different building trades being pretty well represented—and it was unanimously resolved that the hour of labour be as formerly, that the nine hours movement of the journeymen plasterers be resisted, and that the building trades generally support the master plasterers in their determination to withstand that movement.

WINDOW HORTICULTURE AND CITY GARDENS.

This is a subject which the *Builder* has occasionally treated of when it was less thought about, and we are glad to see that it is making progress. A paper by Mr. John Bell was read last week at the Society of Arts, "On Window Horticulture and the Cultivation of Plants and Flowers in Cities and Crowded Localities." A Mr. Bell remarks,—

"This whole subject of the treatment of flowers and plants in and about great cities is one fertile of ideas; and it does not appear of small interest even in respect to London itself, when we ask ourselves the question, 'Of its three millions of inhabitants, how large or how small a proportion love flowers, more or less?' I believe the proportion is very large that delight in flowers, ranging from infancy to age. I conceive, indeed, that we may be as yet but on the threshold of the treatment of facilities for domestic household gardening in cities, and I have little doubt that a few years will see us much advanced in this respect."

Amongst the revelations of the railways are those which we look down upon the tops of houses in some of the poorer parts of London, and those inhabited much by the artisan and workman. As the train moves slowly in starting from or coming into this great town, we have many of these glimpses into modes of life differing from those of the residents of other localities, and perhaps larger houses. Amongst the tastes that we see pre-eminently displayed here, are the love of birds and the love of flowers; and various are the expedients improvised, and of home manufacture, for the indulgence of these tastes and the accommodation of either class of natural history. With the pigeons and canaries, on the present occasion we have nothing to do: but as regards the accommodation of flowers and plants, we may well remark the variety of expedients to which the love of Nature, and at the same time the narrowness of space and means, drive the enthusiast. Tubs, pails, baskets, crockery of many kinds, troughs, glasses, bottles, and almost every kind of receptacle, are enlisted in the service of his taste and his worship of Flora; and in more than one ambitious instance I have seen the top of some small out-building, covered with a layer of earth, for the accommodation of flowers and shrubs, and fenced round with boards and slates on end, to keep them in their place within their narrow bounds."

Promotive of information to window gardeners, growers, and of a desire to grow such gardens where it does not exist, two little penny pamphlets have been published by Partridge, of Paternoster-row, one "How to Grow a Plant and win a Prize," by the Rev. S. H. Parkes, M.A., incumbent of St. Leonard's-on-Sea, and author of "Window Gardens for the People," and the other titled "Illustrated Penny Readings: Crippld Jenny; or, the Voices of Flowers."

GAS.

SEVERAL hundred pounds' worth of Reading gas stock has just been sold by auction, the 5 per cent. stock at par; the 7 per cent. at 12*l.* 10*s.* per cent. premium; and the 8 per cent. at 30*l.* to 35*l.* per cent. premium.—The Tyne-mouth Gas Company have declared a dividend of 7½ per cent. upon original shares, with a bonus of 3*s.* per share, and have resolved to divide among themselves, in shares, an increase of their capital to 80,000*l.* by the issue of 4,000 half-shares of 2*l.* 10*s.* each, on which, so far as called up, a dividend of 5 per cent. is to be paid. The works, including a new coal depot, new gasometer for 210,000*cu.* ft. of gas, new purifiers, &c., have been completed at a cost of 7,005*l.* and paid for. The mains have been extended to Preston.—The Midhurst Gas Company have resolved on a reduction in price from 8*s.* 4*d.* to 7*s.* 6*d.* per thousand feet.—A contract for the formation of gas works for Earls Colne has been signed with Messrs. Holmes & Co., engineers and gas contractors, of Huddersfield, to erect the entire of the works for the Earls Colne Gas Company (limited), for 1,015*l.*, and Messrs.

James & Co. shortly afterwards concluded a sub-contract with Mr. Rogers, builder, Earls Colne, to complete the buildings for 255l. 10s.— movement is also in progress for the lighting of St. Oeyth.—The *Stockport Advertiser* states that Mr. Leslie, the gas engineer, is about to leave Stockport for a more lucrative situation at Wydenham, and pays a high compliment to him on the occasion.

A PUBLIC COMPANY AND ITS ARCHITECT.

ONE of the special jury causes at the late Manchester Assizes was *Green v. The Todmorden Town-hall Company, Limited*. Mr. Attorney-General James, Q.C., and Mr. T. J. Jones appeared for the plaintiff, and Mr. Temple, Q.C., and Mr. Main appeared for the defendants. The following were the particulars of the plaintiff's claim:—

361. Superintending repairs of Odd Fellows Bridge, caused by flood	25 0 0
361. Making sketches, designs, plans, drawings, and specifications, &c., complete, and for new town-hall, per agreement, and superintendence of works	500 0 0
363. Paid for builder's quantities and lithographic the same	180 0 0
363. Drawings and superintendence of works under County Bridge	10 10 0
363. Drawings and superintendence of works under Odd Fellows Bridge	11 5 0
362. Cr. Cash on account	2708 15 0
150 0 0	
2658 15 0	
170 0 0	
2388 15 0	

The plaintiff, Mr. James Green, architect for many public and private buildings, including the Accrington town-hall, the Craven Bank, Burnley, the Burnley Technical School, &c., &c., being examined, said, that towards the end of 1850 it was considered desirable to erect in Todmorden a building for public purposes. A meeting was held, and eventually a company was formed, the directors comprising him. He was asked to prepare sketches and designs. He exhibited some, and without having made a detailed estimate, stated that he thought such a building was then proposed could be carried out for 10,000l. It was afterwards proposed that a part of basement of hall and a space of adjoining should be made into a public market, which would have increased the expense. In February, 1851, plans of the whole were submitted to, and approved by the directors, who passed a vote of thanks to the plaintiff for preparing plans and sketches for proposed buildings, and on the 6th of April the shareholders passed a resolution approving of general plans, and requested the committee to proceed with the works as early as possible. In the 2nd of May, 1851, the first meeting after the registration of the company, the directors resolved, on the motion of Mr. Lord, seconded by Mr. Joshua Fielden, "That Mr. Green be engaged as architect of the company, on the following terms, viz., to be paid the sum of 200l. if the whole of the building, including foundations and the arching of the water-course, cost 10,000l. or more; but in case the cost is less than 10,000l., then to be paid 5l. per cent. on the cost, this remuneration not to include the expense of the clerk of works, but to include the cost of all plans preliminary and subsequent to his appointment."

A large portion of the site of the town-hall was occupied by the course of a river, which required to be bridged over. It was estimated that the work could be done for 1,000l. or 1,200l., but, owing to the unsound and uncertain nature of the ground, and the depth of gravel and debris that had been deposited, when the arching was completed, and the foundation walls raised to the level of the streets, it was found that 2,500l. had been expended. His firm no part of the original estimate of 10,000l. during the progress of the arching and foundation works, the plans of the main superstructure were being prepared, and they were submitted to the directors, who journeyed to enable the plaintiff to prepare specifications, and also resolved that 1500l. should be paid to the plaintiff on account of his services as architect. A sub-committee was appointed to revise the plans and specifications preparatory to advertising. In the event of the sub-committee being satisfied, the plaintiff was empowered to advertise for tenders. On the 10th of June, the chairman reported that the sub-committee had passed the plans, and authorised the plaintiff to advertise. He told the defendants that builders' quantities would have to be taken out before any tenders could be obtained; and the advertisement stated that quantities would be supplied to the parties who applied for them. At the time he advertised he handed over the plans and specifications to Mr. Bradley, surveyor, Liverpool, with instructions to take out the quantities, and to deliver as far as possible, the arrangement being that the charge for such quantities, exclusive of lithographic copies, should not exceed 14 per cent. on the amount of each trade. The fact that a surveyor was employed to take out quantities was repeatedly brought to the express notice of the directors. The lowest tender was 13,855l., greatly in excess of the amount at the disposal of the company, if all the shares taken had been paid up, amounting to only about 2000l., resolved,—1. That the directors do not feel justified in letting the whole of the works. 2. That in the opinion of the meeting, it is not desirable to recommend to the shareholders the advisability of erecting the above in the basement of the market-house, butchers' shambles in bridge-street, and the base course of main building, to be helped out by the addition of a temporary covering of roofing to be adopted as may be found most advisable for

the purpose; and 3. That Mr. Green be empowered to obtain tenders for carrying out the works mentioned in the above resolution."

At an extraordinary general meeting of the shareholders, on the 3rd of July, the resolutions of the directors were carried. And it was also resolved that each shareholder should have a lithographed copy of the proposed building presented to him; and the plaintiff was directed to "prepare a specification for the works proposed to be done; and to write to Thornton, Brothers, for a detailed tender, and also request their attendance at the next meeting." On the 10th it was resolved:—

"That the portion of the building proposed to be erected be let to Thornton, Brothers, for the sum of 1,331l., provided they will complete it according to the specification submitted by Mr. Green."

Other contracts accepted were those of Dobson, for the timber work (1102l.); and Hellewell, for the plumbers' work (721l.). The reason assigned for executing only portions of the works was that, by the time they were completed, trade might be improved and money cheaper; and it was supposed that when the building was started more capital would be subscribed.

Eventually it was agreed that the company should be wound up, and liquidators were appointed. When he sent in his account, in compliance with the request of the directors, exception was taken to the 180l. paid for quantities. Correspondence ensued, and arbitration, which he proposed, had been declined. He would have had very little more labour if the whole design had been carried out. His labour had been working the plans and procuring the tenders.

The Judge interposing, said that the resolutions which had been read seemed to establish a contract in writing; but it would be prudent, if possible, to avoid further litigation; and it was a case in which compromise might fairly be made.

Mr. James was prepared to refer it to a barrister at once to assess the amount due.

The Judge thought it would be better to take a moderate sum of the claim, and to settle the matter without reference at all. He wished to save expense, which would only add to the difficulty.

After considerable discussion, it was proposed to refer the matter to Mr. Waterhouse, the architect of the Assize Courts. He was to hear Mr. Green's statement, and the statement of one person on the other side, to examine the building, and to say what ought to be done.

The Judge said he did not think a better conclusion could be come to.

Mr. Green said he offered that proposition to the directors long since.

The Judge said he had seen nothing to impeach the professional skill or reputation of the plaintiff.

A verdict was then taken for the plaintiff, subject to the award or certificate of Mr. Waterhouse.

Books Received.

THE printed Proceedings of the Institute of Engineers in Scotland for 15th February, 1865, contain a full account of Low's patent boring machines, &c., in a paper by Mr. John Downie, read before the Institute on that date. The paper is illustrated by engravings.—"History of the Steam Hammer: a Lecture, with illustrations, by Mr. T. S. Rowlandson. Eccles, Shrewsbury. 1864." This is a reprint from a local paper of a lecture delivered at the mechanics' institution, Patricroft, in December last. The following statement, made by Mr. Rowlandson after the reading of the paper, rather surprises us:—"Although it is an unquestioned fact that Mr. Wilson was the sole inventor of the self-acting motion,—which motion was, in the first instance, the cause of the steam hammer's great success,—yet in 1843, Mr. Nasmyth secured a patent for it, in his own name, and as his own invention,—a fact only accidentally discovered by Mr. Wilson within the last few weeks."

Miscellaneous.

NON-ABSORBENT BRICKS.—A correspondent is anxious to hear of an impervious or non-absorbent brick, at moderate price. The want is so often expressed, that we print his inquiry in the hope of eliciting some useful information on the subject.

TATTERSALL'S.—The new buildings erected at Knightsbridge-green, for Messrs. Tattersall, under the direction of Mr. C. Freeman, architect, were opened on Wednesday evening last. Some time ago we gave a few particulars of the edifice and arrangements, and we may supplement these on a future occasion. Messrs. Holland were the builders.

ROYAL HIBERNIAN ACADEMY.—The thirty-seventh annual exhibition of paintings, sculpture, &c., of the Royal Hibernian Academy has been opened, in the Academy House, Lower Abbey-street, Dublin. The opening day was, as usual, confined to the holders of season tickets, of whom there were a good number present. The Lord Lieutenant and Lady Wodehouse visited the Academy. The exhibition is not so large as that of last year, and it is especially remarkable for the very limited display of Irish art.

THE LEEDS SURVEYORSHIP.—At the last meeting of the town council, a letter was read from Mr. Filler, the borough surveyor, resigning his office, because he was informed the Improvement Act required that an independent engineer must be appointed to carry out the sewerage works in certain proposed new districts.

ROYAL ITALIAN OPERA HOUSE.—Seldom has so much satisfactory variety been afforded to the subscribers and the public, at the opening of the season, as they have found on the present occasion, "Faust," the "Trovatore," and "Guglielmo Tell," have alternated; and the "Prophète," with Mlle. de Edelsberg as *Fides*,—Mario, who is in good voice, sustaining his old part,—is underlined for Tuesday next. In the "Trovatore," Signor Wachtel has considerably improved his position. Mlle. Honoré, a new singer, has scarcely sufficient weight for the Gipsy mother, and pleased the house much better as *Stebel*, in "Faust."

LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.—At the ordinary monthly evening meeting of this Society, to be held at 22, Hart-street, Bloomsbury, on Monday next, the 10th inst., there will be exhibited, by the kind permission of the Dean and Chapter, the original drawings made by Sir Christopher Wren for St. Paul's Cathedral. Some remarks on these interesting works of the celebrated architect will be made by Mr. F. C. Penrose, the cathedral surveyor; and a series of drawings of Sir Christopher's first model, which was not carried out, will be exhibited by Mr. J. E. Goodchild. Mr. Arthur Aschapel, V.P., will preside, and the Rev. Thomas Hugo, M.A. F.S.A., Mr. C. J. Shoppee, Mr. Charles Baily, Mr. George R. French, Mr. John Whitchord, F.S.A., John Young, jun., F.S.A., and other members are expected to take part in the proceedings. The chair will be taken at eight o'clock precisely.

ROYAL HORTICULTURAL SOCIETY.—The love of flowers, inherent in all classes of the community, is clearly shown by the response made to last year's offer of medals by the Royal Horticultural Society for the best collections of plants from the various counties of Britain. A large number of collections made during last summer have been forwarded in answer; and so uniformly excellent are they in displaying, not only a love of flowers, but a good scientific knowledge of the plants, that the Society has been induced to award no less than forty-two medals,—twenty-six being silver, five gold, and the rest bronze. Nineteen ladies are among the recipients, fourteen receiving silver and one a gold medal. The other gold medals are awarded for the best of the county collections,—one being given to Mr. J. Clarke, of Saffron Walden, for the discovery of a wild plant entirely new to Britain; and an extra gold medal to Mr. W. G. Smith, whose name often appears to drawings in our pages, for "two volumes of beautifully executed drawings of fungi and phanerogamous plants."

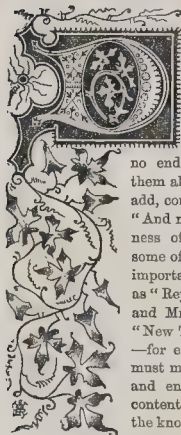
LECTURE ON DOMESTIC ARCHITECTURE.—Mr. G. E. Street has been lecturing at Cambridge Town-hall, on "The Application of Gothic Architecture to Modern Domestic Buildings." The chair was occupied by Mr. F. S. Powell, M.P. The lecturer commenced by stating that our present architecture is unsatisfactory, and the question that first arises is this, viz., if there is to be a renewal of good architecture, is it to be a Classic or a Gothic revival? He was prepared to prove that Gothic can be revived with the best results. It is our indigenous and national style: it is most suited for our climate and for our local materials: it is at once the most truthful and the cheapest. For works of a high class, it admits sculpture in any amount of richness or profusion; it demands no iron rigid uniformity, but is essentially free in its conception, and its practice is that of common sense; whereas Classic architecture is generally little better than a sham, and the sacrifice of common sense to uniformity. The lecturer gave amusing instances in proof of his allegations, such as are to be found in "Pugin's Contrasts" and advocated the formation of our buildings, utensils, furniture, paper-hangings, carpets, and dress, upon the principles of design that obtained favour in the Medieval period, and is now to be found in the East. He showed that there was much to be avoided in modern Gothic work when it had been executed without a due appreciation of true principles, and that many old houses were more agreeable to dwell in than many modern ones.

Advertisements intended for insertion in this issue must therefore reach the Office before FIVE o'clock, p.m., on WEDNESDAY, the 12th Instant.

The Builder.

VOL. XXIII.—No. 1158.

A Budget of Books and Papers.



URING the last few weeks, books, pamphlets, and journals, have accumulated; for truly, as the Book says, "of making many books there is no end." Ho who mastered them all might be disposed to add, completing the quotation, "And much study is a weariness of the flesh." Leaving some of the heavier and more important,—such, for example, as "Reynolds and his Times," and Mr. Murray's interesting "New Testament illustrated,"—for early special notice, we must make a dash at the heap, and endeavour to bring the contents of some of them to the knowledge of our readers.*

First comes to hand "A Proposal for diminishing Crime, Misery, and Poverty, in Liverpool," by M. J. Whitty. The condition of Liverpool has been for some time forcing itself on the minds of its more thoughtful citizens. Foremost amongst these is Mr. M. J. Whitty, who, in connexion with the *Daily Post*, and in his burghal position, has long sought to make this condition known, and to obtain remedies. Under the title we have given, he prints three letters, one describing "A street in a dark district;" the second asking, "Why are streets the abode of vice, crime, and misery?" and the third offering a "Remedy." Public opinion and the public eye, says he, are the two most potent powers in the world. On the denizens of these streets these powers have no bearing. Bring them to bear, that is my remedy. "My plan is the ancient one in principle—responsibility of neighbour for neighbour." What he proposes is, that the densely populated and the less opulent parts of the town be divided into districts, and that each district shall be presided over by a "local committee of safety," the members of these committees to be elected by the householders, ten householders electing one member from amongst themselves. Ten electors, he thinks, will be numerous enough, because small streets should have at least one representative, and large streets more than one. A district should not be too large, and for this reason, a committee should belong to the district, in order that members should know the inhabitants and be known to them. The proposed "local committee of safety" should present themselves as Government officials; and, in order that they may do this, it will be

absolutely essential that they proceed under the sanction of an Act of Parliament. The Act must of course be general, and, being a Government measure, will cost nothing. When properly appointed, what are the committees to do? By virtue of their office they will have authority to get information, to remonstrate, to advise, to hear complaints. Like the medical officer and the sanitary officers of the Corporation, they may enter any house without being charged with trespass, and, being sworn in as constables, they may demand the assistance of the force and give aid to the force when required. Their business, however, will be mainly to counsel and reprimand; to be kind even when they address the worst offenders, and, when counsel and remonstrance fail, to appeal to those whose especial duty it is to put the law, criminal or repressive, in force. "Warning must precede action, and the act will be the communication of facts to Major Greig, the health committee, the watch committee, the select vestry, Mr. Raffles, and the mayor."

Would such an organisation effect great good? We have not the least doubt about it. It is to be feared, however, that there are sufficient difficulties in the way to render it unlikely that it will be brought about. Even an approach to it would be advantageous: the appointment of district committees without the authority of an Act of Parliament.—While Liverpool has its Whitty, Trench, and others, Salisbury is all the better for Mr. Middleton, who puts forth, in the shape of a pamphlet entitled "The Benefits of Sanitary Reform, as shown by Salisbury, in nine years' experience thereof," the paper he read at Bath. Salisbury must date its movement towards improvement from the last visitation of cholera there. It had long been noted as unhealthy. In that wonderful book, the "Anatomy of Melancholy," there is an allusion to Salisbury quoted by Mr. Middleton. Burton there writes, "The worst is a thick, cloudy, misty, foggy air, such as comes from fens, moorish grounds, lakes, muck-hills, draughts, sinks, where any carcases or carrion lies, or from whence any stinking, fulsome smell comes. Galen, Avicenna, Mercurialis, new and old physicians, hold that such an air is unwholesome, and engenders melancholy, plagues, and what not." After naming several towns abroad, "Salisbury with us, Hull and Lynn" are mentioned; and he goes on to say: "But let the site of places be as it may, how can they be excused that have a delicious seat, or pleasant air, and all that nature can afford, and yet, through their own nastiness, and sluttishness, immund and sordid manner of life, suffer their air to putrefy and themselves to be choked." Old Burton was evidently a worshipper of Hygeia. In the history of Salisbury, Hatcher records no less than five visitations of plague within ninety years. That more recent cholera time to which we have referred we well remember. The Archaeological Institute was holding its congress there, and the then Bishop struck dismay into many hearts by his sermon, preached during the proceedings. Sorrow overspread the city. Invited on one morning by a leading citizen to dine that day, we found the inviter dead at the hour appointed! A sad time: but let that pass. It enabled the clearer heads of the city, including the writer of the pamphlet before us, afterwards to obtain better water supply and sewerage, and Mr. Middleton now tells of the gratifying result. He shows, for example, that while in nine consecutive years before the drainage the births were 244 in number more than the deaths, in nine consecutive years after it they were 929 more than the deaths; that while the average mortality, in the period named, before drainage was about 27 in the thousand, for the nine years since it was 20 in the thousand;—the cholera year not being included. The Close of Salisbury,

with a population not varying much over a long series of years, presents the following facts as to mortality. For many years that mortality was at the rate of nearly 20 in 1,000; for the last nine years, since drainage, it has been only about 14 in 1,000, thus showing a death-rate lower than that of the Isle of Wight, which is 17; of Cumberland, Westmoreland, and other rural districts, the most healthy in the kingdom; for the death-rate of seventy of the districts, selected as the most healthy in England, is 17 in 1,000. This writer properly says,—

"I do not claim that drainage and water-works saved all the 831 lives, being quite aware that so many concomitant physical and moral causes exist to produce effects upon vitality—so many ways to the gates of death—that to make such claim would be as rash as to put the hand upon each of 831 persons and say, 'You and you were saved.' But, holding the strong opinions which I do about the fostering causes of many diseases being removable, and seeing what I do see in Salisbury, it would be affection on my part not to say that I believe the works done to have been one cause, and that the main cause, of the diminution of mortality; and although it may be objected that assertion is easy, proof difficult, in vital statistics, in this case I do not think it would be easy, if possible, to suggest another even plausible cause of such a great alteration having continued for so many as nine years."

If any of our readers can suggest a more obvious reason, we shall be glad to hear it. We are unable to do so ourselves.—The admirable *Times* occasionally reminds us, by some of its leaders, of a large grand old dog, who, anxious to show his friendly feeling, bounds in amongst his friends, and begins by knocking them all over. Thus in a recent article on the sanitary condition of Calcutta, the writer starts with what might almost be considered a laugh at the sanitary reformer. "A social censor," says he,—

"Satirising the follies and vices of the age has often been taken for one steeped to the lips in wrong-doing, who, as a last resort, is earning money for future sin by detailing the experiences of the past. But of all who take upon themselves the task of exposing the evils of the world, the sanitary reformer is surely the man who most enjoys the evil he denounces. His delight in impure water is so great that he might be supposed to be always taking 'leaders' in it; he wades through filth, and whenever he comes across anything which is particularly nasty, he stirs it up for the benefit of the bystanders; and whoever has been misguided enough to attend a sanitary conference knows that his enjoyment of bad air is most practical and lasting."

But then the writer goes off into quite the right line, a denunciation of the infamous filthiness of Calcutta. Will it be believed that up to a year ago 5,000 human corpses had been thrown every year into the river which supplies the greater part of the inhabitants with water for all domestic purposes, and which, moreover, for several miles is covered with shipping as thickly as almost any river in the world? What is, however, more astounding, is the statement that more than 1,500 corpses have been thrown into the river in one year from the Government hospitals alone. Measures were taken by the Bengal Government last March to stop the casting of corpses into the river, and to introduce the practice of incineration, which are said to have been successful; but up to that time the veneration of the native for the sacred stream had been too powerful to be thwarted by the Government. "But these bodies thrown into the river as we see dogs thrown into the Thames, only under a hotter sun, form but one of the nuisances of Calcutta. There does not exist a properly constructed drain in the city!" Fire away, *O Times*! In no direction can thy power be more usefully applied than in obtaining improvements which will enable the peoples to live, and not die,—before their time.—Liebig's Reports, communicated to the Corporation of the City of London, on the agricultural value and economic disposal of the sewage of great towns, have been published in a complete form, by W. H. Collingridge, with the numerical quantities reduced to ordinary English standards. These documents will, we have no doubt, be sought for by many, who will be glad to find them in this accessible form. The report of the Coal and Corn Committee of the Court of Common Council forms part of the pamphlet. Our own opinion of Liebig's letters, less commendatory than some writers have expressed, is already known. A

* A Proposal for Diminishing Crime, &c., in Liverpool. By M. J. Whitty. Liverpool, 18, Cable-street.
The Benefits of Sanitary Reform as shown at Salisbury. By A. R. Middleton. London: Simpkin & Co.

Liebig's "Reports."
Present State of Town Sewage Question: J. & H. Parker.
Henry Mayhew's Shops of London.
Letts's Postal Almanac.
Application of Geology to the Arts. By Professor Ansted: Hardwicke.
The Art-Journal: Virtue.
The Art-Student.
The Church Builder: Rivington.
Fraser's Magazine.
Railway News.
Day & Son's "First Folio Shakespeare."
Giornale dell' Ingegnere, &c., Milan.

spark of spite unworthy of a philosopher, makes itself visible in them here and there.—“The Present State of the Town Sewage Question,” by G. W. Child, M.D. (Oxford and London: J. H. & J. Parker), formed the substance of a communication made to the Ashmolean Society of Oxford in February last. The author, Dr. Child, is physician to the Radcliffe Infirmary at Oxford. It is not intended to advocate any particular scheme for the utilization of sewage as of universal application, but rather to show the present position of the question in the author's estimation, especially as he would wish it to be viewed in Oxford, where the subject presses urgently for a solution, as it elsewhere does.—No. 2 of “The Shops and Companies of London and the Trades and Manufactories of Great Britain,” edited by Mr. Henry Mayhew, gives one an amusing as well as instructive insight into such matters, and promises a volume of very pleasant reading. The present part treats of the late jewel robberies in the City; the shops of America; Pickford's; the odd shops of London; Searle the boat-builder's; more curiosities of advertising; crinoline; the Hammam or Turkish bath; the percentage evil of West-end trade; the Falcon Glass-works; experiences of a town traveller; the Times Office; advice to young men from the country; and various other subjects.—“Hardwicke's Science Gossip,” for April, seems to be chiefly of interest to naturalists. A small section of it is devoted to window gardens and aquaria.—The Rev. J. G. Wood's “Homes without Hands” has reached Part 16. Parasitic insects of various kinds, including that terrible pest the chigoe, are described in it.—“Let's Monthly Postal Almanack” seems to be a useful penny publication, full of information as to mails, postages, and post hours, inland, colonial, and foreign despatches, and other intelligence of a like order.—And then we get “Meteorological Diagrams for 1864.” Stanford, Charing-Cross. The temperature, rainfall, and atmospheric pressure during each day and night of the past year are given in this very useful diagrammatic map.—“The Popular Science Review for April” contains, as usual, a great variety of interesting matter, including papers on train signalling, by C. V. Walker; extract of meat; physical phenomena of other worlds, by R. Hunt; on the oldest known fossil, and various others; besides the scientific summary of the month and reviews of books.—A volume entitled “The Applications of Geology to the Arts and Manufactures,” by Professor D. T. Ansted, F.R.S. (Hardwicke), consists of the series of Cantor lectures on geology, delivered at the Society of Arts in the session 1864-5. The lectures may be said to be merely sketches in broad outline, as each subject, if entered upon in detail, would demand a separate course of lectures, and one or more volumes to itself; but a great deal of useful and reliable matter is nevertheless embodied in these pages, which treat of such practical subjects as springs and water supply; sands, clays, cements, and artificial stones; stones used in construction; iron-stone and coal; and so on.—However, we must get on another tack. In the current *Art-Journal* (it has a very good engraving *inter alia* after F. Goodall), Mr. Ruskin continues his papers titled “The Cestus of Aglaia,” eloquent, but, we must take the liberty of saying, to some extent misty. We will quote a piece that is least so. He is speaking of *patience* in art, and the necessity for it:—

“For one instance only: has the reader ever reflected on the patience, and deliberate subtlety, and unostentatious will, involved in the ordinary process of steel engraving; that process of which engravers themselves now with doleful voices deplore the decline, and with sorrowful hearts expect the extinction, after their own days.

By the way, my friends of the field of steel, you need fear nothing of the kind. What there is of mechanical in your work, of habitual and thoughtless, of vulgar or servile—for that, indeed, there has come; the sun will burn it up for you, very ruthlessly; but what there is of human liberty and of sanguine life, in finger and fancy, is kindred of the sun, and quite inextinguishable by him. It is the very last of divinities who would wish to extinguish it. With his red right hand, though full of lightning concussion, he will faithfully and tenderly clasp yours, warm blooded; you will see the vermillion in the flesh-shadows all the clearer; but your hand will not be withered. I tell you (dogmatically, if you like to call it so, knowing it well) a square inch of man's engraving is worth all the photographs that ever were dipped in and (or left half-washed afterwards, which is saying much), only it must be man's engraving, not machine's engraving. You have founded a school on patience and labour only. That school must soon be extinct. You will have to found one on thought, which is Phœnician in immortality, and fears no fire. Believe me, photography can do against line-engraving just what Madame Tussaud's wax-work can do against sculpture,—that, and no more.”

The Editor in his “Memoirs of Authors” this time sets forth strikingly Theodore Hook, the man with two lives,—brilliant abroad, wretched at home. We heard Hook make his last public speech, heard him say nearly his last clever thing; but we have not space now to indulge in the look-back.—The *Art-Student* denies the rumour of its termination; and the number for the month is an agreeable and instructive one.—The *Church Builder* publishes a method of Warming Churches, which should rather be described as a method of burning and vitiating the air about to be used in a church. The fire is made to play on a stack of iron tubes through which the air for the church is conducted. We are not likely to recommend the system.—The current *Fraser* has a brief article on “The Embankment of the Thames,” treating chiefly of the evidence before the Parliamentary Committee of 1860. A paper in it on “British Sea-fish and Fisheries” is more valuable. Many will learn from it, with surprise, the extent of the Scottish pearl fisheries. The fish yielding the British pearl is a species of mussel, rather small than otherwise.—From the *Railway News*, we get a notice of the work that is going on at Clapham Junction, and the preparation there making for a “larnal smash” one of these days. “A day's traffic,” says the writer,—

“In and out of this Clapham Junction, is represented by nearly seven hundred trains, or a number which would give about one in every two minutes throughout the twenty-four hours. There is no moment of the day, from six in the morning till six at night, when there is not a train actually on one or other of the lines at Clapham; and during a large part of the day the traveller will seldom see the place without three or four trains entering, standing, or leaving the junction. There are times when this enormous aggregation of trains is increased by special trains. On the last Derby Day ninety-four special trains and engines passed through the station, and on an Ascot day the number is nearly as large.”

It is to be hoped the signals are well looked after here: or the smash will not be long delayed.—And what have we under the yellow cover of foolscap size? Parts 7, 8, and 9, of the Sun and Stone printed first folio edition of “Shakspeare,” now past its half, since sixteen parts are to complete it. The last page printed brings us up to the beginning of the 5th act of the Second Part of King Henry the Fourth, and we take from it a pregnant sentence out of the mouth of Falstaff:—“It is certain that either wise bearing or ignorant carriage is caught, as men take diseases, one of another; therefore, let men take heed of their company.”—And now a publication from Italy, *Giornale dell' Ingegnere*—*Architetto ed Agronomo*, carried on with ability by Signor Raffaele Pareto. The March number contains a full description of the Cathedral of Parma, with a large view of the entrance-front, lithographed from a photograph. Here, however, we must wipe the pen, though not half through the packet.

CHURCH BELLS: THEIR ANTIQUITIES AND CONNEXION WITH ARCHITECTURE.*

BELLS in the Medieval period, like most other productions of that age, are well deserving of study as works of art. A vast field of beautiful lettering and diapered ornamentation may be gleaned from the belfries of East Anglia. I have not made very extensive researches in the northern and western districts of England, but from what I have seen they must yield the palm to Norfolk, Suffolk, and Lincolnshire. The same must be said for the southern counties.

I think we may safely point to Lynn, in Norfolk, for the earliest specimens of these beautiful castings, many of which are, in their way, fully equal to what have come down to us in illuminated MSS. We find the names of Thomas and William de Lynn, of Johannes Godynge de Lynn, of the Wambis and Schep families connected with this art during the fourteenth century, all more or less diffused over East Anglia, and using lettering and stamps and diaper nearly identical. One could hardly wish that more specimens of their work remained, but the custom of augmenting bells for ringing purposes during the eighteenth century in all the larger parishes has made terrible havoc amongst them; the chances of a successful find being now much greater in the inaccessible village bell-cot than in the stately well-newelled tower. The inscriptions on the bells of this period are invariably in single capitals, each capital highly adorned,

the initial ones especially so, with diapered ornament. Often the human figure is combined in various attitudes to suit the shape of the letter, usually in ecclesiastical costume. Many of the initial capitals are besides beautifully crowned. The inscription always begins with a floriated cross, more or less elaborate; and between each word is a stop, usually a *fleur-de-lis*, or sprig of some pattern. The canons are often besides elaborately moulded.

Bells with ornamentation of this particular character are not found in the fifteenth century. Whether the Lynn foundry died out, or whether it was absorbed in, or removed to, Norwich, I have not yet been able to discover. All we know is, that with the fifteenth century arose a very flourishing foundry in Norwich, conducted for some generations by the Brazier family. They seem to have founded largely, as their bells are still very numerous throughout Norfolk. With them came in a totally different kind of ornamentation. Black letter was now used exclusively, and of a very superior character. The capitals were still remarkably beautiful, and, as before, often crowned. A new class of initial cross and stops were also produced. The bells from the Norwich foundry may be readily recognised by the presence of a shield upon their crown. This shield is of three sizes, and somewhat different in detail, on each of them a dual crown between three bells, arranged heralically. The earliest shield had a simply diapered field. This was afterwards replaced by an ermine ground in two sizes. This foundry was carried on by various hands till nearly the middle of the last century. After the Reformation they made an attempt to return to the characters of the Lynn foundry; but whether they had preserved the original stamps, or had copies made from them, I cannot say. I am inclined, however, to the latter opinion.

Contemporaneously with the Norwich foundry was another at Bury, probably connected with the Abbey. They had a good business in Suffolk and Essex, and a little in Norfolk; their castings, however, are rough and inferior to those of the Norwich foundry. Their bells may be easily recognized by a shield, consisting of a bell pierced by two keys in saltire, a chief with a dual crown between two pairs of arrows compounded from the arms of Bury St. Edmund's, together with a rude representation of some of their tools. This foundry came into great note under Stephen Tonne, towards the end of the sixteenth century, many of the largest and best bells in Essex and Suffolk being of his manufacture. It was afterwards removed to Thetford, in Norfolk, and either died out in the middle of the last century, or was revived again at Downham under Thomas Osborn.

The above foundries were confined to East Anglia, as was also the Sudbury foundry, of some note in the last century. Much information concerning them, particularly during the early period of their existence, has been gathered by Mr. Lestrange, of Norwich, which he hopes shortly to print. The book will be fully illustrated with specimens of the crosses, stamps, and letterings used in the fourteenth and fifteenth centuries. Other ornaments were also common besides the stamps, crosses, and lettering. I have several times met with the Evangelistic symbols used as stops between the words of the inscription; also the various emblems of saints, sometimes figures of the saints themselves, sometimes a rood with attendant figures of SS. Mary and John. On the tenor at Minster, in Thanet, the inscription begins with a good demi-figure of a priest in eucharistic vestments. Flowers were also largely used as borders. I have met with a beautiful border of daisies on a bell dedicated to St. Margaret.

Leaving East Anglia we find other foundries of early date in other parts of England; but, having but scanty information concerning them, I will not detain you upon them. There are, however, certain founder's marks which were used pretty generally over England, for which a home has not yet been found—possibly they were itinerants. In the sixteenth and seventeenth centuries there was hardly a large town in England without its foundry. Many of them turned out beautiful bells so far as sound is concerned, but as works of art there is little to say concerning them. The most celebrated founder in the seventeenth century was Miles Gray. His head-quarters were at Colchester, but he itinerated considerably; the number of his bells yet remaining is marvellous, and not the less remarkable is the exceeding beauty of their tone. There are some twenty or thirty of his tenors yet in

* By the Rev. John H. Sperling. See p. 241, *ante*.

Suffolk, and that at Lavenham, though in no way better than several others, has been often moulded by bell-founders. So great was Gray's reputation that the great bell at St. Nicholas, Newcastle-on-Tyne, called the Mayor's Bell, weighing over two tons, was sent all the way to Colchester to be re-cast by him. Richard Oldfield cast some very fine bells about the same period, or a trifle earlier; his remaining works are but few—only, so far as I am aware of, to be found in Essex and Hertis. A kind of lettering was adopted by him in very good imitation of fourteenth century work; his mark was an arrow on a shield between his initials, in chief and quatrefoil and *fleur-de-lys*. The only other founder of this age that I shall mention is Richard Chandler; of his whereabouts I am uncertain, and I have only seen some dozen of his bells, in Bucks, Hertis, and Cambridgeshire, but his tenor bell at Melbourne, near Cambridge, is one of the finest bells in existence for its weight.

The last century saw the extinction of most of the smaller foundries, or rather their absorption into the two great establishments at Gloucester and Whitechapel. The Gloucester foundry had existed for many centuries. John of Gloucester was a bell-founder there in the thirteenth century; but under the Rudhall family it chiefly came into note during the last century, upon the decline of the Salisbury trade. Its turn came at last for amalgamation with Whitechapel, which foundry, at the beginning of the present century, may have been said to have been the foundry for England; Market Downham, in Norfolk, the last of the East Anglian foundries, being also sucked into it. There was again a considerable establishment in Reading during the sixteenth and seventeenth centuries: this was removed by the Knights to Southwark, in 1750, or thereabouts; and that again flowed into Whitechapel. At the present time we have three foundries in England: the old-established house of Mears; the Messrs. Warner, of Cripplegate, who are now getting into a large business in this department; and the Taylors, of Loughton, of whose bells I can also speak very highly, having had several orders executed by them.

So much in a very cursory way for the history of bells and bell-founding in England. I will now push on to the practical part of the subject, with which we are more particularly concerned. With all thanks to our three worthy founders of the present day for what they have done and are doing for us, I will still say, and I know that if any of them read this they will feel that I am only speaking the truth when I say, that the art of bell-founding in the present day is not what it ought to be, or what it might be. I lay very little blame, however, on their shoulders, for I am sorry to say that no art has met with so little encouragement as the art of bell-founding, or has been more crippled by the fatal mistake of expecting great results from very little money. And, believe me, nothing is more easily starved than a church bell. People now expect to get a peal of six for no more than the cost of a proper tenor. Everything in a bell is the quality of the tone; the note is a mere result of certain dimensions, and may, I believe, be reached by metal little thicker than paper. Tone depends on the material, the shape, and the thickness of the metal. Consequently, bell-founders are sorely tempted to do the best they can for very inadequate sums of money, and with a result that pleases no one. And so many a tower is only furnished with the odious ting-tang that might have had a peal had there been reasonable hope of securing the grand and melodious tones of former days.

Again, as to the lettering, stopping, and ornamentation of bells.—Why are these now altogether abandoned? It is true our founders have a black lettering, which can be used if asked for; but something better than any of them have yet is easily attainable; and, when once the moulds are made, a good design costs no more than a bad one. It may be said bells are out of sight, and so what is put on them does not very much matter. I think it does. A bell is a sacred instrument dedicated to the service of God, and religious art may be brought to bear upon it just as rightly as upon other sacred vessels. The fact of its being seen but by few does not appear to me to affect the question, for we have got beyond the notion prevalent some fifty years since, that that only need be decent which meets the eye of man. The same rule applies to the careful selection of dedicatory inscriptions. Now in the nature of the case it cannot be expected that each architect should

provide the bell-founder with designs for the bells of any given church; but I think it should be the care of this Institute to provide each founder with legitimate forms of lettering and stops.

The next suggestion I would offer is this. We either find nothing but our little enemy the ting-tang, or an ambitious scheme for a peal of six or eight, too often realized only in skeleton by the tenor, its third and fifth forming what may be called a hop, skip, and jump style of music, the constant repetition of which is far from pleasing to the ear; and but too often the further development of the peal is unrealized. The Marylebone churches, early in the present century, were furnished with these skeletons of peals of six, and they have hopped, skipped, and jumped for the last forty years without the least sign of filling up their gaps. I am sorry to find they have even had the contrary effect of inducing other steeples to follow in their frolics, for St. Paul's, Knightsbridge; All Saints', Margaret-street; and some others have begun a similar skirmish. Now instead of this unsatisfactory music, why not be content with a really good tenor and one bell next above it? Nothing can be grander than two good bells chiming thus together. Such music is far preferable to three or four light bells at odd intervals. I am, of course, only alluding to those churches where peal-ringing is not contemplated. You are all of you probably familiar with the grand and pleasing effect of the two heaviest of the Abbey bells at Westminster chiming thus together for daily prayer. It is a return to ancient usage, besides being most dignified in itself, and satisfactory to the ear. Then, by degrees, perhaps, a third bell, also in succession, may be obtained. Three such bells would leave nothing to be desired.

The third suggestion I have to make refers only to peals of five bells and upwards. It is that there is no necessity whatever for the universal adoption of the modern major scale, which, for the last half-century or more, has been the undeviating practice. By so doing, the harmonic combinations are very much limited, and many very pleasing scales in the minor mode altogether ignored. Now, minor intervals were great favourites in the sixteenth and seventeenth centuries, from their peculiar plaintiveness and expression. This fact was forced upon my notice some few years since, when in charge of a Suffolk parish. The church tower nearly adjoined the rectory; and the peal of five was a very light one, the tenor only 8 cwt. I was for some weeks puzzled to account for its pleasing effect. Suddenly the fact dawned upon me that it was in the key of A minor. I at once took the hint, and tested the keys of all the peals in the neighbourhood; the result was the discovery of several other examples. I have tried a great many peals of the present century, but I have not yet discovered one in the minor mode. I speak under correction when I say that I do not believe there is one in all England. Now, accepting the major and minor modes as equally legitimate, see what an increase of harmonies we have. Taking D natural as the correct tenor note, and A natural as the highest for any peal, we get eight different keys for our peals; and by flattening the third, to bring them into the minor mode, the number is doubled.

After all, however, we must remember that, so far as bells are concerned, an exact scale, in present received musical expression, is of no moment whatever. So long as a peal of bells is in harmony with itself, and satisfies the ear, it matters not in what key it is, or whether in no describable key whatever. It is a great mistake to tie a founder down to any exact key or scale: it is sure to involve that evil instrument, the tuning-lathe, to reduce them to the appointed standard of pitch; when most probably they were much better when first broken out of the moulds, and even more pleasing to the ear. No bell is ever cast thicker in the sound-bow than it ought to be. The thickness of the sound-bow should be one-thirtieth of diameter; that of the waist, one-thirty-sixth of the diameter of the mouth. Many are cast far below this standard, for economy's sake. When, therefore, the tuning-lathe is brought to bear upon a bell, we may be certain that the tone is being sacrificed to the note; and, if this is bad in modern bells, what shall we say to paring down fine old bells, as I have seen done, to fit them to the shallow tones of modern additions to the peal? It is, I fully believe, to facilitate this tuning process that the proportion of copper to tin in present use is so much greater than it

ought to be. The modern practice is to make the proportions three parts copper to one of tin. Now, as tin wastes considerably in the fusing, this is far too small. The proportions ought to be in thirds,—two of copper to one of tin. Bell-founders say that such a proportion is liable to render the metal somewhat brittle; and this, coupled with the thinness of the bells in the present generation, greatly increases the risk of a fracture. There is a remedy for this, however: there is no reason why the metal should not be reduced to a state of fusion twice before being allowed to run into the mould. Then, again, in the present day, the melting process is a rapid one in a roaring furnace. In former times it was slower, mostly with timber fires, and dross had opportunity of escape, which now is all fused into the bell.

I need hardly tell you that the prevalent idea of silver entering largely into the composition of ancient bells is a pure myth. So far as sound goes, silver is little better than lead, and would spoil any bell where largely used. The idea has, no doubt, arisen from the much larger quantity of tin formerly used. Mr. Lukis relates in his little work on Whitechapel bells, that when the peal of Great Bedwyn Church was taken down to be re-stocked, the canons were found to have become white in places where there had been friction, and nothing would persuade the work-people that it was tin, not silver, that they saw. The old bell of St. Laurence Chapel, Warminster, in which tin had been largely used, was also traditionally said to be rich in silver. When it was re-cast in a field adjoining the chapel in 1657, a good deal of additional silver was thrown in by the inhabitants, as they thought to improve its tone still further. An old foreign bell at St. John's College, Cambridge, from its sweet tone is popularly called the silver bell; this, of course, being a similar delusion. The same may be said of another very pretty bell at Acton, Middlesex, called the Acton Nightingale.

Another great difference between bells, ancient and modern, is in their shape. The most ancient bells were very long in the waist, and high in the shoulder, many of them to an exaggerated degree: we now run into the opposite extreme of short waists and flat shoulders. The reason of this change is obviously connected with the art of ringing, short bells being much easier to raise, and taking up less room than bells of the old proportions. The modern founders are all in favour of this change, asserting that the note is identical in both cases, and that metal lying in the waist is useless. If they would be content with saying that it is a more convenient form, both for the pockets of the customers, the ringers, and their own moulds, I should agree with them; but there is no denying that though the note may be identical, the quality of tone is very different, and this is evident on acoustic principles. The waist of a bell is, so to speak, its sound-board. The scientific view of a bell is that of an elastic instrument composed of an infinite number of rings or circles, varying in tone according to their several dimensions, the sound arising from the vibratory motion of all of them when set in motion by the clapper. A bell properly and truly cast, will give the notes of a common chord more or less blended into one, and major or minor according to its height. This fact is easily ascertainable by striking the bell with the hand, or with a stick, in three different places: the note of the bell will form the base where the clapper strikes, and its third and fifth will be given at certain distances above. This flat bell-founding is, I fear, on the increase, and the lips are now so extended that a section of the bell would almost describe an ogive arch; hence we get the same notes at about half the weight of metal employed by our ancestors. I believe this system was first brought out at Downham, late in the last century. It was certainly adopted with Dobson into the Whitechapel foundry, for their earlier bells were of a more pleasing shape. Where money, however, is not a very pressing consideration, we still see the use of earlier and more graceful forms.

As regards weights of tenors, I think some fixed rule should be adopted; for instance, a tenor to a peal, say of ten or twelve in D, should range from 40 cwt. to 50 cwt.; and for a peal of eight, not less than 35 cwt. A tenor in E ought not to carry a peal of more than eight, and should range from 20 cwt. to 35 cwt.; but no one should attempt in E under 20 cwt.; now we sometimes see one as low as 15 cwt. F is the usual tenor for peals of six, and should range from 16 cwt. to 25 cwt.; and G, also available

for six, but better for five, should never be under 13 cwt. No higher note should be allowed for the tenor of any peal; nor should any treble be of a higher note than F natural, all the higher ones being harsh and unpleasant. And as we must not go higher than F, neither need we go lower than D. The tone of very heavy bells in the notes of A, B, and C, may be very grand as a sort of bon-don, but they are destitute of a musical effect, besides being impossible to raise for the purpose of ringing. No note is so pleasing to the ear, or so desirable for a tenor as E; even D is inferior to it, though the cost is greatly augmented.

With all care, however, and attention to these suggestions, and others also known only to the bellfounder, another great agency is necessary to perfect one bell. It is a fact, of which there is no gainsaying, that no bell, be it made ever so carefully and skillfully, sounds so well at first as it does after it has been hung some years. There is an atmospheric effect, a process of oxidization, very gradual, which goes on improving and mellowing the quality of tone as years advance. I have noticed this in several instances, and believe it to be an unvarying process. The colour of a bell changes in a few months: a greenish tint and crust come upon it; and after a long course of years the surface becomes slightly uneven, just as we are accustomed to note the process of de-vegetification in ancient painted glass. I believe it is to this process that the peculiarly quaint tone of the most ancient bells may be attributed.

Having thus pointed out the limits of a peal, I must add a word or two on the origin of change-ringing. As before stated, it was introduced early in the seventeenth century, and led to a complete revolution in the art of the bellfounder as well as of the hanger. From that time all the heavy chimes of three and four and five were reduced in weight, and multiplied in number, forming peals of six, eight, ten, and twelve. Whole wheels were necessitated in place of the old three-quarter arrangements, and often the still simpler one of leverage only. King's College, Cambridge, has the honour of having possessed the first ringing peal of five in the kingdom. According to one tradition they were a present from Pope Calixtus III. to the college; and, according to another, they were taken by Henry V. from some church in France after the battle of Agincourt, and by him presented to the college: possibly the archives of the college may be able to clear up the matter; at any rate, they were only chimes like other bells in that generation, though it is highly probable that they were the first peal on which the art of change-ringing was tried. They were heavy bells, the tenor being as much as 87 cwt.; whereas the tenor of the present famous peal of the University Church in that town is only 30 cwt., or half the weight. These bells were hung in a wooden tower westward of the present chapel, and are alluded to by Mr. Major, the historian, who, writing about 1518, states that whilst he was of Christ's College, he frequently lay in bed to hear the melody of these bells, which were rung early in the morning on festivals; and, being near the river, was heightened by the reverberation of the water. On the taking down of the bell-tower the bells were suffered for many years to remain unused in the ante-chapel, but were sold about the year 1750 to Phelps, the bell-founder of Whitechapel, who melted them down. I suspect their sale had something to do with the erection of some new college buildings.

Peals of eight were hung in a few churches early in the seventeenth century. In 1677 came out the first book on ringing; and soon after the number of peals was increased to ten, and then to twelve. The first peal of twelve was hung in York Minster in 1681, tenor 63 cwt.; Cirencester, in Gloucestershire, followed next; then St. Bride's, London, in 1718; St. Martin-in-the-Fields, 1726; St. Michael's, Cornhill, 1728; St. Saviour's, Southwark, 1735.

The honour of the invention of change-ringing is said to belong to a Mr. Benjamin Anable, who died at an advanced age in 1755. His methods were much improved and enlarged by Mr. Holt. These, together with a Mr. Patrick, have produced some of the most celebrated peals.

In conclusion, this lecture has been for the most part but in outline; time has not allowed me to fill in many a detail which I could have wished. My object, however, has been rather to suggest than to satisfy,—to give you the starting-points from which to prosecute your own researches, as opportunity or inclination

may offer; I trust, therefore, it may not fail of some practical effect. Taken as works of art, our bells need a re-infusion of ancient taste; there is no reason why they should not be made as comely in shape and ornamentation as they were in the fourteenth and fifteenth centuries. There is no want of appreciation amongst our bell-founders of the beautiful lettering, stops, and crosses on many a bell which comes to them, alas! only to be melted down. I have been favoured with the loan of a very beautiful volume, belonging to the Messrs. Mears, containing *fac-similes* of many of the best ancient bells that have been sent to them for recasting, and with only some encouragement from the patrons of art, we should see our bells once again such as we might be proud to own; and not only in the matter of decoration, but still more in shape, in composition, and consequently in quality of tone, should we push on for improvement. With the scientific knowledge and applications of the present century we ought even to surpass the bell-founding of previous centuries, though we may learn of them to advantage in many things. We have seen great progress in the minor details of art, both sacred and secular, within the last few years; it has arisen in great measure from carefully tracing its sources and investigating first principles. There is much yet to be learned on the subject of bells, much to be done before we can hope to arrive at the perfection which was attained even three centuries ago, when the following inscription could be honestly written:—

"Me melior vere
Non est campana sub ere,"

STREET ARCHITECTURE OF THE OLD TOWN OF EDINBURGH.

In this paper we purpose noticing some of the distinguishing features or characteristics of the architecture of the Old Town of Edinburgh. No one can have visited the northern metropolis and have failed, as he walked along its noble Princes-street or North Bridge, to be struck by the picturesque effect produced by the lofty range of houses which, crowning the back-bone of the city, as it were, and stretching from the Palace of Holyrood to the Castle Rock, rise to a height of from seven to a dozen stories, and break the sky-line by their crow-stepped gables and high chimney-stalks. Involuntarily he finds himself repeating Sir Walter Scott's enthusiastic apostrophe:—

"The height,
Where the huge castle holds its state,
And all the steep slope down,
Whose ridge back heaves to the sky,
Piled deep and massy, close and high,
Mine own romantic town."

There is a large class of visitors, however, who make no nearer acquaintance with this same Old Town, or are contented with such glimpses as they obtain of it in traversing the bridges on their way to visit the University and the Industrial Museum, or in proceeding from the Council-chambers up the Lawn-market, to view the Scotch regalia which are preserved in the castle. These are lions which must be done; but the tower but seldom proposes or is requested to guide the stranger to any of the numerous wynds or closes which debouch off the main thoroughfares, or to the courts they lead to. Strange apathy! for these were once the abodes of the chivalrous and the fair, of the *ancienne noblesse* of Scotland, of eminent statesmen and dignified ecclesiastics, of the highest ornaments of the bench and bar, of philosophers and poets. The noble families of Gordon, Lauderdale, Hopetoun, Argyll, Sutherland, Moray, Guise, London, Lindores, and others, dwelt in those wynds. There, from that window, did John Knox thunder forth his biting denunciations of Popery: from the balcony of that other, forgetful alike of lady-like dignity and of the forbearance due to a fallen foe, did the newly-married Marchioness of Argyll stand in the midst of her wedding guests, and spit at the gallant Montrose, as he was led into Edinburgh, in humiliation and contumely, to abide his execution. From that staircase, in the Grassmarket, did a determined and resolute mob, not yet a century and a half ago, taking justice into their own hands, hang Porteous, the obnoxious captain of the Old City Guard, from a dyer's pole. Down the Bow there, if you will believe tradition, thundered Satan himself in a carriage, drawn by six headless horses, to pick up for a midnight drive his friend, the infamous Major Weir, who in

1670 had been strangled and burned at the foot of the Calton Hill, on the spot where now stands Lady Glenorchy's church.* The inn where Dr. Johnson and Boswell lodged, and where the former, as Lord Stowell informs us, got into so violent a passion at the waiter for sweetening his lemonade with his fingers; the house where the author of "Humphrey Clinker" resided; and that other where David Hume first saw the light,—surely those ought to attract the steps of many a pilgrim. What a galaxy of legal talent, too, has dwelt in this Old Town! Sir George Mackenzie, the bloody Lord Advocate, as his detractors termed him; that other Mackenzie, known from his principal work as "the Man of Feeling;" the Earl of Stair (author of the "Institutes"); Lords Fountainhall, Glenlee, Corhouse, Bankton, and Braxfield,—these are but a few of the celebrated juriconsults who were denizens of Auld Reekie. Indisparably associated, too, with these old wynds, around which they have thrown a halo of poetry, are Allan Ramsay, Robert Ferguson, Robert Burns, and Sir Walter Scott.

In Sebastian Munster's "Cosmography," published at Basle, in 1550, there occurs this passage in a descriptive notice of Edinburgh:—"From the High-street (*Vicus Regius*), there extend both to the north and south many alleys, all of which are replenished with lofty houses; as is also the Cowgate (*Vicus Vaccarum*), in which dwell the patricians and senators of the city, and in which are the palaces of the magnates of the kingdom, where nothing is humble or rustic, but all is magnificent (*ubi nihil est humile aut rusticum, sed omnia magnifica*)." Hear another witness writing seventy years later—John Taylor, the Water-poet of London, in his "Pennyless Pilgrimage," thus speaks of the Canongate:—"Herein are gentlemen's houses, much fairer than the buildings in the High-street, for in the High-street the merchants and tradesmen doe dwell, but the gentlemen's mansions and goodliest houses are obscurely founded in the aforesaid lanes: the wallies are 8 or 10 foote thicke, exceeding strong; not built for a day, a weeke, a month, or a yeere, but from antiquity to posterity for many ages."

The glory of these old buildings or lands has indeed faded. No longer inhabited by the noble and the wealthy, many of them have been abandoned to the very lowest dregs of the population,—a hungry "half-fed, half-sarkit" race of low Irish and Scotch being the tenants. "Decay's effacing fingers" have been busy in earnest,—

"Fire, time, and modern taste, the worst of all,
Have swept in ruthless zeal across the scene."

Enough, however, still remains to interest the antiquary and the architect.

The different progressive stages of the Old Town architecture are well defined, and afford a good test of the different ages in which each building has been erected, which again can be verified by the numerous armorial bearings, inscriptions, and dates carved upon them, as well as by documentary evidence.

In what may be termed the first stage of the domestic architecture of Edinburgh, or that prior to the commencement of the sixteenth century, the tenements† or houses of the better class consisted of a substantial ground flat, surrounded by a second story of wood, access to which was obtained by an outside stair. The roofs, which were very highly pitched and pierced by storm-windows, were covered with thatch. Specimens of houses of this period are still to be met with in the Grassmarket, the Cowgate, and the Pleasance; slates, however, having been substituted for the thatch. Sometimes the

* "An' then there's the Major, sin' lea winna ser' him,
His servinde haids o' the Crook o' the Bow,
Wi' his titte, sin' better folk wanna gang near him,
Come thundering at midnight in glamour a' low;
The Deil for their cooshman's a whup wi' some anedum."

As needs mair wha drive wi' Auld Clootie to lead 'em,
Hurrying down, stotterin' an' stumblin',
The gleer ye gang better luck aginst tumblin'!

Or belyve, for a change, just as twal 'is a bangin',
Whir, coo' frae the pond, in a whirlwind o' flame,
Wi' a clout, wi' a low frae the causey it's changin',
The headless hell-charger gangs gallopin' hame;
I'll luck to the loon says gude o' en as he's gangin',
He were better ga' down the Wat Bow to his bangin'.
Hurrying down, &c."

† A tenement often contains a number of houses. "Tenement," as a word for house, is used everywhere in Scotland in reference to any species of street building; but *land* from its long ago applied exclusively to the tall houses of the Old Town, which were invariably divided into flats, is only at this day applicable to that description of mansion, and is confined to Edinburgh.—"Introduction to Chambers's Reekie," xvi.

second story projects over the first, and, resting upon wooden beams, forms a kind of piazza. An example of this is to be seen immediately to the east of Baron Grant's Close, in the High-street, although the piazza has been blocked by windows in such a way as to seem at first sight to form a basement story running flush with that above it. Better examples, although of a later date, are the timber-fronted tenement at the Bow-head, and another at the head of the High School Wynd. Merchandise was exposed for sale in these piazzas.

The year 1608 saw the dawn of another stage in the domestic architecture of the capital. In that year King James IV. passed an edict, giving permission to the citizens to extend their houses 7 ft. farther into the street by means of wooden projections. As an inducement, they were allowed to cut down and remove, without any charge, the oak and other timber which then covered the Burgh Muir. The burghers rapidly availed themselves of the privilege thus granted to them; and the result is those grotesque piles of gable-fronted houses with each succeeding story overhanging the one beneath it, which seem to the astonished tourist more likely to topple over than even the leaning Tower of Pisa. Go into the closes, too, and the opposite lands have approached one another so as almost to touch. The denizens of these "timber-fronted lands" may shake hands across the common street without leaving their respective homes to any further extent than putting their arms out at their windows. This style of building continued more or less in vogue until 1677, when, on account of the danger to which the inhabitants were exposed from fire, a law was passed prohibiting the erection of wooden buildings within the burgh.

Another peculiarity arising from the permission to project the upper flats into the street, consisted in the position of the gates which defended the mouths of the wynds. These having been placed there at the first erection of the buildings, came to occupy a position 7 ft. behind the front of the street. The gates have indeed been removed, but the heavy iron hooks on which they were swung and the gateways still remain.

An outer or fore stair led up to a gallery in the second story in the wooden houses, or to a doorway in those of stone. An instance of the former arrangement may be seen in the house below Baron Grant's Close, already adverted to, and a stone land at the head of Blyth's Close, in the Lawnmarket, especially noticeable from its having the aphorism *LA V'S DEO*, and the date 1591,* wrought in antique iron letters and figures on its front, presents an example of the latter. Another very common arrangement, though of somewhat later date, was to have the staircase placed in a circular or octagonal tower situated at the back of the building and running up its entire height. Access to the doors of these towers is obtained by an archway communicating with the front of the street. As the door is almost invariably placed at an oblique angle to the passage or archway, it is probable that this was done more for security than convenience of access, the opposite wall preventing the use of a battering-ram against the door. These staircases are generally well lighted by large square windows, crossed by parallel slips or bars of wood; and the stairs, which are called *turnpikes* in Scotland, ascending in corkcreek fashion round a newel, are broad and of easy ascent. Good examples of this species of staircase tower may be seen by passing through the Old Playhouse Close or Coopers' Entry, both of which are situated on the south side of the Canongate.

Sometimes where the site of the staircase is necessarily cramped by neighbouring buildings, the doorway enters under a boldly corbelled out angle. An excellent example of this may be seen in the first court in Riddle's Close in the Lawnmarket. Near John Knox's house there is a curious hanging turnpike stair, supported on corbels, which are formed by the projection of the stone steps on the first floor beyond the wall. There is a very beautiful staircase tower surmounted by a dormer window, which occupies the right angle formed by two buildings on the south side of the Grassmarket, and is corbelled out, so as not to impede the entrance to a close, which, running flush with the wall of the one house, passes underneath the end of the other. Upon

entering any of these staircases, the visitor may possibly discover a square hole in the wall, the purpose of which he is not likely readily to discover. One end of a thick wooden beam used to be slipped into this, and the other resting against the closed door, afforded great security against any attempt made to force it. Sometimes, as is the case with Sir Archibald Acheson's house in the Canongate, the bar was slid into two holes, one at either side of, and behind the, door.

The stone lands are generally very lofty, rising to a height of seven and eight stories towards the street; while, in consequence of the precipitous character of the hill on which they stand, their back façades have as many as ten, eleven, and twelve flats. The gables are ordinarily surmounted by a tall chimney stalk, or stack of chimneys. Sometimes they terminate in a finial, as is the case with one of the gables in the Abbot of Melrose's mansion in Dickson's Close—the finial being in the form of a curious *fleur-de-lis*. A *fleur-de-lis* also crowns the very lofty stone gable of the house second from the Bow-head; and there is a very large and beautiful Scotch thistle surmounting a gable on the south side of the Grassmarket. Most frequently the gables face the street, and their different heights and angles add much to the picturesque appearance of the streets of the Old Town.

Occasionally we find a half gable crow-stepped, and terminating in a lofty chimney-stalk. There is an excellent example of this in Milne's-court, which, irregularly studded with glistening oyster-shells, presents a very picturesque effect, as seen from the Mound towering over and behind the Free Church College. The stone gables are almost invariably crow-stepped; and the earlier examples present a series of pediments surmounting the steps. An excellent example of these pedimented crow-steps may be seen on the gables of the Cunzie House, or Mint, which stands in the Cowgate, and the principal entrance to which bears the date 1574. A little timber-fronted building in the Candlemaker-row, and at the south-east entrance to the Grassmarket, known as the *Cunzie Nook*, shows a series of lofty French-like crow-steps surmounted by pediments. The pediments are frequently richly decorated. At a later period, when the plain square crow-step was adopted, the lowest of them generally bore the arms or initials of the founder or the date of the erection. In Dickson's Close, a stone tenement, dating from the early part of the sixteenth century, has the Haliburton arms sculptured on the lowest crow-step. The monogram I. H. S. occupies the same position on a building in the College-wynd, which at one time was a *collegium sacerdotum* in connexion with the Church of St. Mary-in-the-Fields, and the tailor's device of three balls of thread is similarly situated on their fine old hall in the Cowgate, memorable from the fact of from 200 to 300 of the reformed clergy having met there in 1638, to consider the Covenant before presenting it to the multitude for signature. Several ranges of crow-steps run up the centres of the roofs of the palatial hospital of George Heriot, built in the beginning of the seventeenth century.

The roofs of the sixteenth and seventeen centuries are often ornamented with cannon-shaped or grotesque gargoyles, which serve the purpose of gutters. Good examples of the former kind may be seen on an old grim-looking tenement on the south side of the Castle Hill, which belonged to the ducal family of Gordon, and on the fine tower of St. Magdalen's Chapel in the Cowgate; and on the roof of the Abbot of Melrose's mansion, in Dickson's Close, there is a very curious gargoyle of antique form.

Dormer windows, with gables running into the roof, are very common in houses of the sixteenth and seventeenth centuries. They have generally triangular pediments, more commonly of stone than of wood. The pediment is sometimes crow-stepped—more frequently surmounted by a finial. These finials vary very much in design—the thistle, rose, *fleur-de-lis*, crescent, escalloped shell, and Templars' Cross being the more frequent devices. Within the pediment are sometimes found sculptured the arms, initials, or monogram of the original owner, or of himself and wife. On the east wing of the Tailors' Hall there is a pediment over a window, with *fleurs-de-lis* at the two sides and the apex, and a pair of shears, and the date 1621 sculptured within. The pediment of one of the windows of Sir Archibald Acheson, of Glencairney, in the Canongate, contains the initials of himself and wife. In some cases, where the dormer windows are half above and half below the level of the wall,

a bold string-course is carried round their lower halves, and immediately beneath the roof.

In buildings of the time of James VI. and Charles I., the highly-pitched roof has occasionally a second tier of dormer or storm windows, presenting the picturesque appearance of the steep old Flemish roofs. The ancient hostelry in the White Horse Close, the front land through which runs the Playhouse Close, Lord Dirleton's house in the Canongate, the tenement immediately behind the Old Corn Exchange in the Grassmarket, and another in St. Mary's Wynd, are favourable examples of houses with two ranges of dormer windows. A more particular description of the two first-mentioned buildings may interest the reader. The White Horse Close has been said, but on no very reliable authority, to owe its name to Queen Mary's having kept a white palfrey at stables there. It possesses the additional fictitious interest of being the quarters assigned by Sir Walter Scott to Captain Waverley, after he had joined Prince Charles Edward's standard in 1745. The hostelry, to which most antiquaries assign the beginning of the seventeenth century as the period of its erection, presents, when viewed from the north back of the Canongate, an imposing and uniform range of buildings resting upon a series of low-browed arches, now all blocked, with the exception of one which gives entrance to the inner court. The basement story, which is strongly arched, was, according to a very common arrangement in the seventeenth century, fitted up as stables. The gables are crow-stepped, and the roof, which is very steep, has two ranges of dormer windows, nine in the first row and three in the other. Passing under the open archway, the visitor ascends a steep pend, and finds himself in a large open court of an oblong form, where he has an opportunity of examining the south façade, less regular, but perhaps on that account more picturesque than the northern. A broad flight of stone stairs, flanked by substantial sloping walls, leads up to the first landing, and, diverging to the right and left, gives access to two very picturesque wooden porches overhanging the basement story. They are surmounted by triangular pediments, now made to serve as dove-cots. On one of the dormer windows of this front is incised the date 1623, which is probably that of the erection. The court, on the east and west sides of which there are several antique houses with outside stairs, communicates with the Canongate by another archway, which passes underneath an old tenement known as Bishop Paterson's house.

The land, the centre of which is pierced by the Old Playhouse Close, is a substantial four-storied house of polished ashlar, and stands a little back from the other houses in the Canongate. The first row of dormer windows, five in number, have plain triangular stone pediments, crowned by finials representing a thistle, rose, *fleur-de-lis*, shamrock, and star respectively. The windows of the second tier are the same in number, but are considerably smaller, and are surmounted by wooden pediments. I have already taken notice of the staircase tower at the back of the building. Over the entrance to the stair there is an ornamental tablet with a Latin inscription, which is now so much defaced and obscured by white-wash as to be all but illegible. The gables have plain square crow-steps. This house, the lower portion of which is at the present day a tavern, was built in Charles I.'s reign. Nearly opposite it a radiated arrangement of the caseway indicates the original site of St. John's Cross, which now stands against the wall of the Canongate Tol-booth. The spot marks the ancient ecclesiastical boundary of the city. The lion heralds still read the Royal proclamations at this spot.

Many houses belonging to the sixteenth and seventeenth centuries have bartizaned roofs and ornamental copings. The house referred to as standing on the south side of the Castle Hill is thus bartizaned, and another excellent example was lately pulled down to make room for the erection of the new corn exchange in the Grassmarket. Upon these bartizans and the fore-stairs the citizens were wont to assemble to view processions, pageants, and other sights of interest. A historian of Queen Mary's time tells us, that when that unfortunate lady was brought along the street, after being taken into the keeping of the Confederate lords at Cuthbert, the women stood on these stairs, and reviled her with vulgar abuse, in reference to her late infamous marriage.* The fact of the Grass-

* This land is undoubtedly much older than this date, which it is probable was placed on the ashlar front after removing the wooden front.

* Introduction to Chambers's "Reekians," p. xxy.

market having been from Charles II.'s time till 1784 the common place of execution may account for the prevalence of bartizaned roofs on its buildings.

In the better class of the older mansions the windows were divided by stone mullions, and were furnished with leaden casements. Occasionally they were also divided by stone transoms. There is a fine old tenement in Chalmers's Close, reasonably presumed to be the mansion of John de Hope, who came from France in 1537, and was the founder of the noble family of Hopetoun, in which the principal windows have clearly been divided by stone mullions and transoms, and are ornamented with rich mouldings at the sides. In another old building on the west side of Blackfriars' Wynd, which has a timber front, there are moulded windows which present traces of having been divided by stone mullions, on the original ashlar *façade*. The same is true of the neatly-moulded windows which adorn an old stone *land* in Baxter's Close in the Lawnmarket, interesting, it may be mentioned, *en passant*, as having been the house in which Burns first lodged in Edinburgh.

Another description of window was divided by a wooden transom, the upper half being glazed and the lower filled in with wooden shutters, often very finely carved on the exterior. Good examples of this kind of window are to be seen on the square turret of the Cunzie House in the Cowgate, in Riddle's Close, Lawnmarket, and on a projecting staircase on the north side of the Grassmarket. There are a good many such windows in the older houses in Leith. The shutters are generally made of oak, and the most common ornaments are the egg and arrow and the linen pattern.

In Baxter's Close, in the Lawnmarket, there is a very curious succession of windows, one above another, divided by such narrow lintels or transoms as to present the strange appearance of one single window from top to bottom of the building. The same peculiarity is observable in Heriot's Hospital, where the segment of an octagonal tower in the south *façade* is lighted through its whole extent by a succession of Gothic windows, filled with stained glass, and separated only by transoms, which thus form one lofty oriel.

Occasionally the window is boldly corbelled out from the wall. There is a beautiful double window corbelled out in this way in an old stone tenement of the early part of the sixteenth century in Dickson's Close; and Heriot's Hospital presents several examples, the most noticeable being over the entrance from the quadrangle to the chapel.

The lintels of the windows not unfrequently have carved upon them, in bold relief armorial bearings, inscriptions, and dates. There is a stone tenement in Baillie Fife's Close with a window on which are carved two stars in chief, and a crescent in base—the family arms of the Trotters—with the initials T. T. and J. M., and the date 1612. Sometimes in the older houses, while the Gothic style was yet predominant, the windows are found ogee-arched. In a projecting staircase on the east side of the College Wynd, there is a window so shaped. It is fitted with the antique oaken transom and oaken shutter beneath.

Pediments are common over windows belonging to the seventeenth century, and frequently contain inscriptions. In the house in Trunk's Close, built by Sir John Scot, of Ancrum, in 1670, there is a window, the pediment of which contains this aphorism:—"Hodie · Mihi · Cras · Tibi," boldly carved in Roman letters. The pediment over one of the windows of the Tailors' Hall has sculptured within its tympanum a pair of shears (the badge of the trade), the date 1621, and this inscription:—"God · Give · The · Blessing · To · The · Tailor · Craft · In · The · Good · Town · Of · Edinburgh." It may be mentioned in this place that Heriot's Hospital, founded in 1628, has no less than two hundred pedimented windows. The pediments are triangular, semicircular, and open in the middle, the design being exactly alike in no two of the whole number.

During the seventeenth century, when the Gothic forms began to give place in Scotland to the unbroken lines of Italian composition, instead of the former windows breaking the line of the roof, we find the pedimented window appearing as a panel in the wall face beneath. A very good example of this is to be seen in Aberdour House.

Ornamental string-courses, often very irregular, ornament the better class of the old

ashlar-fronted buildings. In houses of the seventeenth century, the eaves string-course is often carried round the windows, giving the latter the appearance of projecting from the wall.

Many of the houses built prior to the Reformation have decorated niches often let into abrupt corners, which doubtless once contained statues of the Holy Virgin and lamps to arrest the attention of the passers by. Over the gateway of the *Collegium Sacerdotum* in the College Wynd, previously adverted to, there originally stood, although it has since been transferred to another part of the building, a highly decorated Gothic niche with an ogee arch, above a lintel, on which is beautifully sculptured this pious wish,—"Ave Maria, Gratia plena, Dominus tecum." Niches are also to be found on buildings of a date later than the establishment of the reformed religion, which were probably occupied by the busts or effigies of the founders or of eminent persons. Over what was the principal entrance to the Cunzie House there is an ornamental niche now empty, and beneath it, on the lintel of the door, is the inscription in Roman letters, "Be · Merciful · To · Me · O · God · 1574." The south *façade* of the Morocco Land in the Canongate has a curious effigy of the Emperor of Morocco in Oriental costume occupying a pulpit, which projects from a niche over the second story. This effigy was placed there in the year 1574. On the picturesque old house in the High-street, for long the residence of John Knox, one of the angles has a small effigy of the Reformer occupying a pulpit. His right hand points to a carved stone or tablet, on which is carved the name of the Deity in Greek, Latin, and English.

Ornamental stone tablets, with armorial bearings, devices, and inscriptions, carved upon them are very common, and are to be found on all parts of the exterior, although the most common position is over the principal doorway. The Shoemakers' land, in the Canongate, has a tablet of this kind over the main entrance. It is highly ornamented with *cherubs' heads*, and contains the Shoemakers' arms and the date, 1677, while on the pages of an open book is carved the first verse of the 133rd Psalm. A tablet over the door of a lofty stone tenement in the Cowgate has a sculptured representation of two men carrying a barrel, *sting and ling* fashion,—that is suspended to a pole resting on the shoulder of each.

A great variety of design is observable in the principal doorways. Pointed arches are to be met with, but they are rare. There are many beautiful Gothic doorways, with ogee arches and sculptured tympana, dating chiefly from the beginning of the sixteenth century. In Blair's Close, a turnpike stair, which forms the original main entrance to the whole building (that already mentioned as the residence of the Dukes of Gordon), is entered by a handsome Gothic doorway, surmounted by a sculptured tympanum, which, unfortunately, is greatly disfigured by whitewash. The arch is ogee, and in the tympanum are sculptured a coronet and two deer-hounds as supporters. The Earl of Morton's residence, on the west side of Blackfriars' Wynd, has a similar doorway, the tympanum containing a coronet supported by unicorns.

In houses of the sixteenth and seventeenth centuries the doorways are generally square-headed and richly moulded. Their architraves and lintels are in general decorated with sculptured coats of arms, the names and initials of the owners or founders, and inscriptions chiefly of a pious character, others being terse and epigrammatical. On the east side of the Fountain Close there is a highly-ornamental entrance, consisting of two doorways, on each side of which narrow pilasters support the architrave. Above the pilasters are sculptured the words and date, "Vincit Veritas, 1573," while the architrave bears the names of the proprietor, Adam Fullerton, a zealous friend of the Reformation, and of his wife, and the inscriptions, "Only · Be · Cryst" and "Arye · O · Lord." On the architrave over the principal door of an ancient mansion in Blackfriars' Wynd, there are sculptured a shield with armorial bearings, and the date 1619 above, and a hand beneath, the index finger of which points to these inscriptions:—

"In · To · Domine · Speravi.
Pax · Intrabitibus
Salus · Euentibus."

Over the doorway which gives access to the curious hanging turnpike stair in Society's Close, already mentioned, is the following inscription:—

"R. H. Hodie · Mihi · Cras · Tibi · Cur. igitur · Curas."

The date is effaced. Over the entrance to Rae's Close there is sculptured the following beautiful prayer, unfortunately partly concealed by a modern shop-front:—

"Misere Mei Domine; A Pecato, Probo, Debito,
Et Morte subita, me libera · 1 · 6 · 1 · 8."

Similar inscriptions in Latin and in Scotch, many of the latter being quotations from the Psalms of David, are to be found in great abundance, both on the architraves of the doorways and in the ornamental stone panels which are of so frequent occurrence on the *façades* of houses of the seventeenth century. We shall only add one or two more examples of the "proverbial philosophy" of the period. On the Marquis of Huntley's house occur these two inscriptions:—

"Constanti · Pectori · Res · Mortalium · Umbra;"

and

"Ut to lingue tue, sic ego mear: aurium Magister sum."

The Canongate Tolbooth exhibits the following:

"J · R · S · Justitia et Pietas Valide sunt principis arcus."

and this piece of doubtful consolation to those incarcerated within its walls:—

"Sic itur ad astra."

The letters of these inscriptions are sometimes variously coloured, and the coats of arms emblazoned, as is the case with the burgh arms upon the Canongate Tolbooth.

It is not easy to understand how so few of the doors themselves remain. They were generally made of oak, and studded with iron nails or knobs. There is a fine oak door, ornamented with fine carving, to be seen in what has been the principal entrance to a large mansion in South Foulis's Close.

The doors of the older houses were furnished with risps or tirling-pins in lieu of knockers. These consist of a notched or rasped iron rod, up and down which the applicant for admission draws an iron ring. The London reader may see a couple of these tirling-pins in the British Museum, and when he visits Edinburgh he will find one on the door of an old tenement in the College Wynd and another in Toddrick's Wynd. A very handsome one was removed, a few years ago, from an old door of the Cunzie House. Allusion is made to the risp in this verse of an old Scotch ballad:—

"There came a ghost to Margaret's door
Why money a grievous groan;
And aye he tirl'd at the pin,
But answer made she none."

DESTRUCTION OF BUILDINGS BY FIRE.

THE reference made in our recent article on the destruction of Saville House,* to the fact of the great length of time that elapsed before the fire was communicated to the top story, notwithstanding extraordinary fury of the fire in the story next below, led soon afterwards to inquiry into the structural formation of the flooring; which last, we had remarked, could not have been of the ordinary description, or as in the common kind of London house. Upon an investigation of the circumstances by Mr. T. Hayter Lewis, who is surveyor to the Union Insurance Office, and holds a similar position under the committee of the London Fire Brigade, it was found that the flooring between the two stories had been constructed very nearly after the manner, and with the features, to which we alluded as capable of affording a considerable amount of fire-resistance. Mr. Lewis, in writing to us, says,—"There was a good plastered ceiling; and the space between ceiling and floor was filled in, to a considerable extent, with small sea-shells (bivalves); one of which I send you with this. They had been put in loose, and not cemented or concreted together in any way." He also says that the floor-boards were tongued, in great part at least. The shell is a common cockle-shell.

This explanation affords to our mind proof that the value of a plaster-ceiling, well laid, and of the best constructed floor, with pugging, is considerably greater than has been lately estimated, judging from practice, and from the use of the term *fire-proof flooring* for methods of construction which may be inferior,—or rather, probably are so by very much. But, that the entire impression of this should be felt, it would be necessary to have witnessed the fury of the flames to which we alluded. The valuable

* Page 167, "Saville House: Why was it Burnt?"

lesson to be learned for improved construction of that class of buildings in which fire peculiarly involves danger to life, is that vacancies between timbers, and behind skirtings and similar finishings, should be avoided, and that especial attention should be given to the plasterers' work, as well as to strength of joists.

In the article mentioned, we referred also to the necessity for greater attention than seemed to be given to the gas arrangements in many buildings. On the occasion of the inquest on the fire of Covent Garden Theatre, we remember that Mr. Braidwood mentioned some important facts as to the danger from gaslights placed at what might seem to be a sufficient distance below woodwork. It would be well that the results of any experience on this subject were now published. The recent destruction of theatres may be due to this cause, operating after long continuance of the desecration which buildings of this kind undergo nightly.

It seems that there is considerable misunderstanding as to the circumstances under which destruction of a building by fire may be due to an explosion of gas. Explosion does not occur except there be a mixture of the gas and air; and it will not occur if the air or the gas be greatly in excess, one of the other. The gases generated during an explosion of coal-gas (the gas of gas-lighting), and on or during combustion of the gas, are not only not capable in themselves of burning, but would if present to any large extent, extinguish fire. This is taken advantage of in the principle of Phillips's Fire Annihilator. But there is flame when a mixture of the gas and air is exploded; and such flame may ignite inflammable material with which it comes in contact. It would probably ignite any gas escaping from a pipe. Should the escape have been taking place near to any easily-combustible object, we may imagine how the latter might be set fire to; or, we may see how the same result could occur from the flame of the explosion merely.

THE ALBERT BRIDGE: FROM CHELSEA TO BATTERSEA.

In forming an opinion as to the relative merits of the systems of engineering practised in our own and in earlier times, there is at hand, perhaps, no readier means of enabling us to effect a comparison of this kind than by bringing into view the various styles and methods employed in the construction of bridges.

Dating from the times of the erection of the old and unsightly wooden structures, of which Battersea and Putney bridges yet remain as examples, we have, in the successive undertakings of this character, a sort of permanent record of the progress made in static science. Nor is it unimportant, perhaps, to observe along the pathway of architectural study which these numerous structures may be said to form, those points where art and science seem more to have approached one another, until at last, following up this observation to our own time, we may soon hope to see them blending, as it were, into the mass and design of the structure itself with such harmony that their points of contact will altogether disappear.

The most striking departure from any recognised model in the construction of bridges is more strongly suggested, perhaps, at that period when their openings or spans began to diminish in number and consequently to increase in size, thus requiring a smaller number of piers or supports. Prior to this time, the weight of such structures was upheld with a safety apparently proportionate to the number of openings of which they were formed, so that their foundations were not very wide apart. But this modification in the length of span gradually prepared the way for the introduction of the suspension system, which had for its object the removal of all the intermediate piers between those nearest the shore at either side; and it was considered at the time as likely to become extensively employed in practical engineering.

The application of some such means for effecting communication between the opposite shores of rivers, as well as in cases where shorter junctions were required, had for a long time occupied the attention of scientific engineers. The experiments carried out by Stephenson as to the erection of the tubular bridge between Anglesey and Carnarvonshire, were, upon these grounds, followed up with much interest. The incautious use of iron for purposes of this kind then began to be discussed abroad, and perhaps

somewhat opportunely, as an opinion seemed to have taken a pretty general hold that there were few laws or limits to its application. The conclusions therefore arrived at, at this time, marked an important era in constructive science.

The suspension system underwent innumerable and severe trials, and it resulted in the proof of its unfitness for structures of this class, where they were required of unusual magnitude, or to support heavy loads; although it was adopted upon a lesser scale, and where a comparatively small moving load, at slow speed, had to be sustained.

In the course of his experiments, it does not seem to have been largely considered by Stephenson or by Brunel, who sought to render it popular and useful, that the principle of suspension itself was amenable to modification and improvement. Owing to various and successive attempts brought to bear in this direction since their time, we now begin to see most of the more serious objections to its extended use disappearing one by one.

Some idea of its utility may be inferred from the fact, that notwithstanding the many drawbacks which had hitherto excluded it in so large a measure from the attention of the practical engineer, it, nevertheless, was attempted to be employed,—in many cases with great want of judgment, and in some, not without absolute danger. It had much in its favour, always on account of its comparative economy with the systems it was intended to supersede, but it could not easily escape being considered untrustworthy wherever a firm structure was required. Its cheapness alone, however, formed a recommendation which led to its being subjected to numerous trials; for at the time when it was first sought to be introduced, the cost of the construction of bridges was very great. London Bridge, for instance, which was begun in 1824, and finished in 1831, designed and built by Rennie, of granite, cost, with approaches, not less than 2,566,268*l.*; and Southwark Bridge, chiefly constructed of iron, was erected by the same engineer, at a cost of 660,000*l.* The approximate cost of the first suspension-bridge over the Thames, that erected by Brunel at Hungerford, was 90,000*l.*; the approaches, in this case, being of course less than in the others already named; but however great the saving in this as compared with the cost of other bridges, it still wanted that essential feature which could alone bring it into general use, by reconciling the public to freely adopt it. So great was the fear to employ this bridge for any other purpose besides passenger traffic, on account of its excessive oscillation, that while in London it seldom went by the name of the locality in which it was placed, as the other bridges along the Thames commonly do; but, up to the time of its removal, it was almost invariably known by the principle employed in its construction, which never failed to be associated with a certain sense of danger.

This feeling was no doubt exaggerated from the novelty of the thing, though from some points of view it was justified and acknowledged to be not altogether without foundation.

For some purposes such a class of structure was evidently impracticable; and, where anything beyond passenger and ordinary vehicle traffic had to be provided for, it was seldom employed. The suspension system accordingly appeared to have sunk into disuse, as, compared with what was expected of it, only a limited number of structures of the kind came to be erected.

The Albert Bridge, which, perhaps before this, we should have stated, is designed by Mr. Rowland Mason Ordish, of the firm of Ordish & Le Fèvre, engineers to the Amsterdam and Dublin Exhibitions, does not appear to resemble in its construction the ordinary and generally-known structures of its class. Its chief distinction, however, seems only to be, that it is secured from oscillation, or movement, it being virtually rigid in those parts which are moveable in the suspension-bridges already in use.

The want of stability formed, as is, perhaps, well known, one of the great difficulties, apparently, to overcome with regard to this class of structure.

The Albert Bridge is intended to be so constructed that it will support moving and stationary loads with a safety equalling that of any of the bridges at present used for purposes of railway traffic over the Thames; while it is stated to be more adapted for this purpose where wider spans have to be bridged over, so that it is capable of being used where other structures

could not be erected with facility for purposes of railway accommodation.

The Albert Bridge will be erected over the Thames uniting Oakley-street, Chelsea, to the Albert-road, Battersea Park; and has already been commenced at the Albert-road abutment.

We give a general view of the intended bridge. The piers, as shown on the opposite page, will be formed of cast-iron cylinders filled in with concrete and masonry. The diameter of the cylinders above high-water is 16 ft., and beneath the bed of the river 22 ft. On the tops of the cylinders a series of ornamental cast-iron brackets are arranged, forming, as it were, a sort of capital to the cylinders, and supporting the footway where it is necessary for it to pass round the base of the towers without interfering with the uniform width of the roadway. The two columns forming each tower are connected at the top by an ornamental lattice girder, under which an arch is formed of ornamental cast-iron spandrels, which terminate about half-way down the length of the columns at either side. The engraving at top of page shows where the Catenarian chain is suspended at the extreme height of the towers, and immediately beneath the portion which incloses the saddles of the main chains. The engraving at the bottom shows the anchorage of the main chains and general outline of the abutments. The other details explain themselves. The bridge will have three spans, the middle one being 453 ft. 6 in., and the side openings each 152 ft. 3 in., which, with the diameters of the piers, will bring the total length of the bridge, exclusive of the length of the abutments, to 790 ft. The width of the bridge will be 40 ft., forming a roadway of 26 ft. 6 in., and two footpaths, each 6 ft. 9 in. wide. The platform will be supported by iron chains, extending in straight lines from the abutments to the tops of the towers, and thence to the required points of the roadway, forming a series of bold triangles with the longitudinal girders and towers. The main chains will be kept straight by means of an auxiliary curved chain suspended above them along their entire length. This is permitted to slacken until it assumes a deflection corresponding with the inclination of the main chains to the roadway, and then, when "set," vertical tie-rods will connect it to the main chains.

As the Catenarian chain acquires its maximum deflection where the major angles intersect, the rods which unite it to the main chains do not reach any undue length.

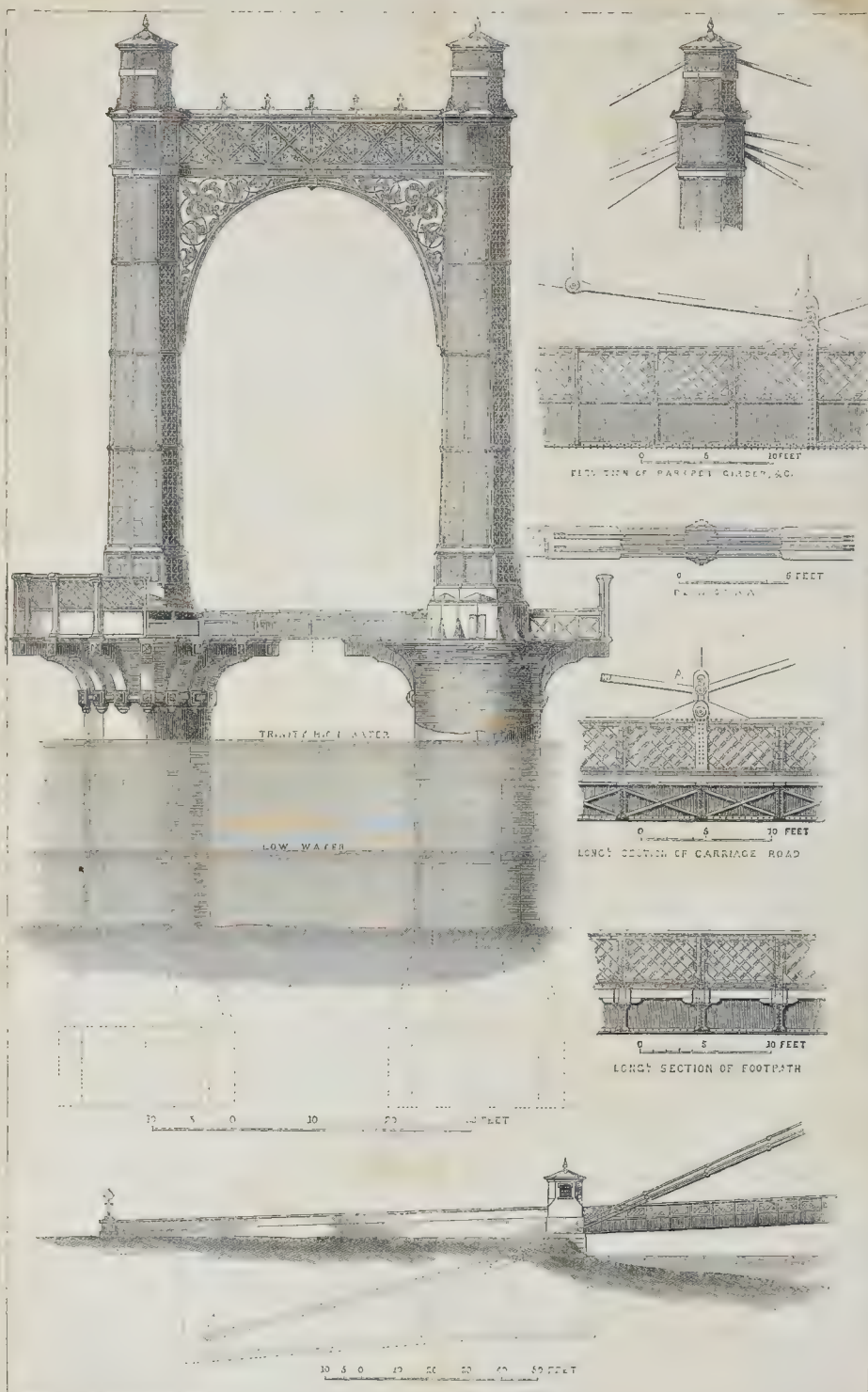
Thus there is apparently altogether attained a reciprocal or combined rigidity, as far as this word may be used with reference to structures of the kind, between the ties, the Catenarian, and the main chains,—a combination which is, perhaps, worthy of being regarded as a very interesting result of science as applied to modern engineering.

The Albert Bridge appears to possess many new features as compared with existing bridges. For instance, whereas in Chelsea and Hammer-smith bridges a girder runs at either side along the entire length of the roadway dividing the carriageway from the footways, and separating the width of the bridge into three comparatively narrow channels in the Albert Bridge, both these are done away with. In most of the suspension-bridges at present erected, also, the roadway, where it passes through the uprights forming the towers, becomes contracted, and afterwards enlarges to its original width again. This, also, is obviated in the Albert Bridge, the roadway of which remains the same right throughout until it enters upon or blends with the approaches at either side, where it assumes their width.

The introduction of this modification of the principle of suspension structures will probably form a new starting-point in some of the wider paths of practical engineering.

It is already introduced on the Continent; a bridge similar in construction to the one from which our illustrations are taken, being likely soon to be commenced over the Moldau at Prague, by the well-known Austrian contractors Messrs. Klein, Brothers.

FALL OF A NEW PIER.—On Sunday last a new pier in course of construction at New Brighton, Cheshire, gave way, and upwards of forty people were precipitated on to the shore. Fortunately the tide was out, and beyond the shock caused by the fall, no person was severely injured.



ALBERT BRIDGE, ON THE THAMES. DETAILS.

VIEW OF PROPOSED ALBERT BRIDGE, TO CROSS THE THAMES FROM CHILSEA TO BATTERSEA.—MESSRS. OGDEN & LE FEUVRE, ENGINEERS.



A REGULATING THERMOMETER.

A THERMOMETER that will control the temperature of the surrounding medium and maintain it at any required degree of heat must be invaluable for hospitals, greenhouses, laboratories, for the hatching of eggs, silkworms, and for any case in which a uniformity of heat is necessary. A new instrument, invented by M. Jules Maistre, has perfectly succeeded in accomplishing this object, and it is thus described. A mercurial thermometer is provided with two pieces of platinum wire, one dipping into the mercury in the bulb, and another entering a certain distance into the stem. These wires are connected with the poles of a galvanic battery, so that when by the application of heat the dilation of the mercury causes it to touch the upper wire the electric circuit will be complete. The valve by which heated air is admitted to an apartment means to be open and shut by means of a lever attached to an electro-magnet, also in communication with the wires of the thermometer. Supposing that it be required to admit a supply of hot air so as to maintain a temperature not exceeding 86°, the upper platinum wire is let down as far as the given degree and the tube closed hermetically. When the expansion of the mercury has reached 86° the circuit is rendered complete, and the electro-magnet raising the lever shuts the valve for admitting the heated air. On the temperature falling below 86° the current is intercepted again by the mercury retreating, the lever falls, and the valve admits more hot air.

This apparatus can be usefully applied to some cases not mentioned by the inventor. The thermometer may be readily connected with an alarm-bell, or series of alarm-bells, in the event of undue heat taking place, or spontaneous combustion, or accident from fire occurring in any dwelling-house, shop, warehouse, store, or in the hold of a ship.

A NOTE ON THE PRESERVATION OF BRITISH ANTIQUITIES.

To many persons the opportunity of showing to others rare works of art, antique rarities, or places of picturesque beauty, noted for historical and other associations, is a source of even more pleasure than the possession of them. The spirit is commendable, and this good disposition has, doubtless, led to the advance of antiquarian knowledge, and to the improvement of artistic taste. It is, therefore, very desirable to afford every encouragement to those who have a desire in this way to please and benefit the public.

In many instances the keeping up of extensive ruins is a cause not only of considerable expense, but also of anxiety and trouble. There are fitting custodians to be provided, and regulations made for the admission of those who may feel interested. Care must be taken that no damage shall be committed by thoughtless persons to objects of old date and curiosity, which, if destroyed, could not be again replaced; and it is the case with some who have possession of valuable antiquities, that while they have no objection under certain restrictions, to admit visitors, they do not desire to incur expenses to any large extent. The fees for admission to view parts of Westminster Abbey, St. Paul's Cathedral, and many of our other cathedrals and churches throughout the country, have long been, and still continue to be, a cause of anger and vexation; but then the deans and chapters of the metropolitan cathedrals, and those in charge of some other important ecclesiastical structures, will say that a want of pecuniary means for safely exhibiting those buildings, forces them to resort to a charge of so much a head for admission.

In the course of long and varied pilgrimages in most parts of Great Britain, we have in mansions stored with the choicest objects of interest, met with impediments and sources of annoyance, which were as vexations to the visitor as we believe the account of them would be to the proprietors. Feeling the wrong and inconvenience of leaving picture galleries and collections in the charge of avaricious, and too often ignorant housekeepers, several of the nobility and others have devised plans of admission by means of tickets, which can be easily obtained from the shopkeepers of the metropolis and the provincial towns. In some instances a charge varying from 1s. is made, and in certain cases the proceeds are devoted to

the assistance of some charitable or useful institution.

The main points to be considered in connexion with this subject are, to make scenes of interest as accessible to the public as can be done without interfering too much with the convenience of the proprietors or risking the safety of the treasures which have been collected. In all religious institutions there should, whenever it is possible, be free admission. All ruins and other vestiges of antiquity which are in the possession of the Government should be placed in the charge of competent persons.

The remains of many extensive fabrics, of rare and picturesque beauty, have been allowed to fall into entire wreck in consequence of the want of a little timely care. Under peculiar circumstances this might be afforded by the Government, especially when the ruins have a historic interest. In some cases help might, at a small outlay, be afforded by a local rate. There may be some difference of opinion on this point; but we think there will be none respecting the following arrangements, which have been a chief means of inducing us to make the preceding observations. They are reported in the Newport paper, and are to the effect that the Assessment Committee of the County of Monmouth have rated the ruins of Raglan Castle, as "a beneficial residence," at 40l. a year! The Duke of Beaufort has consequently closed the Castle to the public, thereby depriving tourists of a sight of one of the most interesting scenes in the country, and inflicting a severe loss upon the trade-people of the neighbourhood.

Many who read the account of this wrong step will hope that it may be speedily retracted, and that the strong opinions which have been expressed on the subject may prevent the example being followed in other directions.

THE POLAR LAND AND THE HYPERBOREANS.

YOUR ingenious correspondent, Mr. Dove! seems to have been misled by his love of mythology in suggesting that the mythical Hyperboreans had their dwelling in a polar sea-girt land, beyond the icy barrier of the north, and "beyond the cold north wind." He quotes the account given in Smith's "Geographical Dictionary," and says,—"It is with allusion to the mythical Hyperborei that the Arimaspi are spoken of, who steal the gold from the Griffins, whatever that may mean, and who live in a country where men sleep half the year, and the air is filled with feathers!" [enow].

Now, notwithstanding the story of the Arimaspi has no more to do with the north pole than with the equator, it is worth looking at, although the pages of the *Builder* are hardly appropriate for its discussion; unless, indeed, for the statement that this mysterious nation built temples, in the top of which was preserved the sacred fire. My object in writing this letter is to point out that a theory which would connect the Hyperboreans, of whom the ancients had heard, with the supposed polar sea-girt land, is untenable, and merely fanciful; and to remind your correspondent that the Hyperboreans, the Arimaspians, and the Scythians are represented as contiguous nations, between whom and the people of the Isle of Delos there was frequent communication.

Herodotus (book iv. 13) mentions that Aristæus, the poet, came to a people called the Issedones, beyond whom he found the Arimaspi, a nation who have but one eye; further on were the Gryphins, the guardians of the gold; and beyond these, the Hyperboreans, who possess the whole country quite to the sea. It would appear that Aristæus (if there ever was such a person) had given this account in a fragment known as the Arimaspians Verses, and that the Arimaspi had been made known in Greece by this Aristæus. Elsewhere (book iv. 27) Herodotus says:—"The Issedones" (whom he had previously described as a remote Scythian nation occupying the northern part of the tract now in possession of the Eastern horde of the Kirghis) "themselves affirm that the country beyond them is inhabited by a race of men who have but one eye, and by Gryphins, who are guardians of the gold. Such" (adds Herodotus) "is the information which the Scythians have from the Issedones, and we from the Scythians; in the Scythian tongue they are called Arimaspians, from *Arima*, the Scythian word for one, and *spee*, an eye." And (in section 32) he continues:

"Of the Hyperboreans, neither the Scythians nor any of the neighbouring people,—the Issedones alone excepted,—have any knowledge."

It is not surprising, therefore, that fables should have been invented about the Arimaspi and the Griffins. "It is affirmed," says Herodotus (book iii. 116), "that the Arimaspi take this gold" (he is speaking of the gold found in the North-west regions of Asia) "away violently from the Gryphins." The same fable is related by Pliny (Nat. Hist., lib. vii., c. 2); and Eschylus says:—

"Thus the Gryphins,
Those dumb and ravenous dogs of dove, avoid
The Arimaspians troops, whose flaming forehead
Glare with one blazing eye; along the banks
Where Pluto rolls his streams of gold, they rein
Their foaming steeds."

In many places the sands of the Scythian river Arimaspi are said to have been golden. And the dwellers on its banks are mentioned by Lucan as a people who ornamented their hair with gold.

"Auroque ligatus
Substringens Arimaspe comus."

The Gryphins are fabled to be monsters resembling lions, with the wings and beaks of eagles. They appear to have been of Egyptian invention: the Scythians, it is to be remembered, are supposed to have been of Babylonian origin. Possibly the powers of nature, with which the Arimaspi had to contend in order to obtain the gold were thus personified.

The Arimaspians were fire-worshippers, and *charis*, the name of their temples, is a suggestive word, as the reader may see in Muller's "Science of Language," vol. ii., p. 37L. By the poets of the Veda, the *Havis*, "the bright ones" were fabled to be horses of the sun and the dawn: they had come to be yoked to the car of the dawn. In one passage, they are represented with beautiful wings, in the Greek mythology (which, like Sanskrit, is but another dialect of the common Aryan mythology), the name appears under the form *Charis*, and *Charis*, retaining its etymological meaning of the lustrous brightness, or the dawn.

Can the dwellers in the Arimaspiæ have derived the attribute of Cyclopean monstrosity from wearing in warfare a frontlet or helmet with a golden star?

As to the Hyperboreans, it is well known that the ancients do not appear to have had any precise ideas as to the country they inhabited. According to the Scholiast on Pindar, the Greeks called even the Thracians Boreans: they may well, therefore, have called the people beyond them Hyperboreans. But this is not a fitting place to discuss the subject. W. S. G.

Having shown these observations to Mr. Dove, we append his reply:—

The epithet of "W. S. G.'s" very courteous but not very correct letter, lies not in the main body of it, which, as he puts it, is rather irrelevant; but chiefly in the last paragraph, to which, therefore, I shall first advert, by simply asking him what country north of Thrace, short of polar land, could be said to be "beyond boreas or the cold north wind," as is said of that of the true Hyperboreans (Smith's Geog. Dic.), who lived "betwixt the sun and the shade;" where "the sun was said to rise and set to them but once a year" (Lemprière); a country, moreover, which lay still further north than another (the Arimaspiæ), "where the men sleep half the year, and the air is filled with feathers," and which, therefore, does seem to have, itself, something less to do with the equator than with the pole, notwithstanding what "W. S. G." thinks to the contrary. These ideas as to the Hyperboreans, be it here noted, are not mine, as "W. S. G." incorrectly asserts; and no more love of mythology could have induced me to suggest them as my own. By quoting them I purposely disclaimed them by inference, and they all the more enforced my argument on that account. They are no other, in fact, than the ideas long and popularly entertained by probably one and all of the best modern authorities, who have had no special theory such as mine to support; and who merely based their idea of the Hyperboreans fairly and unbiassedly on the fragmentary allusions of the ancients,—allusions which induced even the lesser ancients (if I may so call them), such as Virgil, to place the Hyperboreans under the north pole, where the Hindus also placed the "stronghold of the gods," and where alone such a country as is described either could or can exist.

As for those looser expressions of the ancient Greeks whereby they indicated merely unknown

countries to the north of Thrace, I am quite well aware that such expressions were also in use, and they are carefully contradistinguished by the authorities from those which can only refer to a polar land as the true land of the Hyperboreans. Thus one author (Macbean), after alluding to the Hyperborean mountainous land as being "almost under the pole," goes on to speak of the "Hyperborei, the people the inhabitants of Scythia, in a looser sense (Strabo) and, in a looser still, those to the north of the Buxine, the Ister, and the Adriatic." Others, such as Lempière, make a similar distinction.

Without going into the question, therefore, as to what the various ancient writers themselves, either directly or indirectly, did say of the Hyperboreans in a stricter sense, which cannot be properly done in the *Builder*, it is quite clear that such are these various allusions that our modern authorities have been thereby led to place the long-lived Hyperborean men-gods, or perfected men, in a polar land, beyond the cold north wind, with a mild and equable climate, an open sea, and a sun which rose and set to them but once a year;—in short, in just such a land as the polar must be, according to our most advanced modern ideas.

That these Hyperboreans may have had regular communication, through intervening countries, with the sacred and Apollo-bearing Delos, where, as with the Hyperboreans and the "deathless" and Apollo-worshipping Druids, disease and death were (theoretically) unknown, is quite possible, although the latter part of "W. S. G.'s" own quotation from Herodotus is scarcely consistent with that idea; but it was said of the Hyperboreans that, "whenever they made offerings, they always sent them towards the south, and the people of Dodona were the first of the Greeks who received them." That a polar people could do so was perfectly possible without much navigation, if the warm gulf stream really produces an open sea within the ice-bound stronghold of the arctic region; for that stream, running northwards, and carrying with it the rotary movement of the earth from west to east, into slower regions, naturally and inevitably takes a north-eastward course, between Spitzbergen and Nova Zembla; and the same possibility which enables our own vessels now-a-days to carry on traffic occasionally with Archangel, in the White Sea, might enable the Hyperboreans to reach that sea, where the ancient Arimphæi resided; to the east of which were their neighbours the Rhiphæi of the Ural (gold-bearing) mountains; and from either of whom, to the Issedones of Scythia, or the Balk district, was but a very short journey. To Greece they might have had a much shorter route at one time than this would have been.

What "W. S. G." says, therefore, of the Issedones, even apart from all he says of the more northern Arimphæi, and Grifhins, only seems to strengthen the probabilities in favour of the idea that the ancient allusions to the Hyperboreans were not mere mythical fancies, as I myself have said they might be.

The Issedones inhabited a district which is believed to have been the most anciently inhabited, by mankind, in all Asia. It lies north of the Hindoo Koosh and the Bolor mountains; the rates, as it were, of the great plateaux of Tibet and of Iran or Persia; and it is from some such source that even the Chinese and the Hindus traditionally trace their origin. Indeed, it was from the fire-worshipping highlanders of Upper Asia that the Aryan and other emigrations of antiquity probably originally emanated. A little to the north-west of the Issedones were the *Aspiu* mountains of antiquity, and a little farther north were the *Arimphæi* of the White Sea and the Polar Circle, already alluded to; either of these, or both, may have been the *Arimatei* of Hyper-Scythia, "where the men kept half the year, and the air was filled with feathers;" and adjoining both were the *Rhiphæi* of the Ural mountains, which run north and south like a continuation from Nova Zembla to the Polar Ocean; these *Rhiphæi* were probably the *Grifhins* who guarded the (Ural) gold, which the Arimatei stole from them; their leonine and eagle qualifications being perhaps metaphorical; and the name of the *Fins* may be a remnant of the same local name.

Thus even the association of the names of the countries of the Issedones and the more northern Arimatei and Grifhins, with that of the Hyperboreans of the still remoter north, only point all the more distinctly and clearly to the north pole as

the true and only possible Hyperborean region, to which these other countries south of it were the most direct route of the initiated from the most ancient heart of the old world of civilized humanity, and the shortest and best possible sea route, *via* the White Sea and the gulf-stream as it flows north eastward, between Nova Zembla and Spitzbergen.

That even the longer route to the "deathless" Hyperborean men-gods by the gulf-stream *via* the British Isles may have also been known at some former time, not only to that "deathless brotherhood," the Druidical "twice-born" men-gods, or godly men, but to kindred continental co-initiates, or co-religionists, who regarded these Apollo-worshipping Druidical magi, as they did the priests of Delos, with great veneration, would seem to be indicated by the ancient idea that the British or Irish Isles also had something to do with the Hyperboreans.

Before concluding, I would wish to remark that from a fuller report than I at first had of the meeting of the Geographical Society at which Dr. Petermann's letter was read, it appears that his present idea can scarcely be identified with mine, inasmuch as he does not propose the arctic voyagers to follow the route of the gulf-stream north-eastward between Spitzbergen and Nova Zembla, but to go at once to the north of Spitzbergen, and hence out of the direct course of that stream, north-eastward.

MASONIC MUSINGS.

THE CRAFTSMEN-ARCHITECTS OF ROME.

"A ROMAN legion was always accompanied by builders, sculptors, painters, and other artists and workmen, and it has been observed the marks of their footsteps are visible wherever they trod, and that a map of the Roman roads in Britain alone is a magnificent monument of their greatness."

Traced on sculptured frieze and panel,
Testimonies still outstart
Of those minds who grooved a channel
For the record of their art.
Engraved skill in curve and conic,
In every mase it seem'd at home,
With those grand and old Masonic
Craftsmen-Architects of Rome.

How they plan'd and how they ponder'd,
Are the themes we read to-day;
How they wrought, and where they wander'd,
Which old legion led the way.

In the Doric and Ionic
Column, arch, or dome, or dome,
Live those grand and old Masonic
Craftsmen-Architects of Rome.

First to span with pier and centre,
Drop the keystone, dress the groin,
Sound and sink, explore and enter
Tunnel, pile, embank, and groin.
Human love of labour chronic,
Forming one great epic poem
Of those grand and great Masonic
Craftsmen-Architects of Rome.

In their contact with the Briton,
Whom they conquer'd, whom they taught,
Much of what is still unwritten,
In each wide domain they wrought;
Genius glowing, soul harmonious,
Exiled artists from their home,
Toil'd of those roving old Masonic
Craftsmen-Architects of Rome.

Vandal might and despot malice
Wreak'd their fury all in vain;
Brilliant wreck of shrine and palace
Deck the city still, and plain,
Homes and haunts, and halls baroque,
Archives fill'd with many a tome
Of those glorious old Masonic
Craftsmen-Architects of Rome.

Gone the sunshine, dried the river,
Genius gushes forth in pain;
Man ignores the primal Giver,
Dies atheist in soul and brain;
Gone, those brave and bright laconic
Workmen, to their kindred loam;
Gone, the great and grand Masonic
Craftsmen-Architects of Rome.

CLINTON HOYT.

THE PRESIDENCY OF THE INSTITUTE.

SIR,—In the *Builder* of the 8th inst., I observe that you do me the honour to say that I am one of those who have been named in reference to the Presidency of the Institute. As whatever tends to simplify a complication aids in the solution of it, I hasten to assure any member whose friendly feelings may induce him to contemplate nominating me, that my failing strength compels me to forgo all hope of that high honour; and that, therefore, a vote in my favour could not possibly be productive of any good result.

SYDNEY SMIRKE.

OPENING OF A NEW FERRY AT LIVERPOOL.

THE want of a direct ferry between the south end of Liverpool and the Cheshire side of the Mersey has long been felt and complained of, and this cause of complaint has been at last removed, the works having been completed, and the ferry formally opened. On the Liverpool side the permanent structure consists of a floating landing-stage, which measures 120 ft. in length by 30 ft. in breadth, and moored in the river, near the Harrington Dock wall, with which it is connected by a wrought-iron bridge, of 150 ft. in length, and which weighs about 60 tons. The stage, which floats on a wrought-iron pontoon, was constructed by Messrs. Bowdler, Chaffers, & Co., iron shipbuilders, Seacombe. The bridge was made by Messrs. H. Grayson & Son, from designs by and under the superintendence of Mr. D. Hebson, engineer. The pier on the Cheshire side of the Mersey, at New Ferry, has been constructed from the designs of Mr. J. Brunless, of Westminster, as we have recorded in a former notice of this ferry. The piers now about to be erected at New Brighton and Rhyll are also from designs by the same engineer. The New Ferry Pier commences from the land end with three rows of wrought-iron lattice-girders, 60 ft. in length, and 4 ft. 6 in. in depth, supported by cast-iron columns, 12 in. external diameter, braced with angle irons, the platform, of 4-in. planking, being laid on the bottom flange of the girders. A centre girder divides the whole width of the roadway into two, each of which is 9 ft. wide. The pier proper is 850 ft. in length, consisting of fourteen bays or spans, each 60 ft. in length; at the end of this is a cluster of piles to form a steady point of attachment for the top of the movable bridge, the end of which is connected with a floating pontoon. The bridge itself is 158 ft. long, and 9 ft. wide. The pontoon forming the landing-stage is 100 ft. long, and 22 ft. wide. This fabric was erected by Messrs. William Galloway & Sons, of Manchester, under the management of Mr. H. Hooper, who, as resident engineer, superintended and carried out the work. The pier and its landing-stage have been erected at the expense of Mr. R. A. Macfie.

THE ARCHITECTURAL ASSOCIATION.

THE usual meeting of members was held on Friday evening, the 31st ult., at the House in Conduit-street.

The chair was occupied by the president, Mr. J. H. Christian.

Mr. James Throppe, 4, Stockorchard-terrace, Holloway, and Mr. Thomas Ray, 16, Thayer-street, Manchester-square, were elected members of the Association.

Mr. J. D. Mathews (hon. secretary) announced that it was intended to resume the visits of inspection to interesting metropolitan buildings, and that Mr. Edward Barry had kindly consented to accompany the members over the new Hotel at the South-Eastern Railway Terminus at Charing Cross, which was now so near completion as to admit of full examination. Members were, therefore, requested to assemble on Saturday afternoon, the 8th inst., at three o'clock, in the first-class waiting-room of the railway station adjoining.

With reference to the paper read on a previous evening, on "Limes and Cements," a wish was expressed, as some of the writer's views were questioned, that he would attend some evening which might be appointed for the discussion of it.

The Chairman said he thought that, in the absence of Mr. Webber, it would not be desirable to discuss any question raised in his paper.

After some conversation, it was arranged that the subject should stand over.

Mr. Mathews directed attention to a communication addressed to the Association on the subject of a memorial to be erected in the City, but with what end was not described. It stated (as we have already mentioned in the *Builder*) that the charity and estates committee of the united parishes of St. Lawrence, Jewry, and St. Mary Magdalen, Milk-street, were desirous of receiving suggestions and proposals, together with drawings and designs or models, for the erection of a memorial in the churchyard on the south side of the Guildhall, at a cost not exceeding 500*l.*, a drinking-fountain to form a feature.

A member inquired what was the object of bringing such a communication under the notice of the Association.

Mr. Mathews said, he had not the most remote idea unless for publicity's sake.

Mr. Blashill said that, in some places, possibly in the City of London, the object and uses of a memorial appeared to be unknown. He had himself spoken to a civic authority on the subject of a proposed memorial which was required, and ventured to ask what it was that was wanted, and all the answer he got was "A memorial—we want a memorial!"

A Member said, he hoped that as a drinking-fountain was to form "a feature" in the proposed memorial, no member of the Association would have the hardihood to suggest another abomination similar to those to be found in the streets of the metropolis, which were absolutely a disgrace to a civilized community. He referred more especially to the iron tea-urns, with threads of intermittent water, a notable example of which was to be found in the Regent-circus, Oxford-street. These caricatures on street fountains made us the laughing-stock of foreigners.

In reply to questions as to the object of the memorial which the united parishes of St. Lawrence, Jewry, and St. Mary Magdalen, desired to erect, it was suggested that it could not be to the memory of the late City architect (Mr. Bunning), as the corporation were about to "put up something" in the Guildhall, for that purpose. This, however, was subsequently contradicted.

The Chairman said, he regretted to announce that Mr. Wells, who had promised to read a paper "On the Influence of Eastern and Western Art," had been summoned by telegraph to Chatham, and consequently could not be present.

Mr. Paraire then volunteered some remarks upon perspective, which he illustrated with the aid of the drawing-board.

It was announced that the next drawing in the class of design would be an embroidered altar frontal.

THE BUILDING TRADES.

The Stockport brick-setters' labourers have struck for an advance of wages. They demand an addition of 2s. per week to their present rate, or an advance from 18s. to 20s. per week. It is considered doubtful if the demand will be conceded while the market is so overstocked with unemployed out-door labourers.

A strike of the operative joiners of Blackburn seems to be likely to follow that of the plumbers. A meeting of masters is to be held, to decide what shall be done in the matter.

The masons of Barnsley have struck for an increase of wages and a diminution of working hours. The men state, that some time since they informed their employers that they should require their wages to be raised to 28s. per week, and the working hours reduced from ten to nine per day. The masters not having responded to the notice given, all the works were abandoned by the men.

The dispute at Halifax between the master and operative joiners is yet unsettled. The men seek to have the hours of labour reduced from 57½ hours to 52½ hours per week. The masters have held a meeting, and offered a settlement by the men working 54 hours a week.

At a meeting of the joiners of Newcastle and Gateshead, in order to arrive at some determination respecting the nine-hours movement, which they had asked the masters to concede, about 200 men were present, nearly all the workshops on both sides of the river being represented. A motion was unanimously adopted, to the effect, that if the masters did not concede the terms asked by the men, namely, nine hours per day, they will cease work as soon as the notice expires.

At Carlisle the strike of the bricklayers has terminated by a compromise. The masters withdrew the hour system, which had been the immediate cause of the strike. The men are to receive 26s. a week in summer, and 24s. in winter. Instead of leaving off work at one on Saturday and commencing at seven on Monday, the hours will be twelve o'clock on Saturday and six o'clock on Monday morning. Walking time to be allowed to all jobs outside the city, but within a mile of the Market-cross work is to commence at six a.m. With regard to non-interference, the masters are to employ any bricklayers they may think proper, and the men may work for whom they may think proper; the master to have the power of conducting his own business in any way he may think most advantageous

in the matter of letting piecework and in all details of management not interfering with the individual liberty of the men. The masons were offered the same terms, but declined to accept them, and they still remain on strike. The master painters have agreed to give the Saturday half-holiday without change of wages, but will not give the hour asked for on Monday mornings. The men stand out for that hour, which is now all that is in dispute between them. The joiners have reduced the difference to the same question, and some have consented to give the hour,—that is to say, let the men start work at seven o'clock instead of six.

In the Commons, on the motion of Lord Elcho, who moved for Mr. Cobbett, a select committee has been appointed to inquire into the state of the law as regards contracts of service between master and servant, and as to the expediency of amending the same.

COMPETITIONS.

Swansea Infirmary.—A design by Mr. Graham, London, has been selected: the proposed expenditure is 12,000l. Tenders are to be applied for: and on obtaining subscriptions to the amount of 6,000l., the works are to be proceeded with.

Chester Town-hall.—The whole affair has come to a standstill for the present; the lowest estimate, without the tower, being 21,600l., instead of 15,000l. stipulated, and the town council refusing to go on.

CAST-LEAD TRAPS.

The importance of good stench-traps and the value of improvements tending to perfect and cheapen them are not to be over-rated. The invention by means of which lead traps may be cast whole, patented by Messrs. Beard & Dent, and advertised by them with diagrams in our pages for some weeks past, deserves immediate attention. Hitherto syphon traps have been made by hand, as it was impossible to cast them on loam cores with profit. They were made by beating up two half-pipes from sheet lead and soldering the edges together with soft solder. Under the new system the cores are formed of gun-metal or of cast iron, according to an invention patented by Mr. Lowe, an American, some four years since; and while, in old times, to make four of these traps occupied a plumber and labourer a whole day, with two sets of the newly-invented cores four men can make eighteen of the 4-inch traps in an hour. The patentees claim:—

1. That the traps are considerably cheaper than hand-made traps.
2. That they are of pure and solid lead, without solder or seam of any kind, and as smooth and clear inside and out as pipe made by hydraulic pressure.
3. That they are of perfectly regular substance throughout; and, being composed of one metal, are not subject to injurious expansion from hot water, nor are they liable to be affected by the generation of gases which almost invariably destroy the ordinary trap.

As these assertions seem to us perfectly correct, we can scarcely doubt that the new traps will be extensively used.

STONE STAIRS UNDER FIRE.

The experience of architects and builders in Glasgow with respect to the behaviour of stone stairs there in conflagrations, might be usefully educed in the question (*vide p. 229*) raised by the superintendent of the London Fire-engine establishment. There, while many of the stone staircases entirely project from the buildings to which they appertain, fully as many are comprised within the main walls of the building; yet in no instance have I known any failure at all in the stairs, of the kind referred to. When the combustible parts of a large and substantial structure have been consumed, there along with the walls stands the staircase intact, from the landings of which the ruins can be surveyed, and the levels, for the restoration, be determined. Usually, the staircase is bounded on one side by a main wall of the building; but the other sides, say three in number, are equally fire-proof, consisting either of 9 in. brickwork, or a similar thickness of ashlar stonework, rubbed (or, as they express it, polished) on the side next the stairs, while in the centre is an open well-hole with iron railings or an ashlar newel-wall, which is often not more than 6 in. or 6 in. thick. I think, while about the metro-

polis the stone used is mostly limestone or oolite, that used in Glasgow is generally sandstone,—a difference which may have much to do with the failure in question.

I hope Glasgowwegians and others, accustomed to stone staircases, will throw light on this subject; and that any sudden disposition to discard solid stone as a material for fire-proof stairs may be arrested.

JAMES WILSON.

A FEW WORDS ABOUT WORKING MEN'S CLOTHES.

I VERY much wish that you would allow me to communicate, through the *Builder*, to the world at large, the particulars of a little trick which I have practised for some years with great comfort. I must state that I have as tidy and industrious a wife at home as any man could desire, and it is to her I am indebted for the idea, and the carrying of it out. I never wear the same suit of clothes, or under-clothing, or boots, two days running. I am only a working man, engaged in a dirty, foul employment, and the clothes of all my fellow-workmen fairly stink: they call me "the gentleman" because I appear comparatively respectable. Now, I have two clean shirts a week (my whole stock of shirts is four; not of a very grand sort, but they do for me), and I put on one clean shirt on Sunday morning, and one clean one on Monday morning. Then the Sunday one goes on again on Tuesday, Thursday, and Saturday, and the Monday one goes on again on Wednesday and Friday. The days they are left at home my wife looks to them, sees to any tears, &c., which my work has caused: on fine days she hangs them out in the wind, and so on. The same with my stockings and outer clothes. My boots also she dries and tidies up. Before I get home at night from work, she has laid out on my chair, beside all my toggery for next day; and, when I get up in the morning, I have no trouble whatever with my clothes. I give myself a good wash, and start a king! Why, sir, cannot a working man, with wives at home,—I mean men who earn a fair week's wages,—do the same thing whether they are carpenters, or masons, or smiths, or what not? I can assure them that it does not cost me one penny more a year for clothes than it does my mates; indeed, less than some. Any kind of two sets of clothes answered and the good comes directly. I did not like my wife to have so much trouble with me at first, but she was determined to do it, and I was obliged to give way. She is a good one, sir. God bless her!

A WORKING MAN.

DRY ROT.

No remedy is known to perfectly and effectually stop the ravages of dry rot, although many experiments have been made with more or less success, and made public at various times. Persons now require telling that the dry-rot is a fungus, known to science as *Merulius lacrymans*. In its mature state the fungus and the surrounding wood frequently drip with moisture, hence its specific name. To be seen in perfection should be sought for during wet weather, in autumn, when it is common on the stumps and in the hollow trunks of dying trees. In addition to this form, common on fire, there are many other species found in this country, nearly all liable to it, and sometimes mistaken for it. The dry rot of oak timber, though bearing the same popular name, is a totally distinct thing.

It must be obvious to all, that with dry-rot prevention is better than cure; for where the timber of a house is reduced to powder, where cure can there be other than cutting the infected wood away, and replacing it with new; but such is the rapid growth of this plant, when once it has found a fitting habitat, that in a couple of years it has been known to utterly destroy a large house, not only reducing the timber to powder, but by insinuating its growth through the plaster of the walls, it so ruined the building as to cause its complete destruction.

However sound the timber may look, or however dry the situation may appear, the fungus cannot exist without moisture: unless it can find various favourable conditions necessary for the growth of its seeds or spores, it can never make its appearance; these seeds being microscopic objects, are wafted by the slightest agitation

the air from one locality to another, and from one end of the land to the other, and just in those places where the conditions are fitting for its growth, will those seeds germinate and produce the dry-rot (this is considering the mycelium, or spawn, or roots are not already in the timber). Experiments have often been tried with wood cut in summer and wood cut in winter, when the sap is down; but although preference has been given to the latter, sapwood of great age is constantly found as free from fungoid growth, and as sound as the very best summer-felled timber: so little or nothing can be said for it.

In open situations, where the air is dry, and where there is plenty of ventilation, the fungus certainly will not grow. This is partly proved by the fact of the dry-rot attacking the timber of one house in a certain neighbourhood, and not appearing elsewhere in the same locality.

If the following precautions be taken, they will reduce the chance of an attack of dry rot to the minimum. In the first place, great care should be taken that the timber used has been felled a reasonable time, and that it is perfectly dry and dead. It is of the first importance to have a free circulation of air wherever wood is used, as the disease usually appears where the air is confined and damp. If possible, to more certainly prevent its appearance, a saturation of the timber, before it is used, with creosote, is perhaps the best means, although the various metallic salts have been mentioned as effectual,—a solution of copper, iron, or zinc; of corrosive sublimate; or washing with gas-tar; or the application of albumen.

W. G. S.

LESSONS FOR STUDENTS.

THERE can be no doubt of the great value of the study of details by the student of decorative art, with the power of drawing and modelling, and skill in adapting natural and beautiful forms to ornamental purposes. It is desirable, however, that together with the study of details there should also be afforded the means of inspecting various kinds of work when they are fixed in the right positions and form parts of a whole.

It may be said that the general arrangement of the ornamentation of a building comes within the province of the architect, and not that of the skilled workman. This, to a certain extent, is true; but it must also be acknowledged that in some instances the decorator must act without special dependence on the architect. It is therefore of consequence, that together with the teaching of the details, the student of architectural decoration* should have lessons of a more comprehensive and general kind; and there are many such to be had within the bounds of the metropolis. Amongst these Somerset House may be mentioned, as a remarkable instance of the elegant application of highly artistic details to parts which are of graceful and good proportions. In this fine building, not only on the exterior, but also in the interior parts, there are decorations of good design and most excellent workmanship. The railings of the staircases, the colouring and gilding of the columns and capitals on the principal landings, the panelling of doors and walls, the foliated brass-work attached to the locks and door-handles, but above all the ceilings of apartments are especially worthy of attention. It is said that the chief part of this work was executed by Italians. During the reigns of Charles II., Anne, Queen Anne, William and Mary, and the first and second Georges, there were numerous most elaborate and well-designed ceilings executed by our own countrymen, and it is worth while to notice how very similar the style of the ornamentation of the Somerset House ceilings is to the wood carvings by Grinling Gibbons, and those who in this walk of art succeeded him; and we cannot think that although this appropriate and pleasing style of decoration fell for a number of years almost entirely into disuse, it will fail ere long to be revived in a worthy manner; but it is said that there is a difficulty in obtaining workmen of sufficient skill to compete successfully with the older plaster workers. There is, however, no lack in London of lessons in this style of ornamentation still to be found in the ceilings of the nobility; but especially in some of Sir Christopher Wren's, Gibbs's, and other

churches. In the state apartments of St. James's Palace, and in Buckingham Palace, there is much which is worthy of study, with other matters which are in their way useful as instances of what should be avoided.

In connexion with the subject at which we have briefly hinted, it would be desirable that a class for this kind of study should be formed by those of the South Kensington establishment who are engaged in the study of the various branches connected with building and architectural decoration. Then it would become a question how the students could obtain admission into the buildings which it is necessary to see. As regards the churches, Houses of Parliament, &c., there would be no difficulty. Parts of Somerset House, too, are accessible, such as the apartments of the Antiquarian Society. Other portions, occupied as Government offices, are for the most part unoccupied after four o'clock in the afternoon, and on Saturdays at a much earlier hour. St. James's Palace is unused during the chief part of the year, and we should think that, for a purpose such as this, access could be easily obtained to Buckingham Palace. In fact, it would be a great boon to those engaged in all the departments of art, decoration, and manufacture, and to the tasteful portion of the public, if, at stated times, certain of the apartments of this royal palace, when it is not occupied by her Majesty, were rendered accessible. In this palace there are rare treasures of art, the study of which would delight and improve many.

AN ARTIST.

ABSORBING WELLS.

I HAVE read the letters in your paper on this subject with great interest, and some alarm.

I think the proceedings at New Barnet to be of such a serious nature, that if the system is likely to be carried out in other places, the interference of the Legislature will be necessary to protect the main springs in the Thanet sands from being charged with organic matter.

I agree entirely with the letter signed "Pure Water," and am sure that Mr. Bleekarn is in error when he states that the water arising from the sand stratum under the blue clay is impure.

I have had several artesian wells sunk into this stratum in Essex, and found the water rising from it both softer and purer than that coming from the fissures in the chalk. The Croydon water which rises in the chalk contains not less than 18 grains of carbonate of lime in a gallon; and, although a good anti-cholera water, it coats the vessels in which it is bottled with chalk, and will not agree with many constitutions.

I thought that, after the report of the Committees of the House of Commons in favour of the successful irrigation system carried out under my directions at Croydon, none of these attempts to waste the fertilizing matter contained in the sewer-water would have been repeated, and am sorry that such an influential association as the British Land Company should have allowed such an interference with the main spring.

I know the situation of the absorbing well at New Barnet, and can state that it is within a short distance of the artesian well that supplies that place with water. It will, no doubt, be said that the sand spring is shut out there; but, from my own experience, I can state that this is next to impossible, as the fissures in the chalk below will prevent this being done excepting in the well itself.

With regard to the system of purifying the water in tanks, I need only state that, some years since, the Croydon Local Board, acting under the pressure of an injunction of the Court of Chancery, attempted, with the advice of that eminent chemist, Mr. Way, to cleanse the sewer water there. The matter held in suspension was soon extracted, but the noxious matter held in solution still remained; and I am at a loss to perceive how water loaded with ammonia can be called purified because it has been merely clarified. Nothing but passing the water over growing crops will effect this. I have before me the analysis of the Croydon sewer water taken before and after it has passed over the irrigation fields; and I am sure that the result will convince the most sceptical that this system is the only effectual mode of cleansing the sewer water.

JAMES FENTON.

** We quite agree with those of our correspondents who regard the idea of Absorbing Wells with disfavour. In France, special legislation prevents their formation.—Ed.

WINDOW GARDENS.

THE idea of "window gardens" is now becoming general in London, and, as it undoubtedly contributes to the cheerful aspect of the exterior of our dull, dreary-looking houses, and also to the healthy state of the rooms within, it is well to afford every possible facility for this plan. The impediment generally is, want of width of the window-sill on which to place the flower-pots; also want of some protection to prevent the wind from blowing them down into the street. If builders of houses for all classes, whether rich or poor, would make a wide window-cill, with an iron rail, it would be all that is required for a window-garden; and, moreover, it would enable many a poor family to have the benefit of fresh air from an open window without fear of the little children falling out, which is often a reason for not opening the window.

FOREIGN.

St. Nizain.—From its admirable position the town of Saint-Nizain is likely to become the great maritime metropolis of French Transatlantic commerce, as Marseilles is of that of the Mediterranean. Thirty years ago this poor village, at the mouth of the River Loire, contained only 1,200 inhabitants, and few expected that it would in a few years enjoy, as it does now, the position it occupies, with a population of 150,000. In 1858 the Government built in the port a floating basin of 32 acres, the result being, in a few years, a maritime traffic representing half a million tons, without taking into account that of the fleet of Transatlantic packets, now numbering fourteen, and of the united capacity of 27,600 tons, and 8,000 horse power. The insufficiency of this basin was soon manifested, and it was determined to construct a second basin, of 52 acres, now in course of completion. In presence of these works, and the ever-increasing population consequent upon the traffic of the port, a new town is absolutely required, and a company has been formed to carry out the project. Here everything has to be created,—a complete town, with docks, warehouses, depôts, custom-houses, exchange-rooms, chamber of commerce, halls and markets, slaughter-houses, public lavatories, bath establishments, water and gas supply, churches, municipal buildings, schools, theatres, &c. The founders of this society are Messrs. Alph. Cezard, J. Cezard, La Cezard, Count de Loppinet, Colchester, and Thos. Lucassen.

Local Railways.—The French Government is at this moment considering a new project of organization of railways of local interest, constructed at the expense of the departments. This organization will be placed under the direction of the prefects, and annexed to the service of the public highways. Moreover, these local railways can be subventioned by the State, and become assimilated to departmental roads.

Puy.—The town of Puy has just organized two free public courses, one of chemistry and another of literature. In this instance the municipal council has marked the interest with which it regards this step by subventions.

The Russian Epidemic.—M. F. V. Raspail, in a letter addressed to the *Siccle*, thus speaks of the Russian epidemic. This disease bears the general character of the plague which ravaged Marseilles every fifty years, when the port of that town was a vast cloaca,—a plague which is in permanence, at certain seasons, in the ports of the Gulf of Mexico—that vast sewer of the Atlantic Ocean, and in permanence even in countries nearer to us, in the barren and wasted steppes of La Campine (Flanders), the depôt of the infiltrations of the Escant and other channels. In his opinion the pest at St. Petersburg is nothing but a miasmatic affection of the air arising from the putrid emanations of a soil permeable to and soaked with the *immondices* of the city and the mud for years accumulated by the inundations of the Neva and the Baltic. The time at last comes when the organic matter with which the earth is impregnated arrives at such a state of decomposition that the terrestrial elements suffice no longer either to contain them or to preserve the atmosphere from their effects. The remedy for such an evil lies not in drugs: an atmospheric infection requires an atmospheric antidote. To effect this he urges the use of large fires on the public places of the town, and in the large thoroughfares, and even to burn the dead; to fumigate with acetic vapour not only the houses, but the

* This embraces a wide field, and the labourers in it consist of workers in stone, wood, and various kinds of metal, glass staining, painting, glazing, the making of pneumatic floors, plastering, paper designing and hanging, furniture making, gilding, and many other processes.

streets; to cover the infected ground with charcoal, dust, ashes, or chloride of lime; and enjoin all persons to carry a phial of acetate of ammonia, and to frequently inhale it. In order to prevent the return of the calamities, he urges the abolition of cesspools, and the immediate transformation of the refuse of the city into an inoffensive and fertilizing ingredient of cultivation, by the removal of it into the open fields, and by proper treatment there.

PROVINCIAL NEWS.

Perthshire.—At the county sessions the court voted 1,700l. for the erection of a police-station in this town, and an additional 300l. for a magistrates' room, to form part of the same building. It is to be erected at the entrance of the Worcester-road, the work to be commenced at once. The building will consist of two stories, the material being brick, faced with freestone, and will be built from the plans of Mr. Rowe, county architect, the builder being Mr. O. Wilson. In front, there are to be two entrances for the public business, and one for the magistrates; and at each side the superintendent and constable will have an entrance to their dwellings respectively. On the ground-floor are a charge-room, waiting-room, three cells, corridor, residences for the aforesaid officers, with drill-yard, airing-place, stabling, and outbuildings; and in the upper story, a petty sessions room, 28 ft. by 16 ft. 6 in., retiring-room, and six bed-rooms for the officers, &c. The station will be slate-roofed, and the area of the premises is to be surrounded with a dwarf wall and fence.

Wells.—Within the next twelve months, Wells will be considerably improved in appearance by the erection of several new buildings in the outskirts, and re-modelling of others in the city. Of the former, the foundations for the erection of a hotel and several dwelling-houses are now being excavated, the site for them being in an orchard adjoining Prince's-road, and close to the new market-place. Mr. T. Charles, of London, who is the owner of a great deal of house-property in this city, is having the same greatly improved by the introduction of plate-glass fronts, &c. Good houses for the middle and working classes are in great demand and much wanted.

CHURCH-BUILDING NEWS.

Sutton Courtney (Berks).—A new porch has recently been erected on the north side of the church in this village, corresponding in style with the original north doorway. It is of Box stone, with red Mansfield stone columns, on which are carved caps. The cost was defrayed by the Rev. H. Rice, rector of the parish, assisted by some few private friends. The architect of the new porch was Mr. J. Gibbs, of Oxford; and the builder Mr. Howse, of Sutton Courtney.

Masey.—A font has just been placed in Maxey Church. The First Pointed period of Medieval art has been chosen in designing it. The bowl is of Ketton stone, and supported on a centre shaft of rouge royl marble. There are also four minor shaft supports, executed in Alpine green and white marble. These small shafts have carved capitals of conventional foliage, and the foliage of these capitals is continued round the bowl. The upper and outer rim of the bowl is ornamented with the nail-head ornament. This font is the gift of Mrs. Argles, and was designed by Mr. Browning, of Stamford. The carving and wrought stonework were by Mr. Hilliam, of Stamford; and the marblework by Messrs. Burke, of London.

Burton-on-Trent (Staffordshire).—Mr. Baas, M.P., has offered 12,000l. to be spent as follows:—5,000l. to build a church in the town; 500l. for the parsonage; and the remaining 6,500l. to be the endowment.

Leckhampton (Gloucestershire).—The parishioners, vicar, and churchwardens of Leckhampton are engaged in providing funds for the restoration of their ancient parish church. At a meeting it has been determined to proceed at once with the repairs and enlargement of the structure. The committee state that they intend to provide 200 additional sittings. In all 1,800l. will be required.

Sidmouth (Devon).—The warming of the parish church has been carried out under the plan of Messrs. Haden, of Trowbridge, at a cost of about 166l. The outward air from the roof has been excluded by the closing up of about 3 in.

all round, that had been left open by order of the architect, who was employed when the church was repaired and enlarged three years since. At that time another plan of warming was tried by his direction, with a furnace and flues, and underneath the aisles, the heat from which never warmed the church.

Brilley.—The parish church of Brilley, a village about sixteen miles from Hereford, and near Whitney, has been re-opened, after undergoing a renovation. The church was in a sad state of dilapidation. It was decided, however, to restore, and not to rebuild, so as to enable the architect to preserve the peculiar arrangement of the chancel. The restoration work includes the rebuilding of the timber porch after its ancient type, and adapting therein such of the old woodwork as was available. The old windows have been replaced by others of a more modern design, and finished with stone internally as well as externally. The flat ceilings have been removed, opening to view the timber framework of the roof. There are now low open seats, all free and unappropriated. The roof has been covered with green Pembroke-shire slates, and the peaks of the gables finished with stone crests, with metal crosses. The walls have been stripped of the plaster which before covered them, and the joints pointed. The defective drainage of the building has been remedied, and the windows have been glazed with thick cathedral glass, a painted subject being inserted in the east window. There remains one thing to be done, viz., the restoration of the tower, which is of a characteristic type. The plans for the restoration were designed by, and carried out under the supervision of, the diocesan architect, Mr. T. Nicholson, of Hereford.

Wiston (Pembroke-shire).—The parish church of Wiston, situated near to Haverfordwest, has been re-opened for Divine service, after having been closed for a year and a half, during which time the old and dilapidated roofs over the nave, chancel, and tower have been replaced with new open timbered roofs; the nave and chancel re-seated; and the stonework of the church internally and externally cleared of whitewash, and restored where practicable. The cost of the works has been defrayed by the Earl of Cadwor, this being the seventh church which has been restored upon his property in Pembroke-shire and Carmarthenshire within the last few years; in addition to which restored churches a new one has been built at Penboyn, in Cardiganshire. The parishioners of Wiston have raised a subscription for the purpose of placing a stained-glass window in the chancel, in memory of the late Earl of Cadwor. The church is one of the usual type of Pembroke-shire churches, with few exceptions, being of an early period, with a characteristic square tower at the western end, diminishing in size from the base upwards. The edifice will accommodate 350 adults and 40 children. The works have been carried out by Mr. James Rogers, builder, of Tenby, from the design of Mr. D. Brandon.

Kimberworth.—The church here has been re-opened. It is in a plain Gothic style, and the original dimensions of the nave were 42 ft. square, with vestries and small recesses for a chancel at the east end. Across the west end was a gallery appropriated to the choir and school children. The improvements that have been effected consist of the removal of the gallery and the erection of a tower 71 ft. high. The nave has thus been lengthened 11 ft., and considerable additional accommodation has been gained. On the one side of the tower is an organ chamber, and on the other side a porch. The cost has been about 400l. The architects were Messrs. Blackmoor & Withers; and the builder, Mr. Ripley, Masbro'.

Kilnwick Percy (Pocklington, Yorkshire).—The church here is about to be rebuilt, with the exception of the chancel. It is of Norman character, and the restoration will be in that style. It will consist of new nave, 42 ft. by 21½ ft.; north porch, vestry on the south side, and the present chancel, 18 ft. by 15½ ft. The present ornamental porch, in the existing south wall (closed) will be restored and rebuilt into the north porch, and a part of the west doorway will be inserted into the inner door of the porch. The roofs will be open and varnished, boarded and felted, and covered with slate. The windows are to be filled with stained and cathedral glass. The nave will be entirely refitted with open seats, and those in the chancel, as well as the pulpit and desk, will be reinstated and re-formed out of the oak carving, which was previously in the church. The entire work is being carried out

at the expense of the Hon. Admiral Dancomb, M.P., of Kilnwick Percy, from designs prepared by Messrs. J. B. & Wm. Atkinson, of York, architects; and the works are being executed by Mr. Ald. Weatherley, of York.

Pickering (Yorkshire).—The church of Thornton is to be restored. The chancel will be renewed, the old pewing removed, and new seats substituted, and the whole of the interior to be renovated. Several memorial windows are to be put up, viz.,—one at the east end, in memory of the late Mr. R. Hill, of Thornton; at the western end, in memory of the late Mr. Champey, of Scarborough; and another in memory of the late Mrs. Heslop, wife of the present rector. The exterior will also be improved by a new roof, and the probable addition of a spire to the present steeple, as well as the repair of the whole of the exterior fabric. The whole work, with the exception of the spire, is computed to cost about 1,200l., and of this sum upwards of 900l. have already been subscribed. Mr. Scott has been employed in the work, which will be commenced forthwith.

Rotherham.—A font has just been placed in the parish church of All Saints, Rotherham, the gift of Mr. John Shaw, of this town, architect. It is in the Perpendicular style, and in a great measure a *fac-simile* of the old font, copied from an old sketch of it in the possession of the donor.

STAINED GLASS.

Thatcham Church.—A new memorial window has been placed in the west end of the south aisle of Thatcham Church, by the vicar and his family, in memory of some of their deceased relatives. The glass is by Powell, of London. The subject is that of the Nativity, exhibited in three compartments. The centre one contains the figures of the Virgin Mary, with the infant Jesus, attended by St. Joseph and adoring angels. In the compartments on either side are the Shepherds and the king's Magi, in the act of worshipping; while the beams from the Star of the East, falling alike on the Divine infant and His worshippers, give unity to the subject.

Hope Church, Hanley.—A memorial window to the late Rev. J. Eastwood, incumbent, has been placed in this church. The window consists of two medallion groups on a foliage ground, and border, representing the Walk to Emmaus and our Lord making himself known by the Breaking of Bread. One window has been executed by Mr. Wailes, of Newcastle.

Gloucester.—Three painted glass windows have lately been erected in this city, according to the local *Chronicle*,—two at the cathedral, and third in St. Mark's Church; a memorial window Dean Rice has been placed in the east cloister of the cathedral; and the large memorial window to Dr. Jenner and the late Mr. John Elliott, Gloucester, will probably be erected in the course of a few weeks. Mrs. Claxson, widow of the late Rev. Dr. Claxson, is about to place a memorial window in the cathedral to Hooper, the martyr-bishop of Gloucester. Messrs. Clayton & Beare were engaged, and the artist under whose direction the window has been executed is Mr. Kemmer, a nephew of Mrs. Claxson. The window selected for the reception of the glass is the third from the east entrance to the cloisters in the north aisle. The window is a Norman one, and the introduction of Perpendicular tracery rendered the carrying out of any broad design difficult, not impossible. The mullions divide the main portion of the window into three lights, and there are two smaller side lights. The subject represented in the first light is the torture of St. John the Evangelist in the cauldron of boiling oil at Rome, an ordeal through which we are told he passed unhurt. The subject in the centre is the martyrdom of Bishop Hooper. The subject of the third light is the martyrdom of St. Lawrence, who was roasted to death on a gridiron. There are canopies over the figures. The window is inscribed in memory of Richard Hooper, sometime Bishop of Gloucester and Worcester. The bishop's name was John, and Richard; and he is represented in Roman vestments, which is scarcely consistent with his own aversion to the ceremonial religion of Rome. The second window is a memorial to Archbishop Wetherell, and is placed in the east cloister. The artist was Hardman, of Birmingham. The window is divided into four tiers, the two lower ones each containing eight lights, the third floor with two main lights in the top. The subject

selected is "The Temptation of Our Lord," which is depicted in the second tier, the lower spaces being filled with decorated quarries. Each space is occupied by one figure, and, of course, two lights are devoted to the representation of each incident. The tracery lights are decorated with foliage, of the German Gothic leaf; and the main pictures are represented on an enriched blue ground, which affords a contrast to the window to Dean Luxmore, which is next to it. The colouring of this is necessarily light, and the subject is rather meagre, the artist being content to two figures, but the incidents are clearly delineated. A stained glass window has been put up in the east end of the south chancel aisle of St. Mark's Church, by Mr. A. C. Wheeler, of Kingsholm, to the memory of his father. The window is a double lancet, with a quatrefoil over. The general plan of the subject refers to the infant life of the Saviour and his treatment of children. The artists were Messrs. Heaton, Butler, & Bayne, of London. With the exception of the east window at St. Aldate's Church, this is the only specimen of their art in Gloucester.

St. Peter's, Newcastle.—A stained-glass window has just been placed in the chancel of St. Peter's Church, Newcastle, to the memory of the late Captain Woods, by his widow and daughter. The subject introduced is that of "The Good Centurion." The window was executed by Messrs. Herdman, of Birmingham.

Miscellaneous.

NATIONAL GALLERY.—It is understood that the Government plan for enlarging the National Gallery will be presented to Parliament after the recess.

PROPOSED NEW EXCHANGE FOR MANCHESTER.—It is now suggested to carry the Exchange, like the post-office, to Brown-street, and the plot selected is one bounded by that street on one side, by Spring Gardens on the other, and running back from King-street to the Clarence Hotel. The plot can be obtained without an Act of Parliament, and is said to afford space for a building double the size of the present Exchange, and one-third larger than that the Exchange Committee propose to build. It contains 4,280 yards of valuable building land after allowing nearly 500 yards for street improvements. The estimated cost of land and buildings is 200,000*l.* It is calculated that a net revenue of 20,000*l.* might be obtained from subscribers. The party at this scheme is a very influential one.

MEMORIAL OF THE LATE DUKE OF NORTHUMBERLAND.—A public meeting has been held at Newcastle-upon-Tyne for the purpose of opening subscription to provide funds for erecting at sea-side, in the county of Northumberland, a suitable building, to be called "The Prudhoe Gravesent Home," for discharged or convalescent infirm patients, and others, "as a memorial of the admiration in which the memory of the late Duke of Northumberland is held by all classes of his countrymen." The meeting was under the presidency of the Mayor of Newcastle, and was attended by most of the leading gentry of the town and neighbourhood. The company included a large number of ladies. Appropriate resolutions were passed, a subscription-list opened, and a committee appointed. Mr. William Armstrong subscribes 1,000*l.*, and Mr. Hugh Taylor 500*l.* The subscriptions at the close of the meeting amounted to 3,011*l.*

MAGNESIUM AND ITS LIGHT.—A Putney correspondent, "William White," who states that he has made many experiments with magnesium, is, in a communication to us on the subject, suggesting that the wire should be passed through a spirit-lamp, you indicate an efficient remedy for the annoyance. A lamp in which the wire was so treated was devised by Mr. William Mather, of the Salford Iron Works. The wire was paid out by hand from a roller, and led through the flame of a spirit-lamp, and so on to the risk of extinction. I find that the ribbon is with greater certainty, as well as brighter, than the wire. The wholesale price of magnesium wire and ribbon has been reduced to half, or to 10s. an ounce. There are about 1*ft.* of wire or ribbon to the ounce, and so, I calculate, it will be retailed in the shops at 1*d.* I find the ribbon burns at the rate of a minute, so one might have a magnesium illumination for two hours at the cost of 10s."

FALL OF FLOORS.—Four floors in a wall corner of the corn-mills in the occupation of Messrs. James Ellis & Co., Bradford, suddenly fell, precipitating about 192 sacks of flour, about 200 quarters of wheat, and several workmen, to the ground floor. The accident arose from the giving way in the third story of a brick wall, on which rested an iron pillar which supported the three floors above. A joiner was rather severely bruised.

THE FITTINGS FOR THE WEST LONDON EXHIBITION.—Tenders have been obtained for the erection of counter space in the Floral Hall, Covent Garden, for the West London Industrial Exhibition at per superficial foot. The following is a list:—Mr. Tackley, 9*d.* per ft.; Mr. French, 6*d.* per ft.; Mr. Warwick, 6*d.* per ft.; Mr. Bradbeer, 5*d.* per ft.; Mr. Carpenter, 3*d.* per ft.; Mr. W. H. Thompson, 3*d.* per ft.; and the last has been accepted. Mr. S. S. Brown is the architect.

THE LANDED ESTATES COMPANY.—By the Report read at the first annual meeting of this company, it appeared that 31,743*l.* had been received in respect of allotted shares, while the gross profit on the year's transactions equalled 12,856*l.* 13*s.* 4*d.* After payment of all outgoings the net profit amounted to 11,301*l.* 6*s.* 6*d.*, which would enable the directors, after declaring a dividend of 15 per cent., to carry forward over 10,000*l.* The first estate the company had purchased was the Worcester Park Estate, near Kingston and Ewell. The company had nothing to do with bricks and mortar, further than assisting builders in the erection of first-class houses upon the estate, which comprised about 300 acres, and from the sale of 64 acres only, a profit of more than 11,000*l.* had been realised, after deducting the expenses of roads, sewers, &c.

STATUE OF THE PREMIER.—At Lady Palmerston's receptions the model of an intended marble statue of the Prime Minister has excited attention. This statue, about to be executed by Cavaliere Giovanni Pandiani, of Milan is the third of a series which he is engaged upon, and which are to form the nucleus of a collection of European celebrities for Mr. Ernesto Zucaani, a gentleman of considerable mercantile standing long resident in London. The first of these statues, a life-size one of Garibaldi, appeared in the Exhibition of 1862. For the second one, that of the late Count Cavour, Signor Pandiani received the honour of knighthood from the King of Italy.

GAS LIGHTING OF MOSCOW.—We announced on the 17th of December last, that a Hague gentleman had got a concession from the Russian Government for lighting Moscow with gas. This concession, we now learn, has been assigned to a new limited company, to be called "The City of Moscow Gas Company," among the directors of which are some substantially good names. The capital will be 875,000*l.*, in 35,000 shares of 25*l.* each. Deposit, 1*l.* on application, and 4*l.* on allotment; 7 per cent. per annum allowed during construction. Moscow is a great city, with 17,032 shops, 700 factories, &c., 200 hotels, 4,841 inns, cafés, &c., and numerous universities, schools, hospitals, public offices, and buildings devoted to public amusement. It is, in fact, the winter capital of Russia, and an exclusive right to supply such a city with gas ought to be a fine thing for the shareholders. The population is about 600,000. The city is situated at the centre of the commerce of the country, with six railways converging within its walls. The Kremlin (which covers 250 acres, and includes the Emperor's Palace, the Senate, the Arsenal and Government Offices), the great Universities, and the public schools, will all have to be lighted by gas. There are upwards of 100 police posts and stations, and 102 printing-offices. The Government pays annually 13,600*l.* for the lighting of the Opera House and the Russian Theatre alone, and 12,000*l.* for the Barracks. Private houses also will, doubtless, be lighted with gas. A provisional contract has been entered into with Smith, Knight, & Co. for works capable of supplying 120,000 lights, together with the whole of the mains of the city (upwards of 140 miles in length). The net profits upon the capital required for this purpose are calculated to exceed 20 per cent. per annum, and in this lights. Sufficient plant will be erected for the supply of 50,000 lights, by the end of August in next year. We are not surprised to hear that the chief part of the capital is already subscribed.

NON-ABSORBENT BRICKS.—With reference to the inquiry after non-absorbent bricks noted in your last, I think the perforated bricks that come up by the Great Northern Railway from Arley are as nearly non-absorbent as any material I know of which is obtainable at a moderate price. They make a good, clean, uniform face, though rather pale; but they stand well. The only drawbacks I have found to their use are, that cutting them is almost impossible, and that they generally run larger than ordinary bricks; so that a little extra care is needed where they are used along with others to keep the mortar-joints of the facing very fine.—R. S.

METROPOLITAN OPEN SPACES.—The first report of the select committee appointed to inquire into the best means of preserving for the public use the forests, commons, and open spaces in and around the metropolis, have made progress in the matters referred to them, and have agreed—"That it is not expedient that the Wimbledon Common should be fenced round or enclosed, or that the existing common rights should be extinguished. That it is not necessary, and would be undesirable, that any part of the common should be sold. That the 20 Hen. 3. c. 4, commonly called the Statute of Merton, by which a lord of the manor can enclose without either the assent of the commons or the sanction of Parliament, ought immediately to be repealed."

THE DISPLACEMENT OF THE LONDON POOR.—In the House of Lords, last week, the Lord Chancellor stated that to insure the return of the actual dwellers of the houses to be taken for demolition he proposed an amendment in the Standing Order No. 191, of the words "inhabited by the labouring classes," to "occupied either altogether or partly as tenants or lodgers by persons belonging to the labouring classes;" and that another alteration should be made rendering it obligatory on companies to give notice, by placards and handbills exhibited in the vicinity, of the houses about to be pulled down, the certificate of a magistrate being made necessary to show that the order had been complied with. The Order, thus amended, was then agreed to.

INAUGURATION OF A GYMNASIUM AT EDINBURGH.—The new Royal Gymnasium, in connexion with Pitt-street swimming-baths, has been publicly inaugurated in presence of the Lord Provost, magistrates, and town council of Edinburgh. The new gymnasium has been constructed at the expense and under the immediate supervision of Mr. John Cox, Gorgie House. The patent rotatory "boat" is one of its features. This "boat" in the form of a circle, is 471 ft. in circumference, and 6 ft. wide. It is placed in a large circular artificial pond, and is designed to rotate with rapid motion when the means of propulsion are applied. To preserve it in an undeviating course, and prevent it coming into collision with the sides of the pond, it is stayed with wire ropes, which are attached to an iron pivot fixed in the centre of the water. It is like a merry-go-round rotating in a pond. The boat is constructed to carry 600 "passengers," and when unladen draws 4 in. of water. The guests got into the rotatory boat, and had a sail round the artificial pond, Miss Cox having christened it, oddly, the "Great Sea Serpent." The next invention tested was the "Merry-go-round" itself, in which a large number of the guests took seats, and, to all appearance, they enjoyed the sport.

RAILWAY BRIDGES OVER STREETS.—The London, Chatham, and Dover Railway Company have been charged, at the home circuit assizes, with a nuisance, by contravening their Act in the mode of building their Newington bridges, thereby endangering the public safety. The company pleaded not guilty to the indictment. The local vestry were the prosecutors, in the name of the Queen. It was argued on their part that the bridges complained of were not water-tight, and from want of deadening arrangements the noise of trains passing startled horses, so that accidents had happened and lives were lost. In other and similar bridges these defects had been obviated with the greatest ease, and the defendants were bound to do all in their power to prevent their bridges being a public nuisance. They were not asked to destroy the bridges, but simply to alter or improve them a little. The Lord Chief Baron, at the close of the prosecutors' case, suggested that the matter should be referred to some competent person to examine the bridges, and decide what should be done; and this was finally agreed to, the defendants to pay the costs of the suit, if found in the wrong.

The Builder.

VOL. XXIII.—No. 1159.

A Note of Warning.—Plague in a Pit Village.



THE practical way to prevent the dreaded Russian fever fastening on any portion of Great Britain and spreading amongst the inhabitants, will be for the several State and local authorities to take time by the forelock. "A stitch-in-time" policy will be better than "waiting until something turns up." What are the officials at the Local Government Act Office doing? The reply may be "Nothing; because Government has transferred the power of action to the Privy Council." Doctors may visit the seats of the disease in Russia, and write most ably on the appearances of the fever and means of cure adopted or recommended in that country; but such expenditure of public money will do nothing to prevent the seeds of disease developing in this country, if wafted over by any means into fitting

localities in some of our dirty sea-port towns. Preventive works may now be commenced and carried out to the greatest advantage, and an expenditure of public money for that purpose will be true economy under any contingencies. Town councils, boards of guardians, town committees, local boards of health, and others should, at once, cause inspection to be made, and then immediately remove accumulations of foul matter from the vicinity of human dwellings. Cesspits should be emptied and disinfected; yards behind slaughter-houses cleansed; refuse-heaps in lanes, yards, courts, and waste grounds disinfected and removed; stagnant water drained; foul ditches disinfected, cleansed, deepened, and, if practicable, sewered or drained. Dirty courts and houses should be cleansed and lime-washed; ventilation be provided; overcrowding prevented; and an immediate removal of fever cases to hospitals be insisted upon. Dead bodies should be buried under such regulations as prevail in France. Fever, plague, or other form of pestilence may then be kept under, if all previous experience in this direction do not prove fallacious, which we have no reason to anticipate. Boards of guardians and local boards of health ought to remember that sickness, in excess, is the heaviest form of rate a poor man can suffer under. Now is the time for action,—now, before the heat of summer is added to other exciting causes of pestilence. Those who have read the pages of the *Builder* know that the crowded parts of our cities, towns, and villages do require this immediate attention and cleansing.

Let us give another instance recently brought

under our observation. This is a case of a pit-village containing about 140 back-to-back dwellings, planted down close to a colliery, when first started by a company, without pathways, drains, privies, water provision, or any sanitary forethought whatever; and beyond the limits of the jurisdiction of the nearest local Board of Health. The site of this pit-village is flat, and it has a clay subsoil: it lies about a mile west from the bracing seashore on the Northumbrian coast, in the township of Haxley, near Warkworth. With the exception of a very few double-roomed houses near the pit, these dwellings consist of but one room on the ground-floor, 8 ft. 6 in. high, and about 16 ft. square, a tiny pantry, and a low attic: about 25 ft. or 30 ft. from every door is an ash or ordure heap; and at about 40 yards' distance a row of piggeries in corresponding number. The houses are built back-to-back, be it remembered, in two long rows running at rough right-angles with one another; and, besides these principal rows, there are two much smaller blocks at some distance from them.* This village is now inhabited by a population of 693 persons, among whom typhus and small-pox have been working their will during the last twelve months, to an extent of 194 cases, 21 of which have been fatal. The absence of paving and draining causes the whole village to be a sheet of mud in wet weather, a state of things which has called into use a set of stepping-stones, or a cinder ridgeway at every door. One house near the pit has a privy: the rest of the inhabitants, 700 in number, are destitute of that convenience. We are forced to speak plainly. Nice people must skip it. The water used by some of the residents is a stream running in a muddy-bottomed open ditch, which goes altogether dry in summer; a dirty pool by the roadside is the resource of others; and those families nearest the pumping-engine use what they call steam-water, from a jet for condensing the steam.

The difficulty of this case is, that the expenditure required to place the village on a sanitary basis would exhaust, figuratively, the resources of the pit itself; and that it is scarcely fair to expect the present lessee to repair every omission of his predecessors, more especially as an endeavour has been shown to effect as much good as could be realized by the erection of a school-house, now duly attended by 157 children, and of a library. Without, however, a pecuniary sacrifice is made in some quarter or other, the human sacrifice will continue to recur with Dahomeyan persistency.

The only local authority to which this fever-breeding centre is amenable is that of the guardians of the Alnwick Union. On the occurrence of a former visitation, the lamentable state of the place was brought to the notice of this Board by the district overseer, on account of the increase of parochial relief required by the sick families. An inspector of nuisances, the local police inspector, under the direction of Major Brown, chief constable of the police, was deputed to inquire more particularly into the matter, and ordered to make a report. When this was furnished, detailing the facts mentioned above, with the addition that the trackways before the houses were higher than the floors, causing them to be constantly damp and flooded in wet weather, it was forwarded to the lessee, with an order for him to attend to the requirements of the case. No notice was taken of this communication. The Board then applied to the justices for an order empowering them to execute the necessary work and charge the lessee with the cost, if he did not take it in hand immediately. When this order was served upon the lessee he appeared before the Board with a deprecatory answer, to the effect that it was beyond his means to cleanse, pave, drain, privy, and water the place; but he

agreed to do what he could towards it, and asked the guardians to appoint one of their own body to overlook the sanitary requisites he intended to effect, the most particular of which was understood to be the removal of the enormous mass of offal, ordure, and cinders which raised the trackways before the doors higher than the floors. The Board complied with this proposition, and placed the supervision in the hands of a gentleman residing near the spot, with instructions to him to report progress. No more was heard of the matter till the startling fact came to light of the mortality and disease given above. It was then found that the removal of the accumulated soil and cinders from before the doors had left a substratum of retentive clay exposed, which, far from improving the cleanliness of the place, had made it worse; that the 157 children at school were unprovided with a privy; and, with one exception, that there was not such a convenience in the settlement; that the water used was either ditch water or pool water, contaminated by ordure, or the pumping-engine water; and that the whole place was in a disastrous condition.

The guardians, having no surveyor of their own, obtained the services of the surveyor of the Alnwick Local Board of Health, and despatched him to make a practical and faithful report. This officer condemned the partial measures taken by the lessee as totally inadequate to meet the seriousness of the responsibility. After detailing the inefficiency of the slight drainage that has been attempted at one place, he remarks:—"The water is very bad. Some use water got from the pumping-engine (I understand it is from the jet for condensing the steam—they call it steam-water), and it is worth notice that fever has not been so prevalent among the families using steam-water as others; but most of the people get water from a brook or open ditch, which rises somewhere about Togston and runs past on the south side of the village, and thence on to the sea near Bondy Car. This ditch goes dry during the summer months, has little fall, a muddied bottom, and altogether a dirty appearance. About one-third of the people get their water from a pool above where the road leading to Morpeth crosses. About half-way down, and on the east side of the lane leading from the houses to the ditch, there is a conduit discharging dark-coloured water, which falls into the ditch. . . . We saw night-soil in different places in the ditch, and close to the water's edge; and during easterly winds the sewage waters will be blown upwards and mix with the water in the pool that is taken away for use. . . . There is a house near the pit which has a privy attached: with this exception there is not a water-closet or privy in the place, and the *kit* is a necessity. One woman, who has a husband and four children, had a remarkably clean house: on being asked how they managed to preserve decency without a privy, she pointed significantly to the pantry, saying, 'There we do all, and empty at night.' . . . I asked the schoolmaster how the children do to preserve decency when they have to go out. He replied that he did not know what they did nor where they went to. . . There have been nearly 200 fever cases during the last twelve months, out of which number about twenty died. . . . Mr. Robson states that the place is never free from fever and kindred diseases. Dr. West states that there are some cases of typhus fever just now, and considers the inefficient drainage and bad water the chief causes of disease. Thomas Redpath states, that during the last winter the mud was ankle-deep in front of the cottages. . . . Fever and diarrhoea prevail to an alarming extent; the place as we now see it is a hotbed for disease and the cause of death. Something should be done without delay to remedy this state of things, or the neglect may entail serious consequences

* A sketch of a similar pit-row will be found in our vol. xxi. p. 721.

both to the inhabitants and also, by contagion, to the people of the surrounding districts."

We enter thus fully into this case as an instance of the difficulties sanitary reform has to combat. If a legislative enactment existed which prohibited lessees from running up such plague-generating hovels upon the surface of the spot of green earth they intend to bore into for mining purposes, the evil would not be created. But as this prevention is not in force, we must look to the best mode of cure. Some extra authority is evidently required.

A significant fact has been ascertained, which is in accordance with experience. It consists in the circumstance that the families avoiding the ditch and pool water escaped. This would appear to furnish a key to some of the misery, and at the same time to suggest a cure that would not be of ruinous cost. Let the whole village have the privilege of using the water that has not the property of injuring the health of those who partake of it. The pumping-engine lifts 600 gallons of water per minute from the pit. Let this be filtered and conveyed by pipe to places convenient for all.

It very often happens that a task is unattempted because it has too herculean an aspect. In the present instance, it is apparent that the simple step here recommended and disentangled from less pressing requirements would not cost a king's ransom. The auxiliary accommodations may require some little effort; but the health-destroying waters should be abandoned at once.

Once more we say, let England be warned in time.

LESLIE AND TAYLOR'S SIR JOSHUA REYNOLDS.*

Or the twin or compound authors of these long-looked-for and really welcome volumes, a few words seem necessary by way of introduction. Mr. Leslie was one of five painters born in America and settling in London, who acquired academic honours in the Royal Academy of Arts in London. Benjamin West was the first to cross the Atlantic and make London his home. West became the second President of the Royal Academy. His "well-balanced" "Death of Wolfe"—partly through Woollett's inimitable graver—more than preserves his name. Copley followed West; and two pictures of glorious deaths—those of Chatham and Major Pearson—perpetuate his excellence in his art. West and Copley were followed to England by Leslie, Newton, and Allston—a trio of clever men. Newton and Allston died young. Leslie lived to paint many pictures of great excellence, known and admired by all who are acquainted with the noble bequest and gifts of Robert Vernon and John Sheepshanks to London—i.e., the world.

Of these five American artists who made England the country of their adoption, and loved the country they sought, West was illiterate; Copley (not so illiterate) was the father of the great Lord Chancellor Lyndhurst; Newton (with a very fine eye for colour) was more than a tuft-hunter; Allston was an accomplished poet; and Leslie, besides some printed lectures on art (marked with good sense), was the author of a quarto Life of his friend John Constable, the painter, in which the merits of that painter, and they were many,—are cleverly, and, as some think, unduly extolled: why, when, and wherefore (unless Washington Irving betrayed and misled him), Leslie (we drop Mister after a great name) thought he was fit for a "Life of Sir Joshua" it would be idle to inquire. A literary reputation seems to have been always dear to a painter: Reynolds sought it and obtained it; and his reputation as an author stands deservedly high in English literature. He knew, as all very great men know, wherein his weaknesses lay; and he knew, no man knew better, how to make good what he had not. To hope to have the whole of a full-length, robes and ermine, seals and maces, finished by a great painter, is as hopeless to ask or look for as a Laocoon or an Apollo—quarried, rough-hewn, chiselled, tooled, filed, coloured, and paid for—à la Gibson.

What Reynolds has obtained and will retain (seemingly absolutely and without dispute), Benjamin West, who in a letter to Chantrey called him "a sculpture," did not seek,—Lawrence, with Wiltshire wisdom, did not seek. Sir Martin Shee (his Sir Thomas Munro will preserve

his name) was an accomplished gentleman—half a poet and half a wit. Sir Charles Eastlake, it has been said (with some sarcasm and with greater truth), brought more than Fuseli literature,—into a wing at least of Somerset House and the east end of Trafalgar-square.

There are several "Lives" of Sir Joshua. That by Northcote, his pupil, is the most ambitious; that by Allan Cunningham (who was a boy of eight at Reynolds's death) is the most able and, to our thinking, still the most truthful; Chantrey touched here and there, perhaps, with a little asperity, for the sake of what artists would call light and shade, but bearing throughout a skill in composition and in observation of life and character that commanded and called forth the admiration of Southey. In one hundred and fourteen pages of a pocket volume, Mr. Cunningham managed, and with ease, to present a miniature full-length of Sir Joshua, both as a painter and a man.

The desperate books, "alarming Bentley hooks," meant to distinguish Mr. Leslie's labours from Mr. Tom Taylor's labours in the bulky volumes before us, are not always, we are sorry to say, distinguishable, and remind us of the hooks with which Mr. Wilson Croker, in the first edition of his "Boswell," puzzled and perplexed and provoked the eyes of so many critics, quarterly and weekly, from Lord Macaulay upwards to Mr. Anonymous downwards. In what we have to say, we shall labour to keep our twin authors apart, and we trust successfully.

We wish we could have seen from an author too little appreciated by Mr. Leslie and Mr. Taylor this fine passage in these volumes:—

"How painting has rekindled from its embers, the works of many living artists demonstrate. The prints after the works of Sir Joshua Reynolds have spread his fame to Italy, where they have not at present a single painter that can pretend to rival an imagination so fertile, that the attitudes of his portraits are as various as those of history. In what age were paternal despair and the horrors of death pronounced with more expressive accents than in his picture of Count Ugolino? Where infantine loveliness, or embry passions touched with sweeter truth than in his portraits of Miss Price and the baby Jupiter?"—*Horace Walpole*.

Sixteen pages of commemorative quotations from "Poets and Prosemen" might have heralded in these volumes with great advantage. Mr. Taylor tells us (perhaps it is Mr. Leslie) that of bachelor Sir Joshua's two nieces,—in whose home they found a Martha and Theresa Blountsaylor,—"Offy Palmer" was the favourite. They were charming Devonshire girls, we read and have heard, who knew good London society through their uncle Sir Joshua, and who were not unremembered by dear uncle in his "will." Read this hitherto unprinted (Mr. Taylor tells us) letter from the president painter of the Waldegrave girls (a £5,000,—not 8000,—picture any day), and a "letter" (congratulatory), far above, in simplicity and feeling, that which Alexander Pope, of the "Rape of the Lock," wrote to Arabella Fermor on her marriage:—

"To Miss Palmer, at Mrs. Bunbury's, Barton."

My dear Office,—I set out to-morrow for Blenheim. I had some thoughts of bringing you to town, as it coincided with a very pressing invitation which I had from Lord Granby to pass some days at Chivley; but, receiving at the same time a letter that I was expected at Blenheim, that scheme is at an end; and how you will come to town the Lord knows. In regard to our separation, I feel exactly as you have expressed yourself. You say you are perfectly happy where you are, from the kindness and civility of your hostess and Miss Horneck, and only wish to see us. We wish likewise to see you, at the same time that we are perfectly well contented with your absence, when it is in a family which will somewhat contribute to confirm by habit those principles in which you have been educated, which habits I have always thought are infinitely beyond all precepts, which go into one ear and out at the other. I never was a great friend to the efficacy of precept, nor a great professor of love and affection, and therefore I never told you how much I loved you, for fear you should grow saucy upon it.

I have got a ring and a bracelet of my own picture; don't you tell your sister that I have given you your choice.

My compliments to all the family, and remain, Dear Office, your affectionate uncle,
J. REYNOLDS.

The pictures of Sir Joshua—and there are a thousand and odd genuine (at least)—are known

so well to all who love art, and have means to travel; and so much "Correggio and stuff" have been talked and written about them (these volumes have a rag-tag and bob-tail about them), that we shall not be expected to discourse or lecture, or waste our readers' time upon Sir Joshua's position in art. Words cannot compare him with his great predecessors, Titian, Velasquez, and Vandyck; it would be waste of time to contrast him with his little successors, Lawrence and Hoppner, Owen and Phillips, Raeburn and Gordon, and Shee and—Albemarle-street catalogues can alone tell us who.

Mr. Tom Taylor, Mr. Leslie's adopted executor, and literary executor in these volumes, is deservedly known to the public as the editor of erratic, enthusiastic "Haydon's Journals,"—better still as a skilled contributor to the stage, and as a critic on pictures,—quick to see and point out merit, prompt to perceive and to condemn defects. A "Life of Sir Joshua" in such "company" pens was sure to prove not a Sternhold & Hopkins affair, but a Beaumont & Fletcher performance, and such, we are pleased to say, we find it.

That Reynolds, in his "Discourses" was under obligations to Johnson (up to 1784, when Johnson died), and to Burke finally, is a noble proof of his discernment in seeking and obtaining assistance where assistance should be sought and was gained. The real or supposed "secrecy" of the Royal Academy has done much to injure the great name of the founder of the Academy: would Sir Joshua's "hero" Johnson (he more to be admired, therefore), have submitted his "Vanity of Human Wishes" or his "Lives" to "forty" poets in his "Essex Street," or fifty prosemen in his "Gerard Street, Clubs? No! not he.

The reputation of Reynolds in art is accepted, his position in literature is different.

What his pupils did for his Pencil is utterly immaterial. There was no head-work—merely hand-work in what they did. What his friends did for his inimitable "Discourses" is a different matter, has caused much controversy, and is little understood.

We will attempt to throw a light on the subject, in a little way assisted by these volumes; and, after a careful inquiry of thirty years, we can throw some upon it. Reynolds (more to his honour therefore we love,—who does not?—his "Discourses," and could pass a "Royal Academy" examination in them) made memoranda wherever he went: his "Flanders Tour Notes" are examples for all who travel with Sir Henry Wotton's advice to Milton—"Thoughts close and looks loose"—in their way they are unequalled: connoisseurs abide by them; picture-dealers "bid" by them. We appeal collectively to Messrs. Christie & Manson, and to Mr. Henry Farrer (these "invaluable" men), in proof of what we state. Mr. Murray's many-handed "Handbookers" quote them, with skill and taste; and they are supreme above all the Academy has ever given us, or seems likely to give.

The question of Reynolds's skill with the pen may, perhaps, be tested by examining the famous Sir Joshua letter of resignation (vol. i., p. 167), Mr. Sandby's recent "History of the Royal Academy" with the version of the Royal Academy, which Messrs. Leslie & Taylor give us (vol. ii., p. 555). How in a copy of a "notelet" so many discrepancies could or can occur we are utterly at a loss to know. Perhaps the Professor of Ancient or Modern (if there is such an office) Literature, in Trafalgar-square, will tell us.

Careful commentator and annotator, read Messrs. Leslie & Taylor's copy of Sir Joshua's farewell letter to Michelangelo at Somerset House, with Mr. Sandby's previously printed variations from it. The Sandby variations are here in brackets.

"To the Secretary of the Royal Academy of Arts. Leicester-fields, February 23 [22], 1790.

Sir,—I beg you would [will] inform the council, which I understand meet this evening, with my fixed resolution of resigning the Presidency of the Royal Academy, and consequently my seat as an Academician. As I can no longer be of any use [service, to the Academy as President, it would be still less in my power in a subordinate situation. I therefore [now] take my [final] leave of the Academy, with my sincere good wishes for its prosperity, and with all due respect to its members.

I am, Sir, your most humble servant,
JOSHUA REYNOLDS.

Sandby's version final is determined, and is doubtless, correct. We shall return to these volumes in a suggestive and congratulatory mood

* "Life and Times of Sir Joshua Reynolds: with Notices of some of his Contemporaries." Commenced by Charles Robert Leslie, R.A.; continued and concluded by Tom Taylor, M.A. 2 vols. Murray.

THE IMPROVEMENTS IN PARIS: THE QUESTION OF THEIR IMPORTANCE IN THE VIEW OF THE INCREASING MORTALITY OF LONDON.

At different times during the last few years, we have drawn our readers' attention to the statistics of the mortality of London and Paris placed in comparison, believing that the figures so viewed would be found to deserve attention, and possibly to suggest particular measures to be taken for the diminution of the mortality of London. In our last volume, under the same heading as that which is here prefixed, we gave the mortality of Paris during each of the years, 1860, 1861, and 1862, per thousand of the living, as calculated upon data of the population which do not admit of dispute, and upon the positive returns of the number of deaths, and compared it with the mortality of London as stated by the Registrar-General; and we also compared the mean mortality of the three years, of the one capital with that of the other.* As our readers are aware, statistics have been presented from time to time by the municipality of Paris, showing a considerable amelioration in the sanitary condition of that capital in the course of several years past, and demonstrating that the chief gain has been contemporaneous with the formation of the many wide streets and the aeration of the different quarters. But such a comparative statement as we gave had not been made, previously to our own. We found that although in 1860 the rate of mortality of Paris exceeded the London rate by 2.25 (here omitting one of our figures of decimals) per thousand persons living, and though the excess rose to the figure 2.47 in 1861,—a year which was marked by an increase in each capital,—the rate in 1862 became so greatly reduced in the former capital, whilst it was actually increased in the latter, that the excess of Paris over London was reduced to 0.77, or little more than three-fourths of one in the thousand. It is true that the comparison of the mean of the three years in the two capitals, showed an excess of the rate of Paris over the London rate, amounting to 1.63, or somewhat less than two in the thousand; but this result was very different to what the English public had been led to conclude from statements, some of them then recent, which had been based upon inadequate knowledge of facts. At the same time we hinted our opinion that in the comparison of the statistics of the year 1863, corroboration might be looked for of a prediction which we had previously ventured to make, that the sanitary condition of Paris would before long transcend that of our metropolis. Those who remember the mortality of our chief towns will not require to be told that these have long been much less healthy than Paris.

We have now before us the statement of the number of deaths in Paris during the year 1863, given in the "Annuaire" for the present year, published by the "Bureau des Longitudes." The statement for 1864 is not published. We can make, therefore, no comparison for the year 1864; and it is the more important that we should say, as we shall shortly, what are the data that exist for the calculations in each year, since, in the French journals themselves, or at least *La Presse*, a statement of conclusions as established in a "Mémoire" drawn up by M. Deville for the Inspectors of the Verification of Deaths, and lately presented to the Prefect, contained errors, or inasmuch as for 1862 the population manifestly was taken at that of the census of the previous year, whilst the deaths have been less than the stated one death in forty inhabitants,—not to mention what we shall show to have been probably the facts in 1863. The statement from the French press was inadvertently allowed to appear, without a note, in our number of the 4th of March; but, since the figures of the census of 1861 are, by decree, required to be recognised as solely authentic during five years from the 1st of January, 1862, we are by no means certain that the errors as resulting from that requirement, are not to be found in the original "Mémoire." However, we may here remind our readers that our calculations are based upon an estimate of the population of Paris as increasing each year only one-fifth of the increase in the previous quinquennial period. A similar assumed basis was originally suggested to us by the secretary of the "Bureau de la Statistique" of the Hôtel de Ville, for an estimate of the population in

each year of the last quinquennial period; and, having made use of it prior to 1861, the census of that year showed us to us that the facts and the assumption were in remarkable accordance, or from 1856 to 1861 at least. As in England the population in one year of a period from census to census would exceed that of a year of the previous census period, we might fairly suppose the population of Paris to have been subject similarly to the law of progression, especially when we have to take into the account the constant influx of persons of foreign birth. We prefer, however, to take the estimate at the very lowest, for the present; but we ought at the same time to point out that the figures of the number of deaths being those of positive returns, the proportion of deaths is likely to be found less, rather than at all greater, than we have made it.

Though statements of the mortality of Paris are carried back not only to 1856, and to the date of the commencement of the improvements, but to a much earlier period, and may be taken as presenting facts of importance, we prefer not to attempt any comparison for the years prior to 1860, the year of the establishment of the limits of the city as they now exist. It would have been very desirable to compare the mortalities of the two capitals during more years than four, and to take the average of a greater number of years; but to get the population of the *banlieue* of Paris, and its number of deaths, or to get merely figures for the city as before 1860, would require references which in this country we are not able to make. The population in 1856 of the entire area which now constitutes Paris, as taken in the census, we have in a distinct document to which we referred last year; when we stated that the population of 1856, was 1,525,942, inclusive of the garrison, and that the number in 1861 was 1,696,141,—these figures showing an increase during the five years, of 170,199. Taking one-fifth of this increase, we may say that the increase since 1861 has been 34,039.8 in each year. Thus far as to our data; and the reader will probably conclude that there is no margin of error capable of effecting the substantial accuracy of our comparison, or perhaps deserving the attention which nevertheless we have here given to it.

Subsequently to the publication of the comparison in our last volume, Mr. Tite (some of whose previous assertions had induced us to make the statement of figures) read before the Statistical Section of the British Association, an interesting paper on the mortality of London and Paris; wherein, though he estimated the mortality of the French capital as greater than that of London for the period of ten years from 1853 to 1862, he so far modified his original expression of opinion as to say that there had been a great and marked decrease since 1853, or shortly after the Emperor began to urge upon the City the necessity of making better provision for sewerage, water-supply, street-aeration, and other improvements, and that the difference in the rates of mortality of late years had been very slight. We do not question the accuracy of Mr. Tite's conclusion as to his period of ten years; though we should have been glad to be informed of his data,—since he confesses to similar difficulties to those we have experienced. But the facts which will be brought out by a comparison of the mortality of Paris and London, during the period of only four years to which we have alluded, and those of the present mortality of London, are such as require to be stated; for, they tend to show that in the later capital progress is not just now being made in the amelioration of public health, similar to that in Paris, and to substantiate our view that on the expiration of a period of ten years hence, a better position sanitarily will be found reached in the capital of France, than in that of Great Britain.

Our anticipation that the mortality of Paris of 1863, would be found below that of London in the same year, is now shown to have been correct; and in 1864 (for which year, as already stated, we have not the deaths for Paris) the mortality of London had increased about two in the thousand beyond that of 1863, or so as to make it greater than it has been for ten years. In fact, during the last five years, the mortality of London has been steadily increasing, and the greatest increase in any year is that which took place in 1864, when the deaths were 26.45 in the thousand; having been in the previous year, 1863, 24.47.

After the paper "On the Municipal Organization of Paris, particularly with regard to the

Public Works," read by Mr. G. R. Barnell at the Society of Arts, on the 22nd of February, the Chairman, Mr. W. Hawes, in the course of his speech, made some remarks (reported in the Society's Journal, but not in our pages) which embody expression of the common view of the immense superiority of London in sanitary matters, one which will be here shown to require qualification. Mr. Hawes is reported to have said,—

"There was one observation in the paper which he did not think the facts brought before them justified. It was to the effect that Paris had gained in everything that tends 'to make life valuable' in large towns. What had Paris gained? Some very remarkable streets and a great deal of elegant architecture. But let them see also what it had lost. Notwithstanding all the improvements in Paris, the sanitary condition of that city was inferior to that of London. How was that to be accounted for if London deserved the amount of abuse heaped on it? The real fact was that the health of the poorer classes was cared for in a higher degree in London than in Paris."

The reader has already been placed in a position for judging how far such general assertions of the superiority of the sanitary condition of London are to be relied on. We need not repeat the comparison for the two capitals, for 1860, 1861, or 1862,—that is, separating the years: it will be found in the article in our last volume; and the conclusions are stated above. But we will give the comparison for 1863 separately. The population of Paris, in the year, is to be estimated as that of 1861 (or the number 1,696,141), plus the number 68,080 for the years 1862 and 1863 together,—this latter number being two-fifths of the increase from 1856 to 1861. The sum, 1,764,221, is the population of Paris on the 31st December, 1863, as estimated, but in a manner which is based on previous facts. The deaths are taken as given in the "Annuaire" of the "Bureau des Longitudes," where they are stated as 42,582. The mortality for London is quoted from the Registrar-General's Summary of Weekly Returns, dated the 18th of February last, only altering the position of the decimal point to obtain the comparison per thousand. The figures differ slightly from those in our last year's article, obtained from the former Summary; as, annually, the latest figures undergo correction. The result then is as under:—

In 1863.—	Per Thousand.
In London, the deaths were at the rate of	24.47
In Paris (including the garrison, which appears to be very healthy), they were	24.13
Thus the rate of London mortality exceeded the Paris rate	0.34

Of the Paris rate in 1864, as we have said, we have no knowledge; but the London rate is shown by the "Summary" to have increased from 24.47 to 26.45 as already mentioned; and it is known that this year there has been a large increase in cases of zymotic disease, as typhus fever.

Assuming that it be considered unsafe to judge by single years,—though there is yet considerable importance in the facts as at present, of the progression of Paris, and the contrary tendency of London,—we append the comparison of the averages of four years. The comparison which we made in our last volume, for three years, showed an excess of mortality of Paris over London, of 1.836 in a thousand.

In 1860, 1861, 1862, 1863:—	Per Thousand.
In Paris:—	
1860 = 24.745	
1861 = 25.656	
1862 = 24.438	
1863 = 24.136	
98.975 ÷ 4 = 24.718	mean of the four years.
In London:—	Per Thousand.
1860 = 22.400	
1861 = 23.180	
1862 = 23.660	
1863 = 24.470	
93.710 ÷ 4 = 23.425	do.
Excess of the rate of mortality of Paris, per thousand, over the London rate	1.293 do.

Either way of making the comparison, there has been a reduction in the mortality of Paris, and an increase in that of London; and neither present circumstances, nor the actual prospect, are such as should satisfy us.

The improved water-supply, for which the works are now in active progress, will tend vastly to ameliorate the sanitary condition of the French capital. The supply for purposes of ablution is by no means so defective as has been represented; whilst a large quantity of water is used for street-cleansing; but there is no question

* Vol. xxii., 1864, March 6th, page 164.

that the absence of a high-service by pipes in the houses, is a serious evil. The deficiency causes stench within the houses, and similar stench during some months of the year in the streets, from house-drains crossing the footways. But not to mention the now extensive aëration of every quarter of Paris, the street-cleansing, contrasting so much with the flagrant neglect in London, the air not so much impregnated with "carbonaceous particles," and even better light, must be largely operative in diminished mortality. The report of the Registrar-General, written whilst Londoners were wallowing through what was called a "mud-ocean," adverted to one form of dirty streets, affecting mortality; but another has come in with the hot weather. During the last fortnight, the stench from triturated horse-dung and other offensive matter, has been worse than any of the stenches of the streets of Paris. Washing the streets, as in the French capital, there is none; and it would be hard to say that there is any scavenging. The inattention to street-cleansing must be one cause of the mortality of which mention has been made. Also, it may be observed, the retention of refuse for long periods, in back-yards and cellars, which is the London practice, must have much to do with the rate of mortality. The Paris system of depositing such refuse at night-time in the streets, may be attended with inconvenience to those who are out at late hours, and who stumble over a heap of broken crockery; but the streets, each morning, are divested of every straw and speck, and presented clear and clean as we never see the streets of this metropolis. Both the eyes and the nose get used to various abominations; but it is probable that those in London are no less injurious than the sights and smells elsewhere, which are offensive because they are new.

DECORATION AS A HANDMAID TO ARCHITECTURE.

THE ARCHITECTURAL MUSEUM.

A LECTURE was delivered on Tuesday evening last before the members of the Architectural Museum, in the theatre of the South Kensington Museum, by the very Rev. Canon Rock, D.D., subject, "Decoration as a Handmaid to Architecture."

The lecturer said, he presumed that those who heard him had occasionally met some individual who had an odd custom of talking to himself, — of thinking aloud, and not unfrequently upon subjects with which he was not very conversant, and regardless of the persons near him, and forgetful of the place in which he was. He was very much in that position there, being, so to say, a mere layman in architecture and decoration; but, if the parallel went some way, it very soon ceased. He was perfectly conscious of the presence in which he was, and he knew the place on which he stood. There were persons present to whom it would be a pleasure and a profit to him to listen, persons distinguished in constructive architecture and in decorative art. And he was conscious of the place from which he spoke. Often had he listened to instructive lectures delivered from that tribune, by their excellent and worthy president, and by other eminent men. He could not forget one circumstance, which made him feel forcibly the place which he occupied. It was but a bare year since his dear friend and old schoolfellow, his Eminence Cardinal Wiseman stood there, and never should he forget the cordial welcome he had received, or the delightful lecture he delivered. He (Dr. Rock) had been invited to deliver a lecture upon ornamentation as a handmaid to architecture. He believed it was Cicero who, speaking of what should constitute a perfect orator, said that oratory required its professor to be a man of great acquisition and vast learning; not only to be conversant with all the ramifications of the twelve tables of the Roman law, but to be thoroughly acquainted with international law, and able to declaim upon any subject that might be proposed to him. The well-informed architect should be something like Cicero's orator. Man in every clime in which his lot is cast, whether in Siberia or in the torrid zone, must have some refuge by day and by night, some place more or less suitable to his own builder, but let a number of men come together, and one would be found to be superior, and he would become a professor of the great art, for such it was, of raising habitations for the others to

reside in. In a great community, magnificent cathedrals, spacious churches, stately palaces, temples of justice, great public buildings, institutions for the poor; jails, unfortunately, and, fortunately for humanity, hospitals; as well as town houses and country houses for the nobility and gentry, and abodes for the poorer classes, were required. The true professor of the great art must not only be acquainted with constructive science, but he must be more or less versed in geology; — whether the soil was or was not wholesome, whether water could be found, whether the climate would admit of the use of certain materials; — and with all this he must be a man of taste. The best architecture was nothing less nor more than ornamented utility. The first thing was to make a building useful, so as to meet the material wants of man; but there was more in man than matter: he was a thinking creature, capable of being impressed and influenced by surrounding objects; and the building, along with being useful, should be so constructed and completed as to appeal to the better feelings of man, to make him more joyful when he is joyous, and to soothe his sorrow when in grief. As Christian men they required churches to worship in. Few men were called upon to build cathedrals, and still fewer lived to carry out the commission; but many men were called upon to restore cathedrals. He had some time since had an opportunity of visiting Peterborough Cathedral, and he was happy to say that its restoration, so far as it went, was all that he could desire. One other thing gratified him during his visit. They knew that the vergers of cathedrals, like other men, liked palm oil, and they sometimes followed the visitor about, so that he could not stop opposite a tomb without having to listen to their observations; and to get through a gate without their assistance was impossible. At Peterborough it was different. The vergers were there, no doubt, to afford information when required; but he did not in the least put himself forward, and there were no gates locked, so that a visitor might go through the cathedral, and examine each part of it, without interruption. That was as it should be. Well, if it was not the good fortune of architects to have many cathedrals to build, they had to erect a great many churches. Now, he thought that a church, of all buildings, afforded the greatest field for displaying the capability of uniting the requisite with the ornamental. Pre-eminently the architect should make a church decorated utility. The roofs of churches were capable of being very much improved. Many of them were overlaid with lead; but the great majority were constructed of slate, or the prepared stone called, in the country, "slat." Now, he regarded the blue roof as a very ugly object indeed. A roof of glazed glass which might be starred, would be far preferable, and, after a shower of rain, would present a beautiful appearance. Then, as to the windows. Frequently architects were allowed to make the windows of a church ornamental by means of small columns, and they used stone for the columns. Why was not marble used? Polished marble would not only be highly ornamental, but would bear the severity of winter and of summer, and be still beautiful after years and years had rolled away. He believed that many kinds of marble might be obtained with facility. There were quarries in Derbyshire and in Devonshire; and a beautiful green marble might be obtained from Connemara. Colour was to be seen everywhere in Nature: why was it not more used for architectural purposes? Inside, churches were usually open-roofed, and in many cases well ornamented. But sometimes there were long ugly pipes to be seen, for hot air and for cold air, which had anything but a pleasing effect. Now, to remedy that, the architect should know a little of natural philosophy. If he went to the Serpentine on a frosty day, he would see how it could be done. There he would see swans breasting the water, and the ice broken to allow them to do so; and yet the breast of a swan was very tender. The secret was that the down held atmospheric air, which was a non-conductor of heat and of cold. How could they apply that principle to the churches? By having two roofs, by which means they would leave a stratum of air between the two; or, in other words, they would have above the congregation that which the swan had on its breast as a protection. And they should remember that for the same reason that the church is too cold in winter, it is too warm in summer, and especially if the blue slates were on it. The remedy he suggested would be a guard against too much heat at one season, and against too much cold

at another. He begged his architectural friends to bear in mind that throughout these suggestions he was only thinking aloud. Now, let them come down a little further into the church. Many of their churches were exceedingly stuffy, and required the windows to be frequently opened, and they were opened by means of cords, which were unsightly affairs. Now, the suggestion he had to offer to get rid of that state of things would not involve much cost, and it would make the architecture of the church be decorated utility. He would have beneath the windows a moulding of such breadth that, though it would not give footing to a Banting, it would admit of a slim youth passing to and fro to open the windows in summer, and to close them effectually in winter, which cords could not do. Another use could be made of it also. He loved to see churches decorated with flowers in times of rejoicing, and he wished that, as of old, the great mysteries of Christianity could be depicted in tapestry, and hung round the church at appropriate seasons. There would then be a celebration of the church's festivals to the eye: not only would the people hear from the preacher that it was Christmas or Easter, but their eyes would tell them of it also. This could be easily done, and no doubt there would be willing hearts and kind hands to bring it about. When the festival was over the tapestry could be removed, and facility would be afforded for doing so in the manner he suggested. In another respect the interior of churches could be decorated, and that was by the architect practically showing that he understood the symbols of colours — green the emblem of hope here; blue the emblem of hope of heaven hereafter; red the emblem of burning charity towards the Maker and all mankind. Why were not marbles of these tints used? Then, instead of whitewashed walls, the eye would be arrested by the beauty and harmony of colour. In the heavens above, in the fields, in the woods, on the hills, there is colour: why was it not to be found more than it is now in the House of God? So much for churches. He would now say a word as to buildings for civil employments, and for the purposes of residence. What was said as to cathedrals applied also as to palaces: it fell to the lot of very few to build them; but some had been built in their own day, and others would yet be built. There was, for instance, the glorious palace of Westminster, which he was delighted to say was in the Pointed style; for his love was for the Pointed, not for the Classic. It was a very critical and difficult thing for an architect to have to deal with one style in a building, and with another in the decoration, — called upon to do so by his clients. Now, an architect should be not only able to build a house, but to instruct the proprietor of it as to the suitable decorations for it, and as to the furniture and the laying out of the grounds, so that all would correspond with the style. Windsor Castle was built in the Pointed style by the man whose motto was, "Manners make the man;" but he regretted to say that some of the interior restoration, the decorations and furniture were in the style of the Grand Monarch, and not in that of the building. The decorations to which he alluded were admirably executed, and by English hands, he was thankful to say; but he regretted they were not more in keeping with the style of the building. Speaking of Windsor, he could not help referring to one of the latest evidences of the exquisite taste of the late lamented Prince Consort. He had a small room fitted up as a surprise for the Queen, in which her Majesty now receives her ministers; and everything was designed by himself and all in keeping and harmony, even to the hinges and keyholes of the doors. That principle should be more borne in mind by those who had the construction of houses entrusted to them. According to the present rule, if you went into one house in a street, and looked at the ceilings, you would find an ornament in the centre and a moulding all round: go into the next house, and you would find it exactly similar. Then, again, look at the roofs of London houses. Could anything be more ugly than the chimney-pots, with which their eyes were all too familiar? But it might be said, "They draw well." That he denied. If they did, there would be no occasion for the tallboys, which made ugliness still more ugly. Was it to be said that their architects could invent nothing better than the pedicels called chimneys? He hoped not. What did the sent chimneys? He hoped not. Let them go to Eton men of former days do? Let them go to Eton men and see. They would find beautiful chimneys there. Even in the old farm-houses of Sussex, they would come across chimneys that would

shame the palace chimneys of London. Concerning elevation, he regretted to see our houses so very bald. There was a large surface of wall, but it was left as bald as possible. Then there were segments of circles or bands placed over the windows; but he regarded them as direct architectural falsehoods, as they in effect stated that they went through into the apartment, which was not the fact. They might have mouldings or use glazed tiles to keep the rain from the windows, and in that way arrive again at decorated utility. An architect ought not to think that building a great thing would be the establishing of his fame. He might show his power and his refined and cultivated taste in the artistic treatment of a small building. He never went down Piccadilly without contrasting a very large and a very small building. The one was Buckingham Palace, the other a house of about 20 ft. clear, of two windows in breadth, with small balconies, the front being decorated with two little columns and some nice iron-work. He could not look at it without admiring it. For himself, he would rather be the architect of the small house than of the great palace; there were more talent, more elegance, more taste, more science displayed in the former than in the latter. But in the general run of houses, there seemed to be but one general out-and-dry rule of ornamentation: the dining-room, for instance, was hung with a dark-red paper, and the chimney-piece was black. Why were dining-rooms made thus dull? He would be told it was the fashion. Why was black marble used? The room was not meant to be a sepulchre; and London fogs were sufficiently darkening and depressing without the aid of dark paper that quenched the light. He should have thought that men on returning home from business would like something cheerful about the apartment in which they took their meal. For his part, he would be for making dining-rooms light and cheerful. He was delighted to observe the love of flowers that was manifested in London. Why, he might be permitted to ask, do not architects avail themselves of that taste? A window-sill was provided for flower-pots, and nothing more; so that,—as he knew to his cost,—a gust of wind might blow down a tall geranium, and cause the loss of your plant, your patience, and your money. He believed that little appliances could be furnished for flowers, not only in dining-rooms and drawing-rooms, but higher still; and that in that way the elevation might be relieved of a great deal of its baldness. It was much to be regretted that the houses in which men who had been famous in their day and generation as authors, as artists, as statesmen, as lovers of their kind,—practical philanthropists,—were not so marked that their names would be had in perpetual remembrance. This would have an effect for good upon succeeding generations, and he thought that provision for such things ought to be made by architects in the construction of houses. Great architects did not always, in their own case, carry out the principles which they practised in the case of others. Pugin, hearing of a great robbery in the neighbourhood in which he was about to reside, constructed the windows of his house too narrow, and the doors so low that you had to stoop to get in. The architects of the present day, however, should rejoice that they had such a man to go before them. When he (Dr. Rock) first knew Pugin, Painted Architecture was little better than Carpenters' Gothic. The country was overrun with frightful specimens of the Painted style. Pugin had to encounter great difficulties; but he overcame them all; and he was not only able to advise his clients with respect to the decoration and garnishing of every part of their houses, but as to the furniture, and even as to the plate that would best suit it. He did a great and a good work, and they might well say,

"Lie softly on him, Earth, for he
Laid many a fair and holy pile on thee!"

He (Dr. Rock) hoped the day was not far distant when they would witness a great revolution in their street architecture. Let them imagine a sick man coming, depressed in spirit, out of his dark dining-room, walking out for recreation, and turning down Harley-street! There is nothing there to appeal to the inner man; nothing was to be seen but walls of bricks, with holes for windows and holes for doors. How different it was in the olden time, when, if they had not stately houses in profusion, they had houses which were picturesque and pleasant to

look upon. That was not the case now. A man buys a piece of ground, and he studs it over with house after house, all of the same pattern, and with a total disregard of the first lesson of beauty,—a beautiful sky-line. Each house ought to be a little gem of architecture, and the houses in our squares ought to be noble edifices. This might yet be brought about; and such a society as the Architectural Museum was calculated to give great aid in the good movement. It would create and spread a taste for something better, something more beautiful; and taste worked downwards as well as upwards. He believed that a better spirit was abroad,—a spirit that gave them reason to hope that the day of indifference to art was passing away, and that the time was approaching when decorated utility would be the rule, and not the exception.

THE PRESIDENCY OF THE INSTITUTE.

A GREAT deal of anxiety is expressed on all hands as to the results of the present disputes. It is held very strongly by a numerous body of the members, irrespective of party, as by us, that a professional president ought to be appointed; and it is understood that Mr. Tite has in the press a powerful appeal in favour of this view, and urging the election of Mr. Scott, or, if he declines, Mr. Salvin. It is impossible to question the disinterestedness of such an appeal, if it is to be recognised as the act of what we may call the Ecclesiastic party. We are informed, moreover, that overtures have been made towards the negotiation of some friendly basis of compromise; and all true friends of the profession and the Institute would, no doubt, be glad to learn that such a measure had been successful.

Of all professions at the present day, architects surely require to remember the trite maxim that "union is strength," and nothing can be more fatal to the common good than anything like partisan violence. A fair competition of rival opinions for public favour is not to be discouraged; but the moment this ripens into unfriendly discord, it is time for all wise men to pause and reflect. Like a goodly house, the Institute has taken many years to build and decorate and finish; but if the foundation give way, what then? A few ill-advised friends have certainly made an ugly dig or two at it lately.

THE PRESIDENCY OF THE INSTITUTE.

THE POSITION OF ARCHITECTURE.

SIR,—I am not, and never have been, at all interested in professional differences; but the great question now before the Institute is, I think, so important, and involves so vital a principle, that I cannot forbear to trouble you with a very few lines about it. What I have to say does not appear to have occurred to any one of those engaged in this momentous difference. If I mistake not, your own view will be found to be, in the long run, the wisest. I cannot help, too, feeling a little personal interest in it, as I have been all my life dreaming of art-principles, which, if those who think in opposition to yourself are right, must be entirely and wholly wrong.

I think myself that art generally, and architecture more particularly, has just now sunk to the very lowest possible point it ever has or can sink to; for must it not strike every one, whatever style he may practise, with astonishment, if he but consider it a moment thoughtfully, that the Institute, as the body above all others representative of architecture as a fine art, does not in any way afford to the public evidence of the personal art power, whether in kind or degree, of its members who compose it? If any one should be curious as to the special art faculty and method of work and "style of stone painting" of any particular member of that body, he could not get it, for it does not exist; he must refer to the work of some outside body,—to the assistants or draughtsmen,—for actual specimens of such art-work. In short, in the place of individual and personal art power and architectural fine art, he can get only architectural manufacture. I think this has never before; for, consequent on this complete change in the method of architectural production, architecture as a fine art,—as a personal, mental, and hand-effort equal to painting,—is now simply extinct. Cockerell was the last of

his race. The headship of such a profession has now no real and true meaning in fine art, for it is the headship of a system of manufacture, not of art. The art signatures are false, and the actual handwriting that of others, whether good or bad, rough or delicate. Is not this a very extraordinary thing? Pugin, Barry, and Cockerell are all gone, and have no successor!

I would, in passing, here ask whether some of us who are not blind to this, would not be fully justified,—indeed, are we not called on,—to attempt the formation of a new Art-Society, which shall demand of its members, individually, some evidence of their personal art-producing powers, as the painters—and the painters only—of the Academy are compelled to afford, and that their art-power as artists should be made evident to the public mind, and should personally work out its own ideas; to exhibit, in short, that same power seen in such works as the details of the Bridgewater House and the Sun Fire Office. If architecture be nothing but a mere manufacture, which any one, learned or ignorant, may practise at will through others, then, I say, it is not worth a further thought; and is, in reality, no fine art at all, but a business.

But, that I may not lengthen this letter, suppose that the Institute were now to ask, as one of its absolute requirements of membership, constant evidence, in future buildings, recognised by it, of this personal impression of architectural power, first in drawing and then in material. I ask, would it be possible for such a body of men as such architectural artists *must* be, to get anything from what is called the lay element? Would not such a body regard lay talking as presumptuous impertinence? It can never teach, for it knows nothing; it cannot appreciate or select; it can only listen. It cannot even learn, for to learn architecture, as we were lately told by Mr. Scott,—the head of the profession,—requires now an amount of practice, skill, and time, and acquired accomplishments, which the greatest artists of the past never could have dreamed of. Mr. Scott says, "Let us have the lay element for this once." So I say; a better time could not have been chosen; for the real natural and life-giving power being given up to assistants, and consequently extinct, it can matter but little who it is that leads such a body, doing its work in the way it does. But I would respectfully ask any one here, is not such a system in the long run absolutely destructive? Does it not, not only destroy professional capacity, but the very fine art itself? Is it not to destroy the Institute as the embodiment of a great professional and art idea? I think myself that the time will come when, what has been said by Professor Donaldson and yourself will be found to come literally true, and that the wisest policy in these days is and must be a liberal and fair one, and one of fine art and professional knowledge and armistice; and that no greater calamity can happen to any Society, an Art-Society particularly, than to abandon wilfully, or even to forget, its true vocation, its professional work, and to cease to ask for guidance, and to accept patronage of whatever kind in the place of it.

I cannot, too, help feeling grateful to the Institute for some past favours, and should be sorry to see it all narrowed down to a little sectarian fancy, utterly worthless in itself; for no greater delusion can be entertained than that of supposing that Gothic architecture and art, as now practised, will or can be accepted by the public as the art idea of the future. Nature never repeats herself: the Gothic of Mediævalism is dead and cannot be revived; its attempted—not real—copying, is all that is now or can be possible, and that only in churches, the result of accident. When the Gothic died the thread broke, and it cannot be again tied. The real strength with the public lies in what may be termed, for convenience's sake, *Modern Renaissance*, and for which the line has not been broken; thin and weak it may be, and is, but it is still an unbroken thread, acknowledged by the public and made use of and already accepted by the public mind. It is its direction only that needs a master mind and hand. The Classic side have nothing to fear; a single sentence would seal the fate as a principle of modern Gothic.

I will add but one more word, shortly and simply. I think the lay presidency will sink architecture to the lowest point it can possibly go to. I hope it will rouse up a new effort and idea in art and architecture, as I cannot help thinking it will. In these darkest days of art action, abandoned as it is to underlings, it will cause us to look more gratefully than ever to the

Royal Academy for the truly wonderful and manifold stand it has made against this final art attack. It has, as all know, for ever rejected the lay element,—will not accept paintings by the hands of assistants, with the names only of its members in their corners; and thus has it bridged over, as it were, the art quagmire the world is now in, and will at least convey to the future the fact, that the need of *art signature and knowledge* has not, even in these days, been wholly abandoned as useless and foolish. The future of architecture in its very commencement will and must date from the appearance in material of the handwriting of the artist architect himself, and such a one can receive guidance and help only from some power equal or superior to his own, and such power must be the result of professional toil and long acquired knowledge, for in no other way can it be attained.

Whatever, therefore may be the result of the coming contest, as between a wide and generous policy, and a narrow and restricted one, of this I am certain, that no long time can elapse before a thorough and radical reform in the art action must of necessity be commenced. Never before was it so needful; for when once an institution representative of an idea sinks below that idea, by leaving it, its next and last step is to use it as a mere advertisement, and that done, all real and faithful talent abandons it to cluster in a new form round the principle which gave form to the Society at its birth. It is impossible to perpetuate error and stupidity.

C. BRUCE ALLEN.

EXHIBITION OF FRENCH AND FLEMISH PICTURES.

THE twelfth annual exhibition of foreign pictures improves a now established acquaintance with the peculiar merits that distinguish the Flemish and French schools, and, as usual, under such advantageous conditions as will afford the best opportunities for deriving instruction, from judiciously-selected examples, in what respects their superiority subsists generally, and in what particulars they may differ one from the other; for with the system very wisely adopted of including none but what may be accepted as choice specimens, fair comparison must be confined within the walls and between the immediate representatives of these, rather than in a wider field that would include our own school with those so partially represented.

Pre-eminent for its size and force of descriptive fact, a replica in oil, or perhaps the finished study of one of the series of mural paintings Baron Henri Leys has been commissioned to execute for the town-hall of Antwerp, defies all comparison, and secures for Belgium a precedence this time unquestioned by any similar production emanating from France; indeed, to those who would be most desirous of paying our nearer continental neighbours all the honour due to them, it would not occur to cite this as an occasion for deducing a just opinion of French art, though there may be sufficient evidence of those distinctive qualities that always characterize the least pretentious performances of such as are at all capable of really representing it. On the other hand, with such exceptional exponents as Baron Henri Leys and M. Louis Gallait to uphold contemporary art in their country, the Flemish school is greatly in the ascendant when accounting for the interest attached to the present collection.

It may be almost as reasonable to congratulate M. Leys on the chances afforded him for so completely proving his great ability as a painter, and the resources his genius and carefully-acquired knowledge have placed at his command, as to applaud his fellow townsmen for their discrimination in employing them to such good purpose. Such acknowledgment is not always the certain reward of excellence, however well deserved. The style of this eminent artist is admirably applicable to such service as in the instance offered here (90) it is intended to fulfil. Many of the subjects illustrated in the series have more than a local historical interest attached to them: loyalty and bravery are common to all climes, and admiration for any extra display of their possession has a current circulation changeable into the coin of anywhere. Those pleasant sentiments so encouraging of self-reliance and independence that a scene like this may be supposed to inspire, wherein "Lancelot Van Urseel, burgomaster of Antwerp, addresses the armed guilds, in front of the town-hall, invests Town-councillor Van

Spanghen with the command, and confides to their care the safety of Antwerp, attacked by the Gelders, under Martin Van Rossem, in 1542," must be shared by all who admire patriotism as a principle and the Volunteers as an institution; for, though these honest, as well as earnest members of our corps are not quite so good-looking as some of the other day, been seen on Brighton Downs some other day, they look as terribly determined not to run the beer proper to the glory and the heat of contest, and as worthy of the entire trust and confidence reposed in them as their modern emulators would be. A thorough appreciation of such aid as literal truth in the study of costume and architecture, and the elaborate finish of detail, are to giving reality to a picture, has contributed to the worth of this, and was all the more necessary, as, in the absence of excuse for introducing diversified action, the painter had but little else to depend on for giving vitality to the composition beyond whatever different aspects with which the same expression could be marked—that of absorbed attention—amongst the throngs of soldiers eagerly listening to the directions of the burgomaster, whose national type of features gives him with them a decidedly family likeness.

This fine work is at once to be identified with its author, as much by the mannerism of its execution,—now proverbial, but which is a splendid one after all,—as by the perfect fitness of every accessory to the period and circumstances of the historical incident recorded.

The influence of M. Leys's acceptance of precedent and observance of tradition as a rule, extends beyond the circle of those who may be supposed to be necessarily affected by it.

M. Layre, his pupil, affords a striking example of its direct effect, and his faithful adherence to such tutelage, in (75), "A Christening at Antwerp—fifteenth century;" and in "Marguerite in the Chapel of Our Lady of Sorrow" (76); though in the latter case there are more grace and closer approach to female beauty than would directly indicate it,—the fine colour and strict realism exacted by such imitation leave in neither a doubt of it. The same may be said of M. Alma-Tadema, another disciple, who has aptly made in a valuable investment of these peculiarities in an elaborate Egyptian ornament and re-creating antiquity, in a very quaint representation of "An Evening Party at Nineveh" (1), of which it may be said—slightly to reflect on the habits and customs of the era—that the ladies, at all events, wear no gloves! and offer an authority for very low dresses indeed. In an "Egyptian Game" (2), of chess, apparently during the twelfth dynasty, he has been still more successful in breathing the Promethean spark into the mummies of the past.

The works of M. Joseph Lies have a charm of their own beyond the merits to be accorded to a school; his (98), "Children playing by the Riverside (Antwerp)," is delightfully natural, and very beautiful in tone; and with his group of fugitives, "A Netherland Protestant Family, under the Duke of Alva" (97), will help to keep his name in lasting recollection.

M. Koller's single contribution presents the often repeated "First Interview of Faust and Marguerite" (73). It has admirably solid painting to recommend it, with a sweet and innocent heroine, but a very cold and unimpassioned Faust.

M. Louis Gallait, who divides with M. Leys the honour of supremacy amongst Belgian artists, and is as cordially acknowledged abroad as at home, is quite opposed in practice to the principles of his rival luminary: with him, poetry and imagination are indispensable adjuncts to art creation; and, actuated by this right conviction, he sometimes errs on virtue's side in the amount of dramatic force with which he depicts the images of his conception, and is carried beyond poetical suggestiveness to the verge of a stage demonstration, by the fervour with which he pursues his aim. This may be urged to some degree as an objection to his very impressive study, "Désillusion" (51), showing Columbus, aged and imprisoned, grasping his chains, and glaring with blood-shot eyes into vacancy, as, lost in retrospection of that which promised such different results to a devoted but wasted gigantic energy, he typifies the disenchantment of age. A pendant to this is "Illusion" (50), a handsome youth, in the full enjoyment of that conceit common to young genius, that would encourage the belief of the world's being all his own, and that its fairest and broadest prospects were opened only for

him to select his own pleasant pathway. Enthusiast! go and look at Columbus.

Of the French pictures, where all are remarkable, or nearly all, for that inexpressible something which can only be denominated as "French," there are three, by M. Meissonnier, as imitatively brilliant and minute as ever, and marvellous for that resemblance to the living which his small figures always retain, whether they be "Soldiers Playing at Cards in the Guard-room" (103-4), or indulging in more refined amusement, like "The Guitar Player" (105). A slightly-painted but exquisite study of "Deer in the Forest of Fontainebleau" (17), by Mlle. Rosa Bonheur; more soldiers "Playing at Cards" (120), by M. Ruiperez, pupil of Meissonnier; and one who follows him very closely in this and other departments,—witness "The Bull-tion Dealer" and "The Smoker" (121, 122). There are two, by M. Edouard Frère, of simple domestic incident,—"Good Morning, Baby," and "Bed-time," with cottager-children kneeling by the side of their grandmother, and saying their prayers (145, 147); but this year M. Frère is not well represented, to the advantage of M. Duverger, whose illustration of one of La Fontaine's fables, "The Hidden Treasure" (34), gains from such excellence being undisputed, as he shares in common with Frère.

Whatever M. Gerome may produce hereafter, or may have produced antecedent to it, his name will always be associated with "The Duel in the Snow." He is another evidence of the enduring influences the teacher acquires over the taught, for his manipulative method has a curious affinity to that of Delacroix; though "Muezzin calling the Hour of Prayer (Evening—Cairo)" (55) is to be noted more for the completeness with which the subject is made out, than for any claims it has to interest as a picture.

For mastery of expression in a most difficult phase of it, M. F. Heilbuth is unrivalled. His "Cardinals meeting on Monte Pincio" (57), and exchanging courtesies, is really wonderful in its genial apprehensiveness of character, and only inferior to this is his "Interior of a Cardinal's Carriage. It is scarcely necessary, however, to enumerate any further the several items of this choice collection, and very much more to a useful purpose to advise all who may wish to become familiar with contemporary foreign art and cultivate a catholic taste, not to miss such opportunities as these recurring exhibitions offer them. Under such auspices as the good judgment on the part of the management of those who bring them together have hitherto manifested, a knowledge of foreign art is safe to be beneficial to the progress of art at home.

HULL CORPORATION WATERWORKS.

At a meeting of the Hull town council, held on the 13th instant, a gratuity of 300l. was granted to Mr. Thomas Dale, the resident engineer of the Corporation Waterworks, for his extraordinary services in having designed and carried out the new waterworks and artesian well, at Springhead, whence the town now obtains a supply of water from the chalk; and they also, without any application from Mr. Dale, made an addition to his salary, of 50l. per annum.

ST. MICHAEL'S CHURCH IN ST. ALBAN'S.

THE inhabitants of the ancient town of St. Alban's have given Mr. Scott something to do. The church of St. Stephen, in St. Alban's, what he has done to St. Alban's Abbey, and his report on the ancient Clock Tower of St. Alban's, and what should be done to restore it, are evidences. He has now reported on the present condition, &c., of St. Michael's Church, in St. Alban's, the church in which the great Lord Chancellor Bacon is buried, and where his "Sic sedebat" statue (sculptor unhappily unknown), has been, and will continue to be an object of the highest attraction. The report shows that it is in a very bad state.

That the restoration of this most interesting church will be done, and well done, there cannot be a doubt. The lord of Lord Bacon's much-loved Gortambury, and the patron of the living of St. Michael's, heads the subscription with five hundred pounds. The benchers of the Four Inns of Court—Bacon's own Gray's Inn especially,—should open their hearts and purses in aid of the restoration of the church which holds all that is mortal of Francis Bacon.

CREEDS AND TEMPLES: THEIR RELATION TO ONE ANOTHER, IN PAST AND PRESENT TIMES.*

In considering some of the relations between different religious creeds and the buildings to which they gave rise, I do not of course mean to go into a detailed history of temples and rituals. But it may be worth while to take a glance, successively, at the religions which have left the most remarkable architectural monuments of their existence (considering them, of course, from a purely speculative, not from a theological point of view), and to observe how the requirements or spirit of the religion were represented in the plan or style of the building; not merely for the interest of the subject, but in order also to obtain standing ground from whence to view our own position, and to consider what are the legitimate demands of Christian worship upon architecture in the present century.

Modern ethnologists, it is well known, have divided mankind into three great families, generally known as the *Aryan* or *Indo-Germanic*, the *Semitic*, and the *Turanian* or *Tartar* races, emerging successively from the same quarter of the globe, the region about the Euphrates, and the north-west of India; the Turanians being the earliest developed, the Aryans the latest and most intellectual; and in early historic times each of these races had its own peculiar class of religious belief, the influence of which may be traced even to the present day. What may be called the *Theistic* faith, recognising the existence of an omnipresent yet personal Deity, was the peculiar property of the Semitic race, represented by the Jews, and in later times by the Arabians. The primitive Aryans, the earliest representatives of whom are the ancient Persians or Magi, were the high priests of Pantheism, or the worship of external nature; while among the ancient Egyptians, the earliest Turanian people we are acquainted with, we find ourselves in the midst of the wildest and most fanciful Polytheism. And here we at once notice a remarkable fact, of which we find additional evidence in later times, that it is to the various forms of Polytheism that we are indebted for the grandest and most impressive sacred buildings. The Jews, as we know, were not required by their religion to erect more than one temple; and even that, though richly adorned, was always too small in dimensions to be taken into any account by the side of such piles as Karnak and Luxor, Cologne and Amiens; while to the early Persians, holding a faith in which the elements were the ministers, and the sun the chief object of worship, a temple could only have been an incongruous structure. The extraordinary contrast between the Aryan and Turanian races in these points, is very well put before us in the words of an eminent ethnologist, Dr. Prichard, who remarks that "the metaphysical belief and religious sentiments and practices of the two nations were equally diverse; the one adoring an invisible and eternal spirit, at whose word the universe started into existence, and the morning stars sang together; the other," the Turanian, "adorning splendid temples with costly magnificence, in which, with mysterious and grotesque rites, they paid a strange and portentous worship to some foul and revolting object—a snake, a tortoise, a crocodile, or an ape." It is, then, to the banks of the Nile, under the influence of such a worship as this, that we turn to find the first development of ecclesiastical architecture.

Sir Gardner Wilkinson considers the germ of the Egyptian temple to have been a simple *cella*, with a porch, which always remained of nearly the same size and form, though, in process of time, surrounded with one adjunct after another, till it assumed the form represented in the plan of the temple of Rhamess the Great, which is a pretty fair type of the great Theban temples. The whole arrangement of these temples is clearly indicative both of the mysterious and superstitious character of the worship for which they were erected, and of the splendour of the ceremonial by which a powerful priesthood sought to invest the religion with dignity and solemnity in the eyes of the common people. And it may here be remarked that, both in this and in all subsequent temple styles, the extent and magnificence of the plan are in almost direct proportion to the power and influence of the priesthood. In ancient Egypt the priestly caste was predominant over every other, and never, certainly, has there been a more suc-

cessful attempt to give an outward sublimity to a worship essentially contemptible, than in these temples of the Theban dynasty. The long avenues of sphinxes, sometimes stretching for nearly a mile from the gateway; the entrance, with its great propylons towering on each side, and leading into a wide court-yard surrounded by the deep shadow of a covered colonnade; the second court, with its rows of seated colossi; the hypostyle hall of assembly, with its forest of columns, dimly lighted from above,—all these must have combined to produce an effect scarcely equalled since, and well calculated to suggest how awful must be the sanctity of those three dark cells to which all this grandeur formed only a vestibule. Into that sanctity, however, the people were wisely never permitted to examine, the king alone being occasionally introduced, a priest leading him by the hand, into the presence of the Deity (a ceremony frequently represented in the Egyptian paintings), the mass of the people always remaining without, and participating in the sacrifice only through their priestly vicars. The triple arrangement of cells which seems to have generally prevailed resulted from the belief in a triad of deities presiding over each of the principal cities, and generally supposed to consist of a god, a goddess, and their son or daughter; and this belief (which is also to be traced among the Etruscans and Pelasgi) gave rise to the small temples called *mnemeist*, so remarkably resembling the Greek temples in plan, and which appear to have been considered as the nuptial halls of the deities. The most important ceremonies next to the sacrifices, were the processions of the deities, who were occasionally borne in state, under a canopy, either round the courts of the temple or outside its inclosure; and we can easily imagine how important a part the avenues of sphinxes must have played in these probably gorgeous processions, and may perhaps trace to them the origin of the covered colonnade in the first court, as a provision for the spectators of the procession within the boundaries of the temple.

Altogether, the Egyptian temple may be viewed as the most complete outward expression of a religion, in which the idea of the beautiful was almost entirely subordinate to that of the religious expression; no high order of æsthetic beauty being observable in the details of the building, even the lotus capital owing its prominent position as to the sacred character of the flower as to its outward beauty; the statues deriving their importance less from their artistic merits than from their significance as representations of Osiris; every part of the building being constructed to subserve the purpose of enhancing the ideas of mystery which pervade the whole of the Egyptian mythology—the whole representing, indeed, the *apotheosis* of superstition, in the awful and imposing forms into which it had been, as it were, consolidated, during the lapse of centuries, by a people eminently conservative, and moving very slowly down the stream of history.

Breaking for a moment the chronological order of styles, and turning to Hindustan, the temple style of which arose as that of Egypt became extinct, we see the same phenomenon presented of the rise of temple architecture coinciding with that of priestcraft and superstition. For the earlier Sanscrit writings, the Vedas, which contain the original precepts of Hinduism, and which were long anterior to the rise of Hindu architecture, are essentially Pantheistic, and are said to show symptoms of derivation from the ancient Persians, having been, most probably, introduced into India by the portion of the Aryan tribe who penetrated there.

Long before this introduction, however, India was already occupied by a people of Turanian origin, and nearly connected with the Egyptians; and under the influence of these, as they advanced in civilization, the pure faith became gradually corrupted; the priesthood became a caste, continually increasing in power, and the original pantheism merged into a polytheism far more gross and degrading than that of the Egyptians. Hence was developed a form of temple which, as it arose under similar circumstances as did those of Egypt, so it bore to the latter a striking resemblance in several points. We find the same dignity given to the entrances by pyramidal gate-towers, the same pillared courts within courts; the same extraordinary baths in plan by which a whole array of entrance-gates, court-yards, columns, &c., presenting a gorgeous and striking exterior, but becom-

ing smaller and meaner as they are penetrated, culminate at length (if one may use the word) in the one little insignificant chamber, lighted only through the door, and additionally darkened by a covered porch, which was perhaps the fittest kind of shrine for such deities as have been conjured up by the Hindus. Such a plan as this could only have originated from a religion in which a priestly caste stood completely between the people and the deity, and in which the imaginary deity partook not of the higher nature, but of all the baser and more degrading passions of humanity.

Going back in our chronology, and starting again from Egypt, we cross over to Greece, and here we are at once in a purer atmosphere, for we have got quit of the exclusive influence of the Turanian race. The ancient Pelasgi, indeed, the earliest known inhabitants of Greece, were of Turanian origin; but the Greeks, *par excellence*, were the offspring of the union between these aboriginal inhabitants and the great Aryan race, represented by the Dorian colonists, who joined their high intellectual power and common sense to the brilliant artistic capabilities of the Pelasgi. Hence their religion, though a polytheism, was of a bright and beautiful kind, being, in fact, a deification of the various attributes of nature, and closely allied to the pure Aryan pantheism, and possessing few elements of mystery or superstition. No caste of priests here combined to blind and stultify the worshippers; the priests were the officers of the temple merely; the sacrifices and the worship of the deity were witnessed and joined in by the people. Accordingly we find here no labyrinth of courts within courts, no solemn vistas of statues, none of that expression of gloomy grandeur which we met with on the banks of the Nile; all that was required on plan was a simple rectangular chamber, with the statue and altar of the deity at the further end of it, where sacrifices could be witnessed by all assembled in the temple. These peristylar temples seem to have been developed from a simple *cella*, in much the same manner as the Egyptian; though whether the original form came from Pelasgi or Egyptian sources appears to be a vexed question. The one exception to the simple character of the Greek form of worship is the celebration of the Eleusinian mysteries, which, however, are known to have been borrowed directly from the Egyptians, and which, as we might have expected, gave rise to a special plan of temple at Eleusis: a nearly square building, with columns equally spaced over the greater part of the area, and this plan, so different in proportion and arrangement from the ordinary Greek temple, has been supposed, I think with great probability, to have been suggested by the hypostyle halls of the Egyptians.

It seems probable, from various passages in later Greek and Roman writers, that these mysteries consisted mainly in scenic representations of the most significant passages in the Greek mythology, particularly in relation to a future state. In such a case it is easy to see that a plan like this, with the view partially intercepted in every direction by columns, and lighted from above by windows which could be darkened at pleasure, might greatly aid the effect of such exhibitions.

We know how amply the Greek temples compensated for their comparatively small size by the exquisitely artistic and finished character of their decorations, and in this way they present a remarkable contrast to the Egyptian temples, in two points not unconnected with the opposite character of the two religions. The first is, that the Greek ornamentation did not, like the Egyptian, owe its interest to its sacred or symbolic meaning; of this it possessed nothing, for the Greeks were far too intellectual to descend to material symbolism; all their decoration was placed there solely for its artistic effect; and if, as before said, the Egyptian style was the *apotheosis* of superstition, the Greek was certainly that of æsthetic beauty. Secondly, the phonetic art introduced into the Egyptian temples, the endless wall-paintings of nearly every possible subject, had no relation to any previously compiled and well-known histories of things either sacred or profane: they were themselves the book; and, like the painted windows and sculptures of the Medieval cathedrals, were probably the chief sources of instruction to the mass of the people. The Greek sculptures, on the other hand, were only the illustrations of the most beautiful Pagan mythology, and the most splendid literature, Pagan or Christian, that ever existed; the heroes and gods of Homer

* Read before the Liverpool Architectural Society, April 5th.

lived again in the friezes and tympana of the temples:—

"Nor these alone, but every legend fair,
Which the supreme Caucasian mind
Carved out of nature for itself, was there,
Not less than life, design'd."

The Romans contributed but little to the temple-styles of the world; they were an Aryan race, displaying in excess the matter-of-fact character and comparative indifference to religious art which has always belonged to this division of the human family. Their temples and religious rites were chiefly borrowed from the Greeks, as those of the Greeks in many cases from the Egyptians; but while the latter merely borrowed, and vastly improved on their models, the Romans started with copying, and soon spoiled and vulgarised all the details in the process. One form of temple, however, possesses an interest for us, as being the model on which the Christian baptisteries were afterwards built; I refer to the circular form, which was borrowed from the Etruscans, a Turanian race nearly allied to the Pelagii, and holding the same place in ancient Italy as the latter in ancient Greece; with this distinction, that the Roman colonists did not, like the Dorian, fuse themselves with this aboriginal race, but overpowered and superseded it. Originally these circular buildings were probably tombs, for the Etruscans were essentially a tomb-building race, owing to the reverence in which they held their ancestors; and though the Romans used them as temples (always dedicating them, however, to deities of an Etruscan and not of a Roman origin), the traditional use of them showed itself again in the Christian era, in such buildings as the tomb of Theodorie and the circular church erected by Charlemagne at Aix, to form his own sepulchre; and even in the Christian baptisteries the same feeling may be traced, inasmuch as these buildings were commonly erected over spots consecrated by the entombment or martyrdom of a saint.

On a first view of the subject, it would appear that under no circumstances might we be so well justified in looking for an entirely new style of temple architecture as under the rise and spread of a religion so new in character, so completely in contrast to all the existing faiths of the then civilized world, as the Christian. But the absence of such a style is the most striking exemplification of the fact, which meets us elsewhere in history, that the rise of a purer religion, or the reformation of an old and corrupted one, is always accompanied by a corresponding neglect of temple architecture. This was commented upon as early as the fifth century, by Isidore, who remarks "that in the time of the apostles, when spiritual gifts abounded, there were no temples; but now the buildings are adorned more than necessary, while the church has fallen into disgrace." During the first years of Christianity, of course, the persecution to which it was subjected would have prevented the erection of any public places of worship; but, though during great part of the third century the Christians enjoyed great toleration, and their numbers rapidly increased; and though even in the second century we find evidence of an organised church government represented by bishops and presbyters, there is nothing to show that there were at this time any buildings specially erected and set apart for purposes of worship. And when, at the commencement of the fourth century, the empire under Constantine became nominally a Christian one, and the church emerged from its obscurity into comparative power and honour, the necessity for some public place of meeting was supplied neither by a new style of temple nor by the adaptation of former ones; but by the most convenient buildings that came to hand, the disused basilicæ or halls of justice of the extinct heathen empire.

There was more than one reason for this choice. The early Christians regarded with horror everything connected with the old religion; the gods were to them demons, the temples polluted by Pagan associations. The basilicæ, besides that they were free from this objection, were in fact so admirably adapted for the purposes of the Christians, that the new churches, when built, were for a long time on exactly the same model. They presented in the great hall an admirable area for a large assembly, while the seat in the centre of the apse, from which the prætor had administered justice, formed a dignified throne for the bishop, and the presbyters occupied the semicircular seats formerly appropriated to judges and lawyers. This simplicity of arrangement,

however, did not long continue, for church government was already in a much more advanced state than church building; and so early as the beginning of the fourth century the idea had developed itself of a peculiar sanctity residing in the clergy, and of the necessity of their separation from the laity, who were already beginning to be ruled with a rod of iron. And though down to the ninth or tenth century the basilica remained the principal type of church, the actual halls themselves were not very long retained as places of worship, owing to a feeling which led the people to seek out sites consecrated by the martyrdom of saints. There is a somewhat detailed account given by Eusebius (about A.D. 330) of the arrangement of a new church built in his time at Tyre, which, taken in connexion with the plan of the old Basilican church of St. Peter's at Rome, gives a good idea of the general arrangements of the churches of this period, and the motives which governed them. Eusebius describes how the bishop "raised a stately portico against the rays of the rising sun" (for the orientation of churches was not all universal at this time, and in Italy never became a rule). "After you have come within the gates he has not permitted you to enter into the holy place with unwashed feet, but having left a large vacancy between the portico and the temple, he beautified this vacant space, having enclosed it as a quadrangle, with four opposite cloisters, supported on every side with pillars. Here also he placed the mysterious symbols of the sacred purgations; to wit, fountains built opposite to the front of the church, which afforded water for those who entered the sacred precincts to wash in. . . . And this place yielded a very commodious mansion for those who wanted instruction in the first principles of religion." After speaking of the decorations, he proceeds,—"Having thus finished the temple, and adorned it with the highest thrones in honour of the prelates of the churches, and with benches placed in order all over the church, he placed the holy of holies, the altar, in the midst; and that the multitude might not come within these holy places, he enclosed it with wooden rails resembling net-work, which were curiously and artificially framed and carved." This last passage has given rise to some pretty sharp paper warfare, as to whether the altar was placed in the chancel or not. I believe the explanation is, that Eusebius, when he says "all over the church," means, by a carelessness of expression, "all over the chancel"—the part ruled off, and appropriated to the clergy; for we know from contemporary church historians that the congregation was not allowed to sit at all, but that benches were always placed within the *cancelli* for the inferior clergy; and in this case the expression "in the midst" applied to the altar would indicate that it was within what we should now call the "chancel." The different parts of the church were carefully partitioned out for different classes of worshippers. The atrium was, as Eusebius indicates, appropriated to the untaught converts, while the side of it next the church, called the *narthex*, was the place for penitents who were under temporary excommunication; an arrangement occasionally revived in Mediaeval times in what are termed the Galilee porches of our cathedrals. The lower end of the church, next the entrance, was partitioned off by a barrier about one-third the distance up the nave, and was appropriated to the catechumens, who were still under instruction, and were only allowed to hear the reading and preaching, not to join in the prayers or sacraments: hence this was called the *locus audientium*. Beyond this barrier was the *locus fidei*, the place of the faithful, who alone were permitted to join in the more solemn parts of the service. The men were always stationed on the right side (what would with us be the south) of the church, and the women opposite, a barrier dividing the two; an arrangement which the wisdom of certain modern ecclesiologists has revived. The altar was shrouded from the people by a curtain, which was withdrawn during the celebration of the Eucharist. On each side of the chancel was a small chamber; that on the south side, called the *diaconicon*, being for the reception of the vestments and other furniture of the church, which was under the care of the deacons; that on the north, the *prothesis*, for the keeping of the sacred vessels and elements, which were set out in order there previously to the celebration of the Communion. These two small chambers, generally built out on each side of the church, form, I suspect, the real origin of the transepts and of the cross form,

which had a symbolism tacked on to it afterwards, with which it had originally nothing whatever to do. The small size of the apse indicates that the clerical body were not at this period very numerous, but we cannot go much further without finding decided evidence of their increase. Custom and precedent led to the retention of the simple apsidal termination for some time after; but as the clerical ranks were swelled, and a new order of choristers founded among them by Pope Gregory in the sixth century, we find that, in order to give room for them, the chancel was continued out into the church, and divided off from the people by a screen all round it; and into it the reading-desk, or *ambo*, was conveyed from its original position on the *bema*. The true chancel, as we understand the term, did not in reality develop itself till about the eleventh century, and owed its importance to a liturgical cause. It was the outward expression of the dogma of transubstantiation, which began to make itself felt at the beginning of that century, and gradually became a received faith, till it was formally confirmed by a general council in the year 1215. The belief in this miraculous change of the elements invested the priesthood who performed it with an additional sanctity, both in their own estimation, and still more in that of the people; and, accompanied as it was by the elevation and adoration of the host, it naturally demanded that the priests, in the performance of this rite, should be separated more decidedly than ever from the people, and that the simple apse should be expanded and beautified to form a fitting arena for the celebration of so great a mystery. The rise of the chancel in the eleventh, and its progressive importance up to the thirteenth century, as exhibited in the French churches, keeps pace almost exactly with the development of this doctrine, forming one more evidence of the coincident growth of religious architecture and religious superstition. In France, however, the chancel took a peculiar form, modified by the influence of circular churches, about which something must be said.*

H. H. STATHAM, JUN.

THE SCULPTURED ROCKS OF NORTHUMBERLAND.

MR. TATE has reprinted his memoir† from the "Proceedings of the Berwickshire Naturalists' Club," apparently with emendations, after the paper, as "a report that embodied the labour of years," was read on 25th August last, and reviewed in the *Builder* of 3rd September, with occasional references to and comparisons with the theoretical views of our correspondent, Mr. Dove, which had previously appeared (on 2nd July) in the *Builder*. The influence of these peculiar views on Mr. Tate's endeavours to explain the meaning and purpose of these mysterious symbols has been already alluded to in the *Builder*, and is here pretty obvious; although, from what Mr. Tate says of "those who are not content unless every mystery is fully explained," it would rather seem as if he regretted that any endeavour should have been made, at least by others, to unravel the mystery, and so to diminish its sensational effect on the public mind, on its first presentation by him, in all its native darkness, to their notice. Nevertheless, as we have said, the influence on Mr. Tate's own mind of the only endeavour yet made to really explain that mystery is pretty obvious in this memoir. For example, in speaking of the probable purpose of the rock sculptures in connexion with the dead, and after mentioning that there were "only four distinct cases in Northumberland of their being used in sepulchral chambers, though there are others not far distant from interments;" Mr. Tate says,—

"Their use for the dead was, therefore, I think, only partial and secondary; and arose out of the sacred import of the symbols. The Mediaeval Christian, as he was *living, with hopefull expectations of the cross as the symbol of his salvation*, and had it placed over his tomb; and he was sometimes buried in earth brought from the Holy Land. And so, as the ancient Briton was laid in his tomb, with his weapon and his earthen cup at his side, he might be supposed to gaze on the sacred concentric circles, as symbolizing his hope of immortality."

Mr. Tate, however, acknowledges that these symbols had a far more obvious reference to the life than to the death—to the camps and circles

* To be continued.

† "The Ancient British Sculptured Rocks of Northumberland and the Eastern Borders; with Notices of the Remains associated with these Sculptures." By George Tate, F.G.S., &c., Alnwick, 1865.

than to the graves—of the ancient Britons; but this he does not attempt to explain.

The idea of the glazed eyes of the dead earnestly "gazing" on the concentric circled symbol is just about as near an approximation to Mr. Dove's previous suggestion of their use for the contemplative eyes of the living initiates of the Druidical mysteries to be concentrated and fixed upon, in their religious services, while dying the mystical and holy death of entrancement, as was possible without positively and entirely appropriating that suggestion without acknowledgment; as in the case of other suggestions, such as the indication of a translation from a lower to a higher—a concentrative to a radiative (or entranced)—state of life, in these concentric-circled and radial-grooved symbols of the concentro-radiative and celestial "spheres above the Head [or Soul-centre] of the diviner," as our correspondent conceived them to have originally been.

Now, with ideas so much akin to those referred to, and especially as the author claims in this memoir to have himself suggested (in a very vague and general way), so long ago as 1853 (in one place he calls it 1852), that the rock sculptures "were symbolical figures representing religious thoughts," it is not odd that Mr. Tate should have carefully avoided even the slightest reference, either to the *Builder*, or to the only theoretical endeavour (published only in the *Builder*), to show what those "religious thoughts" really were on which his rock symbols seemed to have been based? If that endeavour could have been easily shown to be improbable or erroneous, would it, in that case, and the *Builder* which contained it, have been altogether ignored?

Having already, at some length, reviewed the paper formerly the reprint under notice, and inserted other communications bearing on it in the *Builder*, we cannot re-enter on the subject here; and we need now only say that all who feel interested in the very curious rock symbols of Northumberland will find here, and only here, a detailed and authentic account of them, illustrated by numerous engraved examples.

There are a few errors and inconsistencies, however, some of which indicate haste in composition, and all of which should be corrected in any future edition. Thus, for example, the author alludes to fig. 2 of plate 8th as presenting, at Old Bewick, the only example of anything like a spiral among the Northumbrian sculptures, and which likeness to a spiral he attributes to the action of the weather on a concentric circular symbol; whereas in plate 11th, fig. 3, he illustrates one at Coldmartin, close upon the Cheviots, which is obviously a spiral with several coils, and with a "radial groove," as it is called, or centre-pointer. If this be not a spiral the illustrations must be worthless. Mr. Tate, however, distinctly states that it is a figure of four incomplete concentric circles, with the cup and radial line. The likeness of this, as a spiral symbol, by the way, to one from a rock temple in Malta, illustrated on page 34, is remarkable, both ends being seemingly cupped in both cases: the "radial groove," or centre-pointer, however, is wanting in the Maltese symbol.

Again, it will be found that the references to the plates are not always correct. On page 43, for example (where another and similar error occurs), reference is made to plate 12th, fig. 2, for certain "alphabetical figures on Cuddy's Cove," resembling alphabetical characters, and which Mr. Tate regards as archaic and similar to others on sepulchres in Brittany which, he thinks, are undoubtedly of great antiquity. There are no such characters marked fig. 2; those obviously referred to being marked fig. 3. One of these singular characters (see page 15, below that like the Medival letter *H*) has already been referred to in the *Builder* as resembling one illustrated by Governor Pownall, in the "Archæologia," as of a Phœnician character; and forming an example of those sculptures in the Sorcery Hall at New Grange which certain Irish archaeologists seem to have since mistaken for palm-leaves! Another consists of a cross (which is the plan of the New Grange Sorcery Hall itself, by the way), and has, in the centre of the cross, two concentric circles, with the central point, hollow, or cup, as in so many of the other rock symbols.

While referring to quasi-alphabetical characters we may remark that Mr. Tate illustrates one symbol, as a characteristic or typical one amongst the Border rock sculptures, with "lines similar to an ogham." It has "nine straight lines, appearing like rays, incised above

the outer circle," and was seen at Routing Linn. This symbol reminds us very much of what Mr. Dove says of the concentric-circled symbol called the Jewish Sephiroth, or Splendors, the outer circle of which was called "the crown,"—that is, the crown of splendor, crown of glory, or radiate crown, and the central space "the kingdom." In the Routing Linn symbol the nine radiating lines on the outermost circle (see p. 7, or plate 11th, fig. 10—not 12, as Mr. Tate gives it on page 43) much more resemble a crown than an ogham.

Mr. Tate, we observe, does not now say that our antiquaries "have no relation" to the Hebrew, Egyptian, or Assyrian symbolization, having amended "no relation" into "but little relation" since the strictures on the former assertion appeared in the *Builder*. Even still, however, the concentric circles of the Jews, and the centre-and-circle symbol of the Egyptians, Hindus, and almost all other nations, have not the true Northumbrian ring and burr; and Mr. Tate will have nothing to do with them. In short, there never were and never will be such wonderful symbols in existence as the Northumbrian are in the eyes of Northumbrian archaeologists: not even the Irish—not even the Scottish—are quite the thing; and it seems almost to insult the Northumbrians to compare their incomparable symbols with any others on the face of the earth, however analogous, however identical, they may essentially be in the eyes of outsiders.

Before concluding, there is one notable circumstance as to the rock symbols, mentioned by Mr. Tate, to which we desire to draw special attention. "When found *in situ*, they are always in high grounds, generally on lofty hills, some of which are nearly 800 ft. above the sea level." No doubt their connexion with the sites of ancient forts and camps may have had something to do with this; but it is also just what would have occurred if the symbols were so exceedingly ancient as to have at least approximated to the close of the glacial era, when the low lands of this country were covered by the sea, and the glacial drift had the flint weapons of the ancient people enclosed in it. Some such symbols occur on glaciated blocks, as in Ireland, at New Grange, as mentioned by Professor King in the *Builder* of 19th November last,—or since the discussion on the rock symbols in our columns took place,—and a notice of which mention by Professor King in the *Builder*, has been intercalated (without any allusion to the *Builder*, though), on page 32 of Mr. Tate's paper, where he (no doubt unconsciously) unites with Mr. Dove in calling New Grange a "Sorcery hall,"—or rather, for variety's sake, we suppose, a "Sorcery chamber." Several of the standing stones of Stennis in Orkney, also, (one of which,—the stone of Odin,—is perforated with a hole through which sexual and other compacts were made between two persons, by joining hands through the hole,) have still traces of glacial action. From such traces Mr. Tate concludes that these Orkadian stones must have been cut or set up long after the era of glacial action,—which is not so very clear; for the glacial era was undoubtedly an era of summer floods no less than of winter freezings, and glaciated blocks might have been made use of by men (if in existence) during the glacial era. However, even though we should regard these blocks as only an evidence of subsequent handling by man, that handling may also date from an approximation to the close of the glacial era, in the drift of which era so many flint weapons of the ancient Britons have been discovered. At that period many of our high lands or hills must have been islands, and our Celtic highlanders islanders, as they still are in the western isles of Scotland. The connexion of the rock sculptures of Britain with those of the high land of Brittany would thus be significant.

THE DWELLINGS OF THE LABOURING CLASSES IN BAVARIA.

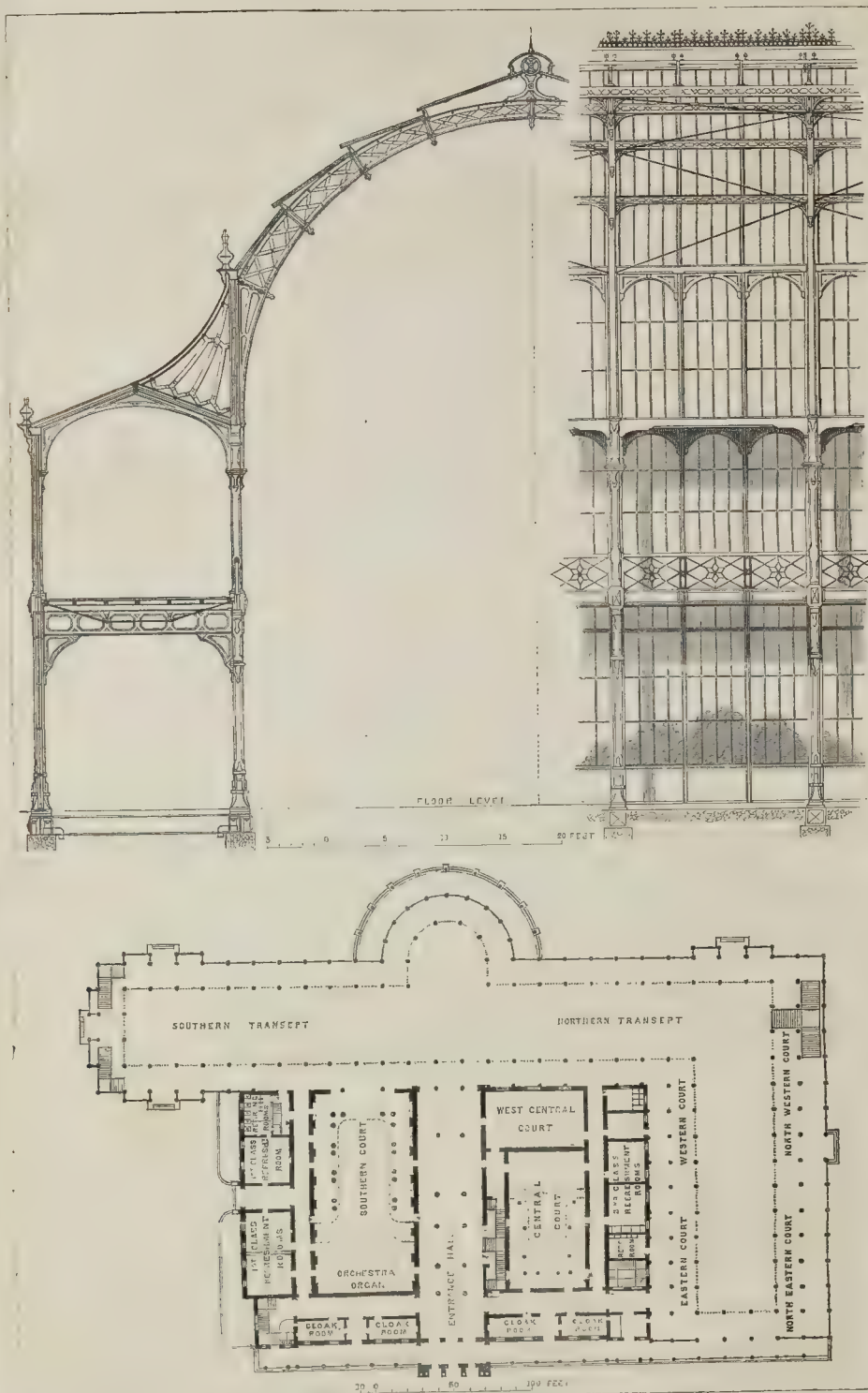
The Society of Arts, desirous of extending to some parts of the Continent its inquiry into the statistics of model dwellings, addressed, in 1863, to Dr. von Hermann, a privy councillor and a member of the Bavarian Government, a request to be favoured with some account of what steps had been taken in that country towards the improvement of the dwellings of the labouring classes; and the Minister of the Interior sent out a form (consisting of a series of questions) to the Government officials in all the districts of

that country. In consequence, a number of documents and plans have been forwarded to the council, a résumé of which has been prepared by Mr. Gilbert Redgrave.

The buildings described have mostly been erected by the owners of factories for the accommodation of their workmen. In two or three cases, however, these dwellings belong to building societies, who have erected them rather from pecuniary than from philanthropic views. These buildings are invariably grouped either in rows or blocks, and offer no example of single or double cottages as in England. They have sprung up either in manufacturing or mining districts, and in towns where manufactures are carried on. In Munich, where no manufactures of any importance exist, all attempts which have hitherto been made on a speculative footing have failed, partly for that reason, and partly perhaps because the laws relating to mortgage enable the possessor of a moderate capital to obtain the requisite building funds without the interposition of any company. There is, however, in the suburbs of Munich, a class of buildings unknown in England, parts of which may be bought by different families. Bavarian manufacturers finding, as a rule, that their workmen were badly lodged, and on that account unhealthy, and that the paucity of dwellings created a scarcity of workmen, have from time to time built, in the vicinity of their factories, blocks of dwellings generally offering different degrees of accommodation, and varying considerably as to rent. The reports prove that the construction of these dwellings has brought about the most favourable results. The workmen and their families have improved in health and appearance. Mortality and diseases of the chest, arising from their former ill-ventilated and badly-warmed cottages, have decreased, and a better feeling has sprung up among the men, leading to the formation of benefit societies, reading clubs, and the like.

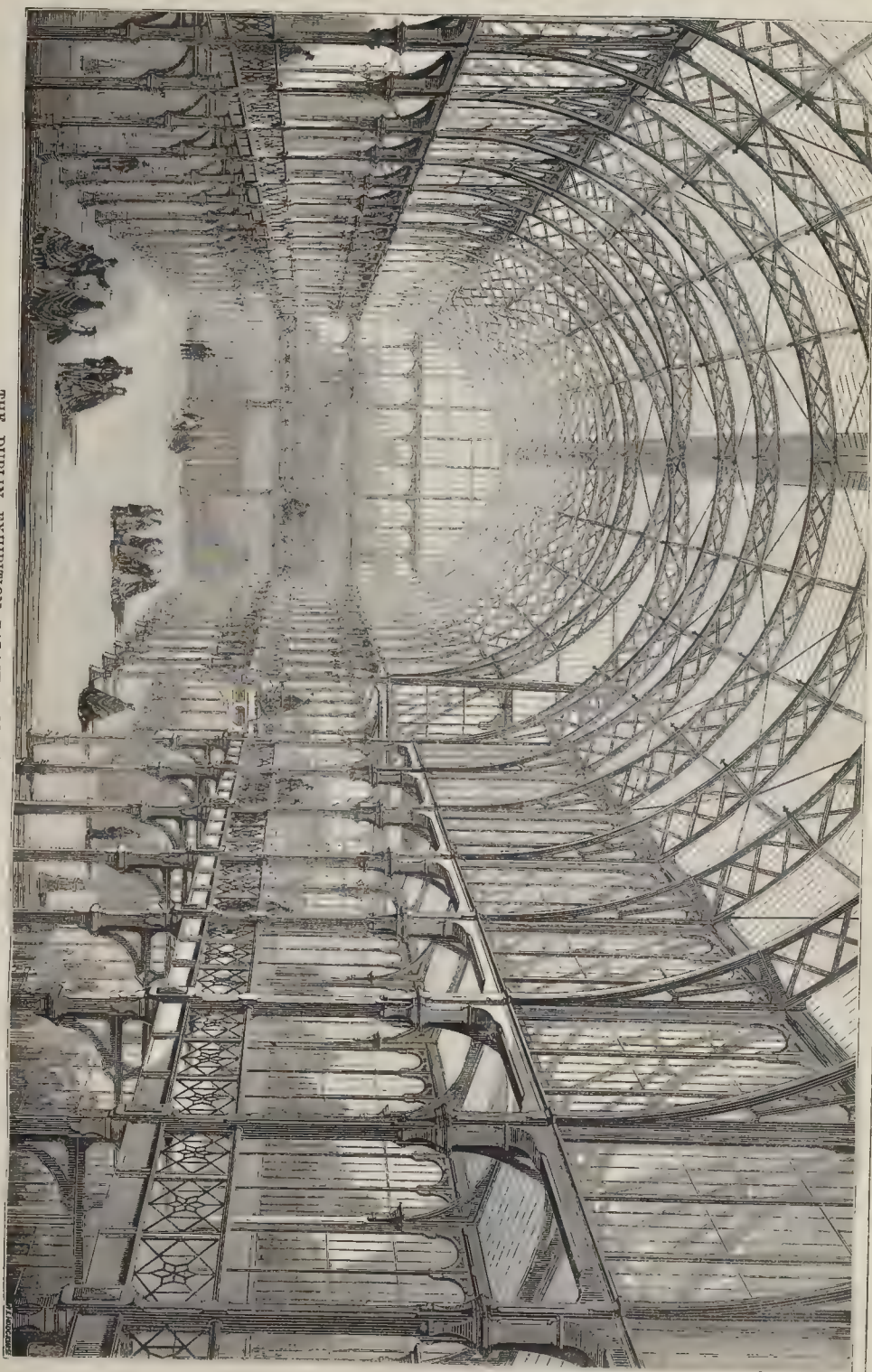
The rough average cost of some of the buildings, amounts to 106l. 6s., with a maximum of 136l., and a minimum of 65l. per dwelling. Many of the blocks contain from twelve to twenty families. The area which each dwelling occupies varies considerably, ranging approximately from 700 to 1,000 square ft. Most of the tenements have yards, and sometimes small gardens. The houses are generally built of brick, though a few are of wood, and they are roofed with tiles or slates. The dwellings are in many instances under the supervision of the proprietor or manufacturer, who causes a weekly or monthly inspection to be made by a superintendent appointed for this purpose. The buildings are, as has been stated, mainly inhabited by the workpeople of the factories to which they are attached. The average number of a family seems to be seven. In houses of this class in towns the inmates are either small tradesmen, mechanics, or the employees of railways, post-offices, &c. In a building of this kind in Nuremberg, eighteen families inhabit three blocks. There are seven artisans, seven labourers, and the remaining four are employed at the railway or the post-office. The wages of the artisans, among whom there are three joiners, two shoemakers, one turner, and one locksmith, range from 16s. 8d. to 25s. weekly. The labourers earn from 11s. 8d. to 16s. 8d. weekly; and the men employed at the railway and post, from 50s. to 84s. per month. In another return from the town of Fûrth, it is stated that among twelve families there are five joiners, two turners, three metal-workers, and two belt-makers. Many of the buildings have been so recently opened, that an estimate of the annual rate of mortality is impossible; but in one instance, among a manufacturing population of 600 workmen, there has been a daily average of 2½ sick persons; and in Nuremberg, among ninety-eight inhabitants of a building for workmen, only one death is recorded for the year 1863. The great difficulty in planning sets of dwellings in several stories is to insure privacy to each family; but it does not appear that the German manufacturers have in any instance adopted the external gallery system. It is pleasing to see the friendly relations which exist in Germany between the families inhabiting the same house, resulting in clubs and savings-banks of the same character as our benefit societies in England.

PRIZES FOR ART WORKMEN.—The Council of the Society of Arts have offered prizes for art-workmanship. The list of subjects is published. It is not very different from that last year.



THE DUBLIN EXHIBITION PALACE.—Plan and Section of Iron Building.

THE DUBLIN EXHIBITION PALACE.—MR. ALFRED G. JONES, ARCHITECT.



DUBLIN EXHIBITION PALACE AND
WINTER GARDEN.

The permanent buildings may be classified under two heads, viz., the main building and the winter garden; the former of which is a stone structure, the latter of iron and glass construction. The main building contains a grand central entrance-hall, with two rows of Caen stone columns, and a principal staircase leading to the gallery above. The lower hall is intended for sculpture, and the upper as a picture gallery, having a curved ceiling, divided into compartments by cast-iron arched ribs. Round the gallery railing pedestals are placed, to receive groups of statuary.

The large concert-hall, on the left hand of the entrance-hall, provides accommodation for 3,000, the end of which opens into the winter-garden building, and thereby greatly increasing that number, and on ordinary occasions enables the hall to be speedily emptied. This hall is also surrounded by two main corridors, with doors leading into the same; and off the corridors are cloak-rooms and rooms for the orchestra use. The orchestra will accommodate about 1,000, and underneath are large rooms for the band, and the double staircases leading to the same. On the right hand of the entrance-hall is the small concert-hall, intended to accommodate 1,500, floored over on the level of the gallery for the purpose of obtaining an additional large picture gallery. This concert-hall is arranged so as to admit of private theatricals. At the end of the hall is a large practice-room. This hall is also surrounded by corridors and cloak-rooms, together with orchestra accommodation. All the main corridors lead into the winter garden, both on the ground-floor and upper floor. There is in the main building on the upper floor a large dining-hall, 30 ft. wide by 107 ft. long, capable of being divided by a partition, the full width of the room lowered with a double partition by means of crab winches. On the upper floor there are also provided off the corridors cloak-rooms for the use of the galleries of both concert-halls; also board-rooms and offices, and important staircases. At the rear of the small concert-hall (upper floor) is a lecture-room for 500 persons; also an extensive permanent picture-gallery off the corridor, and the adjoining gallery of the winter garden.

Special attention has been devoted by the architect to the easy access and egress to the several portions of the buildings, and ample water-closet and lavatory accommodation is provided throughout the buildings.

The winter garden is nearly 500 ft. in length, and contains a circular transept in the centre, leading into the pleasure-grounds by means of a colonnade and steps on to the terrace. Opposite each colonnade, breaking the line of steps, is a granite block to receive vases. A portion of the winter garden continues round the side of the main building towards the front of same, intended to be used as a permanent exhibition, the roof of which, to reduce the amount of light, is covered with zinc, laid in rolls, by the Vieille Montagne Company.

It is intended to have a large fountain and canal in the centre of the winter garden at the circular transept, which has been floored over at present, the space being required by exhibitors; but there are fountains in the pleasure-grounds, and a handsome and extensive cascade, seen from the entrance-hall in an effective manner.

Beside the Exhibition building is a large permanent annex, for machinery in motion, fitted up with two engines, one for pumping water throughout the building and to a large tank on the top of same, supplying fountains in the gardens. This engine also supplies hot and cold air as required throughout the various buildings, through large flues, 4 ft. 6 in. high, by 3 ft. wide, which are constructed underground, and run along the various corridors, branching into the concert-halls and all the important rooms, and through shafts into the galleries and rooms above. By this means the various halls can be charged with heated air, moistened to summer temperature, and discharging into large shafts constructed from the ceilings of the concert-halls, dining-rooms, &c., through the roofs externally, worked by means of a fan.

There is also an annex for carriages, and one for machinery not in motion; and a fourth for first and second-class refreshment-rooms and retiring-rooms, lavatories, &c.

The principal entrance to the buildings is from Earlsfort-terrace, through six pairs of gate entrances, for entrance, exit, and foot-passengers.

The grounds and drive in front are enclosed with a handsome chain-railing and rock-face wall: there is also an entrance through the pleasure-grounds by Harcourt-terrace.

We publish in our present number an interior view and details of the iron and glass portion of the building as seen from about the centre of the northern transept, and which is now fast approaching completion.

The inaugural opening of the Exhibition by his Royal Highness the Prince of Wales is fixed to take place on the 9th of May next.

The general dimensions of the building are shown by scales on the page illustrating details. The skeleton of the building is entirely of iron, and is in no way dependent on timber for its support, being so constructed that the side inclosures, gallery-flooring, roofing, &c., simply perform their respective duties as inclosures and platforms.

The building is on plan multiples of squares of 16 ft. 10 in., by which arrangement a certain regularity in the lengths of the castings is obtained, which is a great desideratum in all iron buildings. The Great Exhibition building of 1851 was set out on squares of 24 feet. The dimension of 16 ft. 10 in. for the Dublin Exhibition was governed by the required dimensions of the masonry portion of the building.

The principal novelty in this structure is that the thrust of the arched roof is resisted without the assistance of diagonal bracing, which has almost invariably been introduced in buildings of this class, forming obstructions and giving the idea of after-thoughts. It will be seen by inspection of the section, that, by means of the buttresses, the thrust of the roof is conveyed to the second tier columns, which are strongly secured to the small arched roof girders, and connected at the bottom to the first tier columns. This arrangement causes a transverse strain on the columns, to resist which they are made thicker on the sides exposed to this strain. The first tier columns are again firmly connected to the transverse bracket-girders at the top, and to girders under the floor level, thus completing a rigid framework to resist the thrust of the arched roof; the sections of the columns and girders, and the strength of the wrought-iron connexions, having been all carefully calculated to resist the various strains.

The gallery flooring is trussed by wrought-iron rods, arranged diagonally in plan, by which arrangement the vertical pressure is at once brought on the columns and not transmitted by the girders, thus leaving them to their assigned duty of bracing the structure to resist the thrust of the roof. By this arrangement of the truss rods they also form a horizontal bracing to the galleries, which have recently undergone a severe practical test as to their strength and rigidity by the marching of troops over their entire extent. The columns, girders, buttresses, and gables throughout the building are of cast-iron. The arched ribs of the main roof are of wrought-iron, and the purlins of cast-iron.

The northern and southern transepts are enclosed and covered with glass fixed in wood frames and bars. The courts are partially enclosed with corrugated iron, and the roofs covered with zinc and glass.

The architect is Mr. A. G. Jones, of Dublin: the engineers are Messrs. Ordish & Le Feuvre, of Westminster; the general contractors, Messrs. Beardwood & Sons, of Dublin; and the contractors for the iron-work, Messrs. Rankin, of Liverpool.

The decoration of the buildings has been entrusted to Mr. Doyle: the prevailing colours are green and grey on the columns and ribs.*

PENS, INK, AND PAPER.

In the present time, when book-making, not only in a literary, but in a mercantile sense,—has so largely increased; when millions of letters are constantly pouring in and out of the Post-office; and when the increased spread of education is causing a call for copy and cyphering books; the constantly growing demand for paper is enormous; and now, too, as Mr. Gladstone predicted, paper is being used in the making of many things, such as carriages, which, even to us of the present day, seems remarkable. We will not just now speculate upon the means by which such huge masses of materials are to be provided in still larger and

larger quantities as each year rolls on, although this seems to be one of the world's wonders to those who have seen the great stacks of paper which are damped and prepared for each issue of the leading daily and weekly periodicals. Our object at present is to direct attention to the provision of enduring materials for the purposes of writing and printing matter which is of the greater importance when we consider that parchment has much gone out of use, even for very important documents.

The good state of preservation of some of the manuscripts in the British Museum, the Record Office, the hutchies of ancient corporations, and the muniment-rooms of religious houses and noble families, is remarkable. For instance, the chief portion of the Domesday Book, of Norman date, and other rolls and volumes now in existence in England, dating from 600 to 1,000 years ago, are for the most part so bright and fresh looking, that, but for the peculiarity of style, it might be thought that they had been executed not more than 100 years since. Those to which we refer are on parchment; but even as regards the writing and printing on this material, there is considerable difference, and many MSS. have become defaced and illegible. No doubt this is partly caused by want of care, and by exposure to damp, and other causes; but there is also much of this defect to be attributed to the nature of the materials.

During the past half-century, the process of paper-making has undergone a complete change; and the goose-quill pens have been superseded by those of iron. But for this, it is not easy to form an opinion as to what some would have done; for it seems doubtful if all the geese at home and abroad would have been sufficient to have supplied the writers of all classes in this reign of Queen Victoria. The materials of the writing-ink are also different; and acids have been introduced, which often do not act well on the paper, and which have also the effect of altering and eating away the tint of the colouring substance; and although these acids did not so much affect the quill-pens, they are a means of corroding those of metal; and even the dissolving of the metal is at times a means of altering the colour and of destroying some of the qualities of writing-inks.

We do not know how the penmen in the old times managed to hold in solution the ivory, black, or other materials, of which the ink was chiefly composed; but no doubt this was a difficulty then, as it is now; for in libraries, offices, and other places, where the air is dry and heated, the surface of the ink becomes of the consistence of jelly, and is unfit for use.

The easy working and the durability of writing-inks are matters of the greatest consequence, for on this depends the integrity of law papers, on which, in turn, property of immense value depends. There are also the accounts of great mercantile and other firms; and the letters and other relics of men and women famous in history, or in connexion with literature, science, and art. In the British Museum, a careful observer will find much that is instructive respecting the permanence of both writing-paper and ink; and it would be exceedingly useful if competent authorities were to classify the facts in connexion with this matter which there meet the eye, and offer suggestions for the advantage of the present and future generations.

In the MS. department of the British Museum there are letters of the English kings and queens which go back to a date more than three hundred or four hundred years ago. There are many other letters and documents of different classes, the copy of works which have become standard in our literature, and other matters which enable us to fix with certainty the date at which peculiar kinds of writing were executed, and to judge of the quality of the writing materials by the present state of their preservation. By means of our chemical knowledge and the aid of the microscope we may discover, almost to a certainty, the materials of which the paper and ink have been made; and by comparing various examples we may judge of what may be usefully imitated and of that which it would be well to avoid. In the public offices much information might be obtained on this subject. Take, for instance, that of the Registrar-General in Somerset House, where, we believe, the same ink and other writing materials have been in use since the opening of the establishment. If we were to compare the making of the ink here with that used—say twenty years back—at the British Museum, the Treasury, and elsewhere, we might learn much that is useful.

* In a previous volume will be found an exterior view of the design when it was first selected in competition.

When we take in hand certain of the cheap but, so far as depends on the literature, good periodicals, and feel the flimsy nature of the paper, and note how it almost crumbles in the touch, and see the tints of pale green, bluish grey, and sickly yellow, and mark the thin and imperfect layer of ink which is placed upon it, we feel certain that the duration of those papers, where filed and preserved, is limited; and it would be a sad thing if this system of rotten paper and very indifferent ink should be introduced into our permanent literature.

THE DEPARTMENT OF ART AND THE PROVINCIAL ART SCHOOLS.

OBJECTIONS on the part of the Provincial Art Schools to the recent Minute of the Department continue to reach us, with resolutions passed and published. From the Yorkshire Central Committee of Art Schools we have received the statement of the Irish schools, of four important English schools, unconnected with each other, and of the six united Yorkshire schools; together with a letter, of which we give the principal portion:—

"The opposition which has been brought into play by the foolish scheme of Government assistance proposed in the Minute, has come from the committees and supporters of art schools, and not from the masters. As yet there has been no action taken by the masters, who are, nevertheless, the greatest individual losers by the new regulations. From this it will be seen that the objections taken to the Minute are not those of individuals for individual ill-treatment, but of communities for an unfair confiscation of their own money, contributed by them in the form of taxes. And the one objection which is most generally felt and openly expressed by every committee of a school which has considered the question, is the Quixotic character of the scheme propounded, the utter and hopeless impracticability of the system of grant, and the flagrant want of experience and absence of knowledge betrayed by the framers of the Minute—of the subject of art-education in its application generally to the provincial towns. From this feature of the Minute, it is felt that Parliament ought not to sanction the application of so foolish a scheme. The Select Committee of Parliament condemned, and recommended the discontinuance of, the very features in the system of grant which the Minute adheres to, makes still more complicated, and develops into the fundamental principle of future grants,—I refer to the system of payment on results, complex though comparatively fair before; altogether and mysterious, and utterly unfair now. The Select Committee recommended, as the result of a most careful digest of all the evidence which the Art Department and the Provincial Schools could offer, a simple and just system of capitation grant on the instruction of artisans. The Minute rejects this recommendation of Parliamentary wisdom and provincial experience with contumely, discussing it in one short paragraph of what Mr. Beresford Hope calls 'irrelevant special pleading.'

It is but right, then, that the country should know how completely its rights and experience are being set at defiance, and even Parliamentary recommendations slighted and opposed by a few red tapists among its own paid servants; and this is not the opinion of those whose immediate interests are sacrificed, but of hard-headed business men who have taken for years active parts in developing the art-education of the country.

The masters, whose solemn contracts with the country are repudiated by its paid officials, can only throw themselves on the fair dealing of Englishmen who respect their own contracts, and who would not have their country's fair name made a by-word for repudiating her engagements. I hold four documents given me by the country, through its ministers, three signed by peers of the realm, Salisbury, Stanley of Alderley, and Granville, each contracting to give me 10l. per year so long as I fulfil my contract with the country. I am fulfilling it now, but I am not paid the stipulated sum, and these three peer-signed contracts the Government declares to be not worth the paper they are written upon. Hundreds of other men are in the same position as myself, and waiting, as I am, to see if Parliament approves of the morality of its Government.

The art-masters are waiting to see what Parliament will do, when the repudiators are

ministers of the Crown, peers of the realm, and the sufferers are fellow countrymen, Englishmen, whose lives have been spent in preparing for the service of their country, whose services have been approved of by Parliament's own appointed committee, and whose hard-earned wages in their country's service it is now proposed to confiscate. That is the art-masters' share of the suffering,—the morality which underlies the Minute. But the broad view of the case is even still more important. The art education of the kingdom, built up by its costly grants and its long experience, is being made the subject of a freakish experiment, in direct opposition to the wishes of Parliament, in opposition to national feeling, and contrary to the true interests of the country.

In such a case, the country can only appeal to its legislators and to a free press, to prevent an evil which will be national in its effects on the education of the country; and this the committees who manage the institutions whose extinction is threatened, have done, and are now doing.

Mr. Potter, the member for Carlisle, a man of great and long experience of schools of art, and a member of the late select committee on art schools, will test the feeling of the House of Commons when the vote for science and art is moved in the House; and it is to give the public a fair opportunity of lending the feeling of the country on the question that I am now instructed to write to you concerning it, and to request you, on behalf of the public interests, to make this appeal as public as the interests at stake.

WALTER SMITH,
Hon. Sec. to the Yorkshire Committee of Art Schools."

It is very desirable, indeed, that the real effect of the new Minute should be thoroughly inquired into, and that the extent to which the Department has or has not acted in accordance with the report of the Parliamentary Committee should be well understood before the vote of funds is discussed in the House of Commons; but we cannot help feeling that such strong language as is being used in some places is unguarded and unwise. The Department has fairly made public its proposition some time before it can be acted on, and so that Parliament may say, can be acted on, and so that Parliament may say, "What you propose is or is not in accordance with the instructions given you." It may be right or may be wrong, but we have no reason to think it is not acting for what it believes to be the best. Out of doors, indeed, there are many who do not consider it altogether necessary that Government should pay part of the cost of teaching the middle classes. We have no intention of defending the Minute,—it seems to us a very hard Minute,—very unjust to the certificated art-masters. All we say is, discuss it calmly as a question of principles, not persons. A conference between representatives of the provincial art schools and the Committee of Council would probably lead to a better understanding and a more satisfactory Minute.

THE CONDITION OF PERTH.

In your remarks on the "condition of Perth," you state in reference to the outlet of the sewers in High-street and South-street, that "the river rises at full tide far above the lower levels, and consequently dams up and carries back their noxious contents."

This is not the case. The mouths of the sewers, even at spring tides, are not covered, and the sewage in consequence has free passage.

It is only when there are large floods in the river, about once or twice a year, that such takes place; and on such occasions I have tested them, and find that, in obedience to the laws of hydraulics, the water within the sewers requires only to rise a few inches higher than the level of the water in the river at the time, to secure a sufficient flow for the sewage entering them; and all that is required is to make provision by means of deodorising ventilators (which I have designed for the purpose), placed at the summits of the lateral drains and mains to allow the gases, after being deodorised, to escape into the air at a high level.

I have more than once within the last eighteen years seen many of the streets of the fair city covered with water during a flood in the river. At what height would you fix a high-level outlet to meet such a contingency? I fear the only way is to submit to the temporary inconvenience, or make a radical change in the level of the streets,—a thing not likely to take place for a

great length of time to come, if ever. The sewers, however, on such occasions will allow the water in future to pass off more rapidly as the river subsides.

From the above remarks you will observe that neither sluices nor high-level outlets are required so far as the tide is concerned, as it is no inconvenience; and that, seeing the maximum level of the floods is so high, they would be useless to meet the case of floods in the river.

In my opinion sluices would only create the evil you point at.

The following is an extract from my report to the Police Commissioners in 1862, when the High-street sewer was formed, which sewer is constructed of a size sufficient and at such a level as to receive all the sewage from the north and north-west parts of the town.

"In designing this sewer I have kept steadily in view the possibility of ultimately forming a catch-sewer, parallel to the river, along the proposed line of Tay-street and the shore, to intercept the whole of the sewage of the town, and cast it into the Tay at a remote distance below the city; or collect it for useful and profitable purposes, should further discovery establish the means of doing so. The height of the sewer above the bed of the river at the foot of the street will admit of this being done."

The above was published in the public newspapers in 1862, and shows what is ultimately intended in the way of drainage outfall.

The great difficulties the authorities of Perth have to contend with are the want of legal powers and funds. There is, however, every probability of these being shortly removed by the adoption of Provost Lindsay's Act.

Perth. JOHN YOUNG.

IMPROVEMENT OF NEW PALACE-YARD.

You have done good service in your late issue by calling attention to the condition of the precincts of Westminster Abbey, which I trust will awaken notice in the proper quarter. My object is now to call your attention to a cognate subject; that is, the present condition of New Palace Yard.

You will have, perhaps, observed, that Mr. Cowper has announced his intention to ask for a sum to enable him to have the unfinished front of the Clock Tower faced with stone; and also that some change is in contemplation by bringing Victoria-street through St. Margaret's-square. The public ought at once to be made aware of the exact plan, and particularly of the disposition of the now extended area of New Palace Yard,—a place hallowed by many historical recollections.

One of the main defects of the Palace is the lowness of the site, and yet it stands on what may be considered as the natural bank of the river; but this lowness is much exaggerated by the bridge and its approaches; indeed, the first impression it gives to a stranger viewing it from Bridge-street is, that it has been placed in a hollow, natural or artificial. This arises from the ground being sloped from both streets to the entrance of Westminster Hall. Now would it not be a main consideration to give architectural expression to the fact that it is the streets that are artificial mounds, and the Palace site the normal level? How best to accomplish this I would now with deference attempt to show. Excavate the whole space within the square formed by the two streets to the uniform level of the floor of Westminster Hall, and save the men, great and small, who enter that portal from the creeping pace and tentative steps caused by the awkward slope at the entrance. The streets should have substantial retaining walls relieved by slightly projecting piers, and protected by a parapet-wall not higher than that of the bridge, and to be duly stepped down in accordance with the slope of the two streets.

There is a great eye-sore in that gaping shed on the end of the Courts of Law, which ought to be done away with; and yet some substitute must be provided. Now, for that substitute let the ground-story of the Palace only be continued or returned from the unfinished side of the tower along Bridge-street, nearly as far as opposite the Hall door, say 80 ft. or 100 ft. Finish it by a flat terrace roof, with open-work parapet, the inside face to have the bays all open arches, which would answer the same purpose as the present unsightly shed. At the end of this addition, and exactly opposite the entrance to Westminster Hall, provide a fine flight of steps, landing at the corner of the terrace on a pave-

ment, which ought to be continued round three sides of the square, and finished at the two ends by two similar flights of stairs leading up to Parliament-street, one flight at the corner of the Courts of Law, the other within about 40 ft. of the intersection of that street with Bridge-street. The slope *inward* for vehicles should be adjoining the stair near the Law Courts, and outward the stair next to Bridge-street, the cab-stand remaining as at present. This arrangement would leave two oblong spaces, one between Bridge-street and the pavement in the yard in width, and extending from Parliament-street to the proposed flight of stairs near the street to the other the same width, but only extending along Parliament-street between the two slopes, and the cab-stand, these two spaces might be laid down in turf, and would form fine sites for statuary at some future time. The retaining walls should be of granite, and the parapet should be continued in open-work down the stairs and along the inside of the oblong spaces already described. If visions of idle boys riding on it disturb the architect, let him add between the piers a sloped coping, with a low sharp grille on the top.

J. W.

ABSORBING WELLS.

It would occupy not only too much of your valuable space, but more time than I can devote to the question, to enter into a chemical explanation of the changes produced in all arenaceous deposits on the quality and constituents of the water introduced into them. By the action of the sands, however, the deleterious ingredients held in solution become decalcified, and in that condition perfectly harmless. Indeed, the introduction of sulphates and other chemical elements aids the mutual reaction of all sands containing mineral substances in solution, and tends to free the water from impurities. Carbonic acid, always present in the sands of the plastic clay formations, precipitates lime and magnesia, converting them into insoluble carbonates. The action of water sets free in the *débris* of rocks of which the siliceous sands are composed, the alkalies and alkaline carbonates, which react upon the metallic salts, and a precipitate of insoluble oxides is the result. The mass of subterranean water is maintained in a state of comparative purity by the condition of the strata, having a tendency to contract its solvent power, and to re-combine the ingredients held in solution and to convert them into insoluble substances. The introduction of filtered sewage water has a direct tendency contrary to that of rendering the subterranean water impure.

The lower tertiary sands contain a large proportion of organic remains, sufficient, it would be thought, to have rendered the water contained in the mass permanently and hopelessly impure; but "the presence of animal and vegetable matter in a state of decay, either dispersed in accumulating strata, or else diffused in water, tends to decalcify various minerals and salts." Under these circumstances, sulphuretted hydrogen and carbonic acid gases would be generated by the decomposition of the sulphates and the latent combustion of carbonaceous substances. The peroxide of iron would be converted, first, into the protoxide, and then into the carbonate. The presence of vegetable matter would effect the alkaline silicates by supplying carbonic acid to their bases, whereby the silica would be precipitated, and alkaline carbonates disengaged.

As to the ammonia which your correspondent so fears as a dangerous compound to be mixed with water, and as one that can only be dealt with by vegetation on the surface, its constituents, nitrogen and hydrogen, are most rapidly separated and disposed of by our great laboratory; but ammonia can only be formed under peculiar circumstances,* as when animal and vegetable substances containing hydrogen, nitrogen, carbon, and oxygen, are allowed to decompose and become putrid,—a condition that is specially guarded against by the arrangements made for receiving the water before entering the absorbing wells.

Mr. Fenton assumes the character of a dictator not unbecoming a chief of ancient date, when he beholds with surprise that after a report of a Committee of the House of Commons, and after the works carried out under his direction at Croydon, any one should waste the fer-

tilizing matters contained in sewage. Does he for a moment imagine that such works were not carried out before he instituted them at Croydon? As a boy of eighteen I was engaged on extensive works of this character; and such works are still being carried out by parties who never heard his name. Further, can he not imagine there are cases in which it would be unwise, impolitic, and impossible, without the expense of machinery and constant unprofitable outlay, to carry out such works?

With reference to the water in the sands and that in the chalk, I have well-authenticated information that I wish to make public, but I will not trespass on your space further this week than to repeat what I have said before. In nearly all cases an argillaceous bed of varying thickness separates the chalk and the tertiary sands, and prevents all, or nearly all, communication between them, especially in the north-western and north-eastern divisions of the tertiary formations. Mr. Robert Stephenson, in his "report to the Directors of the London, Westminster, and Metropolitan Water Company," expressed his strong opinion that the plastic clay sands are supplied with water chiefly from the chalk, and in some situations he is perfectly correct in this view; but that supply comes from the outcrop, and not from the bottom of the basin.

Mr. Fenton considers I am mistaken in stating that the water from the sands we refer to is often impure. My experience bears out fully what I stated, and I am satisfied to see it shared in by Mr. Mylne, Mr. Prestwich, Professor Brande, and others; and I have given sufficient reasons why it improves by use.

Mr. Fenton knows the position "of the absorbing well at New Barnet, and can state that it is within a short distance of the artesian well that supplies that place with water," and no doubt he also knows that I am now carrying out works and reservoirs for commanding a much larger area to be supplied with water. Well, the absorbing well is 2,900 ft. from the chalk well for supplying the water, and this is not very near, particularly as the water is all pumped from the chalk, and the absorbing well terminates in the sands; and, as all the water presses towards the valley of the Thames, and does not flow northward from that point, to say nothing of the existing argillaceous stratum above the chalk, and that the water from the sands cannot enter our pumping-well.

JOHN BLENKARN.

THE RAILWAY AND BUILDING MOVEMENT, AND THE DEMOLITION OF DWELLINGS.

I CAN readily show how Lord Shaftesbury's difficulty of raising 600,000*l.* to provide dwellings for 20,000 people may be removed.

The savings-bank funds, on the 20th November, 1864, amounted to 39,826,421*l.* 15*s.* 7*d.*, and the profit fund to 392,590*l.* 16*s.* 11*d.*

Here, then, is a fund created by the *working* classes which ought to be advanced for their benefit: the security, that is the buildings to be erected, would be ample, and the benefit in an increased rate of interest beyond the present investment would increase the fund: the money is lent on Turkish bonds; why not on freehold security?

I have been for several years importuning Members of Parliament to introduce a Bill into Parliament to establish a Board of Commissioners, to be entitled the "Commissioners for erecting Workmen's Dwellings." There is an *unproductive* portion of the fund *more* than equal to bear the expenses of the Commission.

WM. WOODFORD.

WATER-LIFTS FOR RAISING WEIGHTS.

A YOUNG engineer of Paris, M. Léon Edoux, has lately contrived an excellent machine for raising weights vertically. The system, first essayed and put into practical use during the erection of a large mansion in the Rue Lafayette, consists in making use of water as a counterpoise to the materials required to be lifted to different heights above the ground. The apparatus consists of a double framework or tower of timber, formed of six uprights, and braced together by cross ties at distances. These uprights serve to guide the ascent and descent of two wrought-iron boxes or platforms of equal weight, and capable of holding two cubic metres or two tons of water each. A chain, connecting the two boxes, passes over two fixed pulleys at the top of

the framework, so that when one ascends the other descends, and the bottom of each box is furnished with a valve which can either be opened by hand or some contrivance on its touching the ground. To understand the working of the apparatus, let us suppose one of the platforms on the ground and the other at the top of the tower or framework; the bottom one filled with the materials required to be lifted. Water is admitted by means of a supply laid on from the water-mains into the upper vessel until not only the weight but the resistance from the friction of the chain is counterbalanced: as soon as this is the case, the platform containing the water descends and the materials in the other are raised to the required height. A break, to regulate the motion, renders this apparatus complete. As regards safety and certainty of performance, this lifting-engine is incomparably superior to all others for house building, and far cheaper also. The cost of installing the lift is about equal to that for raising weights by manual labour, and considerably less than that worked by Lenoir's gas engine. This system is by no means a new one, and Baron Séguier states that Sir I. K. Brunel showed him, twenty years ago, at the Chatham Dockyard works, the application on a large scale, of the equilibration by water to the raising of immense loads of wood to considerable heights during the construction of a bridge. At the great tunnel under the Alps, the counterbalancing by water is applied to the working of an inclined railway at the Modane (Savoie) end, where the entrance to the tunnel is 3478 feet above the high road. Besides a road of moderate incline, and, in consequence, of some length, an inclined plane has been constructed, with a gradient of 1 in 223, part of the width (21 ft. 4 in.) being occupied by 464 steps, cut in solid rock, for pedestrians, and part by a railway forming a self-acting incline. This is worked by a rope, to either end of which is attached a wagon capable of holding two tons of water in a suitable tank, besides the materials required to be drawn up, passing over a drum at the top. The materials or implements required to be drawn up being placed in the wagon below, as much water is allowed to escape from the tank as will cause the weight of the upper tank to predominate, when the motion immediately commences, the heavier descending and the lighter ascending, while the velocity is controlled by a powerful break.

WINWICK, HUNTINGDONSHIRE.

THIS church has been thoroughly restored, at the cost of the patron, the Duke of Buccleuch. It was formerly in a most dilapidated state, and had suffered even more than usual from neglect and "churchwardens." It possesses many points of interest. The arcades and chancel are of a simple and beautiful type of First Pointed work. The south door of the aisle, though pointed, has most rich mouldings and zigzags, of a Norman character. A fine transept was added in the Third Pointed style, and a private chapel, screened off from the church by very elaborately carved screens. The roofs were of the Third Perpendicular period, and very richly moulded and carved, but were in a very decayed state. It was found necessary to rebuild portions of the chancel aisles, to rebuild entirely the transept clerestory walls and porch, inserting the old masonry of buttresses. The roofs were restored where found necessary, but every portion of the old work has been most religiously preserved. The chancel roof, being modern, has been removed, and a new roof of oak substituted. The seats are open, and very similar to the old bench ends found in the church. The pulpit is of stone, the upper part being open, and formed of columns, supporting a richly moulded cornice. The eagle is of oak, and carved by Mr. Pepper, of Brighton. The tower and spire have been partially rebuilt, the bells rehung, and one of them was recast.

A new parsonage-house has also been erected near the church, the material used being white brick, and stone dressings to the windows, &c. It is remarkable that in the recent conflagration, which destroyed almost the whole village, the church and parsonage, though surrounded on all sides by the fire, escaped unharmed.

The cost of the restoration of the church was 1,600*l.*; the cost of the parsonage-house, 1,850*l.* The works have been carried out by Mr. Walter Parker, of Thrapstone, under the inspection of the architects, Messrs. Slater & Carpenter, of London; the clerk of the works being Mr. Peebles, of Northampton.

* A great part of nitrogen combines with hydrogen, and takes the form of ammonia.

CHURCH-BUILDING NEWS.

Thornton: Pickering.—We are asked to mention that the name of the architect engaged in the restoration of this church is Mr. E. Wyndham Tarn, not Scott as stated.

Bungay (Suffolk).—A meeting of the ratepayers of St. Mary's (convened by the churchwardens) was recently held, to consider the proposal of the architect for restoring the parish church, and the best means of obtaining the requisite funds for carrying out the whole or a portion thereof. Mr. T. Owles, one of the churchwardens, says the *Suffolk Chronicle*, explained that the meeting had been convened, at the suggestion of the bishop of the diocese, for the purpose of forming a committee of ratepayers to consult with the churchwardens as to what repairs might be deemed necessary, and the best means of carrying them out. Mr. Owles justified the churchwardens in having undertaken certain work in the church since the last meeting, by explaining, that what had been done was essential to the safety of the fabric; and he read an extract from a report read by Mr. Gravatt, C.E., to Mr. Hartcup, in which he stated, the building is at present unsafe, and that divine service should be discontinued until four of the columns or piers, which had been pointed out to the churchwardens and others, were entirely rebuilt. Mr. Owles afterwards read extracts from a correspondence between the churchwardens and Mr. Drew, architect. The repairs were stated to be, "to restore the columns, clerestory windows, to clean the old plaster from the inside and outer walls, and to renew the same; to take down the old altar-piece and to restore the wall behind it; to remove the east window, by bringing it 14 in. to 18 in. lower, and secure the wall, and perhaps flint the outside; to face the outer walls with flint between the aisle roofs and the nave roofs; to secure the parapet walls where required, and to fill in and make fast all defective portions of the outer walls, and to secure the tie of buttresses and walls by proper pinnings;" and which work they (the churchwardens) had calculated would cost from 500l. to 600l. Mr. Drew, in his reply, said he would be willing to undertake the superintendence of an outlay on works not to exceed 500l. or 600l., if the services of an efficient clerk of works were allowed him; but at the same time he declined to express an opinion as to whether the proposed outlay would accomplish the work contemplated. Mr. Owles moved the appointment of a committee. A lengthened, very discursive, and warm debate ensued, in which an old question "Why was the church wilfully mutilated?" was foremost, and this was urged with the greater force, as one of the churchwardens who had acted upon the "restoration committee," admitted, that at that time the condition of the piers did not appear to justify any fear of their stability and permanence; whilst Mr. Gravatt, in his report, had stated, "if the piers had not been so roughly handled, the supposition that they would have stood for very many years was not unreasonable." Mr. Hartcup, Mr. Brand, and others, stated their unwillingness to act upon a committee to restore the mutilation committed by the incumbent. Ultimately it was resolved to form a committee to consider the whole matter, and to report to a vestry meeting.

Langar (Notts).—The parish Church of Langar has been re-opened for divine service after its restoration. After the sermon a sum of 156l. 16s. 4d. was collected in aid of the funds for the completion of the tower. The original Early English structure had been nearly destroyed by time, only the tower and arches of the nave having preserved their character. The remainder of the church was of a debased character, having been rebuilt in 1670. The north side was restored about twenty years ago, from designs by Mr. Hine, and the chancel about 1851, from drawings by the same architect. The present restorations comprise the south side of the nave and the south aisle, the north and south transepts, and the tower, which have all been taken down to the foundation and re-built. The Early English character of the tower has been preserved as far as it has as yet been completed, which is only to the roof of the nave and chancel, and the transepts have been rebuilt in the same style. It is intended to complete the tower on the model of the former work, preserving whatever stones are capable of being used again. The expense of the recent work has been nearly 1,000l., including the transepts, which are the burial-places of the Earl Howe and Mr. J. Chaworth Musters, and the expense of which has

been borne by them respectively. One of the improvements is the replacing of the pews with open seats, and removing the reading-desk and pulpit to situations which front the whole congregation.

St. Juliot (Cornwall).—The church, according to the *Cornish Telegraph*, is about to be completely restored under the direction of Mr. Sedding, of Penzance. The building is now in a deplorable state, part of the south aisle being open to the sky, the chancel walls hung inside with ivy, and the tower cracked so seriously as to be in constant danger of falling. Many of the old seats remain, and will, with the old screen, be retained. New roofs will be added throughout the church, with new tile floors, altar, chancel fittings, and nave seats: the north wall of nave will be rebuilt, and the rest of the church thoroughly repaired.

DISSENTING CHURCH-BUILDING NEWS.

Morice Town.—The *Devonport Independent* states that the new chapel, Haddington-road, Morice Town, is now completed, and opened for public worship. It has been erected in connexion with the "Bible Christian" denomination. Mr. P. St. Aubyn was the architect. The principal entrance is in Haddington-road, and consists of a vestibule with portico, supported by two fluted pillars. The body of the chapel is screened off by a transparent partition of fluted glass. The modern style of platform is substituted for a pulpit, and can be rendered available for meetings of every description. The contractor was Mr. W. P. Turner, of Stoke. The graining was executed by Mr. Cole, of Plymouth. The chapel is constructed to seat 500 persons. Adjoining the chapel is a vestry and a school-room, the latter to hold 200 children.

Bowling (Yorkshire).—According to the *Bradford Observer*, the new Independent chapel in Bowling has been opened for divine service. The style of the building as principally shown in the front elevation to Essex-street, is Romanesque or semi-Norman in character, and the interior is of unpretending appearance. When the whole space enclosed by the main walls of the building is devoted to sittings, the accommodation will be for about 800 adults, and the internal dimensions will be 70 ft. by 45 ft., and 34 ft. high. At present a temporary wall divides the space into two portions, that in the rear being devoted to school purposes. The accommodation now provided in the chapel is for 500 adults, viz. 300 on the ground floor and 200 in the galleries. The pulpit is of the platform kind, and the front is of open iron-work decorated in simple colours and gilding. In front of the pulpit is a communion platform, raised 21 in. above the floor of the chapel, and surrounded by a polished oak handrail and iron standards, decorated in a similar manner to the pulpit iron-work. The floor of the school-room is on a level with the gallery passages and communicates with them. The room is 26 ft. wide and of same length as the width of the chapel, viz. 46 ft. It is boarded on all sides to the height of 4 ft. 6 in. from the floor. The ceiling is a continuation of the chapel ceiling, so as to be available without alteration when the chapel is enlarged. The windows, &c. are arranged with a view to adaptation to the future new school-room, space for which has been reserved on the site in the rear of the chapel. Underneath the school-room are three class-rooms, a class-room for infants, a minister's vestry, and all necessary conveniences. These all have an independent communication with the school-room by means of a stone staircase, which has been planned so that it will be equally available for the future school building. The whole of the buildings are heated by Messrs. Longbottom & Co., of Leeds. A shaft for the purpose of ventilation is carried up in the rear of the chapel, into which flues from the architects, under whose superintendence the whole of the works have been carried out, were Messrs. Paul & Ayliffe, of Manchester and Bradford; the general contractors, Messrs. Booth Ellingworth & Son, of Bradford. The gas-piping has been laid by Mr. Schofield, of Bradford. The clerk of works was Mr. Bottomley. The entire cost of the building, including the boundary fences and professional charges, amounted to 3,000l., besides the cost of the land, which was over 300l.

Dairycoates (Hull).—The foundation stone of a new Wesleyan chapel has been laid in this newly formed village, by the Mayor of Hull. This outskirts of the town has been formed

chiefly by the workmen engaged on the works of the North-Eastern Company, and to the present time upwards of 100 houses have been erected on the Hesse-road near the railway crossing. The building will be in the Gothic style, expressive of its character and purpose, but simple in detail. It will be faced with red stock bricks, relieved by the introduction of some few stone dressings and white stock bricks. In the front gable will be a three-light window, and on the sides a series of two-light windows, divided by mullions. The entrance to the chapel will be by a porch on one of the sides. The roof will be of considerable pitch, covered with slates, having an ornamental ridge, crest, and finials at the gables. The internal dimensions of the chapel are 41 ft. 3 in., by 25 ft., with sittings for 180 persons, of which one-half are to be free. In the rear of the chapel will be a Sunday school-room, 23 ft. by 16 ft. Mr. W. Botterill is the architect, and Mr. W. Barritt and Mr. J. Wales the builders. The cost, including the ground, will be about 500l.

Corbridge.—A new Wesleyan chapel, at Corbridge, has been opened for divine worship. The style of the building is Gothic, and the sittings will accommodate 360 persons, room also being left for a gallery, should such be required. There is a school-room attached, and the entire cost is estimated at about 1,000l. Mr. Haswell, of Shields, was the architect; and Mr. Harrison, of Gateshead, the builder.

STAINED GLASS.

St. Andrew's and St. Mark's, Lakenham (Norwich).—A stained glass window has been put up in St. Andrew's, and two in St. Mark's, Lakenham. The window in St. Andrew's is the gift of Mr. James Stone, and is at the east end of the church. It represents the Christian seasons, the subjects of which are arranged in the following order—"The Nativity," "The Adoration of the Magi," "The Baptism of the Saviour," "The Crucifixion," "The Resurrection," and "The Ascension." The panels beneath the main subjects are filled by representations of the three stages of the sacrifice of Isaac, which were suggested by the old glass which has been removed from the window. In the upper tracery of the window the apostles occupy the centre lights in two tiers, and on either side are seen figures of Moses and Elias, representing the law and the prophets, and on the other "The Fore-runner" and the "First Martyr." In St. Mark's Church two new windows have been put up at the east end—the centre window being the gift of the Rev. H. R. Nevill, the late minister, and of the Rev. N. T. Garry, the present incumbent. The subject in the left-hand light represents "The Agony in the Garden," and that on the right-hand "The Appearance of the Saviour to St. Thomas." The subjects of the north window are "The Last Supper" and "The Appearance to the Seven Apostles at Lake Tiberias." The south window was filled by painted glass before the consecration of the new chancel, a few months since, and thus all the windows at the east end are now completed. The artist of all the three windows described was Mr. Hughes, of London.

Lymington Church (Hants).—The glass painting of the "Crucifixion," the gift of Lord George Gordon Lennox, has been inserted in the chancel window of this church. The painting is, we believe, one of considerable antiquity and value. The rest of the window, the stonework of which has been restored, has been filled in through the liberality of the Duchess of Richmond, with diaper-pattern glass of an amber and grey tint, to harmonise with the painting.

Gloucester Cathedral.—The memorial window to Dean Rice, in the east cloister of the cathedral, is now uncovered. The artists are Messrs. Clayton & Bell. Each window of this cloister consists of two lower tiers of eight lights, and lights in the tracery. In the memorial window to Dean Rice, as in most of the other windows, the lower tier is filled with decorated quarries: on these are armorial bearings and artistic enrichments. The second tier of lights is filled with scenes connected with the birth of the Saviour. On the first two lights are the wise men discovering the star in the east. In the next two they are approaching Herod with offerings, and demanding, "Where is He that is born King of the Jews?" With Herod is one of the chief priests. In the next lights are shown the wise men presenting their offerings of gold, frankincense, and myrrh, to the infant Saviour.

In the seventh light the Virgin Mother is showing the child to the strangers. A star beams down upon the group. Joseph appears in the eighth light. From the centre light of the tracery a large star shines upon all the pictures. The other tracery lights are filled with quarries of white decorated glass, with central ornaments and ornamental borders. The figures are drawn on a blue enriched ground, with decorated borders. Nearly all the windows in the east cloister are now filled with painted glass. There are yet four windows to be filled, but these are now taken. The mullions of the second window from the south end are being prepared for the reception of glass by Hardman, as a memorial to Dean Plumtree. In the north aisle of the cathedral the five windows remaining unfilled will have painted glass in them before the Festival. The large window over the east entrance to the cloisters is about to be filled by Wailes, of Newcastle, in memory of a relative of the Rev. Sir Lionel Dorell. Mr. T. Marling has selected another of the windows as a memorial to the late Mrs. Marling; Clayton & Bell will supply the glass. The lower window is to be filled in memory of the late Mrs. Price: the artists are Ward & Hughes. The dean and chapter have voted money to fill the remaining two. Mr. Niblett has a window of Munich glass ready to be placed in the cathedral. This will probably take the place of the glass in the Davy window in the south aisle, which will be removed to another part of the cathedral.

FROM IRELAND.

Improvements in Belfast.—There are several projects now on foot which all tend towards the increase of public accommodation and the general improvement of this town. A new club, in Donegall-place, the Northern, is either completed or nearly so, and ready for opening. A new theatre has been projected, and a new hotel, on a very large scale, in the neighbourhood of the Linen Hall: advertisements have also appeared for a site for a new concert-hall. In Bridge-street extensive new buildings are being rapidly erected by Messrs. R. McKenzie & Co., and adjacent improvements are being carried out by others. The demand for respectable dwelling-houses in the town and suburbs quite exceeds the supply. The building of really good dwelling-houses, at what would be called high rents, is not yet what it requires to be, but the building of small houses in all parts of the town continues with great rapidity, and new roads are being opened up at Castletown, Fort William, and other localities for the development of lands suitable for villa sites. The "Plains," a large district of grazing field, in Malone, have been drained, levelled, and laid out for streets, and the erection of houses has commenced. A new Methodist College is about to be erected on the Old Lismore road on a large scale, and at a cost of 27,000*l.* On all sides are to be seen signs of rapid increase and improvement in shops, mills, and other premises. The Oddfellows' Society are about to build a new hall. The new Methodist church, at Fountainville, is completed. A new drinking-fountain is now almost finished, and stands at the angle formed by Great Victoria-street and the Old Dublin-road, nearly opposite the end of Donegall-pass. It is built of stone, and will combine a drinking-fountain and an ornamental lamp. The building may be said to consist of three divisions,—pedestal, shaft or lantern, and roof. The total height is 21 ft. The architect was Mr. W. J. Barre, and the builder Mr. Graham.

PROVINCIAL NEWS.

Framlingham (Suffolk).—The Middle-class Albert College, at Framlingham, was opened on the 10th instant, by the admission of about 150 pupils, the formal and ceremonial opening being deferred till July, when it is hoped that the Prince of Wales will be present at the uncovering of the statue. There are now 274 pupils nominated, and only 300 will be admitted in all. The dining-hall is a large apartment, the ceiling of which is adorned with the coats-of-arms of the governors. The dormitories are lofty and well ventilated, with lavatories adjacent thereto, but distinct from, the bed-rooms. There are also convenient bath-rooms. In the erection of the college there were two fortunate occurrences,—the first, that excellent brick-earth was found in the fifteen acres of college ground, from which

all the bricks required have been made; the second, that a vein of gravel of fair quality was also found there, after having been vainly sought in the locality. The saving in the cost of the buildings, roads, and paths, is estimated at 1,000*l.*

Uttometer.—It is in contemplation by a number of gentlemen to erect a corn exchange and covered butter-market for Uttometer. The site it is intended the exchange shall occupy is at the present time covered by premises adjoining the Old Talbot Inn, in the market-place, in front of which the corn-market of late years has been held.

Worcester.—The Arboretum and the china works, or at least a portion of them, are to be used for the site of the works to be erected as the manufactory of the Royal Porcelain Company, whose business is now carried on at Diglis. The Arboretum has been purchased by the company, and possession of the grounds will be taken at Midsummer, and as soon as possible afterwards the erection of the new works will commence. The preparation of the plans has been entrusted to Messrs. Scrivener & Sons, of the Potteries, architects, who have supplied designs for many of the largest establishments of the kind; but the new Worcester works are to be superior in magnitude, in adaptability of construction, and in design.

THE BUILDING TRADES.

The operative joiners of Halifax have resumed work, having been out on strike one week. They have accepted the masters' offer of 54 hours a week labour. The men wanted a reduction from 57½ to 52½ hours.

The painters and plumbers of Burslem and Tunstall are on strike for advance of wages. The masters met to consider the demand of the men. On that occasion all the Pottery towns and Newcastle were represented; and, after the hour system had been discussed, it was unanimously resolved that it should be introduced, and payment given at the rate of 6*d.* an hour for skilled workmen, and superior and inferior workmen at proportionate rates. The masters also notified that, unless the men acceded to their proposal, a general lock-out would take place. The men declined the proposal, and they are consequently locked out till the masters can again meet to consider the resolution of the men.

At Wolverhampton the delegates of master builders and operative carpenters and joiners in this town, having appointed Mr. Rupert Kettle, judge of the Worcestershire County Courts, to be the umpire at their conferences to draw up trade rules and to settle future disputes, and that gentleman having consented to accept the office, the delegates recently held a conference, under the presidency of Mr. Kettle, for the drawing up of the trade rules. The meeting was conducted in a conciliatory spirit on both sides, and the whole of the rules were mutually agreed to without the casting vote of the umpire being required in even a single instance. Mr. Kettle has offered his services as between the masters and the men engaged in other departments of the trade.

The masons of Bodmin call the attention of their employers to the present rate of wages as being below the average of other towns, and request a rise to 1*l.* per week. The present rate of wages, they say, will not average more than 12*s.* per week, taking the winter into account.

RAILWAY MATTERS.

The works of the Metropolitan District Railway, which will complete the Inner Circle, are commenced in several places, among others at Cannon-street, City, where it passes under and communicates with the new station of the South-Eastern Railway; also at Earl-street, Blackfriars, where it communicates in the same way with the London, Chatham, and Dover line; thus enabling the public to pass immediately on arrival to and from both systems.

A new step has recently been introduced by the South-Western Railway Company, in order to provide against accident, namely, by painting the rear guard's van red. It is thus much more plainly seen. What a commentary on our practice of dressing our soldiers in red!

The proposed high-level bridge which is to carry the South Wales and Great Western Direct Railway across the River Severn, near to Chestow, is, according to the design of Messrs.

Fowler & Fulton, the engineers, to be two miles and a quarter in length, and is to have sufficient headway to permit masts of ships of 122 ft. in length to pass under when the surface of the river is at the main tide level, so as in no way to impede the navigation. The principal opening, which is to cross the low-water channel, is to be 600 ft. span, being the total width of the Thames at Southwark Bridge, or 150 ft. wider than the opening of the Menai Bridge. Messrs. Fowler & Fulton estimate the probable cost of this bridge at 980,000*l.*, for which sum Messrs. Cochrane, Grove, & Co., bridge contractors, have undertaken to complete the work.

A house was lately set on fire by the engine of a train from Belfast, at Gorrinstown, Louth, near Drogheda. The wind being high, the fire destroyed all before it quickly, and burned both a dwelling-house and a car-house to the ground.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 1st of April, on 11,841 miles, to 607,094*l.*, and for the corresponding week of last year, on 11,490 miles, to 599,787*l.*; showing an increase of 351 miles, and an increase of 7,307*l.*

ACCIDENTS.

At Ossett, Wakefield, in a heavy storm, two men who were engaged at work on the top of a chimney, 34 yards high, became alarmed, and, losing their presence of mind, simultaneously jumped into the cage by which they ascended and descended. Unfortunately no one had hold of the rope at the bottom of the chimney to counterbalance their weight, and the cage descended to the ground with frightful velocity. One of the men had both his legs fractured, and was otherwise dangerously hurt. His companion escaped with a sprained ankle and a few bruises.—At Rochdale, during an election meeting of two or three thousand persons, a panic occurred; a gas-pipe broke, and the lights were turned out in an instant. Intense consternation and excitement were caused by this. Women and men were screaming, windows smashed to get out, and there was great rushing to the doors. The chairman implored the audience to remain quiet. Some only accepted the advice. Many of the persons present were severely bruised. After a time all were got out safely.—At Yarmouth the massive new crane recently erected on the town quay at the expense of Vice-Admiral Love, and manufactured at the iron works of Messrs. Lloyds, Foster, & Co., Wednesbury, at a cost of 200*l.*, suddenly fell while hoisting out heavy blocks of Portland stone from a galliot. When lifting the first stone, the centre part of the main shaft, which is fixed in the ground at some considerable depth, broke short asunder by the weight of one block, estimated at 1½ ton only, which was about 2 ft. clear when the crane fell from this comparatively light burden. The crane was found to be very much damaged. The oak timber arm is broken in midships; the screw bolts in many parts are broken off; and the crane in itself is altogether crippled. It was guaranteed to hoist a weight of five tons when purchased.

RECENT PATENTS CONNECTED WITH BUILDING.*

TREATING CLAY, ARTIFICIAL STONE, METAL, OR OTHER PLASTIC OR MALLEABLE MATERIAL, TO RENDER IT MORE SUITABLE FOR CONSTRUCTIVE PURPOSES.—R. H. Smithett & J. Davidson. Dated 29th April, 1864.—The patentee claims rolling, casting, moulding, or pressing such material or materials between or in such rollers, moulds, or dies, as will produce bricks, tiles, blocks, or plates, having on one side projections of a pyramidal, conical, hemispherical, octagonal, or other analogous form, and on the other side corresponding holes or depressions of a similar form; the said projections and depressions being so arranged that they shall interlock when the bricks, tiles, blocks, or plates, are used for constructive purposes.

VENETIAN BLINDS.—D. Clarke. Dated 30th April, 1864.—The first object of this invention is to construct the laths and framework of Venetian blinds of iron or other metal, instead of wood, as heretofore. The patentee proposes that the laths shall be of corrugated iron. He purposes to give motion from the centre by fitting the frame with two or more uprights, upon which revolves

* Selected from the *Engineer's* lists.

a spindle (by preference tubular), and upon which spindle the laths are hung and are free to revolve in either direction as may be required. Upon those parts of the spindle upon which the cords or chains of the laths are to work, he proposes to place vulcanised india-rubber sockets, so that the cords or chains may have a firmer hold or grip than they would otherwise have upon the metal, or instead of the india-rubber sockets he prefers, in some cases, to employ milled brass pulleys in which the chains and cords are free to work.

FASTENING OR CONNECTING BRICKS TOGETHER FOR BUILDING PURPOSES.—*R. H. Smithett*. Dated 29th April, 1864.—This invention consists in fastening or connecting bricks together for building purposes by casting, moulding, or otherwise forming two holes in such bricks, and connecting the same by pegs or dowels, as described.

APPARATUS FOR VENTILATING, FOR PROTECTING FROM HEAT, AND FOR HEATING AND COOKING.—*T. Steven & C. Batty*. Dated 14th April, 1864. This invention relates to, and consists in certain methods of producing or inducing atmospheric or aëriform currents with the aid of heat, and otherwise, for protecting from heat, and for heating; and the invention also consists in apparatus therefor, and for applying heat in cooling.

MECHANICAL ARRANGEMENTS TO BE APPLIED TO DOORS AND CASERMENT WINDOWS TO PREVENT SLAMMING OR CLIPPING.—*W. Ovenden, sen. & W. Ovenden, jun.* Dated 15th April, 1864.—This invention consists in a barrel, composed of brass, iron, or other suitable metal, varying in size according to the size of the door to which it is to be applied. This barrel the patentees fill with oil. In the inside of this afore-mentioned barrel they have two or more relieving passages, in order to permit the oil or oil and lard to flow more readily. Within the before-mentioned barrel they have a piston made of brass, or other suitable metal, and fitted with a piston-rod of steel, iron, or other suitable metal, passing through one end of the barrel, which is closed by a screw cap fitted with a leather washer to render it close, and fitted with a screwed gland, through which the piston-rod is caused to work tightly to prevent leakage. The gland may be covered with an ornamental cover or cap, if desired, which will hold and retain any drops of oil or oil and lard that may escape. The end of the piston-rod is fitted with a fixing plate, whereby the apparatus can be attached to the jamb of the door, or the top panel thereof, or in any other position that may be required, by means of screws, nails, or other equivalent fastening. This said fixing plate is also furnished with a regulating screw, actuated by a nut, and secured by a clamping-nut, whereby the length of the piston-rod may be adjusted to the length of the before-mentioned barrel.

CONSTRUCTION OF SUBMARINE WORKS.—*B. B. Stoner*. Dated 16th August, 1864.—The patentee proposes to construct sea walls, piers, quays, breakwaters, and similar works, of large blocks of masonry, brickwork, concrete, or other materials, which are first built in a convenient site, and then removed and deposited in their proper places in the construction or work in hand. As these blocks are intended to exceed greatly in their dimensions those which have hitherto been employed, it is requisite that specially powerful appliances be used in their transportation and manipulation. For this purpose it is proposed to use peculiar floating barges, consisting of a water-tight barge, having tanks or compartments, for holding the water to be emptied or filled, as occasion may require, in any well-known way. On the barge are fitted two pairs of shear legs and back stays, the one pair projecting over one end of the barge and the other pair at the opposite end. A crab, winch, hydraulic cylinder, or other similar contrivance, is placed on the barge, and from this a chain passes up to the top of each pair of shear legs. The block of masonry, or other load to be transported, is suspended by this chain from one pair of shears, a counterweight being suspended from the chain at the other pair of shears. In using these floating shears the barge is brought alongside the wharf or place where the blocks have been built, and the proper end of the chain is attached to a block. The rising tide, or power applied to the crab winch, will raise the block; and in order to prevent it from capsizing the barge, a tank or compartment at the other end is charged with water, while water is discharged from a tank or compartment at the end next the block. In this state the barge and block are conveyed to their destination, and the block lowered to its place. Water is then allowed to

escape from the tank or compartment remote from the block or load, and to enter that next to it, in order to restore the balance. The counterweight on the chain will assist in working back the crab, and so draw up the end of the chain again and prevent slack.

Miscellaneous.

CORDEN MEMORIAL.—A statue of the late Mr. Cobden is to be erected in Manchester. A considerable sum has been already subscribed for the purpose.

THE MARKET COMPETITION, SMITHFIELD.—One of the competitors asks anxiously what the Corporation of London have done in this matter after four months' consideration. Perhaps the City Architect will kindly enable us to reply.

PARIS INTERNATIONAL EXHIBITION BUILDING.—We hear good things of the design that is determined on for the Exhibition Building of 1867, and which is to be erected in the Champ de Mars. May the doings of Peace ever thus supplant those of War. The centre of the building is occupied with a garden, round which radiate the courts.

ROYAL ITALIAN OPERA.—Since Madame Viardot Garcia there has been no *Fides*, in the "Prophète," anything like so good as Mlle. Philippine de Edelsberg, from Munich. Acting as well as singing is needed for the part, and in both respects the new lady is very satisfactory. Mario, spite of an occasional betrayal, is still supreme as *Jean de Leyden*; and the opera throughout is given in a style which few of us are likely to see surpassed.

DETACHMENT OF NATURAL SCENERY.—The *New York Times* says the Legislature has passed a Bill declaring it a misdemeanour, punishable by fine or imprisonment, or both, to deface scenery, fences, monuments, or buildings, with advertisements of patent nostrums, such as for years have marred the natural beauties on the routes of travel by railroad and river throughout the State, and grossly offended the good taste of tourists and wayfarers.

SHELLS IN FLOORS.—One of our readers, who is always ready with an illustration or parallel, with reference to the observation at p. 258, ante, "a floor at Saville House filled in with cockle-shells for pugging," says,—"In the Transactions of the Royal Institute of British Architects, February 20, 1854, p. 65, 'French Floors,' it is noted:—'Mr. Inman (chairman) mentioned that a layer of cockle-shells, about 2 in. in thickness, was introduced into the floors at Hampton Court Palace, for the purpose of deadening sound.'" (Sir C. Wren's work?).

SUGGESTIONS.—Sir: Might it not be advantageous to suggest the removal of the diminutive dome from the roof of the river front of Somerset House, and also to suggest that by a small outlay the quadrangle might be put in order, and possibly the fountain made to act. Is the Armoury of the Tower not worthy of your notice? The rooms over the White Chapel have been very tastefully arranged, and there is now free access to the chapel.—W. H.

. The Armoury has often had our attention.

ST. PATRICK'S CATHEDRAL, DUBLIN.—The south window of St. Patrick's (restored) Cathedral, Dublin, consists of three lights, filled with designs representing the Fall, the Redemption, and the Promises. There are also in the west window three lights, and in these are represented the Early Life, the Mission, the Preaching, and the Episcopacy of St. Patrick. Both windows are by Mr. Wailes, of Newcastle-on-Tyne.

SERIOUS ACCIDENT IN THE SEVEN SISTERS ROAD.—The tunnelling for the new sewer under the Seven Sisters-road, Holloway, had been safely completed, as well as a portion in Black Stock-lane, and on Saturday the men were engaged, under the contractor for the work, Mr. W. H. Rowe, of Gloucester-place, in completing the brickwork and tunnelling at Strand-green-lane, at the junction with the Seven Sisters-road; and two of them, who were at the bottom, were putting things straight, ready to commence work on Monday morning, when a large portion of the heading gave way, and, falling upon them, entirely buried and killed one of them. The other was fortunate enough to escape, but received injuries from the earth falling upon him. The cause of the falling in of the heading is as yet unexplained.

THE DOE PARK RESERVOIR.—The magistrates have granted a certificate of the satisfactory completion of this reservoir.

SEWERAGE OF WORKINGTON.—The contractor for sewerage the town of Workington has broken ground. The work will be vigorously pushed forward, so as to be completed in ten months.

BELLS.—A complete peal of six new bells has been hung in the belfry of Gainford old church, which has recently been undergoing restoration. The bells were cast by Messrs. Taylor & Co., of Loughborough.

BUILDING PROGRESS AT NORTH SHIELDS.—It is stated that the Lawson Estate, which contains some of the best building sites in the west end of North Shields, has been purchased by Mr. G. O. Trevelyan, the amount of purchase-money being above 60,000l.

CHURCHES FROM A MOULD.—Sir: A new Congregational Church has been opened at Crediton, in Devonshire, having been erected from a model plan, for which the English Congregational Chapel Building Society awarded a premium a few years ago. This is the fifth place of worship that has been built from this design.

CAST WORK.

MODEL OF SEBASTOPOL.—A large plan, in relief, of Sebastopol, is now being arranged in the gallery of the Hôtel des Invalides, in Paris, where those of the fortified towns of France are placed. The plan in question is executed in plaster, in twenty parts, and, when put together, will measure more than 10 ft. in length, and more than 7 ft. in width. It is on the scale of one in 2,000.

THE POLYTECHNIC INSTITUTION.—The illustrations of Captain Burton's pilgrimage to Mecca and to Medinah (where Mahomet is buried), with the accompanying descriptive comments by Professor Pepper, in his pleasant manner, are very interesting. A new illusion; a cabinet seemingly empty, out of which comes a live man not before seen, and that affords a hiding-place to others who enter, is one of the additional amusements provided for Easter. The latter is very cleverly managed, and creates speculation.

GALLERY OF ILLUSTRATION.—"A Peculiar Family," written by Mr. W. Brough, is a peculiarly good thing of its kind, and just suits the peculiarity of this successful and always entertaining establishment, Mr. and Mrs. German Reed and Mr. John Parry. They are now in full run, and likely, we should think, to continue so. The *Opera di Camera* entertainment, on the morning of Tuesday and of Thursday, and the evening of Saturday, still consists of Macfarren's "Soldier's Legacy," and Mr. Reed's "Too Many Cooks;" the withdrawal, however, of these is threatened.

"THE AURORA OF ITALY."—Under this title Signor Raffaello Ceccoli, one-while Professor in the Academy of Athens, has painted a picture to indicate the rising hopes of the Italians. A female figure quite young floats upwards: the gauzy drapery that does not conceal her, tinted prismatically, suggests the national colours. At the foot of the canvass the sun rises over St. Peter's in one corner, and the top of the Column of St. Mark in Venice is seen at the other. The type of the figure is English, fresh and bright: "but for England," says the painter, "Garibaldi would have never done it." The darkness of the sky above suggests the heavy gloom from which Italy is now emerging full of hope. Some other canvasses in Sig. Ceccoli's studio correctly convey the costumes of Greece, and give bright ideas of its sun-shiny climate.

EMBELLISHMENT OF TOWNS.—M. Warein, formerly *maire* of the town of Hazebrouck, who died a short time since, has left his property to be applied to the improvement of the place, of which he was long the chief magistrate, on conditions which (presuming he had no relations), deserve to be noted for the spirit which dictated them. In his will he expresses his belief that premiums offered to those who erect buildings with worthy frontages on the main streets, and the grand *Place* of the town, may aid the work, and directs that during the next ten years at least that system be tried. A few thousand francs a year spent in premiums, he thought, would cause four or five times the amount to be expended in embellishments than would have been without such a spur, and the working classes each year benefited by so much additional work to be executed.

PHOTOGRAPHS.—M. Naudin, who is active in selecting subjects with public interest, has published en *groupes, carte de visite* size, the plucky Oxford boat crew, that gave another victory the other day to their university. The heads of the whole nine come out remarkably well.

PROFITABLE INDUSTRY IN WINCHESTER GAOL.—The last report of the visiting justices of Hampshire states that the receipts in cash for industrial labour during the first quarter of the present year amount to 406*l.*, against 47*l.* in the corresponding quarter of last year, the receipts for the last three quarters having together amounted to 717*l.*, against 84*l.* for the three corresponding quarters of the previous year.

THE MARKLAND MEMORIAL.—As it is proposed to place in the Abbey Church of Bath a Memorial Window to the late Mr. J. H. Markland, D.C.L., F.R.S., it has been suggested that it would be a graceful act on the part of those architects and others who are especially interested in Church Architecture to raise among themselves a special contribution towards honouring one who was among the most zealous pioneers in a revival of a true feeling for the subject. The subscriptions are not to exceed one guinea, and will be received in London by Mr. G. G. Scott, 20, Spring-gardens, S.W., and Mr. Joseph Clarke, 13, Stratford-place, W.

DISCOVERY IN WINDERMERE PARISH CHURCH.—A curious discovery has recently been made in this church. The plaster having come away over one of the arches, a band of red and black was revealed. On the removal of more of the thick layers of whitewash an inscription in Old English characters was found. Further search was instituted, and similar inscriptions have been discovered on all the walls between the arches in the nave. It is conjectured that these inscriptions were placed in the church at the time of the Reformation. We give one or two specimens:—"Is the breade and wine turned into ye boddie and bloode of Christe? No; for if ye turne or take away the signe that may be sene, it is no sacrament."—"In going to yetable of the Love what ought a man to consider or doe principallie? To examine him selfe."

BRIGHTON.—At a recent meeting of the town council the surveyor presented, through the works committee, his certificate of the completion, by Messrs. Aird & Son, of their contract for the construction of the central outfall sewer. The cost of the Outfall has been—amount, as per contract, 6,818*l.*; extra work in overflow-chambers, staging, ventilating, drains, &c., 96*l.* 3*s.*; extra work in reconstruction and enlargement of the northern sewer, from the Outfall past the Albion Hotel (part of it having fallen in September, 1863), 595*l.* 13*s.* 8*d.*; making a total of 7,509*l.* 15*s.* 8*d.*—The works committee, at same meeting, reported the receipt of tenders from sixteen different firms, for providing and fixing an iron fence on the Marine Parade Esplanade, from the western entrance to the Chain Pier to the wall opposite the west side of Lewes-crescent. The tenders ranged from 1,470*l.* down to 785*l.*: the last tender, which was from Messrs. Reed, of Brighton, was accepted, as were also their surties.—The newly-erected Hobden's Royal Baths and Swimming Bath, in the King's-road, have been formally opened. The architect was Mr. James Woodman.

MANCHESTER ARCHITECTURAL ASSOCIATION.—An ordinary meeting of this Association was held on Tuesday evening, April 4th, the president, Mr. Lawrence Booth, in the chair. Mr. James Redford, architect, of St. Peter's-square, was, on ballot, elected a member of the Association. A paper was read by Mr. H. Fisher on "Strikes in the Building Trades." An interesting discussion ensued, and the feeling of the meeting seemed to be, that the profession as a body could do little or nothing in the matter, but that a more advanced state of education was necessary in the working classes, and a greater regard for skilled labour on the part of the employers, before a satisfactory understanding could be come to on this vexed question, and before a sacred regard for each other's rights could be established between employer and employed. After the discussion, Mr. Ratray exhibited and explained, by means of a model, his "patent waterproof inside casement," which is now being used in the neighbourhood of Manchester. The hon. secretary intimated that at the following meeting a paper would be read by Mr. R. W. Aitkin, entitled "Application of Building Materials to Wall Decorations."

SUBURBAN MUSEUMS.—The Committee of Council on Education, with the view of promoting the establishment, in the north, east, and south of London, of museums of science and art, intend to invite a meeting, early in May, of gentlemen who have interested themselves in this proposal, to consider the best means of establishing two or three such museums. We shall hope to find the meeting result in immediate action. Influential inhabitants of the quarters named, willing to interest themselves in such a movement, should make their willingness known to the secretary of the Department.

CITY CHURCHES.—St. Dionis, Fenchurch-street, is in course of restoration. The *Musical Standard* says,—"The fine organ screen is to be cleaned, but nothing is to be done to the instrument itself, which remains in pretty much its original condition, except that some of the stops are in disuse. If judiciously modernised, it might be made a very fine organ (judiciously, however). Another church, St. Catherine Cree, Leadenhall-street, one of the most ancient and interesting in the City, and a perfect victim to 'compo,' has been externally improved, the stonework scraped and cleaned. Nothing is being done for the interior, nor is the organ to be altered in any way. Seeing the rage for 'muddle and muddle' restorations, from which old organs suffer often to the total loss of their former quality of tone, we cannot say we particularly regret it."

CATHEDRAL RESTORATIONS.—Nothing can be more certain, says the *Worcester Herald*, than that the citizens generally would view with extreme regret the replacement of any portion of the cathedral organ into its late site, where it formed so notable an obstruction; also that, next to the great south transept, the projection of the organ against the arches on the north side of the choir, so as not to interfere with the view east and west, would be the second best scheme that has yet been propounded. The matter is shortly to be decided. The contract for the repair of the southern side of the nave of the cathedral has been undertaken by Messrs. Wood & Son, of this city, the price being about 1,800*l.*, and the work will be at once proceeded with. The dean and chapter of Hereford Cathedral have just sanctioned a scheme for restoring the peal of bells (said to be a good one) as soon as Mr. Scott gives his approval. The organ at Hereford, which is placed on the south side of the choir, is said to be a success, although not thought so at first.

A CHURCH AND SCHOOLS SUPPLANTED BY A RAILWAY STATION.—By the Bill of the Metropolitan Railway Company, which has passed the committee of the House of Commons, the company are authorised to take possession of and pull down the church and parish schools of St. Peter, Saffron-hill, situated on the west side of Farringdon-road, opposite the railway station, for the purpose of occupying the site for their railway and other works sanctioned by the Act. They are to pay to the Ecclesiastical Commissioners the sum of 17,000*l.* for the purchase of the church and schools, including the church fittings, except the east window. They are also to provide an iron church or other building for a temporary substitute for the church, and also a temporary building for the parish schools, until a new church and school buildings shall have been completed. Within two years of the time of taking possession of the church and schools the company are to provide a suitable portion of land equal in superficial area to that of the present site of the church and schools for the erection thereon of a new church and schools. "If churches and schools can be so dealt with, could not something be done, in like manner, to insure the replacement of working-class dwellings when destroyed?"

SANITARY IMPROVEMENTS IN LEEDS.—A correspondent, W. S., on this subject says, *inter alia*:—"We have lately established a sanitary association in Leeds, and propose to build lodgings and tenements in flats, at rents from 1*s.* to 3*s.* per week, so as to offer an asylum for the livers in cellar dwellings, when they are closed, which we hope will be soon. The Society for the Improvement of the Dwellings of the Working Classes in Leeds is just completing a block of eighteen houses, and laying out eighteen more. It is astonishing how the remarks in "Another Blow for Life" apply almost *verbatim* to the same features in the provincial towns. The writer might have been describing the condition of Leeds in many parts of the book."

CHURCH OF BRADFORD ON AVON.—At the last meeting of the British Archaeological Association, a paper by Mr. Pettigrew was read, "On Roman Materials found in the Church of Bradford-on-Avon." From various particulars the sculptured sepulchral figure found therein was determined to be that of Agnes, relict of Reginald de Aulá, a great benefactor to Bradford in the thirteenth century. The paper gave rise to considerable discussion, in which Mr. Gordon Hills pointed out the similarity of the interlaced work in the church to what he had met with in Ireland, and of which he produced drawings.

AN ORNAMENTAL EX-CEMETERY.—The formal ceremony of opening the ornamental grounds in Stepney Churchyard has taken place in the presence of a large number of persons, accompanied by the ringing of the large peal of ten bells in the ancient tower of the parish church, and occasional firing. The south-west portion of the cemetery contains only a few gravestones, wide apart, and they did not interfere with the construction of an ornamental garden and promenade, by Mr. Preston, who laid out the walks and shrubberies in the Victoria Park.

THE FORTHCOMING INTERNATIONAL EXHIBITION AT OPORTO.—The Chambers of Commerce have received from the Committee of Council on Education a document containing the programme and regulations of the forthcoming Portuguese International Exhibition, to be opened at Oporto on the 21st of August. The programme states that the articles exhibited will be classified under one of the four following divisions:—Raw materials and their immediate transformations; machinery, manufactures; and fine arts; and these divisions will be further divided into forty-five classes. Articles must be delivered at the exhibition building at the owners' cost and risk; and the reception of goods and articles will commence on the 15th of May and continue till the 31st of July.

HARTLEPOOL ROLLING-MILL.—At the extensive new works erected for the Hartlepool Rolling-mill Company on the Hart Warren, by Messrs. Head, Ashby, & Company, of South Stockton, the rolling of the first plate has just taken place. Up to the present time, only a portion of the works have been got into operation. Sixteen puddling furnaces have been at work, a monster steam-hammer, and the apparatus requisite for the rolling and shearing or cutting of puddled bars. For cutting the plates there are two powerful shears. One of these for cutting finished plates, is capable, at a single stroke, of making a clean cut 6 ft. in length through cold iron plates, which about as little apparent effort as a lady would take to snip a piece of embroidery.

ANOTHER NEW PROCESS OF ENGRAVING.—A layer of finely pulverized chalk is compressed and smoothed by hydraulic power on a metal plate. The artist draws on this with an ink which makes the lines hard. A soft brush or a piece of velvet rubbed over the plate leaves the inky portion in relief. The whole plate is then saturated with a chemical solution, which turns the chalk into stone, somewhat analogous to Ransome's principle seemingly. From this impressions may be taken, or stereotypes or electrotypes obtained. The cost of these "graphotypes" is said to be something like one-tenth the cost of wood-blocks, to which, however, whether this process be likely to come to anything practical, or whether it is to follow so many others into oblivion, we cannot yet say: surely something useful will come of all these inventions at last.

IMPROVED TRAVELLING CRANE.—Mr. T. B. Burnett, of Mount Vernon, New York, has invented an improved travelling crane, very simple in construction, and of great value, from the facility with which goods can be removed by it from one place to another, without dropping or depositing the load. The gearing by which the weights are raised is similar to that on ordinary cranes, and the hoisting chain is led up over a boom, which is jointed at the bottom, so that it can be raised or lowered. The rigging is composed of heavy iron bars, and there is a counter-balance box behind the crane. When the crane has been loaded, and is ready to be transferred from the point where it is at work, the labourers apply themselves to handles which act on gearing below the platform on the front axle. By means of a small pinion meshing into this gear, they are enabled to remove any weight that can be raised by the crane to any point on the track.

NEWCASTLE.—It is proposed to erect a building here for a fat cattle and poultry show. A suitable building might be erected, it is said, for 5,000l. If the Corporation would erect the building, the interest upon the sum would be paid them by those interested.—A rate of not exceeding 3d. in the pound has been agreed to by the town council towards the cost of erecting a lunatic asylum for the town.

EASTER SEPULCHRE, ARNOLD CHURCH, NEAR NOTTINGHAM.—There is an interesting fourteenth century Easter Sepulchre in Arnold Church, at present in a bad condition. At the west side of the sepulchre is the founder's tomb, and above it is a window; the glass in the window being broken, the ivy has grown through, and now hangs down in the form of a festoon and renders the appearance most picturesque. The church is dedicated to St. Mary, and is just about to be restored under the joint superintendence of Mr. Henry Currey, of London, and Mr. S. Dutton Walker, of Nottingham.

SANDRINGHAM.—The improvements at the Prince of Wales's estate in Norfolk have progressed considerably of late. To afford assistance at any future fires, the prince has purchased a unique fire-engine, "The Sandringham," and a fire brigade for the neighbourhood is to be organised. The royal gardens approach completion. They cover an area of about 15 acres. Eight acres of the garden are inclosed by brick walls varying in height from 14 ft. to 18 ft. On the south side of the north wall are four vine-tries, each 50 ft. long. The new stables have been completed, but a further extension may be necessary. The existing stables will accommodate about forty horses. Over the stables are dormitories for the grooms and stablemen. The wants of the labourers are studiously considered, and hence the erection of more new cottages of a superior character. When these are completed, there will be ten new labourers' cottages, besides five or six keepers' houses. His royal highness has given directions for the fine old ruins of Appleton Church to be partially restored, and carefully preserved.

THE NEW BRIDGE AT EARTH.—There has been a general holiday at Earth, to inaugurate the re-opening of the suspension bridge, which has been rebuilt by Messrs. Garforth, of Ashted-under-Lyne, from the designs of Mr. W. H. Barlow, O.E. The old bridge, from its great span and slight construction, oscillated under heavy loads, and produced a moving wave in the floor that made it unpleasant to drive over; and after being frequently broken, it became positively unsafe, and a joint committee of Isle of Ely and Huntingdonshire justices was appointed to take the necessary steps for strengthening or rebuilding the bridge as they might be advised. Some three years ago Mr. R. B. Rowe, O.E., surveyor-general of Isle of Ely bridges, reported the bridge to be unsafe, and this was confirmed by Mr. Barlow, under whose advice the bridge was taken down, and the chains were connected with strong arched girders, strengthened by diagonal and suspension rods. From the chains and girders the floor is suspended, and made to rest upon new wrought-iron beams. To test the new bridge, Mr. Fairley's great fifteen-ton traction engine was propelled by its own steam power several times along it, both slowly and at high speed. The bridge, it is reported, scarcely sank a quarter of an inch, and sprang up to its former level as the ponderous machine reached the shore.

TELEGRAPHIC PROGRESS.—The *Great Eastern* will sail from Valencia (Ireland) about the 1st of July. There were 1,662 nautical miles of the Atlantic cable completed on the 21st of March, and the whole 2,300 miles will be made and on board the *Great Eastern* in May. The Admiralty have agreed to order two powerful steamers of the Royal Navy to accompany the *Great Eastern* from Ireland to Newfoundland, and also to afford assistance at Newfoundland. It is confidently expected that Europe and America will again be in telegraphic communication before the 20th of July.—Messages have been sent direct from New York to San Francisco, a distance of nearly 4,000 miles.—At the third half-yearly meeting of the Universal Private Telegraph Company, a dividend of 6 per cent. per annum for the half-year was declared, 1,000l. being also put aside towards a reserve fund, leaving a balance of about 900l. to be carried to the current half-year. The success and prospects of the company were said to afford ground for congratulation.

NEW LIGHTHOUSE AT BUDDONNESS.—The Seamen's Fraternity, says a Dundee paper, have resolved to accept the offer of Mr. William Anderson, Dundee, to erect two new lighthouses at the Buddonness, which are to replace those at present on that site. The highest tower will be of the height of 96½ ft., while the seaward tower will be about 60 ft. or 70 ft. in height. The foundation is to consist of five courses of immense stone blocks; and the mason and brick work of the walls will be nearly 5½ ft. thick all round. The lighting apparatus will be of the most approved kind; and it is expected that they will reflect the lights fifteen miles seaward.

LIABILITY FOR FOULING A STREAM.—A district Board of Works, acting under the provisions of the Metropolitan Local Management Act, in the execution of sewerage works in their own district, fouled a stream passing through their district, and thereby polluted the water of such stream beyond their district, and created a nuisance upon lands lying without their district. The question was, whether an action at law could be maintained in respect of the injury; or whether the remedy was for compensation under the Act. The Court of Exchequer Chamber (reversing the decision of the Queen's Bench) held, in the case of *Cator v. The Lewisham Board of Works*, that an action would lie.

NEW FUEL.—A new form of fuel, composed of peat and coke, has been patented by Mr. William Smith, of Dublin. The compound is intended to be used in the smelting of iron, and it is thought that its employment will result in the production of iron equal in value to that now manufactured in Sweden. The preparation is as follows: The coke (or charcoal) is reduced to powder and mixed with wet peat. The mixture is then passed through moulds, and the blocks thus formed are submitted to pressure and dried. The inventor states that peat charcoal thus prepared will stand the blast and burden of a blast furnace, and may be used with as much advantage as perfectly pure charcoal.

LECTURE ON PAINTED GREEK VASES.—The Rev. Professor Churchill Babington recently delivered a lecture to the Cambridge School of Art, at the Town-hall, on the subject of Greek painted vases. Mr. Babington opened his lecture by remarking on the antiquity and importance of the potter's art, referring to the sculptures of Beni-Hassan, in Middle Egypt (about 2000 B.C.), where the process of making earthenware was represented. He then quoted Homer, to prove the very early existence of pottery among the Greeks, and Alesand (B.C. 600) and Findar (B.C. 460), as the earliest authors who mention painted vases. The lecturer proceeded to give an account of the rude vases of the heroic age, and exhibited a specimen, which might be 800 or 900 years B.C., and then enumerated the four styles commonly called Phœnician, Egeetan, Etruscan, and Apulian, but which he preferred to designate the Brown figure, Black figure, Red figure, and Polychrome figure styles, specimens of each of which were exhibited. He enlarged most on the splendid vases of the second and third periods, especially condemning the epithet Etruscan as applied to the latter, and contending that they were of Athenian manufacture. The compositions on these vases, he thought, were taken from the great painters, as Polygnotus and Apelles; and he instanced the compositions of Ruffelle, Marc Antonio, and Parmegiano, which occur on the Italian porcelain of the middle of the sixteenth century. In conclusion, he drew attention to the extraordinary beauty of the forms of Greek vases.

TENDERS

For additional buildings, at the Steam Brewery, Commercial-road, Guildford, for Messrs. Taunton. Mr. Henry Peak, architect:—

Nye	6,108 10 0
Lee	1,797 0 0
Folland (accepted)	1,660 0 0

For building manufactory, City-road, for Messrs. Rider & Sons. Mr. H. J. Hammond, architect:—

Smith	£1,879 0 0
Bishop	1,795 0 0
Hill & Son	1,724 0 0
Saunders	1,680 0 0
Brown & Robinson	1,678 0 0
Easton & Chapman	1,493 0 0

For rebuilding the Old Barge, Frimley, for Messrs. Taunton (the contractor to take to old materials). Mr. Henry Peak, architect:—

Martin (accepted)	£400 0 0
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For building manufactory, at Lampeter-street, Hoxton, for Mr. R. Johnson. Mr. C. A. Long, architect:—

Hobbs	£2,400 0 0
Hardiman & Sandon	2,140 0 0
Lemon	2,050 0 0
Turner	1,901 0 0
Perry	1,821 0 0
Easton & Chapman	1,577 0 0

For alterations and additions to Sandhurst Church, Berks. Mr. H. Woodman, architect:—

Jenkins	£1,198 0 0
Lawrence	1,190 0 0
Sawyer	1,065 0 0
Revell & Sons	1,079 0 0
Pither	810 0 0

For the completion of a villa, at New Malden, Surrey. Mr. George Welch, architect:—

Maeers	£158 5 0
Parker	458 0 0
Jones (total)	422 7 0
Foster	294 10 0

For warehouse, Shadwell, for Messrs. S. E. Norris & Co. Messrs. Hammack & Lambert, architect:—

Hill & Sons	£2,343 0 0
Hedges	3,230 0 0
Wood	3,220 0 0
Emor	3,169 0 0
Earle	3,143 0 0
Perry & Judson	3,109 0 0
Masers	3,097 0 0
Newman & Mann	3,075 0 0

For alterations and additions to asylum at Camberwell, for Messrs. Paul & Richards. Messrs. Tress & Chambers, architects. Quantities supplied by Mr. G. F. Raggett:—

Warne	£5,600 0 0
Smith	4,997 0 0
Gadsby	4,987 0 0
Newman & Mann	4,889 0 0
Kilby & Co.	4,887 0 0
Johnson	1,715 0 0
Macey	1,147 0 0
Thompson	4,460 0 0
Miles	4,143 0 0
Stone & Pierce	4,133 0 0
Stevenson	4,050 0 0
Dover (accepted)	3,839 0 0

For alterations first floor, No. 72, Cornhill, for the Australian Mortgage Land and Finance Company. Messrs. Wimble & Taylor, architects:—

Morter	£421 0 0
Adams & Sons	323 0 0
Kilby	307 0 0
Colls	294 0 0

For the first part of the Methodist Free Church, Paradise-road, Clapham. Mr. Frederick Boreham, architect:—

Sawyer	£966 0 0
Pain	830 0 0
Richards (accepted)	669 0 0

For double cottages, Dartford. Messrs. Habershon & Pite, architects. Quantities not supplied:—

Ramsay	£246 0 0
Wallis	212 0 0
Bloomfield	212 0 0
Richards	606 0 0
Gimbell	605 0 0

For public-house, Balham-hill, Mr. Gwilt, architect. Quantities supplied:—

Pain	£2,935 0 0
Stone & Pierce	2,750 0 0
Percey	2,720 0 0
Garland & Co.	2,644 0 0
George	2,609 0 0
Ramsay	1,651 0 0
Warren	2,145 0 0
Wallis	1,757 10 0

Accepted from Beaver & Son, for new hotel, College-green, Bristol. Mr. W. H. Hantlin, architect. The works have been commenced.

For vestry offices, Plumstead. Mr. H. A. Fisher, architect:—

Ramsay	£1,113 3 0
Mills	1,075 0 0
Loneragan	835 0 0
Kirk (accepted)	894 0 0

For additions and alterations to No. 15, Finabury-place North. Mr. Joseph James, architect. Quantities not supplied:—

Woodward	£280 0 0
Turner & Sons	367 0 0

For Wesleyan Chapel, Poplar:—

Johnson	£6,113 0 0
Tully	5,800 0 0
Kilby	5,590 0 0
Simms & Marten	5,384 0 0
Palmer	5,145 0 0
Ring & Wainman	5,129 0 0

For building residence, at Hertford, Herts, for Mr. G. A. Towers, M.D. Mr. W. Wilds, architect. Quantities furnished:—

Green	£294 0 0
Andrews	893 0 0
Ginn	965 0 0
Rayment	854 0 0
Norris	846 0 0
Ekins & Sons	948 0 0

For repairs, painting, &c., at the Saracen's Head Hotel, Ware, Herts, for the trustees of the Ware Charity Estates. Mr. W. Wilds, architect:—

Ekins & Sons	£468 0 0
Green	464 14 8
Butt	440 0 0
Hitch & Son	480 17 8

The Builder.

VOL. XXIII.—No. 1160.

The Sewage: How shall we Dispose of it?



THE question of the disposal of the sewage of London is now brought into the position of having to be decided by Parliament in the present session, or of being held longer in suspense. There is sufficient reason to believe that the works as at present, by which a continuous flow in the sewers is substituted for an intermittent one, and for the consequent deposit and stagnation, will be attended with advantage, and that this may be increased by the completion of the Thames Embankment, even not estimating the sewer which it will contain; but the greater the attention given to the subject, the more does opinion tend towards the conclusion that sewage will return with the

tide. Of late years, from different causes, the chief of which is the abstraction of the river-water by the water-companies, the sea-water has been ascending higher than before: it has been found at Wandsworth; and even sea-weed has been noticed at London Bridge: hence it may be inferred that sewage would be returned also, diluted, and possibly, or to some extent, otherwise,—recollecting that it is lighter than sea-water. The belief that the sewage will return as far as Chelsea, is known to prevail even with some of those who concurred in the adoption of the system which Mr. Bazalgette has been engaged in carrying into effect. The grand question, which is that in all sewerage,—outfall, has been only put aside: what to do with sewage, as we lately said, might logically have been esteemed first of the points for solution; and the course of flow to outfall, or outfalls, might have been regarded as coming next under consideration. So great however had been the neglect, and so pressing became the need for “something to be done,” that the strictly logical course had to be departed from in the case of London, as it has been in that of towns where some of the circumstances were less difficult.

The Metropolitan Board of Works having been from the first aware that more had to be accomplished than in passing the sewage into the river, and having procured through advertisement certain tenders or propositions, have lately been supporting the scheme which is embodied in the Metropolitan Sewage and Essex Reclamation Bill, promoted by Messrs. Hope & Napier, since that appeared to them the only definite tender they had received. We have very recently given some particulars of the project; but points involved in the adoption so far, of it, are too important to be left unnoticed. More than the one grand question which we are here alluding to, of the sewerage of London, has yet to be solved practically; there is that of the purification of the river from the sewage of fifty-six towns which are in the Thames basin above the chief in-take of the Metropolitan water-supply, and from that of the populous districts (parts of London, almost), which lie between

Hampden and Hammersmith, including Kingston, Richmond, and Kew; and there cannot but be something to be enunciated in the way of general principle to be held applicable to the towns in the centre of England which are located on the banks of very small streams, or to enable us to clearly mark wherein may be the distinction between them and the metropolis.

If the right scheme for London involve the formation of an independent sewer-channel to the sea, should the conclusion point to adoption of a similar system for Birmingham? If on the other hand, for a small town, the principle of outfall by sewage-irrigation be the correct one, is London, from its vastness, to be considered exceptional? The two ways of regarding the case of this metropolis have had their supporters; and neither side has succeeded in placing the subject in a satisfactory position. The view which is embodied in the promised concession to the promoters of the Bill now before Parliament, is taken on the ground that there would not be a demand for the sewage at all times and seasons, or without involving that extensive storage which would be practically impossible, and that consequently there must be no letting go of the main stay, an outfall as at present, to waste, or on to ground to be reclaimed, similar to the Craigintry meadows, which have been formed from sand, by irrigation with the sewage of Edinburgh. With this view is conjoined that to the effect that cost of distributing-pipes, hydrants, and hose and jet, with the labour, requisite to apply the sewage to all descriptions of ground, would not be reimbursed, and that the only economic mode of distribution must be that by simple gravitation, from open “carriers” or gutters. Some pumping, up to the main head, would be involved in any case, excepting such as that of a town on an elevation above a sufficient extent of declivity; but in the line of sewer projected by Mr. Hemans, one of the engineers for Messrs. Hope & Napier, there are lifts, which are essential to getting the requisite fall, like the similar provisions in the lines of the Low-level Sewerage within the metropolis. The other view attaches greater importance to the probable demand for sewage, seeing that in comparatively small dressings it is applicable to all kinds of soils and crops, in all situations, without nuisance, and that the only condition of success would be that a sufficient area should be under command; as to which it is deemed there should be no question, if really the soil is impoverished by withdrawing certain constituents, and not returning them as manure,—a practice said to have been going on in this country in a manner leading to the ultimate extinction of the productive power, instead of to a fertility such as would render unnecessary any supplies from foreign countries.

It must be observed that facts and opinions are unfavourable to the prospect of a sufficient demand by landowners and farmers, in the case of London. At Alnwick, the late Duke of Northumberland went to the expense of works; and the farmers were to pay the cost of pumping; but, after two or three years, the farmers discontinued paying; and the sewage is now wasted. The land is the proper place of deposit for sewage,—but in the view of the disinfection of the sewage, rather than in that of the economic production of all kinds of crops: without going to the question of dilution, it may be noted that the recent letters of Baron Liebig to the Lord Mayor, on which chiefly have been based the proceedings of the city of London, themselves admit that the proportion of one requisite of manure, phosphoric acid, in sewage, is small, comparatively speaking, and say that the deficiency ought to be made up, as by addition of bones or superphosphate,—for that, after some time, sewage alone will not produce good effects. That which will absorb the greatest amount of sewage, and the soil that will produce the best

crop of a particular kind, are by no means necessarily the same. Baron Liebig explains the fertility of the irrigated sands near Edinburgh, by supposing that they contain a proportion of clay or loam, saying that the view that sewage contains “the nutritive elements,” and that the sand will be “the medium through which plants receive them” is “perfectly erroneous;” and that an acre of mere sand, with the largest dressing of sewage, “would not produce a single hundredweight of hay.”* It seems to us, however, that though this would be the condition of things on the first application of sewage, supposing the areas marked out by the Essex Reclamation Scheme were pure sand, it would be always correcting itself, merely by the silt that would be brought down with sewage. It appears plain from the Edinburgh experience, that a very small amount of loam or soil present with the sand, permits of very great fertility of a particular kind of produce, whilst that the sand will retain continuously its power of absorbing in the largest volume the sewage,—the disinfection of the latter being produced by the flow over the land, and through the roots of the grass. An arrangement for the outfall of the London sewage, in conjunction with the reclamation of the foreshore of Foulness Island, and adjacent areas, north of the mouth of the Thames, and called the Foulness and Maplin Sands, and the Dengy Flats, therefore appears to be fairly entitled to consideration; but we hope it will not be decided upon, or in any manner which may be considered as the settlement of principles, without attention to all that has appeared in evidence.

The printed matter pertinent to the general subject of the Distribution of the Sewage of Towns, and to the metropolitan question, has during the last fortnight received the important addition of the Third Report of the Royal Commission.† The Committee on the Bill before Parliament had previously concluded their proceedings; and the report and evidence are before us.‡ We will look at the Report of the Commission, first.

The Report proper, or that to which are appended the names of the five surviving commissioners, the Earl of Essex, Mr. Rawlinson, Professor Way, and Messrs. Lawes and Simon, does not extend to more than a page and a half of the volume, but embodies conclusions of great importance, based as they are fairly upon experiments of which the results are afterwards given, in great detail, in the form of a document which is entitled “Second Report of Experiments on the Application of Town Sewage to Grass Land, conducted at Rugby, by order of the Royal Sewage Commission,” and partly upon notes of experience and observation which appear in appendices of the volume.

The Commission was originally appointed on the 5th of January, 1857. The second report bore date in August, 1861, and contained the results of experiments undertaken at Rugby in that year, by Mr. Lawes and Professor Way. These members of the Commission continued their experiments in the three years 1862-4; and the results appear in the report signed by them, of which we have quoted the title, and in forty-four tables of closely-printed figures. The experiments were not confined to the application

* “Letters on the Subject of the Utilization of the Metropolitan Sewage, addressed to the Lord Mayor of London, by Baron Liebig, President of the Royal Academy of Science at Munich. With the Reports of the Coal and Corn and Finance Committee of the Court of Common Council. Authorized Edition.” London: W. H. Collingridge, “City Press” Office. 8vo. pp. 44.

† “Sewage of Towns. Third Report, and Appendices, of the Commission appointed to inquire into the best Mode of Distributing the Sewage of Towns, and applying it to beneficial and profitable Uses. Presented to both Houses of Parliament by command of her Majesty.” London: printed by G. E. Eyre & W. Spottiswoode. 8vo. pp. 210 & 62. Map and 2 plans.

‡ “Special Report from the Select Committee on the Metropolitan Sewage and Essex Reclamation Bill; together with the Proceedings of the Committee, and the Minutes of Evidence. Ordered, by the House of Commons, to be printed, 30th March, 1865.”

of sewage in different quantities to land; but they extended to the consumption, by cattle, of the produce so obtained, and to the production of meat and milk; and they were accompanied by a careful record of the quantities and market-values of the products, and by numerous analyses of the sewage before and after irrigation, as also of the grass and of the milk. In the previous report, the conclusion had been arrived at, that to obtain the largest amount and value of produce at the least proportionate cost for distribution, dilute town-sewage should be applied to the growth of succulent crops, and that it was best adapted for grass. It was decided, therefore, to confine attention, at any rate in the first instance, to grass alone. The object being to provide a basis for the application of sewage most advantageously to both urban and rural interests, it was sought to determine,—

“1. The amount and the composition of the produce, in relation to the amount of water supplied to the land by irrigation, to the amount of manure constituents so applied, and to the amount of population contributing the manure constituents to the water.”

2. The manner in which the produce is raised; that is, whether it should be used in the green state or as hay; whether for the production of milk or meat; and whether it should be consumed alone or in conjunction with other food.”

We need not give particulars of the experiments here.

In a concluding section of their report, embodying general considerations on the agricultural utilization of town sewage, Messrs. Lawes and Way say:—

“There cannot be a doubt that to obtain a maximum amount and gross value of produce from a given amount of sewage, it should be applied in small quantities per acre, and in dry weather.”

But this maximum value, they observe, would be obtainable only for short periods of the year.

“Adopting the favourable supposition that as high an average as 220 tons of sewage per acre could be utilized on arable land, and that as low an average as 5,000 tons per acre were found sufficient for Italian rye and meadow grass, the important practical question arises,—would the increased productivity, had it ceased gross money return per ton, in the former case, justify the extra cost of distribution over a ten-fold area, and to a great extent by pipes and hose and jet instead of by open runs?—or, having regard, not to the greatest amount of produce and of gross money return, but to the greatest profit, per ton of sewage, would it not be far more remunerative to limit the area, and cost of distribution, at a certain sacrifice of the productiveness of the sewage?”

They add, that probably the difference of area required under the two systems would be greater than is here assumed by them.

The great dilution, the large daily supply at all seasons, and the greater amount during wet weather, when the land least requires more water, makes the metropolitan sewage, they say, inappropriate to arable land. But apart from this difficulty, the cost of distribution in small quantities over large areas, makes it “vain to hope that any large proportion of the manure constituents derived from the consumption of human food in our towns, can be distributed over the area from which they came.” Instances are given of arrangements first devised for the application of the sewage to all kinds of crops, with hose and jet, over large areas, having had to be changed for the application to the Italian rye-grass exclusively, and over contracted areas. At Warford, although the abandonment of one acre of rye-grass would set free sewage enough for nearly forty acres of wheat, if only applied at the moderate rate yielding the large profit, the experience of the Earl of Essex has led him to prefer the application to the one acre and the rye-grass, rather than to the nearly forty acres and the wheat. The failure at Alnwick, above alluded to, has been attributed to extreme dilution of the sewage; but the fact of this is not admitted by Mr. Rawlinson. The bailiff of the district, in reporting the failure, expressed a strong opinion against the applicability of sewage to arable land.

As to the system of large dressings, it is not contended that in every case the best method is followed in details. At Edinburgh, where the largest amounts of sewage per acre are applied, and the largest amounts of produce are obtained, it is admitted there is great waste of manure constituents, and very imperfect purification of the sewage. From the information which is given of the application of sewage in different localities, it may be gathered that the purification of the water, from sewage, is not complete as it flows out from drained land; but at Croydon, where the water is passed over the ground twice or oftener, the fish find it so far altered that they are disposed to ascend the drainage-outfall. Some interesting particulars

of the Croydon irrigation, communicated by Mr. Fenton, appeared in our volume for 1863.

In the course of a summary of results of the whole inquiry, Messrs. Lawes and Way, having observed that as there is a daily supply of sewage, the year round, it should be applied in winter when it is comparatively little value, as well as in summer when it is of more, say that by the application in winter, to grass land, green food is obtained very early, but that the amount is small for that of sewage employed; that by irrigation during the season of abundant supply, the period is prolonged; and that of two soils, one naturally less fertile than the other, the inferiority may be compensated for by irrigation; and note many other important facts.

In their general conclusions, they set it down as probable that about 5,000 tons of sewage per acre, judiciously applied to grass-land properly prepared to receive it, would generally secure the most profitable utilization; and, supposing this amount of irrigation per annum, that the purification of the water would be sufficient to admit of the drainage being turned into rivers without detriment to fish, whilst streams receiving such drainage instead of that direct from the town, would be vastly improved from their previous condition as a water-supply,—though whether the purification would be sufficient, would require further experience and investigation, and might receive different answers according to the cases. Assuming that the average dilution of the metropolitan sewage, including rainfall and subsoil-water, will amount to 100 tons per head per annum, they say that 5,000 tons would represent the excretal and other matters of fifty individuals; and a population of 3,000,000 would require about 60,000 acres, constantly under irrigation. There has been an estimate making the number of acres ten times 60,000.

Upon the experiments of Messrs. Lawes and Way, the five Commissioners in their report, say that it appears to them, the experiments have solved many of the difficulties attached hitherto to the question of the agricultural application of sewage, and leave no reasonable doubt of the practicability and advantage of so employing the sewage of towns. As the results of their labours of eight years, they submit to the Treasury the following conclusions:—

“1. The right way to dispose of town sewage is to apply it continuously to land, and it is only by such application that the pollution of rivers can be avoided.”

2. The financial results of a continuous application of sewage to land differ under different local circumstances: first, because in some places irrigation can be effected by gravity, while in other places more or less pumping must be employed; secondly, because heavy soils (which in given localities may alone be available for the purpose) are less fit than light soils for continuous irrigation by sewage.

3. Where local circumstances are favourable, and the expenditure is avoided, towns may derive profit, more considerable, from applying the sewage to agriculture. Under opposite circumstances, there may not be a balance of profit, but even in such cases, a rate in aid, required to cover any loss, needs not be of large amount.”

Finally, on the basis of these conclusions, they say that, in their judgment, the following two principles are established for legislative application:—

“First, that, wherever rivers are polluted by a discharge of town sewage into them, the towns may reasonably be required to treat it in a manner that public nuisance.”

Second, that where town-populations are required or endangered in health by a retention of cesspool matter among them, the towns may reasonably be required to provide a system of sewers for its removal.”

And they add that, should the law be found sufficient to enable towns to take land for sewage-application, it would in their opinion be expedient that the Legislature should give the requisite powers.

The Appendices, in the Blue Book, include Notes on the Edinburgh Sewage Meadows, and the Croydon Sewage Meadows, and an elaborate paper, to which are added numerous tables, by Dr. Stevenson Macadam. “On the Contamination of the Water of Leith by the Sewage of Edinburgh and Leith.” This last describes the sewerage of Edinburgh, treats of the liquid discharges and the sedimentary matters of the Water of Leith, of the gases evolved or dissolved, of the atmosphere in the neighbourhood of the Water, of the vegetable and animal life, and of the condition of the water as contrasted with the state of the Thames. The paper is full of valuable matter, much of it being suggestive of method and detail for other inquiries. Dr. Macadam mentions that the mixture of sea-water with the sewage in the harbour of Leith, “causes, besides ordinary putrefaction, the production of sulphuretted hydrogen in quantity,” this being specially

observable in mud dredged up,—just as the disengagement of the gas has been remarked previously, as in hot climates, where the organic matter meets with sea-water, and during certain years in the case of the Thames.

Preceding this paper is one on “Sewage of Towns” by Mr. Rawlinson. In mentioning the Italian irrigation, the author alludes to the fact that the entire volume of the London sewage is only a small fraction compared to the bulk of water used in Piedmont and Lombardy. He says:—

“Land is the proper place for liquid sewage; and in every instance where liquid sewage in its discharge from sewers, is liable to become a nuisance, the local authority ought to be compelled to filter their sewage through land, even if at a pecuniary loss in the process. Towns can afford to pay the necessary costs of works capable of preventing both nuisance and disease.”

He remarks that the question of sewage-utilization has been thrown back by errors in works,—that too much has been expected and too much attempted. But,—

“To utilize liquid sewage, land is required, and a regular agricultural estate is almost essential.”

Town councils and local Boards have not as yet considered it their duty to obtain land, excepting in the case of Croydon; and there, an “injunction” was necessary. The Croydon case, he says, settles the question, inasmuch as it shows that irrigation by gravity over loamy ground, and producing grasses, will purify sewage without causing nuisance, and also produce a moderate income; but had the Croydon sewage required to be lifted, the balance might have been against the local Board. Works for irrigation by gravity, could be carried into effect, on both sides of the Thames, to a limited extent; and if found to pay, the experiment could from time to time be extended.

“To lease the sewage of London to a company, proposing to raise and expend capital by many millions sterling, will be ruin to existing shareholders, and a cruel punishment to many innocent persons.”

Afterwards he says:—

“If the rivers of England are to be purified, it must be by intercepting canals to receive all fluid refuse and convey it to land for purposes of agriculture. The river Thames receives intercepting canals through its entire length, but not at its mouth, beyond the river, means of the population as resident on its banks, and who now contribute to the pollution of its waters. This form of improvement may also be carried out on every polluted river in the kingdom with advantage. Any income derived from irrigation and a reduction of first cost, establishment, and working charges.”

The only mention which Mr. Rawlinson makes of the scheme which is fostered by the Metropolitan Board of Works, is in four lines of a note, and upon a Map of the Thames Drainage Basin: but we might gather from words which have been quoted, that he is not in favour of that scheme; though he is plainly opposed, as much, to all costly appliances for irrigation.

The project of Messrs. Hope & Napier was supported before the Committee, by evidence of much importance, including that of Messrs. Lawes and Way, and Dr. Voelcker, and of Captain Douglas Galton, who was one of the Referees by whom was put forth the scheme that included an outfall in Sea Reach, and was similar in principle to the arrangement to which the Board seem to be now tending. The only witness heard on the other side, was Mr. Theo. Ellis, who has proposed that the sewage should be pumped to reservoirs on sufficient eminences, and that the sewage should thence distribute itself over large areas commencing in the immediate vicinity of London. We have left ourselves little space for noticing the features of the scheme embodied in the Bill, as they came out in the evidence of Messrs. Hemans, Bateman, Thwaites, and Hope. We should mention, however, that the extension-line and branches are intended to take only the sewage in its least diluted state: or, at all events, the water in excess of the ordinary flow, or the larger rainfall, will be left to find its way into the river at Barking Creek, or by the storm-water outfalls. Also, as one of the features much relied on, we should mention that man-holes or apertures at each furlong of the total length of the sewer are intended, from which the land adjacent may be irrigated. The marsh-land, not drained, and which is mostly at too low level for drainage, we may remark, cannot form part of this. The committee reported, generally, that the scheme of Messrs. Hope & Napier provided for the complete removal from the Thames, of the whole of the ordinary sewage of the Thames, and the sewage for the irrigation by sewage in whatever quantities might be found useful, of a considerable area well adapted for the purpose,—and

Association. About four explosions occur annually amongst the 6,500 locomotives of the United Kingdom: three have already taken place this year. In an average of 600 passenger vessels inspected under the Steam Shipping Acts, only three explosions had occurred since 1846. In Great Britain; viz., one at Lowestoft, in the *Tonning*; another at Southampton, in the *Parana*; and a third at Dublin.

ARCHÆOLOGICAL ASSOCIATION AT ROME.

AMONG the novelties of Rome, an event that bears promise of interesting, perhaps very important results, is the formation of an Archæological Society among the British residents in Rome, designed to include, also, visitors of other nationalities, and with the special object of studying, as well as illustrating, Christian and Mediæval antiquities,—that range which (as the Society's prospectus sets forth) has hitherto been comparatively neglected, though offering such inexhaustible supply of interesting matter, amidst the superabundant labours dedicated to the Pagan monuments of this classic centre. The intention, in this undertaking, is to follow a mode of action similar to that of the English Archæological Societies and Fine Art Clubs of London, to hold afternoon meetings, at which papers may be read and objects of artistic or antiquarian character exhibited; also evening meetings at the houses of such members as may desire to offer hospitality, for exhibiting and conversing about similar objects suitable for presentation; and, moreover, open-air assemblies, or rather excursions, to visit sacred monuments or interesting sites under the guidance of gentlemen who may explain and point out facts or details of telling character, promoting the knowledge of Christian antiquity by the illustration of its most remarkable records *in situ*. Any discoveries that may be made by members in the antiquarian or artistic sphere, it is proposed to have photographed for communication to the London Society of Antiquaries, and for eventual publication as sanctioned by that body. It is determined that, besides permanent members, associates for the season may be admitted; and that ladies may be invited to join the meetings, as well as privileged to become members of the Society. Among the gentlemen whose names are given in the prospectus, pledged for co-operation and support, are Lord Talbot de Malahide, Mr. Odo Russell, Mr. Severn (British Consul at Rome), the Baron de Reumont, Mr. J. H. Parker, F.S.A., and Mr. Fortnum, F.S.A. The first meeting for preliminaries was held at the British Consulate on the 5th of April, when, after a brief address for proposing that appointment, Lord Talbot was declared president; the chair was taken by that nobleman, and an appropriate speech was made by him respecting the general objects in view and their intellectual importance. Next was despatched the business of choosing vice-presidents, the individuals nominated for and accepting which office were Monsignor Talbot, Mr. Odo Russell, Mr. Severn, and Mr. Parker.

A committee was then formed, including several of the gentlemen present, among them being Mr. Wreford, well known in Rome as correspondent of the *Times*; and Mr. Shakspeare Wood, a sculptor long established and successful in his art, was appointed hon. secretary, *pro tem*. It was decided by vote that papers read by members at the meetings should be communicated to the Society of Antiquaries, in order through that channel to be eventually made public. Another proposition put to vote and at once carried was the very judicious one of excluding, on principle, in the discussions and papers hitherto to occupy the Society every species of political and religious controversy. Some days afterwards was held the first open-air meeting, or excursion, the place of rendezvous being the Cælian Hill, the objects proposed for investigation some of the ancient churches,—those of St. Gregory, St. Stephen, SS. John and Paul, and that dedicated to four martyrs (the *Santi Quattro Martiri*),—on the same classic height.

The lecturer, who addressed a large circle of auditors, ladies and gentlemen, both in the open air and within those sacred edifices, was Mr. Parker, whose several discourses on this occasion it would be impossible to do justice to within narrow limits, and we must content ourselves with here stating that the ability displayed by this spokesman excited general admiration,

proving him to be thoroughly master of his theme and deeply read in the lore of Christian antiquity. With this success, and under these favourable impressions, did the British Archæologic Society in Rome auspiciously commence its proceedings.

We learn that the modern sculptures forwarded from this city for the Dublin Exhibition represent the value of 25,000*l.* sterling; and the well-known photographic artist, Mr. Macpherson, is the agent engaged for the business of transmission.

THE WATER-COLOUR EXHIBITIONS.

ON last Saturday both the Societies of Water-colour Painters gave their private view, and the members of neither had reason to complain of any disadvantage arising from the synchronism, if the circumstance of their respective galleries being crowded throughout the afternoon afford any evidence to the contrary. The double attraction appeared to double the usually numerous attendance of visitors to each on these occasions, and the opportunity of closely inspecting individual performances was lost to all but those who advisedly went early. We are disposed to say that if the customary degree of excellence prevail throughout the collections, and the general height of their average obtains, there is nothing to induce the belief that in this case they go beyond it.

Apparently it is very much more easy to satisfy and delight by the same means, and repeatedly, than it is to describe them as often, or account for their lasting effects; or to guess when satiety may happen to lessen them, when any such consideration is so obviously ignored, and hitherto, just as obviously, with the best warrant for such persistency,—continued success and attractiveness.

Of course, there is proof enough now, as formerly, of that astonishing proficiency long ago attained by the most eminent members of the fraternities, from whom no one would be absurd enough to ask for the adducement of more: they live in the clamour of past exploit, and, deafened by the sound of it, keep now "the noiseless tenour of their way." Like men who have spoken well, long, and loudly, they could hardly hear themselves speak if they had anything more to say; and there can be no doubt of the intelligence and growth of power amongst those from whom a less undeviating course might be expected, but who show as little inclination to leave the one track selected at their outset as the elders, who at all events have been guided by experiment and experience to a preference. These exhibitions, as year after year presents them, vary so little in their character, always a high one and always sufficiently interesting in what they offer to illustrate the exquisite qualities of water-colour as a medium, as well as to show the perfect apprehension to be acquired of all its resources, that one depends entirely upon exceptional instances of production for the means of distinguishing one from another; and this time there are no works that make claim for superior excellence above antecedent, from the same hands, and not too many that can be classed with the very best pictures of their authors.

Perhaps the wide extension and general amount of ability displayed outside as well as within the walls of these institutions, lead to higher expectations from the more recognised sources than may be quite reasonable; and the little that is to be seen of the bad makes comparisons difficult. The multiplicity of these performances must presently, we should think, excite a healthful spirit of emulation, to stimulate those endowed with richer capabilities to a more independent use of them, and beneficially to prove that their sphere of action is a less restricted one than hitherto it has appeared to be, from the constant similarity of succeeding examples, owing to a confined practice of selecting incident, so remarkable at present.

The Exhibition of the Old Society consists of 320 works, whereof those of Mr. F. Barton, Mr. Duncan, Mr. Birket Foster, Mr. Holland, Mr. Jenkins, Mr. Nafel, Mr. S. P. Jackson, Mr. Topham, Mr. Smallfield, and Mr. Newton, offer the strongest claims for attention.

At the Institute of Painters in Water-Colours, there are 352 pictures, of which the most noticeable are by Mr. Louis Haghe, Mr. E. Corbould, Mr. Bailey, Mr. Poynt, Mr. Shalders, Mr. E. Warren, Mr. E. Weynart, Mr. Carl Werner, Mr. Vacher, and Mrs. Elizabeth Murray.

CREEDS AND TEMPLES: THEIR RELATION TO ONE ANOTHER, IN PAST AND PRESENT TIMES.*

THE early basilican churches of the fourth century were never complete without the addition of a circular building, called generally a baptistery, and probably used for the performance of all ceremonial rites, as funeral services, &c., the basilica being the place of general assembly for the ordinary public worship. This form was, as we have noticed, borrowed from the circular Roman temples dedicated to Etruscan deities; and the change may be traced from the little temple of Vesta at Tivoli, which has an external colonnade, through the tomb of Sta. Costanza, where there is both an external and internal colonnade, to the baptisteries at Nocera and elsewhere, where the external colonnade has disappeared and the style has become an internal one. The position of this baptistery was at first rather uncertain, but after the fifth century it was pretty generally placed at the west end of the basilica, as symbolical of the entry into the church by baptism. But as a principal object of these buildings was the admission of new converts into the church with all possible solemnity, it followed that from the seventh century, when infant baptism was introduced, and the reception of barbarian converts into the church became less frequent, the baptisteries fell rather into disuse, and were replaced by the font near the west door of the basilica. The circular form, however, long continued to be connected with the idea of a ceremonial church. Such was the one, before mentioned, built by Charlemagne to be the scene of the coronation of living emperors as well as the sepulchre of departed ones. This also, I think, was one motive for the universal preference of the circular form by the Templars, with whom the ceremony of investiture was so important. In the early Gothic period, the circular form on a large scale appears in conjunction with the rectangular form, both in France and Germany, but with the remarkable distinction that in the former country the circular part is always the choir or chancel, in the latter it is always the nave. The reason for this difference seems to be that the French always retained the idea of the connexion of the circular form with the more sacred and ceremonial parts of the ritual, and therefore, when they used that form, always appropriated it to the clergy; while the Germans, admiring the form architecturally, and being less under ritualistic influence, used it for their congregational churches, the straight-lined chancel being added, as the clergy increased in numbers and influence, as a place for their worship apart from the people. In the complete Gothic period, when the Roman see had acquired such general authority, the Germans forsook the circular for the orthodox basilica form; while the circular chancel in France merged into the polygonal apse characteristic of French cathedrals.†

The peculiarities of the Byzantine plan of church were due to architectural and not to ritualistic influence, the ritual being in early times very similar to that of the Western Church. Some of the points of difference which existed or arose between the two Churches, may, however, be noticed as influencing the buildings erected for the Eastern worship. One of these was the placing of the women in galleries, instead of dividing them from the men by a barrier on the ground-floor. The galleries and the two-storied porch for this purpose form a marked feature in the design of St. Sophia, at Constantinople. A more important point was the dislike in the East to sculptured decoration, which rose, in the eighth century, to violent iconoclasm, and gave additional impulse to a highly developed style of pictorial decoration, first in the form of mosaic, and later in that of painted pictures, for the exhibition of which a screen was always erected, called the *iconostasis*, completely across the front of the chancel, leaving only a doorway for the priests to enter, an arrangement which, whatever the interest of the pictures, must be very destructive of architectural effect. The Russians, when converted to the Greek faith, carried this pictorial decoration to the extreme, their churches becoming, from floor to roof, complete picture exhibitions, even the columns being painted round, after the manner of the Egyptians, with representations

* See p. 275, ante.

† For the above explanation, I am mainly indebted to Mr. Huggins, the author of "The Course and Current of Architecture."

of the lives and miracles of the saints; and the porches adorned with figures of the great heathen poets and philosophers, each illustrated by some sentence from their writings which might represent them as the pioneers of Christianity. This is, I think, a very legitimate kind of symbolism; and if fresco-painting were introduced into our churches, the idea would be worth remembering.

It does not appear that the Greek church ever adopted the dogma of transubstantiation with the same significance which was attached to it by the Roman; hence the chancel is but little developed. The persistency with which the style has been practised, and the same plan retained nearly to the present day, is a striking exemplification of the intense conservatism of the Greek Church, which regarded the innovations of the Roman pontiffs very much as the latter, in their turn, regarded those of Luther and Wickliffe.

The rise of Mahometanism, the greatest religious crisis between the Christian era and the Reformation, can hardly be said to have given rise to any form of temple peculiar to itself. The first founders of the religion were a Semitic people, and the religion itself the outbreak of the Theistic feeling so peculiar to that people, which had lain dormant since the extinction of the Jewish religion, and which was very unfavourable to anything like a pompous or ceremonial worship. With regard to the externals of worship, indeed, the Moslem was to the Eastern Church very much what the Puritan was to the Western,—both equally indifferent to liturgical forms, both regarding the spirit of the worship rather than the place in which it was performed. To the true Mussulman there was, in fact, but one sacred temple, that of Mecca, which was a comparatively insignificant building; and though, when the religion spread and gained power in other countries, it was found advisable to raise buildings commensurate in size and beauty with its importance, the plan of the original temples of the proselytized people was almost always adopted, and even the style of architecture, though this became speedily modified by the rich and brilliant fancy of the Saracenic. Still, I do not think that the peculiar class of ornament and style of architecture called Saracenic can be rightly considered as the outgrowth of the spirit of the religion, but rather as arising from that taste for rich but sensuous beauty peculiar to the Arabic mind, and of which the Mahometan Paradise, with all its voluptuous delights, was only another development,—a concession, in fact, to the popular feeling; though, when the religion was adopted by a new people, these ideas may have re-acted upon the style of the architecture. To call the Saracenic the parent of the Pointed Gothic, through the medium of the Crusades, is surely quite overstating the case. It may have given additional richness and variety to the latter; but, even if it contributed the Pointed arch, this was only anticipating what the necessities of Gothic vaulting must have evolved very shortly after.

In tracing the variations in plan, among the Latin churches, no reference has been made to the phases of architectural style through which those churches passed; these being, in fact, almost wholly independent of religious influences, and none of them becoming elaborated into a distinct and complete style till we arrive at the true Gothic period in the thirteenth century. Here we meet with the third great temple style of the world, as complete in its way as the Egyptian and Greek; and, like those styles, arising under the influence of Polytheism; for every impartial student of ecclesiastical history must perceive that the faith of the thirteenth century, with its hosts of martyrs and saints, the objects of direct adoration, was in fact as completely Polytheistic as that of the Egyptians. The complete Gothic may be most fitly characterized as pre-eminently the monastic style. Monasticism had, indeed, existed for a long time before; but in the eleventh century it acquired great additional wealth and influence under the fostering care of the Roman Pontiffs, who took it under their special protection. The powerful and richly-endowed conventual establishments which arose at this time, soon gave expression to their religious feelings in those great piles of building of which the monks were themselves often the architects; and which, in the spirit of aspiration which everywhere pervades them, in the entire subordination of the horizontal to the vertical principle, are the most complete outward expressions of that morbid excess of religious zeal, that entire forgetfulness of the practical, which

be it remembered, existed at that time nowhere out of the cloister; as the comparison of the monastic with the secular poetry of the period, of Bernard of Clugny with Chaucer, will abundantly prove. There is much, too, in the style to remind us of the Egyptian; the same vistas of aisles and columns, the same profuse use of symbolism, the same love of coloured decoration not of the most refined or artistic kind, is common to both styles; nor are the surrounding circumstances dissimilar. Both nations were, at the culmination of their respective styles, in much the same state of civilization; in both the dominant sect was a numerous and powerful priesthood, held in superstitious reverence by an ignorant laity, whose chief religious instruction was derived from the paintings on the walls and windows of the temples. There is, however, one important distinction; the Medieval superstition had at least a background of truth: the saints who were worshipped were invested with characters above, and not below, ordinary humanity: instead of the fantastic deities of the Nile,

"Isis, Osiris, and the dog Anubis,"

or the ferocious Siva and obscene Vishnu of the Hindus, we have St. Peter and St. Catherine: it was a worship tending to expand the feelings rather than to contract them; and we find the buildings expressing this distinction; for while the Egyptian and Indian perpetually narrow as they are penetrated, till the shrine is found to be the meanest part of them, the Gothic temple, on the contrary, represented in such a plan as that of Rheims, with a comparatively small entrance, widens and expands as the shrine is approached, leading the eye continually upward and onward, and justifying Coleridge's remark, that the spirit of Gothic architecture was "infinity made imaginable."

With the fall of monasticism, however, and the rise of a purer faith under the influence of the Reformation, we again witness the decline of temple architecture, which has never since reassumed its old power, or produced a style peculiarly its own; for that of St. Paul's, and other great churches of the Renaissance period, besides that it was in great measure a copied and not an original style, arose from feelings and motives quite unconnected with religion; and it is not necessary to go into any proof of the neglect of internal beauty and decoration in churches since the Reformation. In the present day we have changed all this, and we pride ourselves on having resuscitated church architecture, and look with a smile of pity on the works of our grandfathers. But have we after all so much right to laugh at them? Are we in such a very satisfactory state ourselves?

It is remarked by Dean Stanley, in his lectures on Ecclesiastical history, that no word has been more debased in its signification than this same word "ecclesiastical." "It has come to signify," he says, "not the religious and moral interests of the social community, but often the very opposite of these,—its mere accidental, outward, ceremonial machinery. We call a contest about the abolition of vestments ecclesiastical, not a contest about the abolition of the slave trade." And surely we may see this feeling but too well imaged in the state of church architecture in the present day. For what is meant by the term "ecclesiastical architecture" by the majority of those who make most use of it? Not the provision of buildings suitable to the worship of the present day, and expressing in their style the more enlightened and reasonable faith which has succeeded to that of the Middle Ages; but rather of buildings suitable only to a form of worship in which ceremonies and symbols were all-important; and the spirit of which exists no longer but in the ideas of a few enthusiasts in whom love of ecclesiastical precedent has over-ridden every other feeling. We have large and deep chancels for the accommodation of a priestly hierarchy which no longer exists, fitted with stone *sedilia* on which no one would think of sitting, and in the most recent instances

railed across the front to protect the clergy from the intrusion of congregations who really, on the whole, are very orderly and well-behaved; receptacles for holy water which has long ago lost its efficacy; fonts placed, "for symbolical reasons," near the west door, so that if a baptism is held in the course of the ordinary service the congregation may choose between remaining with their backs to the minister or sitting on the backs of the seats. We are so used to these things that we almost forget their absurdity, but it is amusing enough to see the same thing in another country. It appears that there is a sect in the Russian church who are possessed by the same mania. I quote again from Dean Stanley: "These churches have not a single feature that is not either old, or an exact copy of what was old. The long meagre figures of the saints, the elaborately minute representations of sacred history, are highly characteristic of the more than restoration of Medieval times. The church resounds, not with the melodious strains of modern Russian music, but with the nasal, almost pruritanical screech, which prevailed before the time of Niccon, and which is by them believed to be the sole, orthodox, harmonious, and angelical chant." But for the name of the Russian patriarch Niccon, this might be a description of one of our own parishes of Ecclesiastical Archaism. Some of our "ecclesiastical" architects might surely advertise for a draughtsman in the language of Falstaff,—"O for a faise thief, of the age of two-and-twenty, or thereabouts!" For even the accidental faults of the style must be copied. Because the Medieval architects occasionally committed the gross artistic blunder of bringing down a heavy buttress upon the roof of a porch, therefore this shall be perpetuated in a modern church, without the slightest reason or excuse whatsoever: because they decorated their internal walls with artificial jointing in coarse red lines, we are exhorted to follow so noble an example: because they could not draw the human figure, and left ample proof of their inability, our stained-glass windows shall exhibit portraits of saints, looking, as a modern writer has said, "like starved rabbits with their necks wrung;" and our chancel walls shall be painted or inlaid with grotesque figures, profanely put forth as representations of the Deity, and which at least do not transgress the second commandment, as they are certainly not the likeness of anything in heaven or earth, or the waters under the earth. Quitting, however, this painful subject, let us consider what are the real objects to be attained in a modern church service, and what the real requirements of the plan.

The public worship of the present day may be defined thus,—it is the meeting together of a number of people professing the same faith, for the expression of unanimous prayer and praise, according to a prescribed form, the mass of the worshippers being led in their prayers by ministers ordained for the purpose, and in their musical service of praise by a certain number of people more or less trained (generally less). There are, then, these divisions of worshippers to be provided for,—the clergy, the choir, and the people; and first, with regard to the people, I must protest against an idea that has lately been put forth, that their part of the church is to be treated as an *auditorium*, and planned, in fact, on the same principle as a theatre. This can only result from a very superficial view of the subject; for, surely there is a great difference between the meeting of a number of people to witness a dramatic performance, in which they take no part whatever, and their enjoyment of which depends upon their proper opportunity for hearing and seeing, and the meeting of the same people for an expression of their own feelings, in which they ought all to join, and the forms of which they all have, or may have, in print before their eyes. That it is practically necessary that the clergyman's voice should be heard I admit; but that the church should be planned as if this were the one object, and as if the people were not to hear a speech or see a spectacle, I entirely deny. The principal point to be observed is, I think, that all the congregation should have the reading-desk, the pulpit, and the communion-table within their view; and on this account I think that three-aisled churches are, on the whole, to be avoided (unless the side-aisles be used only for passage) as the view can only be rendered clear to all the people by the use of thin iron supports for the clerestory walls, a device fatal to architectural effect. Long transepts, also, are of course quite inadmissible. I

* The great work of this really fine poet, "De contemptu mundi," some parts of which have been lately translated, might be almost described as "a French cathedral verified." The extravagant spirit of aspiration, the redundancy of ornament, the want of artistic restraint, are the same in the book as in the building. Chaucer is none of this, and it is remarkable that whenever he alludes to "the church," it is entirely as a spectator *ad extram*.

† The Celts, the chief originators of the Gothic style, are probably connected more or less with the Turanian race. Fergusson, indeed, speaks of them as "undeveloped Aryans;" but may it not be more correct to call them "highly developed Turanians?" Philology, I believe, bears out this view to some extent.

should consider a separate baptistery a very desirable addition, as the practice of holding baptisms during the course of the ordinary service is being disused, and it is very comfortable for a dozen or so of people to meet in a large and often cold church. With regard to our second division, the choir, it is only necessary that they should be placed where they will be tolerably conspicuous and be well heard; and that they should be divided on opposite sides of the church for antiphonal singing, an effect too beautiful ever to be given up. They are generally at present placed in the chancel, in front of the Communion-rails, thus entailing the double advantage of placing the singers where their voices are much more confined than they would be in the nave, and of removing the clergyman, during the Communion service, as far as possible out of the hearing of the congregation: an amusing instance of the blunders people make by following precedent; for the choir sat within the chancel, in the early times, not because that was the best place for them as singers, but because they were always members of the clergy; and therefore to be separated from the people. The more the choir are made to feel as a part of the congregation, the better, I suspect, for their devotional feelings. The clerical requirements are, firstly, the chancel, which in the present day need only be large enough for the celebration of the Protestant Communion service, and for which the simple apse of the early churches furnishes the best possible model; the reading-desk, which should be placed in a convenient position on one side of the apse; and the pulpit, which must be placed where the clergyman may be best heard, the sermon being the only part of the service where the people depend entirely upon hearing him; with this limitation, that it should never be placed conspicuously in the centre of the church, as if it were the point to which everything else was subordinate. A vestry, also, is of course required for the clergyman, which I think should be a tolerably large room, capable of containing a bookcase, if necessary, and of affording comfort and convenience; not a mere cage, scarcely large enough to turn round in.

The introduction of a larger and finer class of organs into our churches than have hitherto been found there, claims some consideration, though this has been strangely neglected; and while drawings are furnished by the architect for every bench and hinge, the largest and most important piece of furniture in the church is left to the tender mercies of the organ-builder's joiner. The usual position of the organ, in a chamber built out from the chancel, is almost the worst in which it could be placed. It should be where it has free space to sound, not where the sound is driven down and smothered the moment it is emitted. In addition to this evil, the placing of the instrument between two or more outside walls, and with a roof close over it, exposes it to every change of temperature, which not only alters the tuning, but makes sad havoc with the delicate internal mechanism, and not a few instruments are now being ruined by being placed in this position: where it is necessary to place an organ so, there should at least be a dry area in the wall, and a ceiling roof to over.

The question of style is too important, and at present too difficult a one, to be tackled on the end of a paper; but I may venture a few remarks on general principles. Although I do not at all advocate the direct revival of the Gothic style, or think it fitted to express the feeling of the present day among the mass of the people, I nevertheless think it very important to preserve the feeling for breadth of effect and deep shadow in the mouldings and ornamentation so conspicuous in that style, of which so admirably suited to our northern climate, of which it appears to me to have been the natural outgrowth; and while making all due concession, in the design of a church, to nineteenth century ideas of comfort and civilization, I would avoid everything like silliness and tawdriness of effect. A church is not a drawing-room, nor is it to be fitted up, as a writer suggested lately, with curtains and draperies and arm-chairs, and everything with which the most ordinary associations are connected. It is a legitimate field for the display of architectural art in its highest form,—architecture of that lasting and durable character that is best described by the word "monumental." I should very much wish to see the adorned form of roof more used. It is a difficult form to manage externally, on account of all its lines, on a near view, receding so fast from the

eye; but internally there is, I think, no effect comparable to it, and a church is essentially a building for internal effect. Galleries, I think, should be avoided, if possible. However well managed, they detract very much from the general effect, and principally, I believe, for this reason, that the impression produced on the spectator by a fine and lofty church is much enhanced, even without his knowing it, by the evident fact that it is so much more lofty than is really necessary; that the piers and arches, the dome, or the high-pitched roof, are carried up to that height purely for artistic effect. Place a gallery there, and you immediately weaken this idea by suggesting that, after all, the extra height is necessary to give room for the upper tier of worshippers, and the whole thing is more or less utilitarianized.

In looking back at the history of church architecture, there is one consideration, at least, which is encouraging—there is something left for us to do. As I have endeavoured to show, there has not yet been any style complete and artistic in itself, and expressive of the highest and purest form of Christian worship. It is left to us to originate such a style, and I see no reason why we should not, if we go the right way about it. As the descendants of the builders of Lichfield, Canterbury, Wells, and Salisbury; as the possessors, since then, of a literature second only to that of the Greeks, we surely are not by nature an in-artistic nation. But I suspect the secret is that we have no fixed principles, and take no trouble to fix any. Occasionally writers like Garbett, Fergusson, and Huggins, startle us by suggesting that all is not quite right, in spite of the architectural activity going on around us; but no lasting impression is produced, and things seem to go on much on the same principle of accidental selection, or no selection at all. It may be answered that the Mediaeval builders did not trouble themselves about principles. I believe they did not; but they not the less worked on a principle—that of elaborating the details best suited to the climate upon the plan best suited to their requirements, and of always doing the very best they could according to their light. If they were not conscious of these principles, it was simply that they were never tempted to overstep them. But it is utterly impossible, in these days of travel, to place ourselves in the same position; and it is only, I believe, by attending to principles, and by fixing these principles on a certain basis, that we can guard ourselves against the indiscriminate copying of everything that strikes our fancy for the moment. Perhaps the study of the history of previous styles, with their surrounding circumstances, is not the worst way of attaining this; and, I believe that one very great step towards regulating and restraining our tastes would be an increased attention to the study and drawing of the figure, as an accessory to architecture, in that highest style of art of which the Greeks have left us almost unapproachable examples; and as their temples had friezes and sculpture representing passages in their mythology, I see no reason why ours should not also be adorned with bas-reliefs, in like manner, representing subjects from Biblical and ecclesiastical history (taking the word *ecclesiastical* in its widest sense). The healthy influence, at any rate, of such a study, would perhaps deliver us from the incubus of symbolism; would render it impossible for our eyes to be pleased with the sharp, angular, bristling forms, the quirks, the crinkle-crinkle, the utter absence of repose or beauty of line which characterize much of what is called "modern Gothic," but is based upon principles (if any) widely different from those of the real Goths; and would surely do more to resuscitate church architecture than the delineation of starved-looking angels with wings red on one side and green on the other, or than the most careful arrangement of flat brickwork in the most elaborate coloured patterns.

H. H. STATHAM, Jun.

COST OF SOCIETY OF ARTS' PRIZE COTTAGES.

The following is the result of a trial to get cottages built on the plan described in your number of the 31st of December, as having obtained the Society of Arts' prize, and as estimated to cost 203l. a pair.

The cottages to be built were six in number; the locality was Bishop's Stortford; and the very best means were taken to ensure that the plan

and specification should be in strict accordance with the ideas of the designer.

Six tenders were obtained; three from London builders and three from the country. They were,—

Perry, Stratford, London	£1,193 or £297 13	4 the pair
Bell & Sons, Cambridge	1,272 or 424 0 0	"
Glasscock, Bishop's Stortford	1,380 or 460 0 0	"
Freeman & Sons, Ely	1,388 or 452 13 4	"
Patrick & Sons, London	1,392 or 464 0 0	"
Hill & Keddell, London	1,581 or 527 0 0	"

So that the lowest tender was nearly twice as much as the estimated cost of the prize cottage; the low estimated cost being, I presume, one of the principal grounds of awarding the prize to it.

Any one can build a good labourer's cottage; the difficulty is to build one for little money. I have had occasion to build hundreds, but could never build one that a decent family should live in under 140l. or 150l. a single cottage.

ROBERT SINCLAIR,
Engineer-in-Chief, Great Eastern Railway.

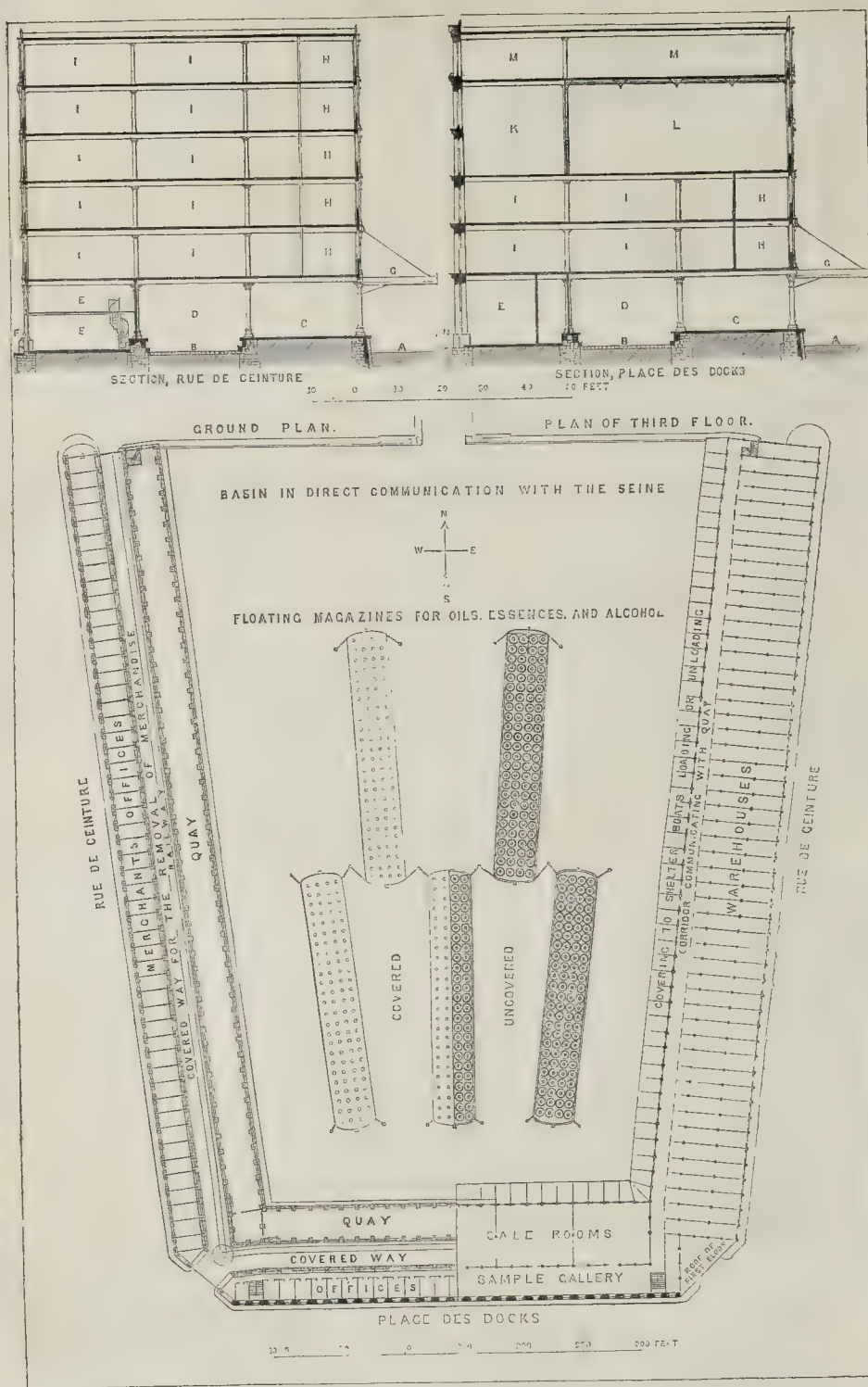
EXPLORATION OF THE HOLY LAND.

A COMMITTEE has been formed to organise a society for exploring the Holy Land for Biblical illustration, and a circular has been issued setting forth the objects it has in view and grounds for forming it. If they cannot do all that is desired,—"Much would be gained by obtaining an accurate map of the country; by settling disputed points of topography; by identifying the ancient towns of Holy Writ with the modern villages which are their successors; by bringing to light the remains of so many races and generations which must lie concealed under the accumulation of rubbish and ruins on which those villages stand; by ascertaining the course of the ancient roads; by the discovery of coins, inscriptions, and other relics; in short, by doing at leisure and systematically that which has hitherto been entirely neglected, or done only in a fragmentary manner by the occasional unassisted efforts of hurried and inexperienced travellers. Who can doubt that if the same intelligence, zeal, knowledge, and outlay were applied to the exploration of Palestine, that have recently been brought to bear on Halicarnassus, Carthage, Cyrene, places without a single sacred association and with little bearing on the Bible, the result would be an enormous accession to our knowledge of the successive inhabitants of Syria—Canaanite, Israelite, Roman—and in consequence a flood of light over both Old and New Testaments."

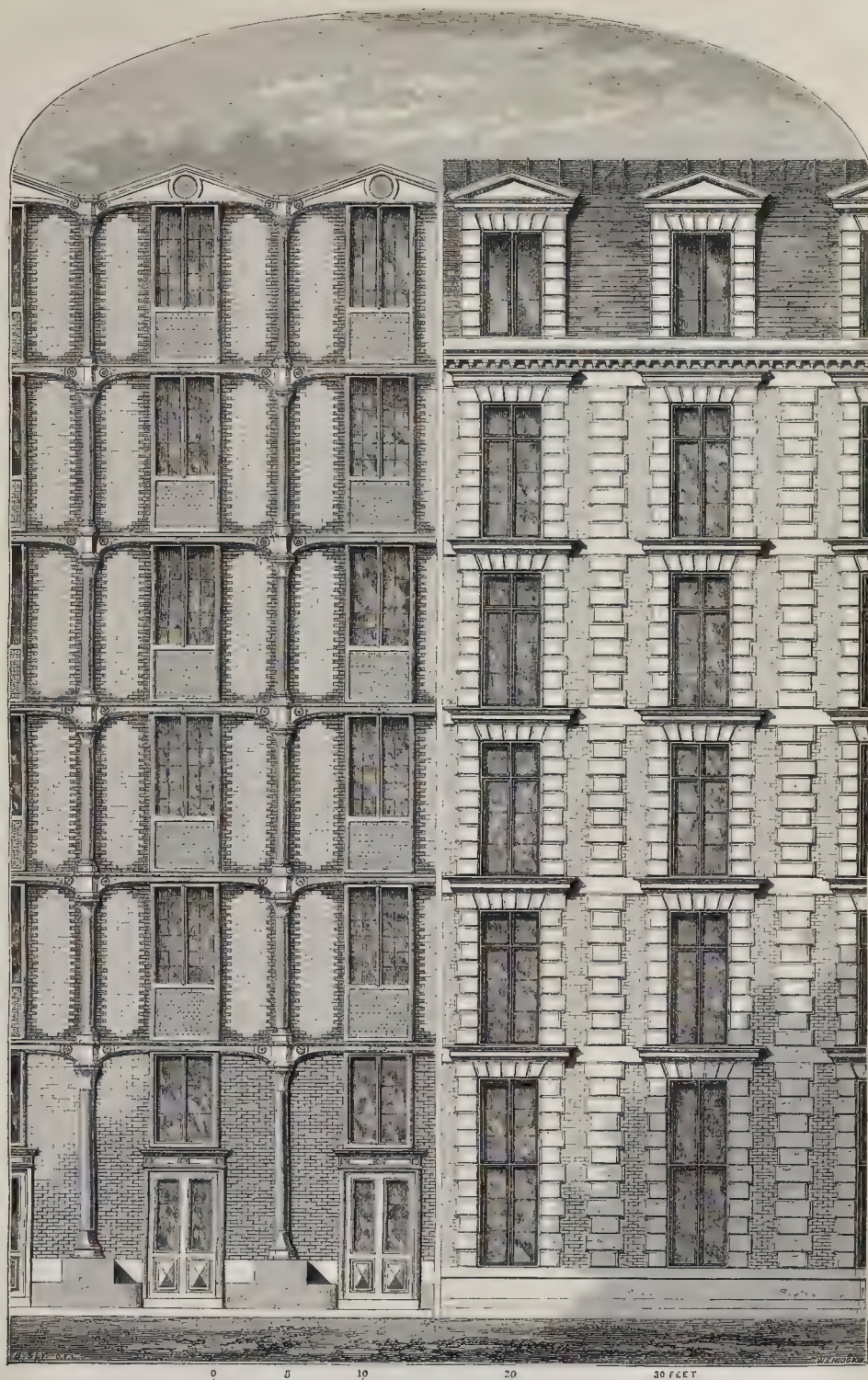
What is above ground will be accurately known when the present survey is completed; but below the surface hardly anything has yet been discovered. The Tombs of the Kings on Mount Zion—the course of the Tyropoeon Valley—the real extent of the Temple enclosure—the site of the Tower of Antonia—the Palace of Herod—of Ophel—of the Pool of Bethesda—the position of the towers of Hippicus and Paphlagon—the spring and conduit of Hezekiah—are all awaiting excavation; and it is not too much to anticipate that every foot in depth of the "sixty feet of rubbish" on which the city stands, will yield most interesting and important matter for the archaeologist and the numismatist.

It will perhaps be said that many of the points above enumerated have been already examined—that Robinson, Stanley, Rosen, and others have done much in the department of topography—that Hooker, and more recently Tristram, have reported on the botany—that Roth and Tristram have brought home shells, birds, and eggs—that the researches of M. Lartet on the geology of the Dead Sea, and those of De Vogué and De Saulcy on archaeology, are on the eve of publication. This is true; but without intending to detract from the usefulness or the credit of the labours of these eminent men, it is sufficient to observe that their researches have been partial and isolated, and their results in too many cases discrepant with each other. What is now proposed is an expedition composed of thoroughly competent persons in each branch of research, with perfect command of funds and time, and with all possible appliances and facilities, who should produce a report on Palestine which might be accepted by all parties as a trustworthy and thoroughly satisfactory document.

Mr. George Grove, who has devoted much of his spare time to Biblical topography and antiquities, is acting as honorary secretary. There could not be a better.



THE SAINT OUEN DOCKS, PARIS.



Elevation, Rue de Cinture.

Elevation, Place des Docks.

THE SAINT OUEN DOCKS, PARIS.—M. PREFONTAINE, ARCHITECT AND ENGINEER.

THE PRESIDENCY OF THE INSTITUTE OF ARCHITECTS.

MR. DIGBY WYATT writes to us as follows:—
 "A letter addressed to me by Mr. Tite having been recently very widely circulated, I am induced to forward to you a few lines I have this day sent to that gentleman in acknowledgment of his communication."

It is not our custom to publish letters addressed to individuals, but, under the circumstances, we will not refuse in the present case. To make the matter clearer, however, and in justice to Mr. Tite, we must first print that gentleman's letter:—

"My dear Mr. Wyatt,—Your circular has excited my extreme surprise, because I thought you had embarked in the same cause with myself, and were contending for the same principle which received its emphatic solution when I was elected president of the Institute by so decided a majority in 1861, and when I found you one of my warmest supporters. I did not understand at that time that the question was whether Mr. B. Hope or Mr. Tite should be president, but whether the chief officer and public representative of the Institute should be an architect by profession or an amateur."

Mr. Donaldson understood it thus, and so did I; it was a principle for which I had been contending for years; and this is the real question at issue now. As to the feeling between Mediavalists and Classicists—this is a point, in my opinion, which ought not to be imported into the present debate. I certainly understood Mr. Scott commented to be put in nomination as president, and accordingly he is the man whom we have been accustomed to look forward to for the present occasion. It is idle to pretend that there is any attempt to put down certain tastes or views; for it is the most eminent supporter of these very principles who is urged to preside over us by all who think with me.

Before I proceed to say a few words on the general question, I desire for my own sake to disclaim personal considerations. I have the honour of sufficient acquaintance with Mr. Boreford Hope to know that he is a very amiable man, well educated, and having considerable acquaintance with Gothic architecture. My objection to him is simply that he is not an architect, and therefore unsuited for the presidential duties. Look for a moment at what they are. He is to preside in the Council, where technical questions relating to our practice, our charges, and our disputes are constantly arising. Some years ago I obtained parliamentary recognition of us as a body, so that the important duty of examinations of district surveyors is confided to us: this at times might lead to technical difficulty. I have now before me an amended Building Act, which no doubt I shall be requested to introduce in Parliament before the session expires; and this again must bring the Institute before the public in its purely practical capacity. The Council is often chosen to arbitrate on disputes between architects and employers. You have established a tariff of charges. You have introduced a voluntary examination on all points of scientific and practical detail, of the greatest possible value to the profession. All these considerations combine in pointing to the advisableness of professional presidency. Again, at the meetings, questions of construction in iron, strength and stress of materials and their prices, questions of light and air, and so on, must be constantly before you, and must be increasingly so. I need not here compare the advantages of such a president as Mr. Donaldson or Mr. Scott on such questions, and the uselessness of an amateur.

One important fact occurs to me, that by the charter, an honorary Fellow has no vote, and consequently no casting vote.

I feel satisfied that if all this were candidly explained to Mr. Hope, he would himself withdraw from duties which it is useless to pretend he could satisfactorily undertake.

The case of Earl de Grey is not in point. I never knew him to attend except at an opening meeting or when some public occasion rendered it necessary. He was most useful at a time when our social position as architects was, with one or two important exceptions, nothing; and our numbers but few. However, my dear Mr. Wyatt, I would put the question on this issue: can you give me any instance anywhere in Europe where a scientific and working institution, like the Institute of Architects, exists without a professional president?

I fear that the architects of England do not

stand so high in the estimation of their professional brethren on the Continent as they ought to do. Are we to give colour to their opinion by informing all the world that we have not one amongst us worthy, in our own judgment, of the highest position we can confer, and notwithstanding our gold medals and the generous patronage and support of the Royal Family of England?

I love peace as well as any man, and would make any sacrifice to obtain it; but I cannot surrender views such as these to any considerations of expediency, and therefore I hope you will pardon my thus addressing you, and that you will use your influence to produce a sound and lasting peace by inducing Mr. Hope to withdraw, and by promoting the election of Mr. Scott, as president of the Institute of British Architects.

WILLIAM TITE.
 P.S.—Should Mr. Scott decline, why not nominate Mr. Salvin?"

"My dear Mr. Tite,—I beg to acknowledge the receipt of your letter, which reached me on the afternoon of the 20th inst. and to which I have given very careful consideration. Although I do not see any immediate benefit likely to result from a protracted correspondence, out of personal respect to you, I am unwilling to leave your letter altogether without reply. I beg, therefore, to observe that when I had the pleasure of supporting your nomination as president in 1861, I had the satisfaction of contributing to upset the arbitrary doctrine, traditional up to that date, that no professional man was fitted to represent the Institute as its president,—one which unbroken through would have become tyrannical and injurious. I further helped the election of a brother architect, as I believed, and as the result proved, exceptionally well qualified for the office."

I think it would be little less tyrannical and injurious to insist now that no unprofessional man could be fitted to represent the Institute. Your letter and Mr. Scott's show that there are two sides to the question, and the best way in which the Institute can shape its course between them will be, I think, by leaving itself free to select hereafter the most eligible candidate who may present himself, or be brought forward by the Council, irrespective of whether that candidate may be professional or unprofessional."

I most heartily endorse your view that the feeling between Mediavalists and Classicists ought not to be imported into the present debate; and out of my strong conviction on this head arose my endeavour to induce the nominees of the Council to divest himself of party, and allow himself to be proposed in his simple position of an accomplished gentleman, possessed at least of the qualifications you state that you know him to possess."

Finally, you urge me to use my influence to induce Mr. Hope to withdraw, and to promote the election of Mr. Scott,—or, failing Mr. Scott, that of Mr. Salvin. Indeed, my dear Mr. Tite, you greatly overrate my influence; but, whatever it may be, you must pardon my not exercising it in the direction you suggest. I understood Mr. Scott to say two years ago that, with his current business engagements, it was impossible for him to attend to them properly, and to the presidential duties as well. As since then he has rather added to, than diminished, his professional responsibilities, I cannot but suppose him to be out of the field."

I doubt whether Mr. Salvin, who has recently settled in the country, relinquishing, as I understand, professional responsibilities, would be induced to come forward and allow his name to be substituted now, or, indeed, at any time, for that of any other gentleman nominated by the Council. With respect to the issue upon which you would put the question, viz., whether there is any country in Europe where a scientific and working institution like the Institute of Architects exists without a professional president? I would remark that the terms of the issue are too vague; since, for experience to be valuable as a final test, the conditions under which experiments are tried must be either identical or at least perfectly well known. This could scarcely be the case if precedents should be sought for from practice in different countries, and under different social and political systems. As you are, no doubt, aware, all scientific association abroad is under direct Governmental control, being either kept entirely under a minister specially charged to be, as it were, *ex officio*, president of all such societies, or put down. Europe, therefore, gen-

erally affords but little experience likely to be useful in this matter to England. Turning, however, to this country, we have several of the societies which best answer your definition with other than professional heads. The Society of Arts, for instance, which is eminently 'scientific and working,' is presided over, if I remember rightly, by H.R.H. the Prince of Wales; who is also, I think, president of the Horticultural Society. If he should render to either of those bodies a tithe of the practical services his father did before him, neither will have reason to regret its existence without a professional president. I do not know that any society could be pitched upon as more strictly analogous to our own Institute than that of our brethren, the Naval Architects, whose useful president for the time being is Sir John Pakington. All the Antiquarian Societies have, I think, aristocratic presidents; and possibly there may be others similarly presided over which do not occur to me. Whether there may or may not be such is, I think, a matter of no great moment to us. What we have now to do is to effect a reasonable and peaceable adjustment between conflicting parties in such a manner as to leave any minority without legitimate cause of complaint; and to effect such an adjustment, both sides must yield something; for, as Mr. Mills so admirably says, 'adjustments must generally be of the nature of compromises, not resting on fixed principles, but each side giving up something for the sake of peace.' M. DIGBY WYATT."

THE ST. OVEN DOCKS, PARIS.

THE St. Owen Railway and Docks Company has been constituted, with a capital of 400,000l., to unite in Paris the group of French railways with those of the navigable canals. This is being accomplished by means of a branch from the circular railway, which joins all the lines abutting in Paris, and the river Seine, at a spot between the villages of Clichy and St. Owen, a short distance outside the fortifications. The line branches off at Batignolles, starting from a vast goods shed; crosses the military road on the level, the ramparts by a tunnel, and the ditch of the fortifications by a wrought-iron bridge, and arrives at the docks, where a network of sidings and junction lines, of a total length of 14 miles, communicates between the different portions of the docks and warehouses, so that railway waggons, boats, and carts can directly and safely exchange or tranship their merchandise.

The docks consist of a magnificent basin 656 ft. long, and of an average breadth of 410 ft., united to a canal 1,968 ft. long by 164 ft. wide, communicating with the Seine by means of a lock 196 ft. 10 in. long by 39 ft. 4 in. wide. The area of the basin and canal is 13½ acres; and around the former, which is completed, are being established vast warehouses, platforms, roadways, offices, cranes, &c. The foundations for the buildings are laid upon the tertiary strata called Marne de St. Owen, calculated to be about 40 metres (131 ft.) in thickness, and proved to be able to support a weight of 7 kilogrammes per square centimetre (99½ lb. per square inch) without sinking. All the materials for the masonry have been calculated to support pressures of what would produce crushing; and for the iron work the utmost strain to which it can be subjected is only ½ of rupturing force.

The walls of the basin are 23 ft. high, the base being 78 ft. 9 in. above sea level; and the water level is 95 ft. 2 in. above sea level, or within 6 ft. 7 in. of the top of the wall. The thickness at the base of the walls is 8 ft. 2½ in., and 3 ft. 11 in. at top; they are of squared rubble from Vergeze, and hammer-dressed millstone-grit from Gif for the facework; and at every 13 ft. chain-bond-courses are introduced, from top to bottom, of ashlar, from the Evville and Evrouville (Lorraine) quarries. Three other walls, at distances of 26 ft. 3 in., surround the basin; these are of an average thickness of 4 ft. 7 in., and are also built in hammer-dressed and millstone-grit, with copings of Evville ashlar and granite blocks to receive the iron columns, 13 ft. apart. On the east and west outer portions these blocks are of rose-coloured grès from the Vosges (the permian or magnesian limestone series of sandstones).

The southern exterior façade of the warehouses is to be in the style of Louis XIII., of brick, with ashlar bonding courses, at every 13 ft. 1 in., from the Soissons quarries. These bonds are 2 ft. 3½ in. thick at the base of the wall, and 1½ in. at the top. The remainder of

the walls are 15½ in. throughout. The bricks are of a deep red colour, from the well-known kilns of Burgundy. The foundations are of concrete, composed of fifty parts of mortar to eighty of broken stone; the mortar consisting of one part sand and 0.35 part hydraulic lime, from the Yonne basin. All the interior façade, and the east and west exterior fronts of the warehouses, are entirely composed of cast iron and brick-work, the iron framework forming a series of six columns superposed, united together by cast-iron arches, and by window-frames of iron also, the columns being 13 ft. 1 in. apart. The partitions are of hollow bricks, with eight holes, measuring 8½ in. by 4½ in. by 2½ in., and laid on the flat; they are of a light red colour, very compact, and well burnt. The columns internally are cylindrical: externally they are of a semicircular section towards the outside of the building, and square towards the inside, with projecting ribs at the angles to receive the brick partitions. For the ground-floor the diameter of the columns is 9½ in., and the thickness of metal 1 in.; for the upper floors they are 5½ in. diameter, and ½ in. thick. The window-frames are generally ½ in. thick. The flooring is to be supported by wrought-iron girders of I shape, 19½ in. deep and 9½ in. wide at top and bottom, composed of ½ in. iron, riveted together by angle irons, 3½ in. by 3½ in., with 3-in. diameter rivets, 4 in. apart. The floor is to be formed of hollow brick arches, grouted with Portland cement, mortar, and covered with asphalt ½ in. thick. These arches, 13 ft. 1 in. span, are 4½ in. thick; they are strengthened by wrought-iron ties, 1½ in. diameter, placed 6 ft. 6½ in. apart. It has been proved by direct experiment that these arches are capable of sustaining without any alteration a weight of 3,000 kilogrammes to the square metre (614.4 lb. to the square foot). The third story of the south building is reserved for public sales; there are to be five great sale-rooms, 65 ft. 7 in. by 52 ft. 6 in. and 22 ft. 1½ in. high. Behind these there is to be an immense gallery for samples, 328 ft. 1 in. long by 26 ft. 3 in. wide. On the ground floor there are to be 100 cabinets or offices for merchants, divided by a small floor into upper and lower rooms, access being obtained by a spiral staircase to the upper offices. There are, therefore, 100 of these cast-iron staircases. Five hundred ware-rooms or stores are to be provided 65 ft. 7 in. by 13 ft. 1 in. and 9 ft. 10 in. high, closed by corrugated iron doors moving on rollers. The hollow brick partitions will be made hereafter, according to the requirements of the different occupiers.

For the service of these warehouses twenty quay-cranes and as many hoists are to be furnished and worked by compressed air, according to the system of M. Neustadt, well known for his gulf-chain crane.

The roofing of the warehouses is to consist of arches similar to those under the floors, covered with a layer of cement and a coating of Sycossel asphalt. The quay, extending over 650 yards long and 20 ft. 6 in. wide, is paved with puzzolana composition, to the thickness of 2 in. Boats unloading or loading will be sheltered by an awning or "marquise," 656 yards long by 18 ft. projection, supported by wrought-iron framing resting on hollow beams, which are to repose on the capitals of the cast-iron columns of the ground-floor. This will be further strengthened by oblique tie-rods fixed to the iron-work of the second story. The whole of the rainwater from the roof and marquises will find its way into the dock through the means of the hollow cast-iron columns above described, every arrangement being made to preclude the possibility of infiltration of water into the warehouses.

There are in all 3,700 columns in the buildings, and about 57,000 lineal feet of girders of uniform section. The quantity of concrete laid in the foundations is 26,160 cubic yards at 9s. 9d. per cubic yard. The squared rubble and millstone grit masonry amount to 23,500 cubic yards at a cost of 11s. per cubic yard; there are 39,000 cubic yards of ashlar, at 73s. 5d. per cubic yard; 3,000 tons of cast-iron from the Marquis (Pas de Calais) foundries at 6s.; 3,200 tons of wrought-iron contracted for by Roussel, of Paris, at 14s. per ton, put in place. The number of hollow bricks in the works will amount to 8,000,000 at 2s. per thousand, delivered on the quay. The total expense is 240,000l. for 59,702 superficial yards of warehouse flooring, or at the rate of 53s. 6d. per square yard.

Five floating magazines for inflammable oils, spirits, and essences, are to be provided for the

grand basin: two are already afloat in it, one being filled with petroleum oil, and three are in construction. They consist each of a series of 100 wrought-iron circular tanks, riveted together and surrounded by a framework of timber. These cylinders are 8 ft. 2 in. diameter and 17 ft. 3 in. high, and are formed of ½ in. wrought-iron plate in the sides, and ¾ in. at top and bottom ends. The liquids are introduced by holes 2 ft. diameter, at the top of the vessels, each cylinder containing 5,500 gallons, and each floating warehouse 550,000 gallons. Thus the five will contain 2,750,000 gallons altogether. Moored in the middle of the basin, these barges are free from all risk from fire, and can be swung round to any part of the quays, where machinery has been erected for gauging petroleum oil. In case that, from any cause, they become on fire, they can be easily drifted out of the basin into the Seine.

On the 13th November last the water was let into the basin, and one of the floating magazines launched, with great ceremony, in the presence of the Princes Poniatowski and Napoleon; and the warehouses have been in progress ever since, except during the severe frost. The organization of the Company is due to M. Préfontaine, administrateur directeur; the surveys and studies of the works were under the direction of M. Fontaine, civil engineer, formerly élève of the Ecole Impériale des Arts et Métiers at Châlons-sur-Marne. The dock works were contracted for by M. Courtois, under the orders of the ordinary engineer, M. Henriot.

REFERENCES TO SECTIONS.

- A. Basin.
- B. Railway.
- C. Quay.
- D. Covered Way for the removal of Merchandise.
- E. Merchants' Offices.
- F. Rue de Ceinture.
- G. Covering to shelter Boats loading or unloading.
- H. Corridors communicating with Quay.
- I. Warehouses.
- K. Sample Gallery.
- L. Sale-room.
- M. Offices.
- N. Place des Docks.

SHADOW AND OUTLINE.

As Shadow and Outline for Beauty contended,
Our art's master critic pass'd thoughtfully by,
And to him both appeal'd when their argument ended,
Who smil'd his assent with an eloquent eye.

Inspired by his presence, said Shadow, "Wherever
The sun-ray is brightest I stronger appear;
And Nature, delighting in broad masses ever,
Taught man first by shadow to measure the year.

On the crest of the mountain how solemn reposes
The mantle of shade o'er the ravine of snow;
And the prism of mercy more lovely discloses
Its swathe of light o'er the strata below."

"'Tis to me," replied Outline, "those beauties are owing:
The cloud and the mountain—the glories of day—
More strongly and grandly by difference glowing,
Would lose half their splendour were contrast away.

The stream and the forest their loveliness borrow
From definite angles or subtly carved line;
And the Garden of Eden were desert to-morrow,
If you read from its graces the charms that are mine."

"No longer contend ye, twin forms of expression,"
The umpire deciding with gentleness spake;
"Your powers must unite you in peaceful concession,
And never from henceforth discussion awake.

In nature, in art, ye awake admiration:
With nature let art by your concord compare;
On the features of Myra let each take her station,
And please and subdue us in harmony there."

W. R. COOPER.

Working Men's College.

AN ARCHITECT'S DIRGE.*

Lie softly on him, Earth, for he hath laid
A fair and blessed burthen on thy breast;
And now, awhile, he asks a place of rest
Within thy holy shade.

Smile calm above him, Sky, for he did trace
The blessed cross against thine azure air;
And ever faithful bear that holy mark
Above his sleeping-place.

Shine brightly on him, Sun, in thankfulness
For that he prison'd thee in storied panes,
And made thy rays all glorious with fair stains,
Bright as an angel's dress.

Sing to him, Summer Breezes, restfully,
And bring him all the changes and the swells
And fallings of his own fair screeple-bells,
To be his lullaby.

* These lines were suggested by an adaptation of the well-known epitaph "Lie heavy on him, Earth," &c., in your paper of Saturday last. They are not intended to apply to any person in particular.—G.

LECTURES IN CONNEXION WITH THE ARCHITECTURAL EXHIBITION.

The Committee of the Architectural Exhibition have made the following arrangements for the season:—

Tuesday, May 18.—"Incidents of Old English Architecture, Civil and Ecclesiastical, especially in small Towns and Rural Districts," by Mr. A. J. B. Beresford Hope.

Tuesday, May 23.—"The Arrangements of a Gentleman's House," by Professor Kerr.

Tuesday, May 30.—*Conversazione*.

Tuesday, June 6.—"An Architect's Thoughts," by Mr. E. B. Lamb.

Tuesday, June 13.—On "Art-Foliage," by Dr. C. Dresser.

Tuesday, June 20.—*Conversazione*.

All subscribers, exhibitors, and season-ticket holders will be admitted by their tickets to the *conversations*, and will be entitled each to introduce a lady.

THE LATE WYGGESTON'S HOSPITAL COMPETITION, LEICESTER.

The trustees, at their meeting on the 21st, awarded the second premium of 50l. to be equally divided between Mr. William Millican and Messrs. Goddard, architects, of Leicester; Mr. Sorby, of London, having gained the first premium which merges in his commission, he being appointed the architect for carrying out the works. Four Leicester builders were invited to compete for the contract, viz., Mr. William Neale, Messrs. Herbert, Mr. Thomas Bland, and Mr. J. B. Collins: the first-named being the successful competitor by 25l. only, is about to commence the works. The quantities were taken out by Messrs. Northcroft & Scott, of London. The estimated cost of the buildings complete is about 13,000l.

SCIENCE AND ART.

A LARGE and influential meeting has been held at Salisbury for the purpose of establishing a school of science and art for that city. The mayor occupied the chair.

After some preliminary remarks from the Bishop of the diocese, the dean, and the members for the city, Mr. Buckmaster spoke to a resolution which was intended to give him an opportunity of developing the whole scheme of the Science and Art Department with reference to instructions in science and art. After giving a sketch of the rise and progress of the Department, and the great success which had attended the Science Minute in the formation of evening classes, he said:—

"The true connexion between science and art has never been sufficiently recognised. Leonardo da Vinci is only known as a great painter, but he was equally great a scientific man. He was one of the early practical reformers of science, and wrote thirteen volumes on pneumatics and hydraulics, which gave the earliest indication of that system of inductive philosophy with which the name of Bacon is associated. His great contemporary and rival, Michelangelo, was also thoroughly acquainted with all the then known sciences, especially those of geometry and mechanics. Phidias not only sculptured the statue of Minerva and the frieze which adorns the Parthenon, but he also superintended its building, and gave lessons on the sciences involved in its construction. Egypt, Assyria, Judea, Greece, and Rome have left us an unwritten history in their architecture; but the dawn and spread of Christianity was marked by the rise of a new era in art, which embodied the great ideas of sacrifice and hope, the noble expression of a great spiritual revelation, to which heathenism had succumbed, leaving to posterity the records of transcendent intellect in the Gothic churches of Europe and the masterpieces of art preserved in the Louvre Museum.

If we go back only a few years, we can call to mind one who never saw science without art, or art without science, who considered both as the great power by which the progress of humanity and civilisation was to be advanced in this his adopted country. In his public speeches the Prince Consort alluded constantly to this idea. He seized every opportunity of inculcating the necessity of science and art as the two great manifestations of intellectual cultivation and social refinement.

The accurate representation of any natural object on a plane surface requires the combination of two elements, the one scientific, the other artistic. The scientific consists in the proper disposal of lines geometrically determined, the artistic in that soft gradation of tone which distance furnishes in nature. This connexion between science and the art of painting did not begin till about the fifteenth century, and it was not till 1731 that the mathematics of perspective were demonstrated. From the time perspective was reduced to certain scientific principles and accepted by art, they were adopted as a necessary part of art-education, and no student in any of our art-schools would now produce a work which would a few centuries ago have been regarded with favour."

A committee was organised to receive subscriptions and make the necessary arrangements for a School of Science and Art for Salisbury and its neighbourhood.

SANITARY MATTERS.

London.—At a meeting of the Representative Vestry of St. Marylebone, the subject of the apprehended Russian epidemic reaching this country, and the necessary sanitary precautions, has been brought under discussion in connexion with an important and exciting report from Dr. Whitmore (Medical Officer of Health), as to the state in which, on inspection, he had found the vaults of certain churches and chapels directed to be closed by order in council. Dr. Whitmore reported that the work was begun on the 28th of December last, at Trinity Church, beneath which sixty coffins had been deposited. Great difficulty was experienced in closing up the vaults, especially what is called "the Russian vault," enclosed by a pair of handsome lofty iron gates, which it was found necessary to brick up with the coffins. In these vaults many of the lead coffins had burst, and very noxious and overpowering gases were continually evolving; but the disinfecting composition used effectually absorbed them, and every trace of effluvia and unpleasantness had now been removed. The vaults beneath the parish church contained 366 coffins, some in tolerable preservation, others rapidly decaying. The necessary shifting for enclosures caused the most intolerable effluvia to arise, producing nausea and sickness in the workmen, rendering the frequent use of stimulants necessary. The work of hermetically closing had, however, been accomplished, and to further cleanse and purify these vaults, in addition to layers of mould and charcoal, he had directed them to be covered with a thick coating of lime-wash. Beneath Blandford Chapel the scene which presented itself was indescribably shocking, and some idea may be formed of the dangerous condition of the place from the fact that on first entering the cellar leading to the vaults, the flame of a candle was extinguished. This place, for so many years a loathsome and poisonous charnel-house, has now been rendered perfectly clean and innocuous. In the vaults under St. John's Chapel, 110 coffins were embedded. These were also in various stages of decay, and from many of them offensive effluvia arose, and the atmosphere of the place had become polluted; but by means adopted it had been got rid of, and thorough ventilation had been introduced, and the vaults had also been lime-washed. A communication was read from Dr. Holland, the medical inspector appointed by the privy council, lauding the excellent manner in which the order in council had been carried out, and for which he considered thanks due to Dr. Whitmore. The report was ordered to be entered on the minutes, and a vote of public thanks to Dr. Whitmore, was carried unanimously. Dr. Whitmore thanked the Board, and, in answer to a number of questions as to the prevalence of typhus fever, and as to steps necessary to repel the apprehended Russian epidemic, should it make its appearance, urged rigid measures of street cleansing, and especially the prohibition of leaving about decayed animal matter. He alluded particularly to Gray's-buildings, inhabited by the Irish, which were in a frightful condition, and to which he was devoting attention. A special sanitary committee, consisting of two members of each ward, was appointed to co-operate with the medical officer of health on the subject.

Liverpool.—The local health committee are actively at work. At last meeting the inspector of nuisances reported that there were ninety-six houses where infectious diseases had occurred, and which required whitewashing and cleansing. There were also 111 houses in an unhealthy state which required whitewashing. The chairman said he was very sorry to see so many houses recorded as having had fever cases in them. There were sixty-five of them, and that was an increase; but it did not necessarily follow that fever was increasing in the same ratio. Mr. Robinson said, he had noticed in the *Times* that the medical officer for the City of London had stated that the closing as well as the cleansing of houses was the only effectual plan for getting rid of fever. Some houses had provided more than thirty fever cases, which it was found impossible to render healthy until the houses were closed and thoroughly cleansed. Orders were then given to issue notices for cleansing the houses referred to. As to the sanitary condition of the town, the chairman said the committee would be happy to see that there were not only a decrease in the number of deaths generally, but also in those recorded under the head of fever. There was only an increase of nineteen deaths on

the corrected average of the last ten years. An improved system of scavenging, at an increased cost, from 18,098l. to 21,004l., was agreed to.

Manchester and Salford.—The first quarterly report of the local Sanitary Association, for the year 1865, has been issued. The following is an abstract:—Of 18,936 cases of sickness death occurred in 782, or 1 in 24. In the first quarter of 1864 the rate of mortality was considerably higher, no fewer than 884 deaths being recorded. The most unsatisfactory feature is the fever return. The total number of new cases of continued fever, using that word in its generic sense, and including under it the several forms of fever now generally recognized as more or less distinct, was 610; although in the preceding quarter the cases were still more numerous, the death-rate was considerably lower. On separating the typhus and typhoid seizures from those of simple febricula, we obtain the following results:—Of 385 cases of simple fever, only 10, or 1 in 38, proved fatal. Among the typhus patients, on the other hand, the mortality was far higher, no fewer than 55 of the 295 sufferers having fallen victims to the disease. These figures prove that fever of a highly malignant character prevailed to a very considerable extent. It does not appear to be the opinion of many who have been brought into close contact with the operatives that want of the necessities of life has undermined the health of the industrial classes. Another unfavourable feature in the present report is the continued prevalence of small-pox. In the third quarter of 1864 the seizures from this disorder did not exceed 100; in the next three months they rose to 242; in the late quarter they still continued high, amounting to 234, in which 13, or 1 in 18, appear to have ended fatally. It is so far satisfactory to find that the infantile death-rate was decidedly lower than usual. Of the 3,495 deaths, 1,377, or about 38 per cent., were in children under five years of age.

North Shields.—The chairman of the Tyne-mouth Board of Health, with several of the committee, have made an inspection of the lanes, alleys, and premises, from the Low Lights to Milburn-place, and orders will be forthwith given to all owners of property to remove every description of nuisance; to cleanse and pave the courts and yards; and, in default, the corporation will do the work, and recover the expense from the parties liable to pay.

Miscellaneous.—Fever and small-pox are still prevalent in Whitehaven, though not so virulent as they were. Small-pox has extended to Cleator Moor, Frizington, and Keekle-terrace.—For many months fever of a malignant character has prevailed in Leather Bottle-lane, Gloucester. Many of the sufferers were tramps, and all of them perished. The surgeon of the local Poor Law Board, Mr. A. P. Carter, has been bravely fighting with fever cases in the common lodging houses, where he has been engaged almost night and day, according to the local *Chronicle*, often doing the work of nurse as well as surgeon. At a time when medical men are in so much peril, such cases ought not to be overlooked.—In the House of Commons, Dr. Brady disclosed a fearful state of things at Enneth, in the county of Norfolk, as regards infant mortality, which was declared to amount to 80 per cent. of those born. The local coroner and the parish surgeon did not hesitate to attribute criminal blame to the mothers, and they urged that it must be put down by the strong arm of the law. Starvation was said to be the cruel mode adopted for making away with the poor little creatures. Lochned cases are as nothing to this. The coroner promised to do what he could in the matter, and it is full time. He is a limb of the law himself, and ought to exert its power. It has since been said, however, that the coroner has exaggerated the evil. This itself may be a misstatement. The parish surgeon and the coroner ought to know.

WATER LIFTS v. HYDRAULIC LIFTS.

Water may be economically used as power in many ways, namely—by gravity and also by pressure;—by simple gravity or actual weight in an open vessel; by pressure, as in Sir W. Armstrong's machinery, cranes, &c. One thousand gallons of water weigh about 44 tons. In many towns where there is a water supply under pressure, this volume and weight of water can be sold to a profit at sixpence, and can be delivered into tanks or cisterns, according to the head of pressure, 50 ft., 100 ft., 150 ft., and

200 ft. and upwards. At Oldham, water is delivered and used at the railway warehouses in such manner that every gallon consumed at the station below, for locomotive or for other purpose, works its way down by lifting equivalent weights of goods into the several floors of the warehouses. At the Duke of Bridgewater's canal and colliery tunnels, water has been used more than a century for lifting coals at certain "balance pits," the liberated water supplying underground canals. Lifts for warehouses, hotels, and even for private houses, are in use, on Sir W. Armstrong's principle, and such lifts may be made in a small compact telescopic form, to do much of the carrying-upstairs-work of a private house. These lifts may be as general as they are now rare. There is nothing new in the water-lifts of Paris.

STEEP ROOFS AND FLAT ROOFS.

ALTHOUGH Mr. Kerr makes mention of tall roofs, he does merely that and no more, since he expresses no opinion whatever as to their recommendation, which I, for one, being utterly at a loss to conjecture, should like to have clearly explained. Can it be greater economy as regards material and construction, or the indication of the provision made for greater accommodation and comfort within, by there piling up aloft, far above ordinary "upstairs," a congeries of pigeon-holes and lumber-rooms, or is it simply the encephalic and æsthetic effect alone that causes such extravagant, and, I should call it, equally absurd and ugly form of roof to find favour at the present day with some folks among us? Such question—and an awkward one perhaps it is—deserves at least careful consideration.

It is all very well, but surely not all-sufficient, to say that "procrity and prolixity of roof," as the poet terms it, of course ministers to variety of sky-line,—a merit which some have of late so largely, that is, so violently insisted upon, that although it may, when full-grown, look to some eyes not very unlike an *extinguisher*, it seems to show in theirs very much like a *save-all*, for they appear to speak of it as being the very all-in-all of architectural design. To say nothing of the comparatively enormous cost of steep roofs, they are far from contributing always to the general nobleness of the structure on which they are superimposed. For, although not so intended, they are apt to dwarf all below them. No man can make himself look towering and Goliath-like in stature by wearing a tall steeple-crowned hat: rather the contrary. So, too, there is something of the incongruous, if not of the ludicrous, also in the extravagant excess of roof which is occasionally affected. At any rate, it is at variance with what Fergusson calls "common-sense building."

Quite recently, however, a suggestion has been thrown out recommending the opposite extreme of roof construction, viz., that of perfectly flat terrace roofs, which shall be perfectly weather- and water-tight, and capable of being converted into gardens tossed up almost sky-high, though not, I fear, out of the reach of London fogs and smoke. Until I learn more about the hinted-at revolution in roof-building, I do not pretend to express an opinion either *pro* or *con*.

ART-LOVER.

FREE METHODIST CHAPEL, POPLAR.

Sir,—In your last impression there was a list of tenders for the erection of this chapel, the lowest amounting to 5,120l., and greatly beyond the expectations of the committee; indeed, the sum named in the instructions to competing architects was 2,500l. Can any of your correspondents throw any light upon this?

A SUBSCRIBER.

THE BUILDING TRADES.

THE master painters in the potteries have decided to bring men into the district, if possible, to the number of nearly 200. It was stated at a masters' meeting that several more men had accepted the masters' terms, and were working at Hanley and Tunstall.

At Keyham, about 200 excavators employed on the Government contract work have struck for an advance of wages from 3s. to 3s. 4d. a day. Certain rules have also been adopted by the men, to some of which the employers object. The smiths employed in sharpening the tools are out with the excavators, and the masons, consequently, have also been obliged to cease work. The masons have given notice of their

intention to ask for 5s. per day for country, and 4s. 6d. per day for town jobs, after the 1st of May. A report of the affair has been forwarded to the Admiralty.

At a recent meeting of the Yorkshire Association of Master Builders, the two following resolutions were adopted for acceptance by the operative masons of Leeds, giving them their choice:—

"1. That on and after the 1st day of May, 1865, the masons leave work at one p.m. on Saturdays, and in other respects the time to continue as at present; and that the wages be 5s. per day for the first five days of the week, and 3s. 6d. per day for Saturday, or 28s. 6d. per week. 2. That on and after the 1st day of May, 1865, the masons be paid 5s. per day, commencing work every morning at six o'clock, leaving off work at half-past five o'clock the first five days in the week, and four o'clock on Saturdays."

The master builders also agreed to the questions pending with the operative carpenters and joiners being put to arbitration.

Some two months ago the operative painters of Sheffield forwarded a notice and requisition to their employers, asking for an advance of wages and other changes in payment for overtime. The notice has expired; and, as no reply has been received, it was feared that a strike would ensue. Several of the principal employers had interviews, however, with their men, and made such concessions to their demands that it is now hoped, upon pretty good grounds, that a strike will be obviated.

A largely attended meeting of operative stonemasons in Huddersfield has been held, in reference to a request they have recently made to their masters. They want to cease work at one on Saturdays instead of four; to receive wages at the rate of 27s. a week from the middle of February to the middle of November, and at the rate of 24s. for the rest of the year; to have only one apprentice to five men; and to have other alterations made, including non-payment at public-houses. A letter was read from Mr. J. Sutcliffe, as representing the masters, declining to grant these terms, and the men then decided to strike on the 1st of May, unless in the mean time their request be granted.

A meeting of the operative carpenters and joiners at Rotherham has been held, to consider the propriety of moving for an advance of wages. A resolution was passed deciding to ask for an advance of 2s. per week. Notice of the motion, to expire on the 20th May, was to be forwarded to the employers.

The great bulk of the joiners and housecarpenters of Newcastle and Gateshead are now on strike for a half-holiday on Saturday. Twelve of the masters have acceded to the demand of the men, but forty-six of the other employers refused to do so, and the men, according to previous notice, have consequently struck work.

The strike of the painters in Carlisle is now at an end. The result is that the men's working hours will be shortened by two hours a week; but they will receive the same wages. With regard to the other branches of the building trade, affairs are unchanged among the joiners. The strike of the masons is at an end. The masters met a deputation of the men, when the hour system was withdrawn on the one side, and the notice for a reduction of the hours of labour, by half an hour a day, was withdrawn on the other. The only questions in dispute left were some rules in the proposed code as to non-interference and piece-work. The deputation of men went away to consult their club, and at another conference between masters and men all differences were removed. A code of rules was agreed to very similar to those adopted by the bricklayers, and so the strike, which has lasted seven weeks, has been brought to an end. Of the hundred men who went out seven weeks ago, only about fifty are now left in the town.

CHURCH-BUILDING NEWS.

Ipswich.—The chief stone of the restoration of St. Mary Tower Church has been laid. The stone was laid in the south-east angle of the churchyard. The tower will be 87 ft. high, and the spire 83 ft. high, the total height being 170 ft. The square at the basement will be 24 ft. Vaulting groin stone will form the ceiling of the entrance, and each of the gurgoyles above will be figures of the four Evangelists. The bottom stage of the tower will be built entirely of Corsham Down stone, and the remainder of stone and hammered flint. The capitals will be ornamented with figures of a Scriptural character. The total cost is estimated

at 4,000l. The whole of this sum, as well as the entire cost of the work of restoration already completed, and which, we believe, is something like 10,000l., will be contributed by Mr. Bacon. The architect is Mr. R. M. Phipson, of Ipswich and Norwich; and the builders are Messrs. J. Stanley & Son, stone masons, St. Stephen's, Norwich. It is intended to increase the peal of bells from ten to twelve. After the ceremonial the workmen employed in the building, and others, partook of luncheon, provided by Mr. Bacon, at the Oak Rooms. About 150 sat down to the repast.

North Kilworth (Leicestershire).—The parish church of North Kilworth has been re-opened, after having undergone a restoration, under the superintendence and according to the plans of Mr. Joseph Clarke, of London, architect. The contractor was Mr. Law, of Lutterworth. The old west gallery has been removed, and the west arch thrown open. The high pews have been taken away, and replaced with open seats. A new roof of polished oak has been put to the nave. A south aisle has been added, the church having previously consisted of nave and north aisle only. The porch has been rebuilt. A new stone and marble font, the gift of Miss Belgrave, the rector's sister, has been placed a short distance from the door. A new lectern, of carved oak, has been provided, the pulpit being composed of a portion of an ancient pulpit, the panels of which, with the tracery and colour still remaining, were found doing duty as an old clock-case. The clerestory windows in the north aisle, which were blocked up, have been thrown open and glazed, and the whole of the interior has been thoroughly cleansed and renewed.

Beiford.—A vestry meeting has been held at St. Paul's, for the purpose of submitting the architect's revised plans for the enlargement and restoration of St. Paul's Church. The Vicar said the revised plans had been considered and approved by the committee, and they suggested that a vestry meeting should be called without delay. After some discussion the plans were inspected, and Mr. R. Palgrave, being present, gave information respecting the proposed tower and spire and other matters of detail. It was then unanimously resolved, "That this vestry approves of the resolution of the Restoration Committee to reproduce the existing tower and spire of St. Paul's Church upon the present site." About 300 sittings, besides sittings for children, will be provided. It was also resolved "That the architect's amended plans as sent in for the sanction of the vestry, subject to slight alterations of detail, be carried out;" and "That this vestry empowers the Committee to commence the work as soon as the amount of subscriptions shall, in the judgment of the Committee, warrant them in proceeding."

Aylesbury.—A meeting of the subscribers to the voluntary church service fund was recently called by the churchwardens of the parish church of St. Mary, to receive the report of the architect, Mr. Scott, on the state of repair of the exterior, and his opinion as to what was necessary to be done to thoroughly repair and restore it, with the probable cost. After considerable discussion, the following resolution was carried unanimously:—"As it appears to this meeting that the sum of 2,000l. is required to place the whole of the exterior of the parish church in a condition of complete architectural repair, and that of this amount a large proportion is needed for the actual necessary repairs of the fabric, it is desirable to propose to the parishioners in vestry that the sum of 1,000l. be raised on security of the church rates, and that an immediate effort be made to raise the remainder by voluntary contributions."

Middleton Cheney.—The parish church has been re-opened, after restoration, from the designs of Mr. G. G. Scott, under whose superintendence the contracting builders, Messrs. Davis, of Banbury, have executed the work. The total cost of the repairs has been about 3,000l., of which sum 150l. were contributed by the authorities of Brasenose College, 600l. by the rector of the parish, and 600l. by a voluntary church-rate, the remainder being made up by contributions from various friends. The roof has been painted by Mr. Cottam, of Banbury; while a memorial window at the east end (the subject being All Saints), erected by Messrs. Morris, Marshall, & Faulkner, of London, in memory of the late Mr. William Croome, completes the ornamental portion of the work.

Timperley.—Christ Church, Timperley, has been re-opened upon the completion of the alterations, comprising the additions of transepts,

chancel, vestry, organ-chamber, &c., affording an increase in the accommodation of 300 persons. The new portion to a great extent harmonizes with the old building, except the seats, which are low and open benches in lieu of pews. The organ-chamber adjoins the chancel. The stalls for the choir are in the chancel, which is laid with enriched encaustic tiles. The lighting is by means of coroms, from Skidmore, of Coventry. The windows of the transepts are filled with stained glass by Edmondson & Son, of Manchester. An inclosure-wall of stone has been built to the churchyard. All the works have been carried out under the care of Mr. John Lowe, architect, by Mr. James Lucas, builder, both of Manchester, and involve an outlay of about 1,750l.

DISSENTING CHURCH-BUILDING NEWS.

Weymouth (Dorset).—Invitations for plans for a new Bethel building were recently issued, a premium of 10l. being offered for the best design. That by Mr. Norman (with Mr. R. Reynolds) has been accepted by the committee. The building, which will be capable of accommodating 250 people, will be in the Italian style of architecture. The chapel, 55 ft. by 27 ft., will face the harbour, and there will be a reading-room at the rear. Bath stone will be used in the building, with brick in the dressings.

Lyttelton Minster (Dorset).—The foundation stone of a new Wesleyan chapel has been laid at Lyttelton Minster. The proposed building will be a Gothic structure 45 ft. long by 32 ft. wide, and it is calculated to hold about 250 persons. It will be of red brick dressed with white stone, and will be lighted by four double windows on each side. The entrances will be by two porches, one at each of the front angles of the building. The architect is Mr. J. B. Corby, of Stamford; and the builder, Mr. E. Sharland, of Corfe Hills. The site has been given by Miss Rowland.

Ipswich.—The new Congregational chapel and school, to be erected at the junction of Crown-street and High-street, will be faced with white bricks and stone dressings, with bands of coloured bricks introduced in string-courses and arches. The south front, towards Crown-street, will consist of a gable end, 50 ft. high, filled with a three-light traceried window of stone, with a deep arch of coloured bricks over it. Below this is an open-arched porch of stone, as the principal entrance leading to the lower story, with entrance to galleries on either side. The south front, towards High-street, consists of five bays, divided by projecting buttresses, each bay filled with a double-light traceried window, the whole height to the roof, and finished at each end with a hipped roof over the staircases, the gable end of the school forming a wing at the north boundary. The roofs are to be covered with slate, with ridges of tile cresting. The interior will have a gallery all round, the pulpit being opposite the entrance, and the organ gallery behind it, with vestry below. The roof will be in three spans, carried on iron columns, the centre span finished with arched ribs of timber, with tie-beams over the side spans, and five arches on each side, longitudinally. The principal timbers will be wrought, stained, and varnished, and the ceilings plastered, and open the whole height to the ridge. The internal dimensions will be 70 ft., extreme length, and 40 ft. wide. The number of sittings will be about 800, including 160 children in the gallery over the entrances. The dimensions of the school will be 60 ft. long, and 22 ft. wide, and it will be lighted with gable windows at each end, 18 ft. high from the floor, and three side windows, the roof being open to the collar-beam. There will be also two class-rooms, each 20 ft. by 10 ft., opening to the school. The contract has been let to Mr. E. Gibbons for 2,040l. The designs were prepared by Mr. F. Barnes, of Ipswich, architect.

Knutsford.—The foundation-stone of a new Congregational church and schools has been laid here. The church is designed to accommodate 350 persons, all on the ground-floor. The general arrangement is that of nave and south aisle, with chancel, and north transept for the organ. There are two vestries, one on the north and the other on the south of the chancel. The aisle is separated from the nave by an arcade of stone in four bays. The position of the fifth bay at the south-west angle is occupied by the tower and spire, the height of which will be 100 ft. The principal entrances are through the tower, from which aisles proceed, one 5 ft. 6 in. wide up the centre of the nave, and the other 3 ft. 6 in. wide

along the south wall. There is a second entrance in the north transept. The seats throughout are open benches. The church will be heated by hot water. The style adopted is Early Gothic of the French type. A large four-light window is in the west gable, and a triplet in the east end, surmounted by a wheel window. The clerestory windows are mixed trefoil, quatrefoil, and cinquefoil, in circles. Plate tracery is used throughout. The inside dimensions are,—from the west wall of the nave to the east wall of the chancel, 84 ft.; and the width of nave, 26 ft., and south aisle 12 ft. 6 in. The roof is open, with curved ribs, celled between the spars, and finished with a stencil pattern. The schools consist of infant schools, 24 ft. by 14 ft.; large room, 48 ft. by 24 ft.; and two class-rooms, 15 ft. by 13 ft. each. These are situated at the back of the church, and at a lower level, the whole forming one structure. The walls are of dressed brickwork, relieved by bands of blue Staffordshire brick, and arches of the same. The dressings are of white Alderley stone; the roof covering of tiles. The architect is Mr. J. C. Gilbert, of Nottingham; and the contractor, Mr. J. Paul, of Knutsford.

STAINED GLASS.

Peterborough Cathedral.—A stained glass window has been erected in this cathedral, the work of Messrs. O'Connor, London. It is a late fifteenth century window, and one of those forming the second range of the three series included in the north windows of the north transept. It is of two lights, with tracery. The subject is "The Last Judgment." In the eastern light is represented at the top Our Lord seated, one hand raised in the act of reprobation, the other bearing the orb. On the same range with this figure, and pointing to the Judge as standing, or, rather, poised in the air, is shown the archangel Michael, who has his sword drawn: he directs groups below, representing the angels of wrath and peace. They fulfil his commands to the elevation of the just and the condemnation of the wicked.

Gazeley Church.—A painted window, by Messrs. Lavers & Barrard, has just been fixed at the east end of the south aisle of this church, corresponding to another in the north aisle, presented by the Rev. Thomas Burroughes. The subjects are the "Baptism," "Temptation," and "Agony of Our Lord;" and in the central light below is a representation of Our Lord bearing the Cross, the two side lights containing texts applicable to the subjects.

Easton Church (Wilt).—The east window, of Gothic architecture, in the Perpendicular style, has been filled with stained glass, executed by Messrs. Lavers & Barrard, in memory of a son of the pastor. The centre compartment represents the Birth of Christ, and the Crucifixion, with the Ascension in the quatrefoil. The side lights have figure subjects; "The Good Samaritan," and "Christ walking on the Water;" the smaller subjects of "Christ healing the Sick," the "Apostles at the beautiful Gate of the Temple;" with Faith, Hope, and Charity in the tracery. A monument in connexion with the same memorial has been designed and executed by Mr. W. T. Hale, of London, and consists of a black marble slab of pyramidal form, upon which is placed a Latin cross in white marble.

Cardiff Cathedral.—The memorial window to Dean Rice, in the east cloister of this cathedral, is now uncovered. The artists are Messrs. Clayton & Bell. The general subject is the childhood of the Saviour, the wise men discovering the star in the east, and their appeal to Herod; the presentation of offerings to the babe in the manger; the virgin mother and the reputed father. A star beams upon one group of figures, and a large star shines from the centre light upon all the pictures. Before the festival all the windows in the cloisters will be filled with painted glass.

Whitley Church.—Five stained-glass windows have been put up in this church. They are the gift of Mrs. Nators, of Cullercoats, and are dedicated to the memory of various members of her family. The principal figure in four of the windows is that of our Saviour, the chief figure in the fifth window being that of St. Peter. The windows were designed and have been executed by Mr. Barnett, of Newcastle.

Stillorgan Church (Leinster).—A design for a memorial window to the late Archbishop Whately in the parish church of Stillorgan, has been furnished by Messrs. Cox & Son, of London. It

is intended as an illustration of the text in Revelation, "Blessed are the dead who die in the Lord." The medallions which surround the central figure represent various acts of charity and kindness described in the Bible, and illustrative of the character of the late Archbishop of Dublin.

Mullingar Church (Westmeath).—A new stained-glass memorial window has been put up in this church. The artists were Messrs. O'Connor. The window consists of seven lights in three tiers, and the glass is graduated in colouring from the outside to the centre light. It has been erected at an expense of about £201, by the parishioners and others, in memory of the late vicar, the Rev. John Hopkins.

Gloucester Cathedral.—We are requested to say, the window recently erected here to Dean Rice, was executed by Messrs. Hardman & Co., and not by the artists named last week.

NEW THEATRES.

South Shields.—The proposal for a new theatre at South Shields has now assumed a tangible form, and a design has been chosen. A short time since the directors advertised, offering a premium of 25l. for the best design, which invitation was responded to by eight architects, viz., Mr. T. M. Clemence, borough surveyor, South Shields; Mr. Thomas Oliver, Mr. Snaith, and Mr. Lambton, of Newcastle; Mr. Moore, of Sunderland; Mr. C. J. Phipps, of London; and two others under assumed mottoes. The directors, after considering all the designs, were of opinion that the plans and general arrangements, both before and behind the scenes, and the decorations of Mr. Phipps, were the best, while the elevation and frontage of the theatre and the shops in Mr. Clemence's design were preferred; and, after an interview with each of these gentlemen, it was unanimously decided to appoint Mr. Phipps and Mr. Clemence joint architects to carry out the work. The necessary plans are to be at once prepared, and the building commenced, so that it can be opened before the close of the present year. Mr. Phipps is at present engaged in the erection of a large theatre at Nottingham. The South Shields Theatre will accommodate 250 in the boxes, 500 in the pit, and 800 in the gallery.

Hull.—Last week, the foundation-stone of a new theatre was laid at Hull, on the site of the late Theatre Royal, which was destroyed by fire on the 13th of October, 1859. The stone was laid by Lord Londesborough. After the ceremony, his lordship addressed the company assembled, expressing the pleasure he felt in laying the foundation-stone of a building which would be a fitting addition to the many fine buildings in Hull. He had heard people sneer at the truisms enunciated in plays, and at the enthusiastic applause which good sentiments received, even from the galleries; but he thought that such influences could not be without good effect, and that the legitimate drama must have a tendency to elevate and purify the tastes of the people. The new theatre will be in the Italian style of architecture; the block of buildings to be 146 ft. by 72 ft. It will be approached by five distinct entrances, thus affording ample means of ingress and egress. The design is by Mr. R. J. Smith, of Hull.

RAILWAY MATTERS.

It is understood that, according to a report just adopted by the General Managers of the Railway Clearing-house, the committee have inspected and considered 196 inventions submitted to them for communication between the passengers and guards of trains; but the result has been merely to confirm the views expressed in the report adopted twelve years ago, to the effect that none of the plans suggested could be justifiably recommended. They "think it desirable, if practicable, to give passengers by express or other trains, running for considerable distance without stopping, the means of attracting the attention of the guard, and enabling him to stop the train at the next station, or under the protection of the next fixed signals;" and that with that view some of the most promising of the offered inventions should be further tested; but, before putting this into operation, they would insist upon Parliament passing penal laws to keep the wilful or over-timid public in order. As we have often said, the formation of a watch-

man's beat, either through the carriages or alongside of them, would do away with all difficulty, and nothing short of that will do; because, even were there the best possible means of calling the attention of the guard, how is he to know what is wanted, or whether there really be any necessity for stopping the engine and so plunging into new dangers, unless he can traverse the train, and see and hear for himself, and become assured that the call was not made by some practical joker or some nervous or foolish person of either sex?—The traffic receipts of the United Kingdom amounted, for the week ending the 15th of April, on 11,841 miles, to 659,958l., and for the corresponding week of last year, on 11,490 miles, to 603,882l., showing an increase of 351 miles, and of 56,076l.—An American paper states that a contract has been made with influential Germans, to bring from Germany 2,000 men, who will each take a tract of the Kickapoo Railroad lands, in Kansas, and work out its value on the railroad.—*Railway Companies and their Contractors.*—Although the engineer may, in directing certain works, exceed his power and authority, the company, by permitting the works to be proceeded with, and afterwards taking the benefit of them, is precluded from raising the question as to the propriety of them, and the powers of their officer to order them to be done. This was the holding of the Lords Justices in the case of Hill v. The South Staffordshire Railway Company, upon a bill filed by parties who had contracted with the company to construct part of their railway, seven miles in length, between Walsall and Dudley.

Books Received.

Art applied to Industry. A Series of Lectures by WILLIAM BURGESS, F.R.I.B.A. Oxford and London: J. H. & Jas. Parker.

THESE lectures, originally delivered by Mr. Burgess, at the Society of Arts, under the terms of the Cantor bequest, have been already published in the *Gentleman's Magazine*, and were referred to in our pages on various occasions. It will suffice, therefore, to mention their appearance as a whole, in a compact little volume, together with two other papers read, one at the Architectural Association, the other at the Architectural Museum.

Handbook of the Steam-Engine. Illustrated. By JOHN BOURNE, C.E. London: Longman & Co. 1865.

THIS Handbook is designed to constitute a Key to the author's "Catechism of the Steam-Engine," and a more elementary but not less practical treatise than his quarto on the Steam-Engine, already favourably noticed in our columns. The present work, according to the author, contains all the rules required for the right construction and management of engines of every class, with the easy arithmetical solution of those rules. It is illustrated by numerous tables and examples, also by sixty-seven woodcuts, and is altogether recommendable.

VARIORUM.

"THE Alternating System" is a sort of prospectus containing "a brief account of Mr. Barwell's 'Improved method of utilizing sewage and urine, and for facilitating their passage through the pipes, to prevent the pollution of rivers and streams,' in accordance with his last patent, obtained for that purpose." A financial company, it states, is in course of formation in order to carry out the patent, which relates to the making of a dry manure of sewage deposit by means of sulphate of lime, to the production of sulphate of ammonia and carbonate of lime, while the purified liquor only is sent through mains and pipes alternately with sewage from the outfall, so keeping the way clear and clean. The necessity or advantage of having dry manure for certain crops such as wheat is urged in favour of this method.—*The Quarterly Review*, for April (Murray, Albemarle-street), contains a leading paper on the Galleries of the Louvre; another on Education in France; one on our Guns and Ships; and various others on more or less interesting subjects.—A Report of Proceedings at the Twelfth Anniversary Dinner of the London Association of Foremen Engineers, held at the Bridge House Hotel, London Bridge, on the 18th February last, has

been printed by King & Co., Queen-street, E.C.—"The Mule Spinning Process, and the Machinery employed in it described. By Kurt Nester. Heywood, Manchester, 1865." This is a practical treatise on a curious and interesting subject, illustrated by eleven engraved plates of the mule spinning machinery used for "middle fine numbers."

Miscellaneous.

TEXIER & PULLAN'S "BYZANTINE ARCHITECTURE."—The Empress of Russia has been pleased to signify her approbation of this book by sending Mr. Texier a diamond ring.

ARCHITECTURAL ASSOCIATION.—The Voluntary Examination Class will meet on Monday evening, May 1st, at eight o'clock. Subject, "Geometrical Drawing," by Mr. Lacy W. Ridge.

LIVERPOOL ARCHITECTURAL SOCIETY.—At the last meeting of this Society, Mr. Joseph Boulton, president, mentioned with regret the death of Mr. Justen, one of their most active young members. Mr. H. P. Home read a paper on "Some Essentials of Architectural Art."

THE LATE MR. STEPHEN BIRD.—Many of our London readers will hear with regret that Mr. Stephen Bird died on the 24th inst., at his residence in Kensington. Mr. Bird, who was nearly 85 years old, was successfully engaged for many years as a builder, and was well-known for his integrity and good sense.

SOCIETY FOR PROMOTING THE BUILDING OF SUBURBAN VILLAGES.—A prospectus has been issued preparatory to forming a Society to promote the building of suburban villages for the mechanics of the metropolis. Under the head of Council, it has the names of the Hon. W. Cowper, Mr. H. Pownall, Mr. T. Twining, Mr. H. A. Hunt, and Lieut.-Col. Murray.

LONDON MEAT AND POULTRY MARKET COMPETITION.—In pursuance of a reference made to them in the Court of Common Council, the Markets Improvement Committee have reconsidered the designs sent in for the construction of the Meat and Poultry Market in Smithfield, and have resolved to recommend that plan No. 1, motto, "A Key," should receive the first prize of 300l., and that plan No. 3, motto "Citizen Stationer," should receive the second prize of 200l.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—This Society held its fourth conversation of the season at the Gallery of the Society of British Artists, in Suffolk-street, Pall-mall. The company was very numerous, and the rooms were brilliantly lighted, and hung with the pictures forming the exhibition of the year. On this occasion the silver medals awarded last year were presented by Mr. Percy Doyle, C.B., who presided in the unavoidable absence, through indisposition, of the president, Viscount Stratford de Redcliffe. The musical arrangements formed an agreeable feature of the reunion.

THE DÜPPEL MONUMENT AT BERLIN.—The ceremony of laying the first stone of the monument intended to commemorate the capture of the Danish entrenchments at Düppel took place on the first anniversary of the exploit. For some days a large square had been set apart in the centre of the Königsplatz, outside the Brandenburg gate of Berlin, between the Raczyński Palace and Kroll's concert-room, decorated with numerous masts and poles, bearing German flags. In this space, forming the site of the new monument, the first stone was laid. The king and the members of the royal family viewed the ceremony.

STRANGE VICISSITUDES IN ZION CHAPEL.—The chapel, long known to the religious world as Zion Chapel, was originally used as the place of worship for Lady Huntingdon's connexion. It was in this chapel that Irving poured forth his fervid and confused utterances; and it was here that Pugin, as a youth, was tortured, as he himself feelingly describes, not so much by the ravings of Irving as by the sight of the hideous building he was so often doomed to pass his Sunday mornings in; and now, this very Zion Chapel, once the head-quarters of Dissent, is devoted to the purposes of Roman Catholic worship, and its grotesque architecture which so afflicted the elder Pugin is being completely refashioned by his son, Mr. E. Welby Pugin.

THE MUNICIPAL SYSTEM IN TURKEY.—Local self-government is being introduced into Turkey, which will henceforth have its vestries and town councils like other civilized nations, instead of having all its affairs administered from Constantinople.

SANITARY STATE OF CORK.—A commission appointed to inquire into the sanitary condition of Cork, gives a fearful account of the state of the city. Scarcely any of the humble class of dwellings contain requisite sanitary accommodation, and the sewers are either defectively constructed or altogether absent. Many of the poorer houses are let to seven or eight families, so that the unhealthy overcrowding of these dwellings, aided by the disgusting state of the streets, conduce in the highest degree to the spread of fever and sickness.

SOUTH STAFFORDSHIRE BRICKYARDS.—Mr. Baker, inspector of factories, gives, in his report, just issued, a sketch of workers in the fire-brick yards of South Staffordshire, having been induced to visit brickyards in various parts of the kingdom last year, under the impression that they were included in the Factories Act Extension Bill of last session. In South Staffordshire, where the males are attracted to the ironworks, he found children of very early years and young girls in the clay yards, brought up amid excessive labour and scenes most demoralising.

ACCIDENT AT THE DENBIGH WATER-WORKS.—In the summer of last year the reservoir of the Denbigh Waterworks was completed, but on its being filled a leakage was discovered, and the only way that suggested itself to the contractor to stop the leakage was to dig a deep trench and fill it with puddle. Workmen have been engaged on this work during the winter, and a trench of about 50 ft. deep, 3 yards wide, and about 50 yards in length, has been dug on the north side of the reservoir. The siding of the trench, which is quicksand, recently gave way and buried and killed three men who were at work.

PERILS OF THE STREETS OF LONDON.—The Telegraph informs us that, having carefully prepared a census of persons killed in the thoroughfares of London, it has ascertained that the probable amount annually is some 252 persons. On the British railways the average is twenty annually. Comparing the 200,000,000 to 300,000,000 of passengers conveyed by the rail some 70,000,000 of miles yearly with the casualties of the London streets, the result is that the chances of death to the London pedestrian are as 100 to 1 compared with the railway traveller. Safe crossings are sadly wanted.

ST. JOHN'S HOSPITAL FOR SKIN DISEASES.—On Saturday last, the Rev. Alex. J. D. D'Orsey lectured at Willis's Rooms for the benefit of this institution. The lecture was on the English language. Having traced the two great branches of English, the Anglo-Saxon and Norman-French, to their sources, and shown how they formed and rolled together, like two powerful streams, the lecturer proceeded to ask what we are doing to preserve the noble heritage of language which had come down to us as a sacred trust from our ancestors, and dwell with keen irony upon the wretched mistakes in grammar and the use of the accent, made daily by men who ought to know better.

THE HOLBORN VALLEY IMPROVEMENTS.—On the 25th, the first case in connexion with the operation of the Holborn Valley Improvement Act came under consideration at the Lord Mayor's Court, before the Recorder and a special jury, "Sewerage v. The Corporation of London." It was brought to ascertain the value of some freehold premises, No. 5, Farringdon-street, required for the Holborn Valley improvements. Mr. Bovill, Q.C., and Mr. Murphy were for the claimant; and Mr. Hawkins, Q.C., Mr. Chambers, Q.C., and the Hon. Mr. Thesiger for the Corporation of London. The claim made was 5,172l., and evidence as to the real value of the property was given on both sides. After a long investigation, the learned Recorder submitted the case to the jury, who returned a verdict for 3,830l. A special jury was also sworn in another compensation case arising out of the "improvements" referred to, viz., "Hearder v. The City of London," in respect to premises on Snow-hill. The jury went to view the property, and the hearing was appointed for Thursday week. Mr. Coleridge, Q.C., and Mr. Hawkins, Q.C., are engaged in the case. The works so long contemplated for the improvement of Holborn Valley are at length about to be commenced.

THE IRON TRADE STRIKE AND LOCK-OUT.—The termination of the strike in N. Staffordshire seems to be as remote as ever. The masters have reopened their works, but refuse to return to the old rate of wages. The puddlers, consequently, are now turning their attention to emigration, and the Brierley Hill executive of the union has placed at their disposal for that purpose 2,000l. Besides this sum, the ironworkers in South Staffordshire who are now at work have agreed to a levy of 5s. a week to enable the emigration of North Staffordshire puddlers to go on. Over 300 have applied to be sent out. All the ironworks in North Staffordshire are in operation, but the puddling furnaces are chiefly worked by underhands, under the supervision of the managers. The lock-out in Scotland has terminated, the reduction of wages to be about 4s. a week, instead of 8s.

THE IRON TRADE.—Ryland's Circular quote; prices as follows, at Wolverhampton and Birmingham:—Puddled steel, 12l. 10s. per tons cast steel block (raw), 1l. 6s. per cwt.; cast hammered, 1l. 14s. per cwt., f.o.b., Hull; marked bars, 8l. 10s.; sheets, singles, 10l.; doubles, 11l. 10s.; lathens, 13l.; angles 8l. 6s. to 9l.; gas strips, 8l. to 8l. 10s.; puddled bars, 5l. 10s. to 6l. 5s.; scrap bars, 6l. 10s. to 7l., according to quality. North Staffordshire.—Bars, 7l. 10s., best, 8l., best best, 8l. 10s.; best angle iron, 8l. 10s.; best T iron, 9l.; bridge and tram rails, 7l. 15s.; best plates, 9l. 10s. Puddled bars, 5l. 10s. to 6l., delivered at Manchester, Liverpool, or this district. Welsh bars, 6l. 15s.; Welsh rails, 6l. 15s. to 7l. 2s. 6d.; Welsh puddled bars, 5l. 10s., delivered to stations in this district. These prices are quoted as "at Works."

THE OIL REGION OF NORTHERN PENNSYLVANIA.—A correspondent of the *Morning Star* says:—Men are boring several hundred feet into the earth in this region, and striking on a vein of this oil. In many instances the paraffin flows out 30, 40, 50, 100, 700, 2,000 barrels a day. Men almost beggars have been lifted into fortunes, in a few weeks, of from 20,000 to a quarter of a million of money. This is no exaggeration. The mighty drill worked by steam power is tapping the earth in every direction. The vein is struck: out come first gas, then water, then the oil, in some cases spouting 70 ft. high. It is calculated that these oil-wells are producing four millions sterling a year, and still they are increasing. For fifty miles round and more the country everywhere smells of paraffin. One jet of the oil came with such force and in such quantities that it formed a river, took fire, and set the country in a blaze.

BEAUMONT'S TUNNEL DRIVING MACHINE.—An interesting experiment is now being tried at the seat of Mr. W. B. Beaumont, Upper Wood Hall, Barnsley, near to the South Yorkshire line of railway. The machine patented by Capt. Beaumont, of the Engineers, for driving tunnels in stone by machinery is the invention under trial. The result is said to have been that two yards may be regularly driven in eight hours. A series of cutters or jumpers are arranged around the periphery of a strong iron wheel or bore-head, which latter is also armed in its centre with a single tool. The system is set in motion by steam or compressed air, acting through the medium of a piston and cylinder, with its necessary accessories of valves, &c.; giving a series of heavy blows, while at the same time the bore head rotates slowly on its axis, thus cutting a continuous chase or groove, which isolates a cheese-shaped mass or rock. The centre tool or jumper has meanwhile cut a central hole capable of containing a sufficient amount of powder to shatter the rock thus left free to receive the full force of the explosion. The diameter of the tunnel now being cut is 5 ft. 2 in.

GAS.—The directors of the Arundel Gas Company have reduced the price of gas from 6s. 6d. to 6s. per 1,000 ft.; the Framlingham Gaslight Company's directors from 6s. 8d. to 6s. 3d.; and the directors of the Wigan Gas Company, from 4s. 2d. to 3s. 9d. to small consumers; in the country district, the present prices are 5s. 6d. and 5s., and these will be lowered to 5s. and 4s. 6d. The recent lighting by gas of the farm buildings lately constructed near Bienerhasset, the property of Mr. William Lawson, says the *Carlisle Journal*, may furnish an excellent example of the improvements that may be effected with a view to economy in agriculture. The new apparatus is that produced by Messrs. Haughton & Thompson, of Carlisle.

COPPER.—There has been very little business done in the copper market during the past week, according to *Ryland's Circular*. Smelters quote:—Tough, 93l. per ton; best selected, 96l. per ton; manufactured, 100l. per ton. But where sales have been made, a decline from these rates is submitted to. Compared with the previous week's sale, the advance has been in the standard 1l. and in the price per ton of ore, about 1s. 2d. Compared with the corresponding sale of last month, the decline has been in the standard 5l., and in the price per ton of ore, about 6s.

THE CASUAL POOR OF THE METROPOLIS.—It is satisfactory to notice that, in various ways, the managers of the metropolitan parishes are endeavouring, by means of statistics, and by the arrangement of maps, which well define the parochial and clerical divisions, to lay before the public at large, much useful and interesting information. For instance, here we have a return by Mr. Douglas, the master of the Marylebone workhouse, of the places of residence of 4,325 casual poor who have been admitted into that establishment for a night's lodging. The figures show from what varied directions the veriest poor find their way to the metropolis. A similar return for the same period as that during which the 4,000 and upwards of applications were made to Marylebone from the other casual wards would add much to the value of Mr. Douglas's report. The small number of foreigners who have been obliged to apply for parish relief in this temporary way seems remarkable. The natives of France were only 4; Germany, 28; and America 29,—in all, 61. The applicants belonging to England were 3,129; Ireland, 984; Scotland, 103; Wales, 46; The Channel Islands, 10.

CANNEL COAL.—About a century ago, the Duke of Bridgewater was the proprietor of a large estate situated at Worsley. This estate contained valuable coal seams, easily to be got at, but nevertheless comparatively worthless, in consequence of the great expense and difficulty of transporting the coal to market. Under the duke's directions, Brindley constructed a profit-paying canal between Liverpool, Manchester, Worsley, and the Great Wigan district. This canal appears to have been finished about the year 1766, and store-houses were built at various points in its course, where the duke's coal was deposited, for the purpose of supplying the immediate neighbourhood. At this time, says *Newton's Journal of Arts*, the word "kennel" or "kannel," was generally employed in Lancashire and Cheshire to designate an artificial water-course; and even Brindley himself, in some of his letters, speaks of the new undertaking as "the duke's kennel." It is not therefore surprising that the duke's coal should have received the name of "kennel coal," being, so to say, kennel borne; and this name would be peculiarly applicable at Liverpool, where sea-borne coal from Whitehaven, in Cumberland, had long been in use, and was, moreover, an article differing in many of its qualities from the duke's coal.

USE OF WASTE HEAT IN KILNS.—A North-fleet correspondent, "W. May, jun.," who appears to be a practical man, though not an available writer, addresses us on this subject. He speaks of the gases arising from Portland cement, and says that while it is burning in the kilns a great heat is obtained by consuming the gases, and then passing the same under a drying floor. When alight, the gases are like a rolling sea of fire, and this will travel a great distance before it requires a chimney-shaft;—that is to say, if the fires are in a straight line, the heat from the gas will dry well for a distance of 120 ft. in length and 60 ft. in width. The kilns he speaks of hold, when burnt, 150 casks. There is a greater improvement, however, which, our correspondent suggests, could be made: first, to let the heat work another set of fires while the men are taking off the stuff; and as soon as they have it off they could shut off another bay; or they might shut off nineteen fires out of twenty, and let the heat work up the one, which would be much better for men working on these hot fires. Secondly, by having a coke oven beside the furnace the gas from this would pass through the coke fire, and the coke from the oven would supply the furnace and much more heat. This plan of furnace would consume but a small quantity of coke, and could be applied to any kind of works for drying, and for material of any description; and if properly constructed would, he thinks, be preferable to any other.

BRADFORD.—The foundation stone of a Working Men's Teetotal Hall has been laid on vacant ground near the top of Bower-street. The building is to be erected from the designs of Mr. John Suddards, and will comprise three lock-up shops, two dwelling-houses, and a lecture-hall and vestry. The lecture-hall will be constructed over the shops and dwellings, and its size will be 18 yards by 12 yards. The price of the site, including paving and drainage, is 192l. The contracts amount to 910l.

QUEEN ELIZABETH'S SCHOOL, IPSWICH.—The school chapel has been lately beautified by the erection of a painted-glass memorial window, at the east end, by Messrs. O'Connor. It exhibits in the main lights groups of the six acts of mercy, upon a background of the vine. In the upper part of the central light the lamb is represented, and in that of the side lights adoring angels. The tracery is filled with figures of the Four Evangelists, together with emblematic representations of the cardinal virtues—Fortitude, Prudence, Justice, and Temperance. The window is erected by subscription of the masters, and former pupils, and other friends of the school, to the memory of two pupils.

READING.—The foundation stone of new almshouses has been laid here. The buildings will accommodate twenty-eight persons. The houses will be in two continuous rows on either side of a central roadway, about 35 ft. wide, running from Castle-street to the Holy Brook. The houses are to be in blocks of four, half being on the ground story, and half on the floor above, with a central hall to each block, in which will be the staircase to the upper houses. Each house will have a living-room about 15 ft. by 10 ft.; bedroom, 13 ft. by 9 ft.; pantry, lobby with sink, water-closet, a small yard, and a coal cellar. The walls are to be of red brick, with grey bands, and stone dressings to the windows and doors. The design has been prepared by Mr. W. H. Woodman, the architect appointed by the charity trustees, and the builder is Mr. Sawyer, of London, who has undertaken the execution of the work for 3,450l.

NEWCASTLE-UPON-TYNE.—The foundation stone of a Mechanics' Institute for Newcastle, has been laid by Sir George Grey. The new building, which has been designed by Mr. Thomas Oliver, architect, stands on a piece of ground in New Bridge-street, lying between the Weaver's Tower and the Church of the Divine Unity. The style is Italian. The interior will consist of six large sized class-rooms, a library, a lecture-room, a news-room, a "smoke" room, and an extensive corridor leading from the entrance to the grand staircase. The lecture-hall, which is situated on the ground-floor, is semicircular in form and will measure on an average 35 ft. by 58 ft. On the second floor is the news-room, 32 ft. by 24 ft. Situated at the back, and immediately above the lecture-hall, and the same size, will be the library. The estimated cost of the whole work is 3,000l.

COTTAGES OF THE AGRICULTURAL POOR.—A report by Dr. H. J. Hunter, on the state of the dwellings of rural labourers in different parts of England, made to the medical department of the Privy Council, contains much valuable and interesting information on the subject. Dr. Hunter pursued his inquiry during the summer of 1864, and examined, in different counties in England, as many as 5,375 occupied houses. To the insufficient quantity and miserable quality of this accommodation, almost every page of Dr. Hunter's report bears testimony; and the evil, especially within the last twenty or thirty years, has been very rapidly increasing. Dr. Hunter describes great owners as escaping from poor-rates, through the intentional depopulation of lands over which they have control, the nearest town or open village already crowded receiving the evicted labourers. Among the exceptions to this kind of relation between the large landowner and the labouring population are mentioned the properties of the Dukes of Bedford, Rutland, and Newcastle, and of the Marquis of Exeter. While our poor-law, however, continues unaltered in its provisions concerning settlement and chargeability, such instances must tend to become still rarer and more exceptional; "for, practically, any future may be foretold from the known interests of those who can control it; and it would be too much to expect that landowners, as a class, should be the voluntary bearers of a taxation while the law leaves it optional with them to escape."

LYTHAM, LIVERPOOL.—The new pier at Lytham, the construction of which was commenced last year, has been formerly opened. It is 914 ft. long, and is similar to that at Blackpool.

NEW R.C. SCHOOL, AT ELSECAR, NEAR BARNESLEY.—On Easter Monday, the corner-stone of a new school, to be built here, was laid by Mr. William Locke, of Manchester, brother of the engineer, Joseph Locke, and father of the pastor of the place, the Rev. C. J. Locke. The building will be 75 ft. long and 25 ft. wide, built entirely of stone. Style, First Pointed. The roof has framed braced timbers; and the plan includes classrooms, porch, &c. The architects are Messrs. M. E. Hadfield & Son, of Sheffield; and the contractor is Mr. Hartland, of Elsecar. The site, three acres in extent, is laid out for a church of size and style suitable to the rapidly-increasing requirements of the great Yorkshire coal and iron district in which it is situated, with presbytery and convent, the whole of which will doubtless ere long be completed.

TENDERS

For Working Men's Hall, Stratford, Essex:—	
Carden	£1,831 10 6
Filkinson	1,793 7 0
Chiffins	1,687 0 0
Emery & Co.	1,645 0 0
Palmer	1,601 0 0
Ryett	1,473 0 0
Hill & Keddell	1,400 0 0
Kilby	1,348 0 0
Ring & Co.	1,348 0 0
Penlington	1,407 0 0

For pulling down and rebuilding a house in London-street, Reading, for Mr. Justins. Mr. Joseph Morris, architect. Quantities furnished:—	
Lewis	£208 10 0
Mathews	791 5 0
Bloomfield	786 0 0
Simmonds	770 0 0
Dunn	769 0 0
Leewood	769 0 0
Higgs	763 0 0
Biggs	755 0 0
Urquhart	740 0 0
Grover	720 0 0
Isley	710 0 0
Barnard	709 0 0
Kendall	699 0 0
Sheppard (accepted)	696 0 0

For enlarging New North-road Wesleyan Chapel. Mr. John Baker architect. Quantities supplied:—	
Dumdale	£1,158 0 0
Bamford	1,092 0 0
Nagle	1,070 0 0
Selleck	1,038 0 0
Loft	927 0 0
Palmer	890 0 0
Kilby	885 0 0
Gully	825 0 0
Stone & Pearce (accepted)	798 0 0

For alterations to shop in the Market-place, Leicester, for Mr. Simpkin. Mr. Wm. Jackson, architect:—	
Blond	£234 10 0
Cox	203 10 0
Nesle	200 0 0
Osborne, Brothers (accepted)	199 0 0

For the erection of a hop warehouse in Great Maze Pond, Southwark, for the Governors of Guy's Hospital. Messrs. Newman & Billing, architects. Quantities supplied by Mr. Edsall:—	
Lawrence & Sons	£4,430 0 0
Ashby & Sons	4,258 0 0
Wills	4,269 0 0
Axford & Co.	3,965 0 0
Brass	3,946 0 0
Rider	3,914 0 0
Simms & Marten	3,823 0 0
Thompson	3,880 0 0
Dale	3,775 0 0
Dove, Brothers	3,790 0 0
Dovis	3,680 0 0
Mallett, Brothers	3,530 0 0
J. & F. Coleman	3,530 0 0

For detached residences on the Tufnell Park Estate, for the Rev. E. White and Mr. R. Waters. Mr. Jasper Cowell, architect. Quantities supplied:—	
Hyde	£3,261 0 0
Newman & Mann	3,011 0 0
Gleum	3,031 0 0
Brevinier & White	2,944 0 0
Mann	2,784 0 0
Winn	2,401 0 0

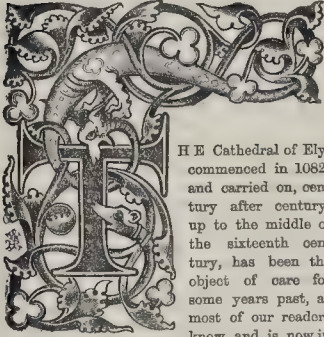
For warehouse, High Holborn, for Messrs. Richard Lloyd & Sons. Mr. W. F. Griffith, architect:—	
Simpson	£3,280 0 0
Brass	3,000 0 0
Adamson	2,853 0 0
Ebbage	2,822 0 0
Bird (Kensington)	2,703 0 0
Dumdale (accepted)	2,730 0 0

For shop-front and alterations, St. John's-street, Clerkenwell, for Mr. Bonner. Mr. W. F. Griffith, architect:—	
Ebbage	£237 0 0
Fowles	240 0 0
Devereux	224 0 0

The Builder.

VOL. XXIII.—No. 1161.

Ely Cathedral: the Paintings on the Roof of the Nave.



THE Cathedral of Ely, commenced in 1082, and carried on, century after century, up to the middle of the sixteenth century, has been the object of care for some years past, as most of our readers know, and is now in

such a state as to make a visit to it a pleasure of no common kind.

The most recently-completed work there is the painting of the roof of the nave, commenced by Mr. Le Strange, and carried out by Mr. Gambier Parry; and our present purpose is to give an account of this remarkable undertaking, with an engraved view of the ceiling.* Before doing so, we must say a few words of the cathedral itself, and of other works done there; reminding our readers, by the way, of the beautiful series the building presents in respect of styles. Thus we have in the lower part of the transepts, if not elsewhere, eleventh-century Norman, and a grand nave and west front of twelfth-century Norman. The great porch, or "Galilee," at the west end (before 1215), and the extreme east end of the building (say 1240), are exquisite examples of Early English: the choir, and what is called the Lady Chapel, both belonging to the first half of the fourteenth century, are not anywhere surpassed as specimens of Decorated; while Alcock's Chapel and West's Chapel, at the eastern end of the choir aisles, are characteristic specimens of fifteenth and sixteenth century work, when Renaissance details were being mixed up with the Gothic forms. Add to this the unique and beautiful arrangement by Alan de Walsingham, of the "Octagon" (where the transept crosses), with its wooden lantern; the widely-known "Prior's Door,"—an elaborate piece of Norman carving; an early Norman monumental slab, displaying, under an arch surmounted by a mass of buildings, an angel protecting apparently, in the form of a small figure, the soul of a bishop; and some of the best modern work of Mediaeval character that we can yet show; and some idea may be gained of the numerous attractions offered by Ely Cathedral.

The restoration of the central Octagon and lantern was undertaken, it will be remembered, as a memorial of Dean Peacock, who did much for the building. As the present Dean, Goodwin, says in a statement recently issued by him, it is not generally understood that the Ely lantern is a wooden structure, suspended with skill upon the walls of a stone Octagon, which encloses the central area of the Cathedral. This central stone Octagon was built, and the wooden lantern erected upon it, in the middle of the fourteenth century, on occasion of the fall of the original central Norman tower. Alan de Walsingham,

the then sacrist of the monastery, evidently a man of remarkable genius, seized upon the misfortune which had happened to the church in the fall of its central tower to give the building a new and original feature of its own. He cut away the four piers upon which the Norman tower had stood; and so, by taking one arch from the nave and one from the choir, one from the north and one from the south transept, he gained a central octagonal space; the octagon, however, not being regular, but having four long sides and four short ones. Upon this octagonal space he built a stone octagon, having four noble arches for the four long sides, spanning the nave, choir, and two transepts, and four small arches, with windows above them, for the four short sides. Upon this stone Octagon he suspended, by a system of beam-work, his wooden lantern-tower. The lantern is a regular octagon, the angles of which correspond to the middle points of the sides of the irregular stone octagon below; the beam-work being concealed from view by a system of boarded groining. The lantern-tower also served the purpose of a bell-tower: indeed, it is described in the sacrist rolls as *Novum Campanile*. The bell-chamber constitutes the upper portion of the tower, and originally contained four bells. The work which has been in hand for the last two years is the restoration of this wooden lantern-tower, or *Campanile*. The windows, which had been reduced by Essex to little more than half their original size, have been restored, and their heads filled with rich tracery, designed by Mr. Scott in accordance with the slight indications which could be discovered of Alan de Walsingham's work. Five of the eight windows are already glazed, and the other three are in progress.

Externally, the whole of the lantern is covered with lead, and displays some good work in that material, for which we must give praise to Mr. Hall, of London. The woodwork was executed by Mr. Freeman, of Ely. The wooden vaulting of the Octagon calls for attention; and externally the stone work of the Octagon requires completion, including a number of pinnacles which would surround the foot of the lantern and join one to another. At present the great difference in the size of the lantern and the Octagon, and the violent contrast of the forms, produce an ugly appearance. The work here simply waits for funds, and ought not to wait long.

Entering at the west porch of this, the longest cathedral in Europe, the view seen, especially if at early morning, is one not likely to be forgotten. Well-known words come into the mind to give unction to the impression:—

"What awful perspective! While from our sight
With gradual stealth the lateral windows hide
Their portraiture, the stone-work glimmers, dyed
In the soft chequerings of a sleepy light."

The chancel screen, of oak, beautifully designed by Mr. Scott, and executed by Mr. Rattee, of Cambridge, who has done much of the work here,—Mr. J. Philip carving the figures in the screen, as well as in the stalls and the reredos,—does not interfere with the view. The reredos, of alabaster, inlaid in parts with agates and crystals, full of sculpture, and touched here and there with gold and colours, is a most successful and lovely work, and does honour to all concerned. It is not at all discredited by Miss Blencowe's finely-worked altar-cloth. Marbles and tiles cover the chancel floor and steps; carved panels fill many of the spaces below the canopies of the stalls; and stained glass fills most of the windows. The carved panels are being proceeded with gradually, and put up when finished: thirty-four of them are there, and with the exception of one, are the work of M. Abeloe, of Louvain. They are wanting in expression, and in other respects are less satisfactory than we had expected to find them. They are mostly the gift of individuals: the subjects run thus on the south side:—1.

"Adam and Eve in Paradise." 2. "Fall of Man." 3. "Expulsion from Paradise." 4. "Adam and Eve at work." 5. "Cain killing Abel." 6. "Noah building the Ark." 7. "The Deluge." 8. "Sacrifice of Noah." 9. "Promise to Abraham." 10. "Isaac carrying the wood." 11. "The Sacrifice of Isaac." 12. "Isaac blessing Jacob." 13. "Jacob's Dream." 14. "The Burning Bush." And, 20. "David anointed by Samuel."

On the north side we get,—1. "Nativity." 2. "Presentation in the Temple." 3. "Adoration of Magi." 4. "Murder of Innocents." 5. "Flight into Egypt." 6. "Our Lord disputing with the Doctors." 7. "The Baptism." 8. "The Temptation." 9. "The Miracle at Cana in Galilee." 10. "The Transfiguration." 11. "Mary anointing the Lord's Feet." 12. "The Betrayal." 13. "Our Lord before Caiaphas." 14. "Our Lord blindfold." 19. "The Entombment." 20. "The Resurrection." 21. "Our Lord at Emmaus." 22. "The Incredulity of St. Thomas." And, 23. "The Ascension."

The effect of the choir as a whole is truly glorious,—nothing short of it.

Hastening on, let us briefly mention what are the chief works of necessary restoration or improvement now needed, in the hope that by chance the remark may lead to assistance.

1. The stonework of the octagon, as before described. 2. The repaving of the nave, towards which the sum of 500*l.* has been left by the late bishop, and which would probably require 1,500*l.* more. 3. The restoration of the Galilee. This beautiful specimen of Early English requires a good deal of attention in the way of restoring Purbeck marble columns, and other matters, which it is not necessary to specify. And, 4. The warming of the cathedral. The problem of warming large buildings appears to be now better understood than formerly; and there seems to be no reason why the warming of Ely Cathedral should not be effected. Certainly, if warmed, its utility would be much increased. If the four not very gigantic works above specified were carried out, the restoration, and more than restoration, of Ely Cathedral might be said to be effected. Nevertheless, as the Dean writes, there would still remain one work necessary for the perfection of the building—the re-erection of the north-west transept. The absence of this member is an unspeakable eyesore to a spectator at the west or north side of the church: not only is its presence necessary to complete the grand western façade, and to give the tower its due effect, but its absence gives a general character of ruin to the whole of the building. The re-erection of this transept, however, is so great an undertaking, and must so obviously yield precedence to all other works of restoration and improvement, that he has never yet seriously contemplated it. The time, however, may come.

We must now return to our more particular object, a description of the paintings on the roof of the nave, and this will be best done by Mr. Gambier Parry himself, who thus writes to us:—

At your request I send the following description of the paintings on the ceiling of the nave of Ely Cathedral. I leave, of course, all expression of censure or approval to yourself. The westernmost half of that painting was the work of my friend, Mr. Henry Styleman le Strange, of Hunstanton, in the county of Norfolk. He interrupted his great undertaking at the close of the year 1861, to work upon cartoons for wall paintings, proposed to be executed at the east end of St. Alban's Church, Holborn. Before these cartoons were finished he died.

The Dean and Chapter of Ely being anxious to have their nave ceiling completed, applied to me to paint the easternmost half of it. It was at the end of 1862 that they did so. My friendship with Mr. Le Strange had dated from early days at Eton. Our tastes, pursuits, and opinions,

* See p. 315.

had been much the same through life. I could have undertaken such a work as was then proposed to me, only out of regard to his memory, and our very old friendship. I have now completed it, as a memorial to him. It was finished at Christmas, 1864.

If I could have supposed that by undertaking it I should have stood at all in the way of professional artists, I should have declined it; but its conditions placed it out of the reach of at least most professional men. The style was unavoidably peculiar, understood or cared for by very few. The dimensions of the work were very great, and any payment for it impossible. Under any circumstances it must have been done for love and not for money. Mr. le Strange had desired to harmonise his work with the architect, and had therefore followed rigidly a peculiar form of Norman art of about the date 1180. In the papers he has left, he says that the ceiling of the western tower (115 ft. from the pavement) was completed by him in twelve weeks, in 1855. In the following year he began the cartoons for the nave. His actual work of painting upon the nave ceiling was spread over three years. It was greatly retarded by the residence of his family on the Continent. His first scheme was a simple one. He proposed to divide the ceiling into bays corresponding with the arches beneath, and to cover them with paintings expressive of Our Blessed Lord's connexion with mankind. He began this series with Our Lord as the "Word," the Creator, and intended, after two, or at most three subjects, such as "The Fall," "The Sacrifice of Isaac," or the recumbent figure of "Jesse" over all the rest, only in the last bay to have painted a "Majesty," marking the Manhood by the quotation written round it, "I am the root and the offspring of David, and the bright and morning star." But his scheme expanded as he went on. He disregarded his first idea of it, and at his death he left one-half of that ceiling covered with sacred subjects. The arrangement of subjects kindred to these in one of the painted windows of Chartres Cathedral, had suggested to him the general laying out of his work. The early paintings at Hildesheim had suggested to him the method of connecting the genealogy of our Lord (as detailed in St. Luke's Gospel), with the rest of the work; and MSS. of the twelfth century, especially a psalter in the British Museum (in "Nero, c. iv."), gave him the characteristics of the art contemporary with the architecture of the cathedral. The six westernmost bays are his work; the six easternmost are mine. The scheme is this—to illustrate one great subject in its spiritual and human aspects, which cannot be better described than in the words of the Dean of Ely, as "an epitome of the sacred history of man."

It was natural that an amateur, a country gentleman of large property, with other multifarious demands on his time and attention, both public and private, should have hesitated to cover so vast a surface as the coved ceiling of a nave, 200 ft. long, with elaborate sacred subjects. He had, however, developed his first more simple scheme, and had carried a series of subjects through the first six bays. He proposed, after them, to have made the rest an easy work, in the form of a Tree of Jesse, consisting of scrolling foliage, with a few busts of figures amongst it. On my taking up the work after him, I came fresh to it. I wished to do honour to my lost friend. I felt that I was justified in at once throwing over this comparatively poor scheme of a Jesse Tree, which he had himself put off from time to time, substituting the richer effect of sacred subjects for it: I therefore took up the thread of his own idea; and I have endeavoured to work it out by sacred subjects, increasing in richness and interest, as they progressed eastward; and I have completed them, as he had proposed, with a "Majesty," or the glorified manhood of our Lord.

I found a few small sketches by Mr. le Strange for the "Jesse" and the "Majesty," but coming as I did, fresh and unfatigued, to the work, I thought it best to make all designs my own. Those sketches of his were but first ideas, and of a character which I cannot believe he would have carried out: so I discarded them.

Such is the history of this work. The ceiling is about 86 ft. from the pavement. Each of the twelve bays has nearly 1,000 superficial feet of painting in it, from its coved shape. The figures are of various sizes, mostly 9 ft. and 10 ft. high. The designs and compositions, both of subjects and ornamentation, are original. I believe them

to be so in Mr. le Strange's part; I know them to be so entirely in my own; with the exception of two or three forms borrowed from his drawings and introduced in my first design (Jesse), for the purpose of linking together our two works the more harmoniously.

For a description of the ceiling, I cannot do better than to transcribe a few paragraphs from a printed report circulated among subscribers to the restoration of the cathedral by the Dean of Ely. He writes thus:—

"The principal subjects occupying the central portion of the ceiling, beginning from the west, are as follows:—1. The Creation of Man. 2. The Fall of Man. 3. The Sacrifice of Noah. 4. The Sacrifice of Abraham. 5. The Vision of Jacob. 6. The Marriage of Boaz and Ruth. 7. The Jesse. 8. David and attendant Musicians, Angels, &c. 9. The Annunciation. 10. The Nativity. 11. The Adoration of the Shepherds and the Magi. 12. The Lord in Glory.

These central subjects are supported by figures, which are for the most part representations of patriarchs and prophets, carrying scrolls upon which are written words of their own, bearing more or less forcibly upon the coming of the Messiah. The arrangement of these supporting figures is as follows; the numbers correspond to those given above:—

NORTH.

1. JACOB.
'The sceptre shall not depart until Shiloh come.'
2. BALAAM.
'There shall come a star out of Jacob.'
3. NATHAN.
'I will establish the throne of His kingdom.'
4. JOEL.
'I will pour out My spirit upon all flesh.'
5. HOSIA.
'O Grave, I will be thy destruction.'
6. ISAIAH.
'There shall come a rod out of the stem of Jesse.'
7. HAGGAI.
'The desire of all nations shall come.'
8. EZEKIEL.
'My servant David shall be a Prince.'
9. NAHUM.
'Him that bringeth glad tidings.'
- ZEPHANIAH.
'The Lord their God shall visit them.'
10. TWO EVANGELISTS.

SOUTH.

1. ABRAHAM.
'My son, God will provide Himself a Lamb.'
2. JOB.
'I know that my Redeemer liveth.'
3. MOSES.
'The Lord shall raise up a prophet like unto me.'
4. JONAH.
'Thou hast brought up my life from corruption.'
5. AMOS.
'I will raise up the tabernacle of David.'
6. MICAH.
'Out of thee, Bethlehem, shall He come forth.'
7. DANIEL.
'He shall confirm the covenant.'
8. JEREMIAH.
'I will raise up unto David a righteous Branch.'
9. ZECHARIAH.
'I will bring forth My servant the Branch.'
- MALACHI.
'The Son of Righteousness shall arise.'
10. TWO EVANGELISTS.

The eleventh subject has, properly speaking, no supporters; but the Magi and the Shepherds are so arranged as to carry on the artistic effect of a central group with conspicuous lateral figures.

The twelfth and last subject has also no supporters; the picture extending entirely across the ceiling. This subject demands more particular description and explanation. In the centre is the Lord Jesus in His glorified humanity, seated on a throne, round about which is a "rainbow like unto an emerald." Above His head is the choir of seraphim, painted in prismatic colours and reflected in the "sea of glass before the throne." On the right and left are the figures of the twelve apostles seated. Beyond them on the dexter side are two archangels, St. Gabriel, 'the angel of redemption,' holding the standard of the Cross, and St. Raphael, holding a sword with its point downwards, expressive of victory and peace. At their feet rise three figures, typical of the blessed received into glory. On the sinister side are also two archangels, St. Uriel holding his sword downwards, and St. Michael spearing the Dragon, expressive of the condemnation of and victory over sin. The figure of our Lord is connected

with the tree of Jesse by its last branches, which break into scrolls and golden fruit at His feet. Around His figure is the text, 'I am the root and the offspring of David, and the bright and morning star.'

Mr. le Strange began this work by inscribing at the west end the prayer, 'Sit splendor Domini Dei nostri super nos, et opera manuum nostrarum dirigere super nos, et opus manuum nostrarum dirigere.' Mr. Gambier Parry has finished the work by inscribing at the east end the *thanksgiving*, 'Non nobis, Domine, non nobis, sed nomini tuo da gloriam.'

The whole of the painted ceiling, as above described, is bordered by a series of heads, which form (as it were) a cornice to the roof and connect it with the walls. These heads represent the human ancestors of our Lord, according to the genealogy in St. Luke's Gospel: they commence at the eastern extremity and terminate at the western, thus linking together the Incarnation, as exhibited at the termination of the series of pictorial representations, with the Creation of Man at the commencement: in other words, 'the first man Adam, of the earth earthy,' is connected with 'the second Adam, the Lord from Heaven,' by the chain of human links which the genealogy supplies.

It will thus be seen, that, besides being an elaborate work of pictorial art, the ceiling of Ely Cathedral is a carefully-studied epitome of the sacred history of man, as recorded in Holy Scripture.

The plan we both adopted was, by studying old art, to imbue ourselves with the tone of its feeling, and then to work out our own ideas as far as possible in harmony with it, not pretending to mock old work, but to give such expression to our own work as an artist might do in sympathy with and in reverence for artists of old days. We wished to work harmoniously with art and architecture of the twelfth and thirteenth centuries, without for a moment designing to conceal that ours was the work of the nineteenth. He has done this faithfully. I have endeavoured to join my work to his as well as I was able; but the very nature of the subjects makes it inevitable that my half of them should have a richer appearance than his. Mr. le Strange intended the work to grow more rich in colour as it progressed eastward. I have therefore only carried out that intention. I have maintained, so far as I thought it necessary, the characteristics of the twelfth and thirteenth century art, to give unity to the whole work; yielding to a less rigid style as I progressed eastward.

Such then it is, for better or for worse, done as well as two country gentlemen, with very much else to attend to, could manage to do it. I trust that we have in no way trampled on the sphere of the professional artist. We have worked fast; but very carefully. It cost him three years and me two of hard and constant application to make and to execute our designs. Our assistants have been two careful men, whom we have trained to our special purpose. The work has been done in a modification of oil painting, chiefly with copal and gold size. I have coated my part over with fine wax hardened with resins. The whole was executed (*in situ*) on deal boards, nailed upon the rafters of the roof. It was a very awkward work to execute, lying on one's back, in a painfully bad light, impeded by the scaffolding, and without possibility of one's getting a clear view of it at a fair distance, to judge of it in the various stages of its progress.

Thus far Mr. Parry himself. The view we give will serve to convey a general idea of the arrangement and the position of the various subjects; but we are bound to say, taken from one point of view, and necessarily showing the figures foreshortened, it does not do justice to the excellence and beauty of the work, any more than it can show the harmony and modesty of the colour. We must confess to a certain misgiving when about to enter the cathedral, produced by a recollection of some other modern Medieval colourings. But this was quickly dispelled. There is here nothing staring or hard, no ostentatious ugliness or voluntary bad drawing. We are forced to give the preference to Mr. Parry's part of the work; it displays more sentiment and more force; but he has contrived to make the change so gradually that there is no incongruity, but a gradual and apparently designed increase of richness towards the east end. When we remember how difficult was the task of painting on this huge scale, lying on his back, and without ever being able to get a fair sight of what he was about, the success

of the undertaking seems marvellous. For special admiration we would point to the head of the glorified Christ and to that of the Virgin next it. It was a noble work to do, and it has been nobly done; and while we give praise to the authors of it, we must at the same time say that they were fortunate to have the opportunity and the power to tie their names worthily to this grand and beautiful building. The good opinion left behind him by Mr. Parry we heard everywhere. Whether from the loquacious waiter at the comfortable "Lamb," old Partidge, with his stick, stumping about the Cathedral, or the select of the Chapter, the expression is the same. We may not, however, dilate longer, though there are many things here of which we would willingly speak. We may hope that what we have already said will serve to lead some of our readers to pay a fresh visit to Ely Cathedral, and to see for themselves, in addition to the structure, which we will suppose known, its beautiful reposes, delightful ceiling, and admirable restorations.

THE ROYAL ACADEMY EXHIBITION.

PERHAPS Sir Edwin Landseer meant to indicate by those good-natured-looking dogs he designates "The Connoisseurs" (152), his appreciation of criticism; either deploring satirically the culpable amiability that is so often and justly considered to be the chief failing of the critic in these times, or simply to suggest that they never growl when looking over his shoulder, at all events; or it may be a defiance, for he might confidently affirm that this, the ninety-seventh anniversary of the Royal Academy Exhibition, does not offer much opportunity for his friends to make much disturbance at, unless they bayed at Mr. Poole's moon that lights his lovers at "The Parting Moment" (263), with such an excuse as that of its being so beautifully real in appearance and illusive would provide, or for just such another reason attacked the heels of Mr. Millais' British heroine, in the "Romans leaving Britain" (294), for never were legs and feet more life-like in painting.

There is quite sufficient distinctive claim to make this year's collection memorable, *per se*, and to give it advantages for comparison if it were at all necessary to enter upon its relative superiority or inferiority to those of the past; and not only because it happens to be signalled—how considerably none will deny—by including Mr. Frith's most talked of, anxiously expected, and successfully completed representation of "The Marriage of their Royal Highnesses the Prince of Wales and the Princess Alexandra of Denmark,"—very successfully, the stupendous difficulties of such an undertaking being fairly taken into consideration; or from the coincidence of there being more instances than usual wherein individual exertion announces itself in works of a more important nature and on extended scale compared with antecedent; but more especially from the almost unexceptionable character of excellence that prevails throughout. Such interest as a variety of subjects lends to an assemblage of pictures belongs to this, and whilst appealing to diverse sympathies, for the most part these are not too much confined to particular tastes; and there are fewer illustrations of those incidents that have become threadbare in service and are now but time-honoured amongst a large aggregate of examples that have narrative for a basis.

Mr. John Phillip, R.A., illustrates "The Early Career of Murillo," 1634 (156), and has selected an episode from "Stirling's Annals of Spanish Painters," to prove his right by analogy of being considered one of them. There is more to imply the popularity that a clever, self-reliant, plucky boy may hope to secure for himself, in this animated and picturesque scene from such a stirring drama as only romance in more prosaic times can compete with in imagining, or credulity accept, as the ordinary course of existence shared by those glorious and gifted luminaries, described by Vasari and others after him, who have written of the old masters; and something dissonant in connecting any idea of poverty or want with so bright an image of hopeful boyhood as the hero and the circumstances present. Reduced to earn his daily bread by painting coarse and hasty pictures for the Fena (weekly fair), held in a broad street, branching from the northern end of the Old Almada and in front of the old church of All

Saints, the unknown youth is seen surrounded by gipsies, muleteers, mendicant friars, and such frequenters of the market as even now resort to it; selling for a few reals those productions of his early pencil, for which royal collectors are now ready to contend; and which even then found appreciators, judging by the expressions of pleasure and surprise attending the examination of them; shared in even by the swarthy beauty who, it may be guessed, has served as a model for Fruit-seller, Flower Girl, or Virgin, according to the exigence of the occasion, and is now exhibiting that impatience common to her order to ascertain how she has been made to look; or if the artist has discovered all the aptitude she thinks her plump baby possesses for fulfilling all purposes required of it, whether bodily to represent an infant saint, or bodilessly a cherub. It is no exaggeration to say that this picture is magnificent in the proof it gives of consummate manipulative power, and having greater pretensions to value in its close association of facts with probabilities than historical subjects generally can inherit, it may be considered Mr. Phillip's greatest achievement.

"Sweet are the uses of adversity" when a not too severe form of it to one who suffers it secures prosperity to another who makes more of it than the sufferer could dream of; but a decadence so absolute as Sir Edwin Landseer has typified, reversing the arrangement of its occurrence, is enough to make a horse sick in its contemplation, if ever the thorough-bred in "Prosperity" (102) cast his reflective eye on such an ugly possibility as "Adversity" (112). It is likely he did, and from shying too often at speculative evils in by-paths was driven to acquire a knowledge less obscure in a cab radius of sixpence a mile experience. But who could have the heart to say it served him right that saw how carefully he had been tended in 102, with nothing to burden his back or his conscience but the love of a lady such a creature was born to be subject to, and could behold him in 112 reduced to the lowest rank of equine standing, subservient to the badge and vehicle of his punishment—gored by the harness he has never been broken to—without lamenting that misfortune, bad habits, or ungrateful discontent should be so many saddles that fit so many horses with similar disagreeable consequences.

Misfortune and annoyances, however, are so often followed in preponderating degree by such recompensing benefit as must leave it doubtful when to commiserate or congratulate with propriety; and although there can be no promise of amelioration held out to Sir Edwin's horse—beyond the enduring honour of bearing still a little farther the fame of his master, if it be possible for the quadruped to hold out under such weight and for such an incalculable distance—the remark is enforced by very convincing evidence in point from Mr. F. Goodall, R.A., in (8) "The Rising of the Nile." "The inhabitants of the plains of Gizeh leaving their inundated villages for the higher ground," have the consolation of knowing that the annual overflow of their great river is really essential to the fertility of the country; but its rising even to the height of a few feet above the periodical average is the occasion of desolation and ruin. It is quite pardonable if in the inconveniences of so hasty an ejection, half the advantages to be derived from the water-lord's unannounced visitation should be lost sight of, and cause the commotion and derangement Mr. Goodall has so admirably availed himself of, on a large canvass. In long procession these involuntary emigrants are hurrying to secure some safe standing-place, and what with the obstinacy of the camel whose opinion seems materially to differ from the old Egyptian's who is urging him up the bank, and the uncertainty of the frightened women and children, the prospect of ultimate safety is left quite conjectural, and of little regard, perhaps, to the old invalid carried by slaves and solicitously watched by his daughter, more careful for him than herself. This is by far the most interesting and important application by the artist of knowledge gained by his Eastern travel.

Mr. P. F. Poole, R.A., is also exceptionally well represented by his poetically-conceived, though rather painful situation of a Pompeian family during the eruption (of 79 A.D.) when the city was buried under showers of ashes from Vesuvius. A Roman father is surrounded by his dying children and their mother; the effects of suffocation are conveyed with extraordinary likelihood. One youth is pulling himself

up to the roof, through which dead birds are dropping to show how abortive all such attempts to gasp air have become. A curious picture, without doubt, but a power of fascination accrues to it, partly from that peculiar and instructive use of colour always remarkable in Mr. Poole's works, its originality, and the poetry which disguises its tendency to morbid taste. Quite as poetical, and with no such taint to condone for by its subsistence, "The last of the clan" (150) by Mr. T. Faed, A., is pathetic enough to appeal to the same sensibilities without disagreeably shocking them. An old clansman, too old to see the feasibility of beginning a new life in a new home, is watching the departure of his kinsmen in the emigrant steamer just loosed from the hawser, and carrying them from the land once their own. The dejection and resignation of the poor broken-down elder, bedstriding lax and motionless a pony as feeble and as much past work as its master, is contrasted with the more demonstrative grief of his grand-daughter standing by his side.

What a worshipper of truth Mr. Hook, R.A., must be, and how fond Nature must be of him if there is any reliance to be placed on the adage "that we love those best who use us well;" but then there is another that says "that we like those the least to whom we rest under the weightiest obligations;" and as the latter is the most generally learnt, and therefore the easiest to be understood, it is possible that the painter is not most fond of that which he paints best after all. However, Mr. Hook is not the man one would select to tell a story to; he has such a clear perception of truth in its broad open aspect; of facts clear as daylight, and as constant as the tides to the sea, which he knows by heart, and yet is never tired of observing; and besides, a story would be of no use to him—he tells his own with facts for a basis, and no extraneous ornament to adorn his oratory beyond the simplest probabilities. Whether in Britain or Brittany, he never fails to give convincing proofs of his adherence to truth, and such pure pleasure as only such a source could enable him to offer, and so universally. His pictures this year are all exquisite alike.

Mr. Millais, R.A., is exemplary for the wide range he allows himself for selecting subjects for his pencil, and the judgment of this is perceptible in the freshness it gives to his works. One of the main causes of his great success may be supposed to exist in his general acceptance of everything as paintable, though some allowance must be made for an extraordinary capability for so utilizing matters that have little inherent value in themselves. The gift is more than usually apparent in all five of his present contributions, including "The Romans leaving Britain" (294), or, to be more precise, a Roman soldier taking leave of his love, his principal work. Nothing can be more simple in arrangement than this, or in the appliances made to be the means of relating a most touching story; but in addition to that rare faculty of imitation and adaptiveness patent to him, the artist has invested this with some of the higher qualities that used to be more closely associated with his name formerly—intensified expression amongst them—than now, when the majority of his productions are but wonderful specimens of painting, though as such it must be conceded that they are of unsurpassable worth: for witness, see the armour of "Joan of Arc" (208), the silk embroidered drapery of "Esther" (522), and the acme of such perfection to predominance over all else, though the charms of the idolized are unquestionable enough to attract any dicky-bird, and excuse a lover's rhapsody, in (391)

"O swallow, flying from the golden woods,
Fly to her and pipe, and woo her, and make her mine,
And tell her—tell her—that I follow thee."

Going from this personification of ineffable graces and sweetness to the wicked old gentleman of other and extreme affinities, sowing tears and tares (528) will, it may be supposed, very clearly illustrate what is meant by the inclusive comprehension of subject matter before alluded to.

Mr. F. Leighton, A., has succeeded but imperfectly in gaining sympathetic attention to his ideal of "Helen of Troy" (309) through the greater claims his smaller but more satisfactory "David" (5) presents for recognition; and even in this the prevailing excess of a particular phase of refinement or elegance, approaching in some cases mere prettiness, has the effect of depreciating the valuable character that to some extent be-

longs to all his works. (305) "The Widow's Prayer" and (316) "In St. Mark's" are very beautiful and very indicative of a foreign, classic art education. Something more hereafter.

ARCHITECTURE IN THE ROYAL ACADEMY EXHIBITION.

AN inculcation of the essential art, in the works of "artists," has been recognizable several times, of late years, in the mottoes prefixed to the exhibition-catalogues of the Royal Academy. It appears this year in lines from the "Essay on Criticism" of Pope, a poet whose canons, and those of his master, and Boileau's, Horace, are pertinent to each of the arts represented in the Academy, as they are to poetry, and as we are inclined to believe they are especially to a living art of architecture. It may be difficult to say which part of a picture is representation, and which invention; for the complete observation and delineation of scenes and incidents hardly can be considered as possible, or memory of them capable of being possessed, without the possession of the power to originate; nor can there be the art, which involves the latter power, without the ability to represent. Still it is certain that that which is deficient in invention is not to be rightly called a work of art. Yet, the invention itself must be in accordance with rules, namely those which there are in the works of Nature, or which, deducible from the works, would have been applied to the new case. The result in architecture is at once a harmony with Nature, and a contrast. Our art, in common with Nature, has fitness of form to use and structure; whilst its lines, and its exact balance of parts, go to the production of contrast with the works of Nature, as those works contrast with one another. "Nature corrected," or the "Nature to advantage dress'd" of Pope, may be phraseology calculated to offend some persons; but the meaning intended to be conveyed, comes from a correct view of what constitutes art. Were this view that generally of painters, they might justly rank ours as the highest of the arts, because requiring invention, and yet an art at once admitting no transcription of the works of Nature, and at the same time one the most observant of Nature's laws,—

"Those rules of old, discover'd, not devis'd,"

which in the next line we are told,—

"Are nature still, but nature methodiz'd:"

What should be the sort of recognition or furtherance of our art by the Academy, this is not the place for discussing; our remarks, in continuation or repetition of those of former years, are merely intended as reminder, that so long as the treatment of architecture, and we might say sculpture, is what it is, there is difficulty in seeing that the purpose and attributes of art are understood by the Academy as they should be in an academy of arts or art.

The drawings which are under the heading "Architecture," this year, in the galleries in Trafalgar-square, are arranged in the same manner, and take up the same space, as of recent years. That is to say, they fill about half the space in the room at the top of the stairs, and one-half of them are placed at much greater distance from the eye, than architectural drawings in particular ought to be at any time. There are 68 numbers in the catalogue,—some of the drawings, as usual, being merely representations of old buildings; but in one or two cases, a number will comprise two designs or drawings of works in progress or lately completed. It is difficult to say what number of drawings, with photographs of buildings, should be set down as exhibited in the Conduit-street Galleries: we make the numbers in the catalogue there, 389. As commonly, some of the most important works of the year are shown in neither collection. Several buildings are represented in both places, or by different drawings, which properly should have been seen together. Drawings from the recent competition of designs for Grocers' Hall, are similarly distributed between the two collections.

The drawing which has the first number (770) in the series, is exhibited by Mr. D. Brandon, and is a "View of St. John's Church, Kingstone, Staffordshire, erected for the Earl of Shrewsbury and Talbot." It is of plain Early English character, and has a broad spire, tiled, with overhanging eaves. Mr. R. M. Phipson exhibits a view (781) of the interior of Igboro

Church, Norfolk, which is being rebuilt from his designs, at the cost of Lord Ashburton; a view (782) of St. Giles's Church, Norwich, showing the intended new chancel; and one (783) of Burgate Church, Suffolk, which is to receive new roofs. Mr. J. D. Wyatt contributes (789), a view of the choir of Hereford Cathedral, displaying the new screen and organ, and the general effect as restored by Mr. Scott. The organ is at the side, filling one of the arches, and corbelled out above the stalls. Mr. E. L. Blackburne shows (825) "Ospringe Church, Kent: new Tower and other Restorations now erecting" from his designs. The tower is finished with a saddle-back roof. Mr. W. Burges has a view (785) of the "Interior of Worcester College Chapel, Oxford," as re-decorated under his superintendence. What he has done is more completely shown by drawings which he has in the Conduit-street Exhibition. The members of the architecture are Italian in style. Chromatic features that are prominent in the view, are red stripes to the lower portions of the shafts, and the necking of the capitals, the same colour, which in the latter case is too prominent. Mr. G. Goldie's "Interior (786) of the Church of St. John of Jerusalem, Great Ormond-street," has a common defect of Italian church interiors which awaits the decorative painter, namely a bareness and poverty in the spaces of the wagon-headed vaulting, between the coffered ribs. The dome, on pendatives, the baldachino, and the gallery projecting above the doorway, contribute to the resemblance that the whole interior has to numerous churches classed as Italian, and a resemblance which must be deemed somewhat too great.* A "North-East View (788) of St. Nicholas Church, Great Yarmouth, as proposed to be, and already partially, restored," is exhibited by the architect, Mr. J. P. Seddon. This church is one of the largest, not cathedral, in the kingdom. The drawing shows large eastern windows, of Geometric tracery, and a spire, to be added, which is lead-covered, the rolls being disposed chevron-wise. The drawings of other works in progress include (796) "St. Mary's Church, Isle Hill, Kent," by Mr. C. H. Cooke, and one (773) of a "Church now erecting at Boston, United States," by Mr. T. N. Laslett; and Mr. E. Palgrave exhibits (812) "Design for the Restoration and Enlargement of St. Paul's Church, Bedford," a large Perpendicular Gothic structure. All these buildings are Gothic, with the exceptions mentioned. Almost the only work of Gothic ecclesiastical architecture claiming more particular notice, is Mr. F. Marrable's "New Church of St. Peter, about to be erected for the Rev. Joseph MacCormick, M.A., in the Wickham-road, Deptford." It is shown by two views, namely one (802) of the exterior, and one (811) of the interior. The internal arrangement and effect seem likely to deserve commendation. Though there is no plan, we gather from the drawings that the aisles are narrow, and to be used chiefly as passages, after the principle discussed at length in a notice of the Conduit-street Exhibition of a former year. The resulting proportions of the nave and aisles, with the western tower, externally, are not quite satisfactory; nor is there much freshness in the details of the exterior, which has as a conspicuous feature in the west front, three porches grouped together and occupying the full width, the side-porches being apparently in communication with stairs to a western gallery. In the interior, where there are no side-galleries, there is novelty and effect in the treatment of the arches, clerestory, and ceiling. The aisles are low, and open from the nave by low pointed arches having corbelled impostes. In the clerestory, which is lofty, each bay is formed as a deeply recessed pointed arch with square reveal,—a similar square reveal bounding the window-opening; whilst the ceiling, which is plain-groined, and banded in the severies with occasional red courses, has the principal ribs carried by shafts,—the crown of the groin in each bay having a circular opening, which is no doubt made to serve for ventilation. The chancel-end of the nave is terminated by a centre arch, and two side arches. Red brick, throughout, plays an important part in the effect; which as we have intimated, is, in the drawing, very good.

Mr. T. H. Watson's "Design for an Asylum; to which the Soane Medallion was awarded by the Royal Institute of British Architects, 1864" (807), has a cleverly grouped and detailed tower and spire, as well as other features, all drawn

with an able hand. The building would be somewhat costly for the number of pensioners intended to be accommodated.

It may be desirable that appearance of buildings should be in harmony with their uses,—although it should not be expected that the appropriation and use of a structure should be capable of instant recognition; moreover there is a diversity of style in the buildings of this day, which is not to an equal extent accompanied by art; and which, where the art exists, interferes very much with the appreciation of it by the public. But some kinds of buildings are getting too much of family-likeness; and amongst these are schools. Great importance given to the roof, by carrying the one slope down, where there are any adjuncts to the school-room, nearly to the ground; the line of eaves broken by long windows which are in part dormers; and Gothic details, are observable in most of these designs. Some or all of the features referred to characterize the "Schools now being erected in the village of Littlebury, Essex" (779), by Mr. E. Barr; and "The accepted Design for Christchurch Schools, Battersea, about to be erected" (820), by Mr. E. C. Robins.

The Gothic character is that of "The Richmond-hill Hotel" (771), now being erected under the superintendence of Mr. J. Giles. In the principal front it has a recessed centre, and two verge-board gabled wings, from which project bay-windows; whilst at one side, is the inevitable square tower of modern design,—the whole building being brilliant with green-painted verandahs and balconies. The effect, however, of the building, seems likely to be very much superior to that of the hotel in Langham-place; which, really, by its height, its disposition on plan, its arch-headed windows, too frequently repeated, and suggestive of a deficiency of light from the form of head, and its bay-windows, is an intrusion in that part of London. The "Design for a Block of Offices on Land the property of the Worshipful Company of Grocers" (772), does not, to our thinking, represent what would be a desirable addition to the street-architecture of the City of London. Whatever art there may be in such compositions cannot be appreciated, out of character as it is with everything near to it. The drawing shows a building, of four principal stories, dormer-windows, and a basement, the second and third story windows being in each bay recessed and grouped together under a pointed arch springing from the piers; whilst a "drop-arch" of the same character of style spans the recess of the ground-story,—the horizontal courses and the arches being marked by particular material. Very different from this Gothic, is that of "Clandebona, the Seat of the Right Hon. Lord Dufferin" (787), as being enlarged and altered by Mr. B. Ferrey; who shows, by marginal sketches, that the work has been designed cleverly, the original structure being a plain "square house." The portion of the plan given to the staircase is carried up as a square tower, with an arcade, corbelled angle-turrets, and a plain pyramidal roof. An equally clever conversion from an old building, is that by Messrs. Banks & Barry, of "Bramling House, near Wingham, Kent" (784). Considerable additions are shown to have been required. The new character imparted is Jacobean; but the windows have no mullions; generally, the features are simple strings, and a block-cornice, a balustrade with dormers, lintels to the windows grooved as ornamentation, and the stones of the jambs bonded in. The entrance is emphasized by superimposed rusticated pilasters, and by decorative necessities of the gable enclosing a window. Mr. W. M. Tonlon has adopted the Jacobean character in "Overstone Hall, Northamptonshire" (778), which has a square entrance-tower with the features "of the period" in angle turrets, not unsuggestive in character. "The Entrance, Park Hill, Wyresdale, Lancashire" (775), by Mr. R. H. Potter, reminds us somewhat of that of Lambeth Palace.

Mr. M. D. Wyatt exhibits (799) five drawings of "The 'Ham,' Glamorganshire," the residence of Mr. Ilyd Nicholl, as re-erected. The building is Gothic, with Elizabethan features in the interior. The Hall has an open-timbered roof; and the staircase leads up from the end, the landings having each an opening and out-look into the hall. Mr. Wyatt shows also a view (821) of "Addenbrooke's Hospital, Cambridge, as re-erected" from his designs. It is a long three-storied front, with a centre having loggias in two recesses, and in the three stories; and the third story of each wing has an arcade with shafts, which are carried partly by corbels and

* A view will be found in another volume of the Builder.

partly by buttresses that there are to the two lower stories. Where the upper loggia is, the cornice in the intercolumns is formed in the manner of lintels which are carried by corbels from the capitals of the shafts or columns. We cannot like Mr. Wyatt's "Design for the Proposed Shakespeare Monument at Stratford-on-Avon," made at the request of the Committee, of which he shows the "original study" (822). The balustrade, or cresting, of Elizabethan scroll-work, and some other features, are simply ugly; moreover, the notion that in a monument to Shakespeare we should adopt the Elizabethan style, thereby producing a work bearing the appearance of having been erected not by ourselves, but by his contemporaries, is child's-play rather than art, and is calculated to perpetuate error that we are so often committing. A monument to Shakespeare, erected in the nineteenth century, should, in mere justice to those erecting it, seem in every respect of the century; and why should it not?

Castle Carr, Halifax, now in course of completion for Mr. J. P. Edwards (813 & 833) by Messrs. A. Smith & T. Risley, may be described simply as imitation-castellated in character. No. 791 is "The Randolph Hotel, Oxford," a building which is being erected near the Martyr's Memorial, opposite the Taylor and Randolph Buildings. The latter is dwarfed by the contrast. The new design is conceived with those features of pointed-arched windows with red vousoirs, and hipped roofs, that are of the new Gothic which is so discordant with the older style at Oxford, as also with the Italian. A drawing (776) of the "Bath Forum House, Mineral Water Hotel, and Bathing Establishment; competition design to which the first premium was awarded, February, 1855," (though afterwards withdrawn) is exhibited by Mr. C. E. Davis. It is an Italian building of five stories, with a deeply recessed centre. Porticoes of superimposed columns project from three of the fronts of the quadrangle. In this last are statues "taking the air." Attached to the ends of the wings are porticoes, boldly projecting, of superimposed columns, to two of the stories, and carried by a piazza of the lower story. "The Great Eastern Hotel, now erected at Harwich, for the Great Eastern Railway Company" (777) by Mr. T. Allom, must be a satisfactory production, if cement be not the material of the decoration. It has four stories, including an attic, which however is weak. The general material appears to be white or yellow brick, the rustication with dog-tooth ornament, as in the Charing Cross Hotel, being apparently used in the case of the piers of the centre and ground-story. The ground-story has arch-headed windows, with archivolts springing from Corinthian columns,—each column having a block, coursing with the ordinary masonry, to break the shaft; and these windows appear to have a peculiar pedestal, with pulvinated dado, in each recess. In the spandrels of this ground-story, on the piers, are circles with busts, or medallions. Above this story, the piers comprising the two next stories of windows, are terminated by capitals carrying the main cornice; which is cantilevered, and coffered in the spaces between the cantilevers. The windows in each bay, of the two stories, second and third, are grouped together, with an intermediate balcony, and have square *antæ* as decoration. The front has a pediment in the centre, enriched with ornament. There is a large flat, railed in, in the centre of the roof.

The "New buildings of the Piazza Statuto, Turin, now in course of erection for the International Financial Society (Limited) of London," which were originally designed by Signor Bollati, of Turin, are shown in a view (794), by Messrs. Banks & Barry, by whom the design has been altered and amended; and under whose superintendence the works are being carried into effect. This drawing was referred to by Mr. Tite, on the occasion of the Academy dinner. Mr. Tite, attributing the design to Messrs. Banks & Barry, called it a "beautiful" one, and considered "some of the works exhibited as showing a revival of excellent Italian architecture, and none more so than the 'Piazza Statuto,' at Turin." But, art will not be benefited by mere revivals, whether sixteenth and seventeenth century Italian, or Medieval Gothic; we want, not old art, but veritable art; for, what is not fresh and new to some extent, is not art at all. The fifteenth, sixteenth, and seventeenth century work of Italy was art, not because it was a revival of the old art, but because, except at the commencement in some of the buildings of Brunelleschi or Alberti,

it had imported into it continually new matter. The Italian architects of the end of last century, and beginning of this, have seemed oppressed by the weight of the history and reputation of former deeds. Palladianism, which is a very different thing from the architecture of Palladio himself, has been dominant in Italy, as lately it was throughout Europe. It is the worn-out Palladianism that makes the character of the Piazza Statuto, rather than the Italian as it has been since vivified. The buildings in progress at Turin have a piazza in the ground story, of arches and Roman Doric columns: above this is a Corinthian pilasterade spanning the height of two stories. Above the order is an attic with dwarf-pilasters; and there are dormers to the roof. There are pavilions; but they are not marked as features: the order goes round them; and the value of contrast is sacrificed.

We shall return to the room next week.

THE ARCHITECTURAL EXHIBITION.

The pressure on our columns prevents, this week, our saying much more of the collection in the Conduit-street Galleries, than that the Exhibition was opened on Tuesday evening with the usual *conversazione*. The Exhibition is altogether an advance upon that of last year; though it leaves much to be desired, and still contrasts with the exhibitions that there were about the time of the first occupation of the present quarters. The Western Gallery has been given up to the Photographic Society, for their exhibition, which consists chiefly of portraits and landscape-subjects; and the works forming the Architectural Exhibition itself, or exclusive of the specimens of materials and manufactures, are all in the Great Gallery. The committee were under the impression that there would be difficulty in filling more than the Great Gallery, with architectural drawings, and that the photographic collection might draw visitors, and result in the attention of a greater number of persons to the architecture, as well as in benefit to the funds; which, during the last year or two, have not been in a satisfactory state. We regret such a state of things as that which has appeared to involve the necessity for interfering in some respects with the importance of the Architectural Exhibition itself.

Considering solely the interests of our art, we question whether these would not be best advanced, even were the attendance at first small, by keeping the available space for architectural drawings exclusively,—unless photographs of architectural subjects took the place of the present conspicuous portraits. Moreover, there are drawings now in the Great Gallery, which would have been placed with advantage on the walls of the West Gallery. They are disposed on seven screens, which are badly lighted, and are much in the way on the evenings of *conversazioni* and lectures. The *conversations*, when well managed, are by no means unimportant in enlisting the public interest in architecture; and this year, arrangements have been made for a greater number of them than usual. The rooms were crowded on Tuesday night, though the number of persons present was small comparatively; and when the Society for the Encouragement of the Fine Arts hold their *conversazioni*, it will be impossible for many persons to pass round the galleries, unless some change be made.

Since the last exhibition, the ceilings and walls of the galleries have been coloured; so that they appear at least clean; but that the floor, and its covering, had not sufficiently participated in the cleansing, was evident on Tuesday night.

After some time had been spent in looking at the objects in the galleries, Mr. Beresford Hope was called to the chair, and addressed the company, stating some particulars of the progress and condition of the undertaking. Afterwards, Mr. Edmeston and Mr. Lamb spoke, the former being careful to point out that arrangements for the accommodation of societies, not architectural, were regarded by the Committee as provisional, and only maintained pending the growth of proper support to the Architectural Exhibition, more especially by the London architects,—the country architects, this year, having not held back. It will be seen by our notice of the Royal Academy Exhibition, that certain important buildings, and projects, are represented there, and that some are represented in both places. In Conduit-street, there are about 400 drawings and models in the Great Gallery. In the

North Gallery and the East Gallery, there are 33 collections of specimens of materials, or manufactured articles,—but, at a glance, not presenting much except what we have seen before. "Competition-drawings hold a much less important place in this exhibition than on previous occasions. The chief competitions represented,—and they are represented very partially,—are the Grocers' Hall Competition, and the South Kensington Natural History Museums Competition.

Amongst the principal exhibitors are Messrs. S. S. Teulon, M. D. Wyatt, Owen Jones, A. W. Blomfield, J. Whichcord, W. White, T. C. Sorby, E. Holmes, J. E. Goodchild, E. Christian, E. B. Lamb, G. Goldie, R. N. Shaw, Slater & Carpenter, C. H. Cooke, E. I'Anson, F. P. Cockerell, T. H. Watson, H. Curry, E. M. Barry, F. C. Penrose, J. K. Colling, W. Burges, C. F. Hayward, G. E. Street, G. Truett, R. P. Spiers, C. Gray, J. D. Wyatt, O. Hansard, W. C. Brangwyn, J. P. Seddon, R. Kerr, H. H. Burnell, and some whose names we do not immediately recollect. Before next week we shall have had time to give to the collection in detail, the attention which it so much deserves.

SIR JOSHUA REYNOLDS AND HIS TIMES.*

MR. MURRAY, of Albemarle-street, has contributed a pleasant passage to Mr. Tom Taylor's volumes. It is in the shape of an advertisement, and runs (we will not be answerable for the English), in these enticing words:—

"Shortly will be published, with illustrations, fcap. 4to., a Catalogue Raisonné of the Works of Sir Joshua Reynolds; with notices of their present owners and localities. By Tom Taylor and Charles W. Franks. The numerous inquiries necessary for careful compilation of the Catalogue Raisonné of Sir Joshua's pictures, and the Compiler's desire to avail himself of any information as to pictures that the publication of the Life and Times may elicit, have rendered it necessary to postpone the publication of the catalogue. But the main portion of the materials is ready, and it may be expected in the course of the year."

A Catalogue Raisonné of the kind Mr. Murray announces will give to Reynolds what *Gentleman's Magazine* Nichols gave to the admirers of Hogarth, in his trustworthy "Catalogue of Hogarth's Prints," and will, doubtless, form a very useful supplement to every Life of Sir Joshua. A work of the kind has long been needed, for Mr. William Cotton's valuable "Catalogue of the Portraits painted by Sir Joshua Reynolds," published in 1857, requires many additions and more corrections.

Friday, the 2nd of May, and Saturday, the 3rd of May, 1856, are memorable days in the history of Reynolds's reputation, though Mr. Taylor has overlooked them. On the Saturday the Great Room at Christie & Manson's was crowded, and crammed to witness the sixth day's sale of the collections of the poet Rogers. One hundred and five pictures composed the one hundred and five lots of that day's sale, and eight Sir Joshuas, of extraordinary interest and excellence, were among them. We were present on the occasion. The first Reynolds put up was "The Mob Cap," the principal figure in the composition of "The Infant Academy." The hammer appraised it at 750 guineas. Six intervening lots allowed breathing time, and then a second Sir Joshua, "A Girl with a Bird," was knocked down at 230 guineas. Another interval, and the market-price of the Marchioness of Thomond's picture, "A Girl Sketching," was fixed by the hammer at 350 guineas. A longer interval, and then lot 601 was up for sale amid a volley of tributary cheers and clapping of hands. One of Sir Joshua's very first works,—a master-piece,—is under the hammer: yes, the far-famed "Strawberry Girl" is to be sold to the highest bidder. All is silence now save the well-known voice of the auctioneer. A thousand guineas are offered, then 1,200 guineas, then 1,500 guineas,—you might have heard a pin drop,—then 1,600, then 1,700 guineas,—then heavy cheers,—and then intense silence; bids are offered that it will fetch 2,000 guineas; 1,800 guineas are offered for the charming "Strawberry Girl" of England's Sir Joshua. 1,900 guineas are now offered amid renewed cheers. Another pause, and the hammer of the auctioneer is in the air ready to descend. "Two thousand guineas!" is

* See p. 270, ante.

then the cry, Christie's face beaming with delight as he announces the bidding. A longer pause on account of renewed cheers, as if Christie's great room, not Cheapside, were "mad." Another bidding is heard, and at the price of 2,100 guineas Sir Joshua's "Strawberry Girl" is sold to its happy purchaser The Most Noble Richard Seymour Conway Marquis of Hertford. The sale advances, and a landscape by Sir Joshua, after the manner of Titian, is sold for 105 guineas. "The Strawberry Girl," and Sir Joshua, and the Marquis of Hertford, and 2,100 guineas for the "Strawberry Girl," are on the lips of all who love art and pleased to spread the reputation of England's Sir Joshua.

Talk about Sir Joshua was carried into the next day, when three more well-known Sir Joshuas, and favourites with the post whose property they were, are up for sale. Sir Joshua's second example in landscape-painting, a "View from a Window in his Villa at Richmond," is to be sold,—and sold it was, for 430 guineas. A second Sir Joshua is offered (lot 766), "Cupid and Psyche," one of the most important and beautiful of his fancy subjects,—the hammer falls, and 400 guineas is the price. Breathing time is again allowed, and the "Puck," of Sir Joshua (a master-piece in art), can be had for money. Here is an opportunity for a lover of art, with a long purse,—cheers are as loud as yesterday;—"Lord Hertford will have Sir Joshua's 'Puck' for certain," is on many lips. His lordship, however, is not a bidder, and the starting price of 800 guineas, advances by tens and twenties to 950 guineas, and finally closes at 980 guineas. Then the purchaser's name is announced,—"Earl Fitzwilliam" is heard and repeated,—cheers are renewed, and the question is asked and answered, what Mr. Rogers gave for it. The poet (we learn from a well-known dealer and historian of picture-prices) secured his favourite "Puck" for 215*l*. 5*s*. The wealthy earl to whom it passed for 980 guineas, sat to Reynolds as a boy, and remembered Reynolds, as we heard him say at his seat in Yorkshire, when we had the advantage and the pleasure of seeing him before it. The animated boy of the picture was plainly visible in the living and aged man.

Sir Joshua (like Sir Godfrey Kneller before him) was the most fortunate of painters in finding some ten or eleven engravers who could translate his colours into black and white and transfer his best qualities from canvass to paper. Nay, at times he had engravers who could improve upon him. Wilkie was equally fortunate in Burnet and Raimbach; Landseer has been alike fortunate in his Father, in Cousins, in Gibson, in Watt, and a few others. Hogarth and John Martin frequently engraved their own works; and translated, and, at times, improved upon their own originals.

To read Reynolds "aright" one must not only have seen his happiest works, but his least successful; and these seen, he must be carefully studied in the numerous engravings from his works that passed under his own eyes before publication.

The bulk are on copper, of a large size, and in mezzotinto. Mr. Taylor, with his dramatic power of reproducing and setting pictures in words, might have given us a chapter,—and a welcome one it would have been,—on the Raimbachs, and Burnetts, and Charles Warrens of Sir Joshua. As Mr. Taylor is silent about them, a few words will not be out of place. In what we have to say we shall omit all reference to the "Collected" engravings after Sir Joshua made by S. W. Reynolds and his pupil Mr. Samuel Cousins; many are good, some are copies of copies; but the whole work is not only a noble monument to the memory of Sir Joshua, but a fudge-book for portrait painters,—past, present, and to come.

In Sir Joshua's life-time line-engraving was in little repute and little understood, save by one man, and that man a master—Sir Robert Strange. Sir Robert, whose soul was with Guido and Vandyck, cared little for Sir Joshua. They were not friends, though neighbours, and each alive to their distinct excellencies; yet the great engraver living in Castle-street, Leicester-fields, within a gun-shot of the great painter and fellow-parishioner in Leicester-fields, did not, through a thirty years' close application to his graver, attempt to transfer a Sir Joshua to copper. Sir Robert looked on his own art as one little inferior, if indeed inferior, to the art of the painter. Sir Joshua's "Holy Family" was a poor performance in the eyes of Sir Robert, and money conditions, however tempting, would

have failed to make Sir Robert Strange sit down to engrave it.

Though Sir Joshua failed to catch Sir Robert Strange as a translator of his works to paper, there are some line and stipple engravings from his paintings that are marvellous in their way. William Sharp, in his engraving of Reynolds's "John Hunter," is as great as Reynolds himself. Till Mr. Henry Farrer restored Sir Joshua's fast "flying colours," in this noble portrait, Sharp's inimitable engraving was the best "transmitter" of the fine head and face of the great surgeon. After Hunter's "Sharp," we must place Mr. G. T. Doo's "Lord Heathfield," done for the late and short-existing Society of Engravers of Pictures in the National Gallery.

Of engravers after Sir Joshua in the stipple style of engraving, Francis Haward, who engraved "Mrs. Siddons as the Tragic Muse," and the playful composition of "The Infant Academy," stands pre-eminent. The stipple style, in Haward's hands, conveys Sir Joshua's texture, a merit that the mezzotintists never caught.

Miss Caroline Watson's engraving of the Portrait of Sir Joshua, in spectacles, is in stipple, and marvellously fine it is,—the very picture itself in black and white. Contrast it with Mr. Francis Holl's repetition of it in the second volume of Messrs. Leslie & Taylor's "Life and Times," and mark (one cannot fail to see at a glance) the superior skill of Miss Caroline's touches on copper over Mr. Holl's dottings and touches on steel.

Francesco Bartolozzi, whose "Clyte," after Caracci, is the admiration and envy of engravers, caught Sir Joshua's manner in the Thrale picture of musical Dr. Burney, and in a few others, such as Pope's Murray (Lord Mansfield), *Shakespeare Malone*, Angelica Kauffman, and the "Masters Lamb."

Of the mezzotintists (or scrapers, as the liners or linesmen contemptuously call them, or, rather, did call them), the earliest employed by Reynolds is one of the best. This was James M'Arroll, who, dying in 1765, lies buried in Hampstead Churchyard. One of his finest engravings after Reynolds is his "Horace Walpole," of which there is a repetition in a varied style before Dallaway's edition of "Walpole's Anecdotes."

James and Thomas Watson were both admirable engravers, or scrapers, after Sir Joshua. The former engraved Sir Joshua's "Blinking Sam," or profile portrait of Sir Joshua; the latter has left a marvellous proof of his skill in Sir Joshua's life-like portrait of Garrick, with his thumbs together and a prologue before him. Watson's engraving is taken from the picture then (1779) in the possession of Sir Thomas Mills. Who has it now?

There are several fine engravings after Sir Joshua by John Raphael Smith, of whom Chantrey made a most admirable bust, with a cap on his head, and a marvellous look of thoughtful penetration. Smith's Lord Richard Cavendish, and Master Crewe, after Reynolds, are well known and greatly admired.

Valentine Green, with whom Sir Joshua had his Mrs. Siddons Tragic Muse quarrel, or "rapture," to use Mr. Taylor's favourite word, engraved "The Waldegrave Girls," a very noble example of his art.

Dixon's engraving (1775) of Sir Joshua's "Duke of Leicester," (painted in 1774) is, in the opinion of William Smith, late of Lisle-street, (a most competent judge), "a masterpiece of art, and has never been excelled."

Of equal excellence in our eyes is Edward Fisher's engraving (1762) from Sir Joshua's "Garrick between Tragedy and Comedy." Mr. Taylor omits to tell us that this noble example of Reynolds's skill was sold by auction in the year 1782, at Lord Halifax's sale. The price (it deserves to be known) has escaped us. Reynolds must have heard of its sale, and awaited the news of the price it brought with very mingled feelings of anxiety and pride.

Giuseppe Marchi,—Reynolds's first pupil (he became acquainted with him in Italy),—is the engraver of Sir Joshua's head of Goldsmith.

What Reynolds's contemporaries thought of his likenesses and of the engravings from his works, we will give an unpublished instance in a MS. letter now before us, from a very competent authority,—"The mezzotinto print" (Joe Warton writes to *Shakespeare Steevens*) "taken from the picture of Mr. Warton [his brother Tom], now in my house, is certainly a likeness, though a likeness rather coarse and too big and

broad." The admirers of Tom Warton, the historian of English poetry, will be pleased to learn what "Joe of Winton" thought of Hodge's engraving from Sir Joshua's portrait of "Trinity College Tom."

John Hall (Raimbach's master) conveyed to copper Sir Joshua's efflorescent and debauched face of Richard Brinsley Sheridan.

John Keyse Sherwin's engraving from the Royal Academy three-quarter of Sir Joshua, by himself, is highly praised in the quarto volume of Testimonies to the Memory of Reynolds, published immediately after the great painter's death. Has not Mr. Taylor (vol. ii., p. 382) confounded Sherwin the engraver with Hamilton the painter? William Hamilton certainly did paint Mrs. Siddons in "The Grecian Daughter."

Another good contemporary engraver after Sir Joshua was Jones, the father of George Jones, the painter and Royal Academician, and one of Chantrey's friends and excoctors. Lord Crewe's portrait of Charles James Fox was engraved in 1784 by Jones. The Crewe portraits is (we believe), the original picture,—the Holland House and Holkham pictures repetitions only touched upon by Sir Joshua. Mr. Taylor (vol. ii., p. 430) thinks differently, but omits to mention that Jones's engraving was made from Lord Crewe's picture, and that Reynolds and Fox were both alive when Jones's engraving was made. And here observe, attentive reader of Mr. Taylor's volumes, that in page 586 of the same volume, Mr. Taylor informs you "That the last portrait from Reynolds's hand is that very fine one of Mr. Fox, at Holland House, in which not the slightest diminution of power is perceptible." We have our doubts, and believe in the Holkham picture, not the Holland House one.

We wish that Mr. Taylor could have found a place for the preamble or opening paragraph of Sir Joshua's "Will." It is very touching:—

"As it is probable that I may shortly be deprived of my sight, and be incapable of executing any formal will, I desire that the following Memorandum may be considered as my last Will and Testament.—
I commend my Soul to God in humble hopes of His mercy, and my Body to the Earth."

The preserver of the lineaments of two generations of English talent and English beauty had not forgotten in old age the lessons he had learned in his youth from his father at Plympton.

We shall return to these volumes. What Mr. Taylor calls Reynolds's "rapture" with the Academy, well merits extracting, and calls for criticism. One word more by way of present conclusion. Sir Joshua's "Funeral Card" was the work of Bartolozzi's graver; we know of only one copy of it. A fac-simile of the card would have been an acceptable addition to Taylor's "Life and Times of Sir Joshua Reynolds."

THE CORONER'S ANNUAL REPORT FOR CENTRAL MIDDLESEX.

DR. LANKESTER'S second report to the Social Science Association, has been issued (1, Adam-street, Adelphi, London). It runs from 1st August, 1863, to 31st July, 1864. Accidental deaths had increased greatly; there were seventy cases. Increased traffic and the enormous development of building industry in the centre of London, are stated to have been the chief causes of the increase. The latter, the coroner says, he has no hesitation in ascribing chiefly to the rashness and carelessness of workmen, and to intoxication; the precautions made in many instances by masters being set at naught. As to the former, the reporter suggests that vehicles ought to be compelled to proceed at a walking pace in turning corners, and in passing great crossings. One half of the accidents occur to persons above forty, a large proportion of them to persons above sixty; showing that activity is requisite to escape accident in the streets. The deaths from natural causes requiring inquests arose chiefly from diseases of the heart and lungs: there was an increase of 120 on such inquests. The increase of infanticide is fearful: the coroner estimates that there must be 12,000 women living in London alone who have secretly destroyed their offspring! Twelve thousand female infant-killers! One great cause of this, besides the public reprobation, and the fear of losing caste, is the fact that the putative father of the child very seldom contributes to its support. Of seventy-five cases adduced, only two were exceptions in this respect. The increase of infanticide in London is so alarming that the coroner thinks it demands a special inquiry.

* Note in Walpole by Worrum, p. 836.

ANCIENT CHRISTIAN TOWNS IN
CENTRAL SYRIA.

THE ARCHITECTURAL MUSEUM.

A LECTURE was delivered on Tuesday night last, in the theatre of the South Kensington Museum, before the members of the Architectural Museum, by the Rev. George Williams, B.D., Fellow of King's College, Cambridge;—Subject, "Ancient Christian Towns in Central Syria," recently discovered by Count M. de Vogüé. The chair was occupied by Mr. Beresford Hope, President of the Society.

The lecturer, having been introduced to the meeting by the president, proceeded to say that he had only one matter to regret in presenting himself before the meeting, namely, that the Count de Vogüé himself was not there to tell them of his remarkable discoveries in Central Syria. The Count was about to visit the country, but, unfortunately, not before the present session of the museum had been brought to a close. The plans and drawings before the meeting were kindly sent to him by the Count, with a view to illustrate the lecture. The first thing to be explained was the situation of the recently discovered cities. Two groups of cities had, in fact, been discovered, but the lecture would be confined to one of them. The Count spoke of both groups as being situated in Central Syria—one in South-Central, the other in North-Central Syria; and reference would on that occasion be made to the northern group. They lay in a mountain region, in a triangle of which Antioch, Aleppo, and Apameia were the apices, and on the right bank of the river Orontes. The several parts of the district were known in the country by the names of Jebel Rihia, Jebel Ala, Jebel Alaka, and Jebel Semdan. A great part of the country was quite unknown, and has been, and is still, quite a blank in our geographical. Thanks to the successful explorations of the Count de Vogüé and his companion, Mr. Waddington, in the year 1862, it would not remain an unknown country. He would give them, in the Count's own language, an idea of the extent of his discoveries in this particular place. Writing of the district, he said,—

"I do not believe that there exists in all Syria a collection which can bear comparison with that presented by the ruins of these countries, an almost tempted to refuse the name of ruins to a series of towns almost intact, or, at least, of which all the elements remain, sometimes overthrown, never dispersed, the sight of which transports the traveller to the mists of a lost civilization, and reveals to him, so to speak, all its secrets. In passing through these deserted streets, these forsaken courts, these porticoes where the vine entwines itself round mutilated columns, we experience sensations altogether new to those who are felt more strongly at Pompeii—for the climate of Syria has not preserved its treasures so well as the cinders of Vesuvius—but more freshly here, for the civilization which we here contemplate is less known, that of its Augustan age. In fact, all these cities, which are more than a hundred and fifty in number, within a space of thirty or forty miles, form a whole, from which it is impossible to detach any part; where all is tied and chained together, belonging to the same style, to the same system—in short to the same epoch, and that the epoch of primitive Christianity, hitherto the most neglected in an artistic point of view; extending from the fourth to the seventh century of our era. We are here transported into the midst of a Christian society, and discover its manner of life—not a life of luxury, as has been commonly imagined, a life of degraded, timid, suffering state of existence; but a life of freedom and opulence, addicted to the arts; in large houses built with huge blocks of dressed stone, perfectly arranged, furnished with their covered galleries and balconies, beautiful gardens planted with vines; with wine-presses, cellars, and stone casks; with large subterranean kitchens, and stables for horses, in courts surrounded with cloisters; elegant baths; magnificent churches supported by columns, flanked by towers, encompassed by splendid tombs. Crosses and monograms of Christ are sculptured in relief on most of the gates, and numerous inscriptions may be read on the monuments; in which however—from a sentiment of Christian humility, which forms a remarkable contrast with the vain-glorious display of paganism—we have found no proper names of individuals; only pious sentences, passages of Scripture, monograms, and dates. But the tenor of these inscriptions points to an epoch closely following the triumph of the Church. . . . By one of those phenomena of which the East offers frequent examples, all these Christian towns were abandoned on the same day, probably at the time of the Persian invasion; and since that time they have remained untouched. But for the earthquake which have thrown down many of the walls and columns, nothing would be wanting but the timber and wood-work of the houses."

That was a general description of what he would endeavour to refer to in more minute detail. Time would not permit him to go into a history of Syria during the fifth and sixth centuries, but during that period the state of Syria was highly unsatisfactory. It suffered from invasions of the Saracens, who captured and destroyed the three boundary cities. It is also matter of history that Justinian caused the cities to be rebuilt, and with such strength and beauty that they became more prosperous than before. One had little reason to doubt that the group of

cities was rebuilt about the year 544, and it was believed that they were abandoned about the year 638. They were not destroyed by the Arabs, who dwelt not in houses but in tents, a fact which accounted for the comparatively perfect state in which they were discovered by Count de Vogüé. He desired to say a word as to the importance, in an architectural point of view, of those recovered cities; and here he would again allow the Count to speak, as it was well shown in his "History of the Temple of Jerusalem," the 5th part of which had just reached this country. He said,—

"In the west, from the fourth to the eighth century, the style of building is miserable: the Basilicas of Rome, constructed during that period, are an unsightly collection of materials, torn from ancient monuments, supported on bad walls of rubble-work. Architecture ekes out an existence on an old fund of Roman traditions, which continually becomes more and more exhausted. In the east—at least in Syria—during the same period, the art did not undergo the same deterioration. Under the impulse of an emancipated Christianity, a wealthy society, habituated to material prosperity, less marred in its existence than the western provinces of the empire, built themselves towns and country houses, churches and tombs. The Greek artists employed remained faithful to the good traditions of the school, i.e., to massive masonry without mortar—to the judicious and discriminating employment of materials—to the study of the special conditions of climate and design. In this way and under the empire of new necessities, they created by degrees a new style, which has neither the delicacy nor the perfection of the ancient, but which has a logic and sometimes an originality of its own. The old processes were familiar to them; they still knew how to build in great blocks of from 15 ft. to 17 ft. in length; to quarry monolithic columns; to place them in porticoes; to arrange them along their churches. They knew how to carve doors and windows in slabs of basalt; to cover stone houses with long blocks of stone; to carve capitals in a style, debased indeed, but still vigorous. Byzantine art has been generally unfairly judged up to this time, because the elements necessary for a serious appreciation of it were wanting. It was only known at all by some small monuments of a late date, erected during a period of real decay, i.e., after the Mahomedan invasion, and the great disturbances consequent upon it. The period, truly fruitful, and important for the history of art, viz., that which extends from the fifth to the eighth century, was not represented, or, rather, the monuments of that epoch which are found in Syria were not known; and although they are numerous and very well preserved, they had escaped the notice of travellers. Entire towns remain in the mountains which surround Antioch, with their public and private edifices, civil and religious, still standing, and accompanied with inscriptions which give their date. This whole collection has been recovered by us, and I want to say that after the publication of our drawings, no epoch will be better known in all its most minute details."

He had made inquiry of the count in reference to the material used on the buildings, and had ascertained that it was calcareous stone, almost Jurassic limestone, only not so hard; that it was easily cut when new, and hardened when exposed to the air. He might mention that the stone for each building appeared to have been quarried on the spot, and that the quarries were afterwards utilized, being used for kitchens, or basement stories, or for cisterns, or other useful purposes, in connexion with the building. The drawings and plans before the meeting, gave a very accurate idea of the arrangement of the dwellings. Here was one (pointing) the pavement of which remained fully perfect. The houses were of two stories, and were surrounded by vineyards. There was a colonnade along the front of all of them, almost always round the south and west sides. The next plan he would refer to was a villa residence—a palace, as the count called it. There was first the porter's lodge; then the entrance by which visitors would approach; then a hall leading into an open court, with portico, from which court there was an entrance to a dining-room, apparently, or into another chamber at the side of it, or the visitor might go by another passage into the great hall, which was 50 ft. or 60 ft. long, by 30 ft. or 40 ft. wide,—the principal room, no doubt, of the house. There were two terraces, and underneath them the kitchen and offices of the building, and there was a raised court, with stables, and probably coach-houses. The count mentioned, as a remarkable feature, that near the house was the family mausoleum, and in its vicinity other tombs, perhaps those of the servants and dependents of the family. They were covered with texts and emblems, full of the glorious hope of the resurrection to eternal life. There was nothing indicating sadness or mourning. It was clear that the survivors regarded the tombs of their relatives and ancestors with no such gloomy views of death as he was afraid were very commonly entertained by Christians of the present day. The lecturer having pointed out the details of other houses by the aid of diagrams, proceeded to speak of the ecclesiastical ruins discovered by Count de Vogüé. One was seen, by reference to the plans produced, to be a large church with its portico and colonnades in front, and its narthex, a peculiar feature in Eastern churches; another

was a long church with single aisle, with apsidal termination in the middle; an altar, with, at either side, the prothesis and the diaconicon. At the north was a small chapel unconnected with it; and another lay to the north of that, only separated from it by the street. It had its narthex, and also a curious feature in many of the Eastern churches, namely, that the north and south ends of the narthex formed towers. He should mention that all the porticoes faced either south or west. Another of the churches had a double aisle and a narthex, the north and south terminations of which were taken off to form towers. Some of the churches had evidently been originally constructed running north and south, and had been subsequently altered so as to run east and west. The most important and interesting of the ecclesiastical remains he had now to allude to, namely, the Church of St. Simeon. If a line were drawn on the map between Aleppo and Antioch, the church would be a little to the north of it. The district took its name from Simon Stylites, who lived in the church or convent of which a drawing was before the meeting. There were also enlarged plans, by which they would be enabled to follow the general arrangements. It was built in the fourth or fifth century, and was thus described by the historian Evagrius, who lived about 100 years after it was built. The extract he was about to read was translated from the original Greek by Mr. Paley, of Cambridge, he (the lecturer) not wishing to do so as he had a theory on the subject of the church, and preferred that it should be done by one who had not, and who besides had published several works on architecture, Gothic mouldings, &c. Evagrius said,—

"Let me now give an account of another wonder which I have myself seen. I was anxious to examine the holy place where this saint resided, distant about 40 miles from Antioch, and situated near the very summit of the mountain. The natives call it 'The Monastery,' holy Symeon, I suppose, having bequeathed to the place a title suited to his ascetic life. The slope of the mountain extends about three miles. The plan of the church is cruciform, being built with porticoes (i.e., nave, transept, &c.) on the four sides. Along each side of these porticoes are ranged pillars, beautifully wrought, of cut stone [or polished marble], which carry up the roof to a considerable height. The central part of the church is a court, open to the sky, and on the finish of which the most art has been bestowed. There stands the famous pillar, 60 ft. high, on which that acorned angel on earth passed his celestial life. Towards the roof of the porticoes described are small barred [or closed] apertures, or windows, as some would call them [i.e., clerestory] looking both into the open space above mentioned, and also towards the porticoes. On the left side, then, of the pillar [standing], close at the window, I saw, together with the whole crowd of people assembled there, as the rustics were dancing round the pillar, [i.e., with the crowd in the portico who were looking through the window at the rustics dancing in the central court,] a very large star gliding across the whole space of the window, and flashing light; and this not once, nor twice, nor thrice, but many times. Often it would disappear, and then again suddenly show itself. This only occurs on commemoration days of the saint. There are some who assert (and we have no right to reject the miracle, both from the good faith of those who relate it, and from the other miracles which I have myself witnessed), that they have seen the actual face of the saint flitting hither and thither, with a long beard, and the head enveloped in a tiara, as had been his custom in life. For thus close do the men who are natives of the district approach without let or hindrance, and often go round the pillar with their beasts of burden. There is, however, a very strict guard (I know not why) to prevent women from entering the church: they stand outside by the threshold and view with amazement the miracle, for one of the doors is right opposite to the glittering star."

The same delusion as to the Holy Fire was long kept up at the Holy Sepulchre in Jerusalem, and the one was no doubt borrowed from the other. At the east side of the church were its apsidal terminations. The centre was a court open to the sky, as was also the centre—according to Eusebius—of the Church of the Holy Sepulchre. The western end of the church was supported on arches, owing to a steep valley, which rendered such an arrangement necessary for the protection of the building. Mr. Pocock

100 years ago gave an interesting account of this church. Mr. Josiah Conder, speaking of it, and introducing what Pocock had written, says,—"About six hours north-west of Aleppo, and to the north of the road, is the ruined convent of St. Simon Stylites, which, in the sixth and seventh centuries, was very famous 'as well on account of the devotion paid to this saint as for the spaciousness and magnificence of its buildings. Some say the saint lived here on the top of a pillar; others, that he lived on the top of the mountain for sixty-eight years.* The whole convent is above a quarter of a mile in length. 'The church especially,' says Pocock, 'is very magnificent. It is built in the form of a Greek cross. Under the middle of an octagon dome are the remains of the famous pillar on which they say St. Simon lived for so many years. What remains of it was hewn out of the rock, that is, the pedestal, which is 8 ft. square, and a very small part of the column. The part of the cross to the east of this was the choir, at the east end of which are three semicircles, where, without doubt, there were three altars'—(they were not altars, but an altar, the prothesis, and the diaconicon)—'and the entrance to them are adorned with reliefs. The whole church is of the Corinthian order, which is executed in the best proportion under the octagon dome';—(writing 1,200 years after Evagrius, Pocock makes especial mention of this fact, which Evagrius also particularly notices)—'but the other parts,' continued Pocock, 'show something of the decline of architecture.' It was a remarkable fact that Mr. Paley, in drawing a diagram of the form of the Church, made its court an octagon, and that without any mention of it by Evagrius, and without having seen the plans or heard anything upon the subject. He did so, he subsequently stated, when he came to consider how the various parts mentioned could best be brought together, and having in his mind at the time the tower and lantern of Ely Cathedral. The photographs of the apse would show its present state, and the meeting would see with what immense solidity the building must have been erected. He (the lecturer) trusted that now the way had been opened up by the Count de Vogüé and Mr. Waddington, the country would be even more fully explored. They had, however, left little for their successors to do, as they possessed every qualification for the task which they undertook and which they had so successfully carried out. In the absence of the Count de Vogüé he could only express the satisfaction he (the lecturer) felt that it had fallen to his lot to introduce to that large audience these important and most interesting discoveries.

Mr. Beresford Hope, in proposing a vote of thanks to the lecturer (which was subsequently carried by acclamation), said that one would have thought, from the thorough acquaintance with the subject manifested by the lecturer, that it was he, and not the Count de Vogüé, that had made the explorations. It was saying little to mention that those discoveries marked an epoch, not merely in the history of architecture pure and simple, but in the history of Christianity, and of civilization itself. They had been as it were brought face to face with the recovered cities, and saw how much of teeming life they contained, and how high a state of civilization had been attained there; and, what was of more interest, that that teeming life was not the life of Paganism, but of Christianity engrafted on the purest type of art. He had no doubt that the ground, once opened up, would be thoroughly investigated; and he hoped that when it was, the man to whom the credit of the discovery was due would not be forgotten in the later researches of those who came to reap the harvest which he with so much labour had sown.

THE APPROACHING DANTE FESTIVAL.

THE Dante Festival, to celebrate the sixth centenary of the birth of the great Italian poet, is now occupying the attention of all classes in the capital of Italy. Strangers are flocking in from all parts: rumours are heard that crowned heads are expected to honour with their pre-

sence the approaching fêtes. The city itself is beginning to bristle with innumerable flag-staffs, with gilded heads, destined to hold the national banners,—those of the "Contadi" (or divisions of the town,) &c. The statue, to be inaugurated on the 14th, the first day of the festival, is being now raised to the top of the pedestal prepared for it in the Piazza Sta. Croce. The piazza is covered around the statue, almost to the houses, with flooring, on which seats are raised, for those persons who form the procession on the 14th. The open space between the buildings of the Uffizi is being prepared for the people's ball, on the night of the 16th. Libraries and depositories of archives have been searched for rare editions of Dante's works, and all memorials relating to him, or any persons or subject of interest mentioned by him in his works, or connected with him. These are to be exhibited in the Bargello during one of the three days of the festival, and will be to many the object of attraction offered. Other towns of Italy, in which different periods of Dante's eventful life were passed, and Ravenna, where he died and was buried, will also commemorate the day, with all available and appropriate honours.

In Florence, the birthplace of the greatest poet of his time, and, according to some authorities, the abode of his ancestors so early as the eighth century, will be concentrated, during these three days of festivity, all that is interesting to the antiquary and the artist, connected with the period in which Dante Alighieri lived. The programme now issued announces that, besides the numerous analogous decorations of those parts of the city through which the procession will pass, on all those houses in which were born, lived, or laboured the most renowned citizens, shall their names be inscribed, and ornamented with trophies, laurels, and flowers.

On the morning of the 14th, will take place, as we have said, the inauguration of the statue of Dante, preceded by a procession of the representatives of the Italian municipality, literary and scientific academies, universities, colleges, societies, all with their respective banners, through the principal streets of the city; illuminations, music, choruses in honour of Dante in the evening.

Monday—in the morning, literary meetings in different localities; in the evening, a musical entertainment in honour of Dante in one of the theatres.

On Tuesday there are so many different attractions for every hour of the day, that the ubiquitous alone are likely to profit by them all.

The most interesting will be the assembly of confraternities of artisans, and benefit societies with their respective insignia.

"Quadrì Viventi" tableaux vivants, the subjects chosen from the "Divina Commedia" of Dante, with recitations.

Opening of the Dante Exhibition in the Bargello.

Then there will be a popular fête in the Cascine (the Hyde Park of Florence) in the afternoon.

Horse races. The people's ball in the evening. Picture galleries, theatres, horticultural gardens. All to be opened to the people during the three days. The King of Italy will of course be present at the uncovering of the statue and the greater part of the festival.

Although, as is most evident, all tends to make the approaching festival a *festa del popolo*, still there will be much to gratify the eye and instruct the mind of the lover of archaeology.

ON DEFENCES AGAINST EPIDEMIC VISITATIONS.

MR. EDWIN CHADWICK recently paid a visit to the neighbourhood of Salisbury, and, by invitation, examined the new drainage works in that city. There was a city meeting, to hear an address from him on these works, the result of the formation of which we have already noticed in the *Builder*. Mr. Chadwick also treated of the means of meeting epidemic visitations. The mayor was in the chair, and the meeting was attended by the members for the city, the clergy, and local medical authorities, together with the chief inhabitants of the city.

In course of his address, Mr. Chadwick said:—

"The extraordinary epidemic which is spreading in Russia is described as the plague, and the plague is now generally admitted to be an intense typhus. Medical officers who have served during plague visitations in the Levant have described to me typhus cases with buboes (which occasionally occur in this country during severe

epidemic visitations of typhus) as identical with those they have dealt with at Malta and in the East as 'the plague.'

In respect to the new works which the city has provided for itself, and set an example to all other cities of what they may do for themselves, having examined them, I have no doubt, but, by the new system of what I call self-cleaning tubular drains and sewers, human fecal matter is no longer retained in cesspools, or in brick house drains, or in larger sewers of deposit, to stagnate and ferment, and give off foul emanations from beneath and amidst habitations, but is in a constant state of removal, and is removed before it can enter into advanced and noxious stages of decomposition. The excreta of the morning is received into the water with which every house is now provided. It is immediately removed in water. Before noon it is distributed in water. In its unfettered, and, as nature, in its unweakened condition, it is for the most part,—for this portion of the work is not quite so complete as it might be,—exercising its fertilising power over the water meadows below the town. The sewage discharged from the old sewerage works of London and other cities into the sewers in putrid sewage generally a year old, flushed out in annual clearings or by occasional storms. The fresh sewage constantly discharged from your new works may,—sometimes within little more than a week,—be converted into sweet-smelling grass,—may be fed upon and returned to the town as enriched milk. By your new arrangements of universal water-closet apparatus and self-cleaning house drains, and sewers in substitution of the ancient cesspools, you have set a mechanical example to the French metropolis, with its thousands of cesspools, and its thousands of cesspools which are only extended cesspools, costing twenty thousand pounds per annum for intermittent cleansing; you set an example to the French metropolis, which has, since the completion of its sewerage, reduced the death-rate who can get away from the emanations from the accumulations retained within its fens or cesspits; to Manchester, the city of Liverpool, with its sixty thousand cesspools, the most unhealthy in England; your mechanical example has gone far to show to such cities that, at less than the annual cost of cleansing those who are accumulating labour of the night, the man and the *vidangeur* may be dispensed with. But with the engineering example, you present to them the vastly higher example of the sanitary results obtainable by the new mechanical power of household and civic drainage. Your ancient city was, in the former entire ignorance of sanitary science, scourged with such plagues as that which scourged the city of St. Petersburg, and the ordinary death-rate in the old and small-roomed houses was, so far as may be made out, about forty-four in a thousand—a rate such as yet prevails in the lower districts of New York, as well as in some of our older cities. By larger and somewhat better houses the death-rate was reduced. On examining the statistics of the nine years before the completion of the new works, it appeared that there was a fluctuation of the death-rate from twenty-two to thirty-five in a thousand, or an average of about twenty-seven in a thousand exclusive of the cholera years. The fluctuation during the nine years since the completion of the new drainage works has been from twenty-five to fourteen in a thousand, or an annual average of twenty in a thousand; and to every case of death reduced, there is a general rule, by twenty cases of sickness reduced. In round numbers the average death-rate may be said to be reduced one-third, that is to say, it is now as if every third year were a jubilee year in which there were no sickness and no deaths. The reduction has been great in the deaths from foul-air diseases, as might be expected, but most marked in those which are intimately connected with moisture, as well as foul air, of which the deaths from phthisis have since drainage been reduced to an average of one-half that which prevailed before drainage. Your existing death rate, I should say, since the completion of your present sanitary works, you have reduced the exposure of the population to extraordinary epidemics by about one-third.

My more immediate object is to point out the simple available means by which the extraordinary and ordinary epidemics, may be still further diminished. Whatsoever may be the cause of extraordinary epidemics, the greatest intensity of the attack upon human beings is almost always found in certain localising conditions. The first renewed visitation of cholera in different towns often appeared in the same streets, on the same sides, in the same houses, and sometimes in the same rooms, though the inhabitants had changed. In the course of my inquiries I met with one instance in the city of York, of a small court which, by tradition, was the spot where the great sweating sickness of 1551 appeared, then the great plague of 1664, then others, and the first visitation of cholera; the place was popularly called the 'hagworm's nest.' The hagworm is a species of snake which haunts dirty heaps. We looked with interest to see whether the place was true to its traditions in the second visitation of cholera, and we found it was so. We know the chief localising materials for epidemic explosions. There is, as it were, the charcoal, the nitre, and the sulphur which exist in ordinary times inertly, till there come some atmospheric conditions, the light which creates the explosion and makes the materials destructive. Some forms of extraordinary epidemics we can create. In two prisons there were extraordinary epidemics of a dysenteric form; in both, at a time that old sewers had burst and leaked into the wells from which the prisoners were supplied with water. In one prison there was an extraordinary epidemic of typhus. It was found that the antecedent cause was the clearance of the adjacent ancient moat, the wind having been slowly and steadily in the direction of that part of the prison where the epidemic first appeared. It was and is a prevalent belief, that the pestilence is brought into towns by tramps. The first outbreaks of fever are in common lodging-houses. But where the provisions of the Lodging House Regulation Act have been duly enforced, and where over-crowding has been prevented, where some means of ventilation for the sleeping-rooms have been enforced, water introduced into them, cesspools abolished, and means of cleanliness promoted, the inmates are far more free from fever than are the great bulk of the artisan class, the occupiers of weekly tenements, to whom no such protection will be conceded by the landlord legislation of the House of Commons. If the sanitary measures, which have been accomplished in this city—a constant water supply, the abolition of the poison-pit, the cesspool, or the midden-street, and complete new drainage works, and tubular sewers—were accomplished in London, and all other cities, towns, and villages, the saving of life in England and Wales alone would be upwards of one hundred thousand per annum. But if the sanitary condition of the wage

* May not both statements have been correct? May he not be conceived to have "passed his celestial life," of entrancement, by night, on the top of the pillar; and his ordinary or terrestrial life either on the mountain or elsewhere? Such an arrangement would have at least been less preposterous and impossible than the common idea as to St. Simon Stylites.—Ed. B.

THE CHURCH OF ST. BARTHOLOMEW, DUBLIN.—MR. T. H. WYATT, ARCHITECT.



Plan.



THE NAVE ROOF, ELY CATHEDRAL; LOOKING WEST.

PAINTED BY THE LATE MR. LE STRANGE AND MR. T. GAMBIER PARRY.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held at the House, in Conduit-street, on Friday, the 28th ult.

The chair was occupied by the president, Mr. J. H. Christian.

Mr. H. Lockwood, of 8, Euston-road, was elected a member of the Association.

Mr. J. Lemon stated that the programme of the voluntary examination class had been settled, and that there would be three meetings in May, two in June, one in July, three in October, two in November, and one in December, the series terminating on the 11th of that month, when the subject would be "Gothic Architecture," and the "detail;" "plan, section, &c., of wall of house five stories high, with flues, &c." The other subjects included in the programme would embrace geometrical drawing; carpentry and joining; strength of materials; iron; heat, light, and ventilation; Classic architecture; valuations and compensations; masonry; estimating artificers' work; mechanics; and plumbing, painting, and glazing. Mr. Lemon added, that it would be desirable that members attending the class should bring a subject for detail with them. The first would be a timber truss for an open roof.

Mr. J. D. Mathews reported that about fifty members of the Association had, on the 8th ult., visited the new hotel at Charing Cross, in course of construction, under Mr. E. M. Barry; and that subsequently they had paid a visit to the church of St. Bartholomew, West Smithfield, now in course of restoration, under the direction of Mr. T. Hayter Lewis, who had kindly made arrangements for the admission of members of the Association to take drawings within the building.

A vote of thanks was passed to Mr. Barry and to Mr. Lewis, for the facilities they had extended to the Association.

Mr. Mathews stated that he had received a communication from Mr. Burns, the architect of the new mansion now in course of erection at Whitehall Gardens, for the Duke of Buccleuch, stating that the works were not yet in a convenient condition for inspection, but expressing his readiness at a future time to admit the members of the Association to view them.

A member inquired whether the report was correct, that the mansion in question had been purchased by Government with a view to its conversion into a public office.

The Chairman said he believed such to be the fact.

Mr. L. W. Ridge announced that on Saturday, the 6th instant, at 3 o'clock in the afternoon, it was proposed that the members should inspect the new model dwelling-houses for the poor erected by the trustees of Mr. Peabody's gift in Green Man's-lane, Essex-street, Islington, under the direction of Mr. Derbshire.

Mr. Mathews brought under notice a letter which had been received from the Royal Institute of British Architects on the subject of the memorial presented by the Association in reference to the voluntary examinations. The letter stated that the memorial had been laid before the council at their last two or three meetings, and that after careful consideration the honorary secretaries were instructed to state as follows:—

"The names of all passed candidates would be re-printed (in the same manner as the prize-list) year by year in the Transactions of the Institute. Thus one of the chief points of the memorial, we hope, will be made satisfactory. The others, it seems, can hardly be now considered, as the regulations have been circulated so far and wide as applying to next year. But this is only one out of many reasons which have led the Council to postpone the further consideration of the suggestions till after the next examination. It is hoped that the discourses now being delivered at the Institute on subjects peculiarly connected with examination papers, and the readiness the Council always shows to listen to every suggestion from those proposing to be examined as well as from the examiners and others engaged in conducting the examination, will prove the increasing interest of the Council in the matter of the voluntary examination. In order to make them again successful it is only necessary for the students to offer themselves in sufficient numbers for the regulations to be properly carried out."

The Chairman said, that in his opinion this communication was a most unsatisfactory one. The first portion, it was true, conceded what had been asked in the memorial, but the remaining portions of that document had been entirely shelved.

Mr. Ridge observed that there was an idea prevalent among architectural students that there would be no use in going up for the examination this year as the whole matter would have to be reformed next year. This consideration, no doubt, operated in the minds of many

who would otherwise prepare for the examination.

Mr. L. C. Riddett considered the letter most unsatisfactory, as it was not in fact an answer to the memorial. There was not, for instance, any reference to students having the use of the library of the Institute on payment of one guinea.

A member inquired whether any answer had been forwarded to the letter just read, which he described as an extraordinary piece of composition coming from a learned body.

Mr. Mathews said, the letter (which bore the date April 26th) had only just been received, and that no answer had been sent to it.

The Chairman said, he was certainly in favour of not allowing the matter to rest where the Institute appeared disposed to leave it. At the same time, he would recommend gentlemen to prepare themselves and go up for the examination, but that the Association should not accept the answer of the Institute as final.

Mr. Blashill quite agreed in the view taken by the Chairman, and recommended, that as many members as possible should go up for examination. It ought not, he thought, to be forgotten, that they had many friends in the Institute who might be discouraged if the Association were to hold back.

After some discussion, in the course of which a very general opinion was expressed that the answer of the Institute ought not to be considered as final, more especially as a new council would shortly be elected, it was resolved that the letter should be referred to the committee of the Association.

Notice was given for the approaching "business meeting" of a motion to alter the hours of meeting from half-past seven to eight o'clock, experience having proved that business was not commenced at the former hour.

Mr. T. R. Smith then read a paper on "the conduct of business."

It was announced that the next subject for the Class of Design would be the "Interior of a Belfry," and that on the 26th instant, Mr. C. L. Eastlake would read a paper on "Nuremberg."

INSTITUTION OF CIVIL ENGINEERS.

At the meeting, April 11th, Mr. Hutton Gregory, V.P., in the chair, the paper read was on "The Festiniog Railway for Passengers, as a 2-ft. Gauge, with sharp Curves, and worked by Locomotive Engines," by Captain H. W. Tyler, R.E.

This line was designed to facilitate communication between the principal slate and other quarries in the county of Merioneth and the shipping places, and for the conveyance of coals and other heavy articles to the quarries and mines. As in 1832, when the Act for its construction was obtained, the population was very limited, the line was laid out in an economical manner, with a width between the rails of 2 ft. only. It commenced at Portmadoc, and after passing along the Traeth Mawr embankment, it ascended to the mountain terminus at Dinas, the level of which was 700 ft. above the station at Portmadoc, by an average gradient of 1 in 92, for 12½ miles, the total length of the line being 13 miles. The steepest gradient on the portion now used for passengers was 1 in 79·82, and on that traversed by locomotive engines 1 in 60. Some of the curves had radii of 2, 3, and 4 chains. The maximum super-elevation of the outer rail on 2-chain curves was 2½ in. for a speed of 8 miles an hour. The estimated cost of the line was 24,185*l.*, but the parliamentary capital was raised to 50,185*l.*

The quarries being situated at different altitudes in the mountains, the slates were first brought down the quarry inclines to the railway, and the trucks were collected until fifty or sixty had accumulated to form a train, which was then allowed to run down by gravity. Until the year 1863, the empty trucks, or those loaded with coals, goods, furniture, materials, machinery and tools for the quarries and the neighbourhood, were drawn up by horses, who travelled down with the trains, as on mineral or colliery lines in the north of England. As the traffic increased, the line was gradually improved, by flattening the curves, by making better gradients, and by improvements in the permanent way, and as the trade still continued to progress, the practicability of employing locomotives was constantly discussed. The apparent difficulties caused the idea to be more than once abandoned; but ultimately, in June, 1863, two

locomotive engines, designed by Mr. England, under the direction of Mr. C. E. Spooner, the engineer to the company, were placed upon the line, and having been found to be successful, two others were subsequently supplied. These four engines had run 57,000 miles up to February, 1865, without leaving the rails. During the last autumn, the company carried passengers without taking fares, but at the commencement of the present year the line was regularly opened for passenger traffic. In ascending from Portmadoc, the passenger-carriages were drawn by the engines with other vehicles, the passenger-carriages being placed between the empty slate trucks, which were always last in the trains, and the goods waggons which were next behind the tender. In descending, the loaded slate trucks, with empty goods trucks attached behind them, ran first in a train by themselves: the engine followed, tender first, and the passenger vehicles brought up the rear, with a break in front, but detached from the engine and tender, and at a little distance behind them. The speed was limited to about six miles an hour in passing round the sharpest curve, and to ten miles an hour on other parts of the line.

The author conceived that the employment of locomotive engines on this little railway, and its opening for passenger traffic, were not only highly interesting experiments, but were likely to be followed by important results. Although there were still, doubtless, numerous districts where railways on a gauge of 4 ft. 8½ in., might be profitably made, yet there were also many others in which lines of cheaper construction were required.

It was, however, illegal at present to construct any passenger lines in Great Britain on a narrower gauge than 4 ft. 8½ in., or in Ireland than 5 ft. 3 in. Consequently, it would appear to be desirable to endeavour to obtain the repeal; or at least a modification of the provisions, of the Act 9 and 10 Vict., cap. 87, which regulated the width of the gauge of passenger lines, as there was now an increasing demand for railways of a minor class.

OUR THEATRES.

The sole advantage which can be claimed for the theatres of the ancients over modern ones, is that they were not at all of a tindery constitution,—not in the least liable to be attacked by a sudden mortal inflammation in the bowels, by which disorder more than one theatre has lately been carried off. Yet, with that single exception in their favour, those venerable archaic theatres must be confessed to have been most bunglingly contrived, or rather not contrived at all, to produce anything like scenic illusion and stage effect. For expressing my not very flattering opinion of primitive theatres thus unceremoniously, I ought, perhaps, to make apology; yet, as that might detain me too long, I pass on to the rather invidious question: after all our experience, and undoubtedly great, even vast, improvements in theatre building, have we at last reached that unfortunate full stop and *plus ultra* beyond which further advance is quite hopeless? Notwithstanding the perfection to which scenery and spectacle have been brought, the importance attached to, and the expenditure lavished upon them, the arrangement of our theatres is, and is likely to continue to be, such that the stage decorations can be seen—as far as seen at all—only to a very great disadvantage by a very large proportion of the visitors.

The evil is not irremediable: on the contrary, the cure for it is obvious enough; but perhaps it will be thought too much akin to the wisdom of teaching children how to catch birds by merely putting salt on their tails; for the remedy resolves itself into the simple artifice of putting all financial considerations, with their attendant obstacles, entirely aside.

It is palpable to common sense that every one should be seated, not only directly facing the stage, so as to have a clear view of it—which, by the by, was not the case in the arrangement of an ancient Greek theatre,—but likewise, as nearly as possible, on the same level as the stage itself. Yet how is this simple common-sense rule attended to? or what would be the consequences if it were? Why, at one fell swoop, away go all side-boxes and the acrobatic tiers of these or any other boxes, where those so unluckily placed and piled up to the very ceiling might be termed wall-flowers, of which Royalty itself is made one, being thrust into almost the very worst situation for obtaining anything like

a proper view of the actual stage and its scenery. In looking, or even pretending to look, at a picture, no one places himself so as merely to glance at it; but in theatres as hitherto arranged, full more than half of those who are by a sort of legal fiction supposed to be spectators, can obtain no more than a mere glimpse of the stage, and that only by squinting or looking quite askance and askew; for were they to look straight forward, they would see only their opposite neighbours across the pit. Nearly sixty years ago, Thomas Hope, of ultra-Classic and architectural memory, animadverted very stringently on the grossly-preposterous arrangement of modern theatres, in which the boxes are sometimes continued nearly up to the curtain, to the small detriment of the general effect, for there should always be a neutral ground between the audience and the actors. The inconvenience is further increased when there are numerous tiers of these, in which visitors are piled up to the very ceiling,—consequently have to look down on the heads of the performers,—and of the stage can see very little more than the floor. Nor is that all; for, in case of an alarm of fire, the staircase becomes choked up by people rushing down frantically from every tier and landing.

With respect to scenery and its display, great depth of stage is the reverse of an advantage: it considerably increases the difficulty of closing in the stage by those scraps and fragments of scenes technically called "wings," which at the best are only awkward expedients and makeshifts, which, being unavoidable, must be excused and overlooked. By some,—surely rather commonplace and unimaginable sort of persons,—it has been pointed out as a very gross and palpable absurdity, that in scenes representing rooms those who enter seem to pass through the walls. Yet, taking it at its worst, that absurdity which appears to scandalize matter-of-fact people is a mere trumpery peccadillo in comparison with the outrages against probability in other respects which are so complacently tolerated and condoned. For what can be more contrary to verisimilitude than that people should let their visitors burst in upon them unannounced; and then, instead of so much as offering them a chair, leave both them and themselves to keep standing up and stalling about while they are talking? Is there not a very strong touch indeed of the ultra-absurd when one of the persons on the stage suddenly turns his or her back upon the others, and, advancing out of the stage framing nearly up to the foot-lights, becomes attacked by a perfect paroxysm of vocality? Is that at all in consonance with any other nature than what might be looked for within the walls of Bedlam? The prosaic dullards whose minikin criticism just enables them to detect a *bug* of the improbable, if not impossible, when the performers are made to make their entrances and exits through the walls of a room, might as well go just a step further, and try to convict Shakespeare of being unfaithful to nature; for never did any of our Richards or Henrys express themselves in anything like the splendid diction he has put into their mouths,—to say nothing of the more potent emphasis of poetical ideas which he has attributed to them. In the drama and upon the stage the aim at reality may be carried too far. Without conventionality and exaggeration we should get little better than the naturalness of tame insipidity; and the sparkling dialogue of a Congreve or a Sheridan ought to be condemned as decidedly extravagant, and grossly overstepping the modesty of nature; for never, except on the stage, did people keep up an uninterrupted flow of diligently elaborated wit; wherefore they may, perhaps, without any violent effort of the imagination, be supposed to be there fully capable also of entering a room by passing through its walls, especially if made of such papery penetrable stuff as are the partitions of a London house. This last remark—an ungracious one, perhaps, it is—lands me again upon the difficult problem of either improving the constitution of side scenery—that is, the stage wings—or else getting rid of them altogether, which last expedient has been had recourse to by building up the sides of a room-scene; also furnishing it, though in a queer sort of way, and covering the floor with carpeting, or what may pass for such; but, after all, with so little success that the very best managed attempt of the kind has as yet proved no better than a very paintstaking bungle, though to the eyes of the galleries it might show us the fac-simile of a handsome drawing-room,—a tolerably large one

at any rate, there being no means—at least, yet adopted—of so contracting the stage opening as to reduce it in the dimensions of both height and width to those of an ordinary-sized room. Those who can gulp down the extravagance of a room in a cottage as big as a barn, can surely be in no danger of being choked by attempting to swallow the marvellous yet indisputable fact that, upon the stage, people can come on and go out through walls. Desisting from further remarks of this kind, I will now add no more than that, however great the artistic talent displayed in them, the productions of the scene-painter are only ephemeral, and known to his contemporaries alone. This, at least, might, in some measure, be corrected by the worthiest of them being rescued from oblivion by the graver, when, refined by sobering down, and stripped of all stage drawbacks and incumbrances, they would, without retaining aught of the stage, preserve to us all the genuine essence of the scenic.

ART-LOVER.

ABSORBING WELLS.

I SHOULD have replied last week to the defence of the absorbing well at Barnet contained in Mr. Blenkarn's last letter, but wished first to communicate with one of the gentlemen whose name he gave in that letter as an authority for the statement that the water arising from the sands under the London clay was impure. Before I constructed the artesian well and water-works at Braintree, Mr. Prestwich so correctly indicated the depth of the different strata through which we should pass, and the depth at which the water would be obtained, that I have entire confidence in his ability; and if he had sanctioned Mr. Blenkarn's statement, although I know of more than twenty wells which derive a supply of good water from this source, I should have hesitated in repeating my conviction as to the purity of the water from the Thanet sands; but I find that there is no foundation for the assertion that any such opinion has been given by him.

The other positions taken up by your correspondent are so extraordinary that I cannot let them pass. He justifies the passing of sewer-water into the Thanet sands by the opinion that "by the action of the sands the deleterious ingredients held in solution become deoxidized, and in that condition perfectly harmless;" and that "the introduction of filtered sewage-water has a direct tendency contrary to that of rendering the subterranean water impure;" or, in other words, that the sewer-water, loaded with organic matter and either ammonia or nitrogen, has a tendency to purify the main springs. If he really believes this, why does he think it so important that the artesian well at Barnet should be at a distance of 900 yards from his pure water inlet? If the subterranean waters are purified by the introduction of impure water, why not urge the Chipping-Barnet Local Board to form absorbing wells on the line of the ditch that passes within 40 ft. of his artesian well, so that the inhabitants using the water may have without fail the benefit of the sewer-water that runs along that water-course?

How is it, if the Thanet sands are so adapted to purify the sewer water that is let into them, that they do not have the same effect on the water that saturates them, and which he asserts to be impure?

With regard to the distance of the absorbing well from the artesian well, I do not consider 900 yards a great distance; and if, as he states, the dip of this stratum of sand is from north to south, the artesian well at the Colney Hatch Asylum will have the benefit of the purification arising from the influx of sewer water at New Barnet.

I am not aware that I have claimed to be the first who has used the sewer water for irrigation purposes. Before making the plan for the Croydon irrigation fields, I visited all the irrigation works at Edinburgh and other places then in operation; and I claim the credit of designing works within a few miles of the metropolis on a different plan from any before laid out, and which, if worked properly, will create no nuisance. I should like to know, where Mr. Blenkarn carried out irrigation works more than twenty years since. If they were satisfactorily planned, I regret that he should have adopted a different mode of overcoming the sewer-water nuisance—a plan involving such serious consequences, and needing an array of chemical terms

to allay the alarm that must be caused to all owners of artesian wells by this scheme.

I suppose that Mr. B. claims to be the inventor of absorbing wells; but from the note at the foot of my former letter, it appears that in France the same attempt to poison the main springs has been made, but that the Government, acting under the advice of eminent scientific men, have put limits to the adoption of this method of getting rid of the sewer-water.

I cannot conclude this letter without saying that there are very few places where the irrigation system cannot be carried out both with profit and freedom from any annoyance; and Barnet is not, in my opinion, one of these exceptions.

JAMES FENTON.

THE JUNIOR CARLTON CLUB.

THE Committee of the Junior Carlton Club have completed the purchase of freehold property on the north side of Pall-Mall, having a frontage of 121 ft. in Pall-Mall, and a similar frontage in St. James's-square, by a depth of 65 ft., exclusive of areas, upon which it is intended to build a new Club-house, according to the plans which have been made by Mr. David Brandon. The building will be begun as soon as arrangements may be completed with the tenants who at present occupy the houses upon the site.

SANITARY MATTERS.

Gateshead.—A report from Dr. Robinson, the newly-appointed officer of health for Gateshead, reveals a frightful state of things with regard to the sanitary condition of this borough. In one of the busiest thoroughfares of the town, upwards of two hundred persons are located in dwellings unprovided with water-closets and undrained; and other districts are not much better off. It is considered surprising, high as the rate of mortality has been from typhus fever and other diseases engendered by filth and bad living, that the mortality has not been still higher. The Council are now determined to do what they can to improve matters, by reminding landlords that "property has its duties as well as its rights."

North Shields.—The chairman of the Tyne-mouth Board of Health, with several of the committee, have made an inspection of the lanes, alleys, and premises, from the Low Lights to Milburn-place, and orders will be forthwith given to all owners of property to remove every description of nuisance; to flag, cleanse, and pave the courts and yards; and, in default, the Corporation will do the work, and recover the expense from those liable to pay. A deputation from the Board of Health inspected the cottages at Whitehill Point, occupied by pitmen, and they found that, out of about thirty cottages, typhoid fever had been existing for some months, more or less, in over twenty of the houses. The drains were in a very dangerous state, so much so, that the stench, during the summer of last year, in some of the houses, was intolerable. The Board has given notice to those responsible, to have the premises forthwith put into a more healthy condition.

Spalding.—A letter by the Vicar of Whapload on the Russian plague has called attention to the abominable pits of mud in his constantly fever-stricken parish. These abominations have cost thousands of pounds, and yet no effort is made to abolish the nuisance.

Birkenhead.—A pig-keeping here is a great nuisance. On a piece of ground in Market-street, a great number of pigs are kept in styes. The stench is very bad, and there has been a great number of cases of fever in the neighbourhood. The houses are in a filthy state and overcrowded. In twelve houses there are living 145 persons, and sleeping-rooms are built over privies. Some of the pig-keepers are being brought before the magistrates and fined.

Kilkenny.—Typhus fever of a very virulent type has been seriously on the increase of late in this city. The Blackquarry district, where the fever first broke out, is now quite clear of the disease; but it is particularly rife in Upper Patrick-street and Queen's-hill, and also counts many victims in the various lanes through the city. The mayor has been getting the lanes and suburbs lime-washed, and intends to apply to the Town Council for an additional sanitary inspector.

COST OF SOCIETY OF ARTS PRIZE COTTAGES.

WITH reference to Mr. Sinclair's letter in the *Builder* of the 29th ult., I feel called upon, as the author of the design referred to, to state that the plans and specification, upon which the estimates obtained by Mr. Sinclair were based, were, as indicated in his letter, prepared by me, and embodied not only the improvements and additions suggested by the judges in their report, but also such other improvements as had occurred to me since the preparation of the original design, in order to make them complete in every respect, without special regard to the estimated cost. It cannot therefore be expected that the estimated cost of the original design will bear a favourable comparison with the tenders obtained by Mr. Sinclair for the altered and improved plans and specification furnished to the company.

I may mention that, further than the preparation of the said plans and specification, I was not professionally employed, being quite unacquainted with the locality where the cottages were intended to be erected, and the nature of the site, and had not even heard the result of the tenders until observing Mr. Sinclair's letter.

Unquestionably the tenders obtained by Mr. Sinclair are high. Had a greater number of builders in the immediate neighbourhood, and in a much smaller way of business, been applied to, the result would, I have little doubt, have proved more satisfactory.

I have lately had occasion to obtain several estimates from local builders for similar cottages which I am now erecting upon an estate on the borders of Kent and Surrey (about nine miles across country from the nearest railway station), the result of which I beg to subjoin:—

R. Ward, Warrington.....	£312	0	0	a pair.
Kesterton & Hind, Lingfield.....	287	10	0	"
R. Belchambers, Westerham.....	285	0	0	"
F. Shorter, Edenbridge.....	250	18	0	"
G. Craze, Cudham (accepted).....	210	0	0	"

These estimates, however, were framed upon a plan and specification embracing the improvements suggested by the society, besides plastering and colouring to walls (not included in my original estimate), but with certain modifications in regard to the offices; *i. e.*, dispensing with the W.C. apparatus, lead pipes, cistern, force-pump, and well, and substituting a rain-water tank, 5 ft. diameter and 8 ft. deep, with pump, privies, and cesspool at end of garden, and including the cost of a piggy to each cottage, which, however, has been dispensed with in the tender accepted. Neither the timber for the roof nor the cartage of materials is included in the contract, the value of which, when added to the lowest estimate, will represent a sum close upon 260*l.*, the actual cost of the cottages per pair to the proprietor, bearing a favourable contrast with the average cost of good cottages, with similar conveniences, stated in the report of the judges previously referred to.

It will be observed, that the locality where these cottages are being built is by no means easy of access; and it may be reasonably inferred, that under more favourable circumstances a considerable saving might be effected in the carriage of materials, an item of much importance in cottage building.

JOHN BIRCH.

SOCIETY OF ARTS COTTAGE COMPETITIONS AND THE ARCHITECTURAL ASSOCIATION.

SIR,—The letter from Mr. Sinclair which you published in your last, showing that the prize cottages which were to be built for 200*l.* a pair will cost nearly 400*l.*, does not in the least surprise me. It is too late now to agitate the question of the revision of an unjust decision; but I think it would be wrong to allow the subject thus mooted to be dropped, without renewing in your columns the protest that the members of the Architectural Association made at the time against the double injustice of depriving them of any premium, and giving one to a design manifestly ineligible. For, sir, though the prize design was not within the margin, many of our designs (and good cottages, too) were within it. I know cottages from my design could be built, where materials were to be had at the prices stipulated for—200*l.* a pair; for I had a tender from a highly respectable builder to do it. I fully admit that my cottage was not so picturesque nor the rooms so good as in the prize design; but that was solely because I did keep within the money, and

not because, had I chosen to disregard the conditions, I could not have designed as good a cottage as the premiated one. And what I know of my own design, I know also of the designs of several of my friends in the Association.

Would it not be, sir, satisfactory to the Society of Arts, finding (as they now must), that they have premiated an ineligible design, to be helped out of their difficulty by having access to a design which can be done for their money? If so, I believe I can answer for the competitors from the Association, that not for individual credit, but for the credit of their Society, on which they feel a very undeserved slur was cast, they, or as many of them as are now accessible, will place their designs at the disposal of the Society of Arts, for some competent judge, other than those who advised the course which the Society unfortunately adopted, named by the Society of Arts, and approved by the committee of the Association, to select the best for publication, on condition of their giving the money prize to our library, and the medal to the author of the design, and publishing it with his name and address, and the words "Member of the Architectural Association." I may be mistaken, but I think the Association men would all agree to this, and I think such a proceeding might be of real use to the cause of cottage improvement, and might also go far to efface feelings of dissatisfaction, which ought not to exist, but which I believe do exist between two societies, unequal, indeed, in influence and magnitude, but not on that account the less fitted for friendly relations.

A MEMBER OF THE ARCHITECTURAL ASSOCIATION.*

COMPETITIONS.

Brighton Workhouse Site.—There were twenty competitive plans for laying out the present workhouse site for building purposes, so as to produce the greatest amount of revenue to the parish. The committee selected the design bearing the emblem of "The Rose, Shamrock, and Thistle." The probable amount which the ground would yield, if laid out according to this plan, was estimated at 38,114*l.* The author of the plan is Mr. J. Dallimore, of Richmond-place, Brighton, a gentleman who was for many years foreman to Messrs. Cheeseman, builders.

Queen Adelaide's Dispensary, London.—A design by Messrs. Lee & Long has been selected.

Ipswich Town-hall.—The town council have unanimously resolved to adopt plans by Messrs. Bellamy & Hardy, of Lincoln, for the proposed town-hall, with such modifications as the committee may deem advisable.

THE BUILDING TRADES.

In Nottingham, the building trades have entered upon another strike, almost before commencing the summer's work. The bricklayers gave the master builders three months' notice last year for an advance of 6*d.* per day, to commence on the 1st of May. The wages, prior to the advance, were 2*s.* per week. The masters acquiesced to their request with the most friendly feeling. This year, on the 1st of May, the bricklayers have struck work without giving the slightest notice, for another advance of 6*d.* per day, making 6*s.* per week advance in twelve months. The master builders think this a very unjust strike; as, by the bricklayers' own laws, they give three months' notice of any alteration.

The strike of the joiners and carpenters of Blackburn, which originated in a demand for an increase of 2*s.* per week in their wages, has terminated, the master builders conceding the advance solicited.

The masons in Barnsley have now been idle for some weeks, and there appears to be no immediate prospect of a resumption of work. What the men have struck for is an advance of 2*s.* per week on the present scale of wages, and the extension of the breakfast time in winter from twenty minutes to half an hour. The masters having met the men, have offered to concede the 2*s.* advance, but refuse the ten minutes' extension of the winter breakfast time, unless 1*s.* of the advance be abated in consideration of such extension during the months for which it is required.

A movement is on foot amongst the operative painters of Newcastle to obtain the Saturday half-holiday, and to have a wage of 26*s.* a week.

* We have received two other letters to a similar effect.

A strike has taken place among several of the trades in Paris, and has extended to the workshops of M. Adolphe Viollet, contractor for the building of the new Opera House as well as for those going on at the Préfecture de Police. M. Viollet has inaugurated a new system of paying his men according to a certain measurement of the stones cut by each workman, the result of which is a reduction of two francs per day on their pay. The men struck work, and have given M. Viollet notice that, unless he can satisfactorily explain the motives of this change within three days, they definitively give up his service.

SOME NOTES FROM THE NATIONAL LEDGER.

Most people would be lost in the ocean of figures needed for the right keeping of the nation's accounts, which are so large and complicated that we would almost doubt a Cooker as to their management; but year after year, however, Mr. Gladstone sums them up, seemingly to his own delight and also to the satisfaction of others. It is impossible for us to enter much into this account, but we will notice that in the year which expired on the 30th September, 1864, the imports were 274,000,000*l.*; exports, 487,000,000*l.*; showing an increase of 219,000,000*l.* (nearly one-half) since 1854. The railway companies receive 30,000,000*l.* a year from the public, and they have added to the national wealth to the extent of not less than 30,000,000*l.* a year in addition. The expenditure of the year is given at 66,130,000*l.*, and the income, about seventy millions sterling, will leave a surplus of over four millions.

It is not easy to form a tangible estimate or idea of the enormous extent of these figures, or the varied and peculiar machinery by which the account of them is managed,—of the departments by means of which the revenue is collected and disbursed, with such exactness, that in all those immense national accounts, the greatest as well as the most minute, should not be a shilling in error. There is, however, a difference of opinion as to the exact degree of care with which these books of the nation are kept; and many think, that with less adhesion to old-fashioned methods, we might, in the management of the notes of our gigantic revenue, not only effect a great saving of money, but also much simplify the accounts and render their thorough correctness more sure. It must, however, be admitted that the labour is a Herculean one; for, putting the revenue at 70,000,000*l.* a year, in every hour of both the day and night nearly 8,000*l.* sterling are falling into the national treasury. But the greatness of the amounts which have to be dealt with by an English Chancellor of the Exchequer is perhaps more clearly seen by such items as show that the reduction of 6*d.* per lb. off the duty on tea will cause a loss to the revenue of 2,300,000*l.* (the consumption in 1865-6 has been estimated at 92,000,000 lb.); but the Chancellor, in consequence of the reduction in the price of this article, estimates the recovery of a quarter of a million from the above sum.

The reduction of the duty on malt to an extent which would reduce the price of beer to the consumer by only a farthing a quart, would cause a reduction of revenue in the first year of 2,480,000*l.*, and in the second year of 3,360,000*l.* Respecting the consumption of beer, Mr. Gladstone says that in England, in 1722, there were 6,000,000 barrels of beer consumed. The population then was just 6,000,000; so that there was one barrel of beer for each head of the population. In 1832, the consumption of beer had declined, so that it was only about two-thirds of a barrel per head. In 1864 the old times were revived, and, with a population of 20,000,000, the consumption of beer was about 20,000,000 barrels. The Chancellor reckons that more than 40,000,000*l.* are laid out in beer by the population of England, and relates an anecdote of the consumptive power in this way, which he would not have believed except upon the most undoubted authority. The subject of the story was a labouring man, whose ordinary vocations were on the river Thames. There was nothing peculiar in the heat or atmosphere in which he worked, but great muscular power and exertions were required. He met with an accident to his hand; and the treatment at one of the East London hospitals was not so satisfactory as the medical attendant expected, and he wished to open the hand once more; but before he determined to perform the operation he was

anxious to know whether the man was, in every sense of the word, a temperate man, and was assured by the people that he was, and always had been, strictly so. "What is your consumption of beer?" was asked. The man said, "Never more than eight quarts a day." And on the medical gentleman inquiring what was the consumption of an intemperate man, if a temperate man was limited to eight quarts, he was told that an intemperate man drank from twelve to sixteen quarts a day. But if the population of England be taken in general, and the number of barrels of beer that are brewed in England also, and those barrels be reduced to quarts, and a fair deduction be made for the population of Ireland and Scotland,—who, in proportion, drink very little beer,—and for women and young persons under fifteen years of age, who drink but a small proportion, it will be found that the quantity of beer consumed in England is not far short of 600 quarts a year for every adult male.

The duty upon malt was, in the last year's estimate, stated at 5,800,000*l.*, but has yielded a sum of 6,377,000*l.*, or an excess of 577,000*l.* beyond the sum expected. During the same time the duty on spirits was estimated at, 9,650,000*l.*,—the actual produce was, however, 10,173,000*l.*, a sum over the estimate of 523,000*l.*

Notwithstanding the disadvantages which beset the foreign trade in paper, it is remarkable that in 1859 the amount of the raw material imported for making British paper amounted to 13,700 tons; in 1862 it had risen to 20,480 tons; in 1863 to 44,000 tons; and in 1865 to 67,000 tons.

In 1859 the total amount of trade with France, was 26,431,100*l.*; in 1864 it was 49,797,000*l.*, showing an increase of 23,366,000*l.*

We have remarked that nearly 8,000*l.* are, according to the present extent of our Government expenditure, paid into the exchequer every hour; and of course in each week the sum paid is 1,844,000*l.* and a few shillings. Great buildings like St. Paul's Cathedral could be erected for but a tithe of this sum alone. With this yearly income of seventy millions, seven thousand churches might be built, at a cost of 10,000*l.* each, or with the same sum 350,000 dwellings for the industrious and labouring classes might be reared, at a charge of 200*l.* for each home; and this, allowing an average population of five persons in each, would accommodate one million and three-quarters of people. The interest of the seventy millions at 5 per cent. per annum, would come to three millions and a half of money; and with this rightly used, what wonders might be done in art and other education. To think, however of these and the many other uses to which a year's revenue might be put, is but aerial castle building, which, although for the most part vague and unprofitable, does not at times fail to awaken pleasant and useful thoughts; but the uppermost feeling is that of bewilderment at the huge income which the Chancellor of the Exchequer has to dispose of.

AN ICE-WELL IN PLYMOUTH.

AN ice-well of large dimensions has been built in Plymouth lately, in Woolster-street, in connexion with the mayoralty stores, kept by Mr. J. Bigwood. This is the only ice-well of any size west of Bristol, and no cost has been spared to make it as efficient as possible. The floor of the building is cemented, and is constructed 1 ft. below the general level of the other parts of the building, and in addition to this it has been made to slant, in order to carry off the waste that arises from the melting of the ice into a pit, whence it is carried off into the sewers. The walls of the building are of peculiar construction, to suit the purposes for which it is built. The inside of the well consists of the wood-casing, made water-proof by the application of certain articles, inside of which is 1 ft. of sawdust, the whole being inclosed by a stone wall of the thickness of 8 in. to 2 ft. The four sides of the building have this lining of sawdust, the amount of which material used may be estimated when it is known that its cost was 15*l.* to 20*l.* The inside of the well is of the following dimensions:—30 ft. high, 40 ft. long, and 20 ft. broad, enclosing a space of 24,000 ft.³, in which can be stowed very nearly 1,000 tons of ice. Upwards of 800 tons have already been stowed away, the ice having been procured from Norway, and discharged from the Great Western Docks. The ventilation of the building has been well attended to. Over the well is a spacious open loft, from which open

several ventilators, which are opened or shut according to the dryness or humidity of the wind blowing. There are also ventilators in the side of the well, for the purpose of allowing of the escape of mist, &c., which arises from evaporation. There is a series of doors running the whole height of the well, which are opened as the consumption of the ice takes place. The whole of the doors are 6 in. thick, having a lining of sawdust. The appliances for the storing and for the removal of the ice are of a first-rate description, whilst the cleanliness of the ice is well looked after by the application of clean shavings to the ice, so as to prevent its coming in contact with the wood-casing. The amount of waste of the ice by evaporation, in consequence of the admirable construction of the well, does not amount to more than 15 or 20 per cent., which is a small percentage for it in the southern parts of England. The usual percentage of waste in small ice-houses in the neighbourhood generally approaches as high as 75. It is stated that the cost of the well is 2,000*l.*

FROM SCOTLAND.

Edinburgh.—Arrangements for the rebuilding of the Theatre Royal upon the old site at Broughton-street have been completed. The contracts have been accepted, and the contractors are bound over to have the building completed early in November next. Mr. Robert Hutchinson, builder, has received the contract for rebuilding the theatre, and has commenced operations.—A large new warehouse has been erected in West Register-street for Messrs. Cowan & Co., paper-makers, from designs by Messrs. George Beattie & Son, architects. The style is Venetian Gothic. The building has fronts to the east, south, and west, and is four stories in height above the street. It consists of six stories, however, but one is below the level of the street, and the uppermost shows towards the street only by gablet windows in the roof. One feature of the building is a profusion of carved work: no two capitals nor spandrels are alike. The contractors are: for mason's work, Mr. J. Alexander; carpenter and joiner's work, Mr. J. Gilfillan; cast-iron work, Messrs. J. Learmonth & Co.; plumber's work, Messrs. B. Thomson & Co.; slater's work, Mr. Wm. Anderson; plasterer's work, Mr. J. Annan; glazier's work, Mr. D. Conscher; brick work, Mr. H. Springall; and carved work, Mr. Wm. Pearce. Glasgow.—Trinity Congregational Church, built for the congregation under the pastoral oversight of the Rev. Wm. Pultford, was opened for public worship on the 30th ult. The church has been erected from the designs of Mr. John Honeyman, jun., architect. The style of architecture is Early Decorated. The plan is cruciform, the transepts being merely short side aisles of two bays each, separated from the nave by arches resting on clustered shafts of polished Peterhead granite, having richly-carved capitals. An organ stands at the south end of the nave, and the pulpit at the north; and there are galleries in the transepts only. The windows at the north end of the church are filled with mosaic glass, by Mr. D. Cottier. The framing of the roof is partly exposed to view and partly concealed by a plaster ceiling, which is divided into panels by the couples and purlins. The spandrels above and below the hammer-beams are filled with Gothic work, and the brass corones which light the church are fixed on the ends of the hammer-beams. The extreme length of the church inside is 92 ft. 6 in., and the width at transepts is 80 ft. 6 in. It is seated for about 900; but, by a slight change in the arrangement, the accommodation can be increased, if desired, by about 100 sittings. Underneath the church is a spacious hall; also a manager's room, vestry, bible's house, and other accommodation. The spire rises to the height of 180 ft. above the foot-path. The first floor forms the entrance porch, and is paved with Maw & Co.'s encaustic tiles. Above this is the ringing-chamber, where the machinery for ringing the peal of a set of six bells has been hung by Messrs. Naylor, Vicars, & Co. There is a good deal of stone carving on all sides of the building and in the interior, which has been executed by Mr. Wm. Mossman. The figures at the angles of the pulpit have been carved in wood by Mr. Grassby. The pulpit is of pitch pine, French polished, but it is not yet completed. The cost of the building will be about 7,000*l.* The mason-work was executed by Mr. James Grant, jun., and the wright-work

by Mr. James Connell. The contractors for other works were Mr. William Darric, slater; Messrs. Ingleton & Philips, plumbers; Mr. Alex. Campbell, plasterer; Messrs. W. & P. McLellan, gas-fitters. The clerk of works was Mr. William Kent.

Hawick.—The successful contractors for building the new bridge over the Teviot are Messrs. Marshall & Ballantyne. It is to be of ashlar work, and will have three elliptical arches. The contractors are to have the arches thrown by the end of August, and the whole work completed in October. The present bridge, which is inconveniently steep and narrow, will be taken down immediately, and probably a foot-bridge will be thrown across the Teviot a little further up to suit foot passengers till the new bridge is completed. The contract amounts to 1,670*l.*

Dumfries.—In the suburbs, residences are rapidly springing up in every quarter. Mr. McKie, says the *Courier*, has resolved to sell or for building purposes the whole of that extensive property belonging to him, known as the Queen-street Nursery-grounds, and extending from Shakspeare-street, on both sides of the New-road, to the Millburn. When the building sites are disposed of, it is Mr. McKie's intention to construct a new street from Shakspeare-street downwards to Mr. Crackstone's cottages. At a distance of 122 yards from Shakspeare-street, this road will be intersected by another new street, entering from the New-road.

Linlithgow.—The new Sheriff Court Buildings have been formally opened for public business. They were begun in January, 1863, and erected from designs furnished by Messrs. Brown & Wardrope, architects, Edinburgh. They stand on the south side of the High-street of Linlithgow, a few yards west from the market-place, a number of old tenements having to be displaced to make way for them, one of which, tradition asserts, occupied the site of the house from the window of which the Regent Murray was shot by Hamilton of Bothwellhaugh, while passing through the burgh, in 1570. The main edifice is a somewhat plain structure, having, in outward appearance, a stronger resemblance to an old English manor-house than what it really is, a public building. On the ground-floor there is accommodation for the sheriff-clerk and procurator-fiscal, with apartments for the house-keeper. In the second and highest flat there are two court-rooms, one a large and commodious room, for the transaction of the ordinary court business, and the other of smaller dimensions, for taking proofs, the declaration of prisoners, &c. There are also rooms for the sheriff, procurators, jury, and witnesses, and the general accommodation for the legal business of the county. At the south-east wing of the Court Buildings, and attached to it, is the county police-office, also a new erection.

PROVINCIAL NEWS.

Reading.—The old alms-houses, scattered in different parts of the town, being in dilapidated state and generally inconvenient, the trustees have determined, with public assistance, to erect new ones on the south side of Castle-street. The plan is by Mr. Woodman, architect. There are twenty-eight residences in all. The foundation stone has been formally laid by the mayor and corporation.

The Potteries.—The principal front of the proposed new building for the North Staffordshire Infirmary, according to Mr. C. Lynam, the architect, will have a western aspect, and will look in the direction of the Clayton Hills. The difference of level in its surface amounts to as much as 30 ft. between the highest and lowest point. Speaking generally, however, the southern half of the building will stand on one level and the northern half on the other; the average difference being about 15 ft. The higher level has been taken for that of the principal ground-floor, and the lower level for a sub-ground floor; so that the northern half of the plan will have one story below that of the southern half, in which the dispensary, laboratory, drug-stores, house-stores, one ward for "exceptional cases," bed-rooms for the nurses and servants, pantries, larders, servants' hall, &c., will be obtained. The principal buildings are arranged round a central garden court, about 140 ft. long and 70 ft. wide, its length being in the direction of east and west. This garden-court is surrounded by a glazed corridor, or cloister, one story in height, and forming an open terrace above, which connects, and affords a communication between, all

parts of the buildings. To the west or front of this court is placed a central block of buildings, three stories in height, containing the principal entrance, board-room, and chapel, and apartments for the house-surgeon and pupils. Immediately in the rear of this block are placed the museum and library, with the operating theatre above, which will be lighted by a northern window and a roof light, and to which will be attached a patients' lift. To the east of the central court is another block of building, containing the matron's rooms, house, dining-room, kitchen, scullery, linen store, &c. On the southern side of the central court the male division of sick wards is arranged. They consist of two large and one small intermediate pavilion, and one large and one small special case ward. These pavilions are two stories in height, and have their longer axis north and south, so as to present the largest extent of surface to the light and warmth of the sun's rays. The front or western pavilion is to be devoted to an accident-ward on the ground-floor, and a general surgical ward on the first-floor; the eastern pavilion to medical wards, on both the ground- and first-floor; the small pavilion to "exceptional cases" on the ground-floor, and on the first-floor to burnt cases. The two other small wards run east and west, and, with a patients' day-room, connect the two larger pavilions together. The distance between the larger pavilions is 130 ft., which will not only allow of a free and full circulation of air around the wards, but also secure a view from the rear pavilion of the open country in the western prospect. The northern side of the central court has corresponding pavilions to that of the south, occupied by the female division of sick wards and the out-patients' department. The latter is placed in the western pavilion, and is two stories in height, and consists of two large waiting-rooms, with water-closets for males and females attached; five consulting-rooms for the surgeons and physicians; a surgery, private examination room, dispensary, laboratory, and drug-stores. The eastern pavilion contains one large surgical ward, and one large medical ward; also the dormitories of the nurses and servants. The small central pavilion on this side consists of a medical and a surgical ward. The western and eastern pavilions are connected, as on the males' side, by two small wards for special cases and a day-room. Each ward has a nurses' room, scullery, and clothes-room attached to it; also a bath-room, lavatory, water-closet, sink, a shoot for foul linen, a service-lift, and fire-hose. To the accident-ward is added a reception-room, where serious cases of accident may be received, immediately attended to, and admitted into the ward without further trouble or delay. The large wards will be 85 ft. in length, 25 ft. in width, and 15 ft. high, giving 1,500 cubic ft. for each bed. A larger quantity of cubic space is provided in the wards for special cases. The floor-boards of the wards will be of oak, and the walls finished in Parian cement. The windows will be sashes, placed in the opposite walls of the wards, and hung in two parts, both of them made to open; and glazed with strong plate glass. They will reach from within 24 ft. of the floor to 1 ft. of the ceiling. The wards will be warmed by open fire-places, situated in the centre. Fresh air will be admitted into them by the opposite windows, and by external openings provided for the purpose, and the vitiated air will be drawn off by extracting shafts. In addition to the principal group of buildings, two detached blocks, one for males, the other for females, are proposed for the reception of fever and other contagious diseases. These are planned on the same principles as the main wards, but a larger quantity of cubic space per bed is given to them. The main buildings are designed for the accommodation of 160 beds, and the fever wards for 20 beds. The buildings, in external appearance, will have no pretension to architectural display. The roofs are to be covered with tiles: the walls are to be of red bricks, with a slight admixture of blue bricks in chequer-work patterns. In the minor features, such as archways, doorways, windows, &c., the arched form of head is employed, and moulded bricks are slightly introduced. The members of the sub-committee have devoted much time and pains to the furtherance of the plans, and the architects have visited the newly-built hospitals in this country and in Paris.

Norwich.—The building trade of Norwich is expected to be in an active state this season, according to the *Norfolk Chronicle*. The tender of Messrs. Curtis & Balls has been accepted for the mansion which Mr. R. J. H. Harvey is about

to erect on his estate near the city. The amount of the contract is understood to be 30,000l. The contract for new premises for the Norwich Branch of the Consolidated Bank (Limited), has been taken by Mr. Hall for 3,400l. When account is also taken of the new church at Thorpe, and the number of houses in course of erection at Heigham, in Prince of Wales's-road, and other districts, it will be seen that there is employment assured to Norwich builders for the ensuing summer. The new bank of Messrs. Harvey & Hudsons, on the Castle Meadow, will not be ready for occupation before October: this structure has cost about 13,000l.

BUILDERS' ACTIONS.

Bliss v. Smith: in Chancery.—This suit was instituted by the assignees of Mr. Davies, a builder, who entered into a contract with Mr. E. T. Smith, owner of Cremorne Gardens, to complete the ball-room to the satisfaction of two architects, Messrs. Allom and Laforest. The bill alleged that the architects, in collusion with and at the instigation of Mr. E. T. Smith, had declined to certify the amount due under the contract to the plaintiffs as such assignees, and had thereby prevented them from recovering in a court of law the amount to which they were entitled. The bill therefore asked that accounts might be taken between the parties in respect of all work done under the contract, and that Mr. Smith should pay the costs of suit.

His Honour said the plaintiffs had no ground for coming to a court of equity for relief. They had failed to prove that there was any collusion between Mr. Smith and the architects. In fact, the evidence proved that there was no such collusion, and that the defendants had acted fairly and *bona fide* throughout the whole matter. It showed also that the defects, such as they were, were the defects of Mr. Davies, who undertook the work without having sufficient capital to complete it, and, in consequence, resorted to various expedients, such as using improper materials and the like. The accounts between the parties were not of that complicated character which would prevent them from being taken in a court of law. Therefore the bill would be dismissed with costs against all the defendants, but without prejudice to the plaintiffs to bring such action at law against Mr. Smith as they might be advised.

CHURCH-BUILDING NEWS.

Isleham.—The parish church has been re-opened. The material of the original structure was almost entirely the hard clunch for which the district is famous, the only exception being the pillars of the nave, the string-courses and dressings of the exterior, and the pillars of the porch, which are of Barnack stone—a lasting material for building purposes. Flint ashlar, with stone dressings, have replaced the clunch rubble and dressings of the original tower, which was of clunch, and fell some time ago. In rebuilding the tower, the staircase has been enclosed in a semicircular flanking turret, carried no further than the ringers' floor. The proportions and details of the original structure have in other respects been preserved, the height being increased by a few feet. It is capped by a high-pitched roof, with red tiles, surmounted by a weathercock—a mode of roofing massive towers such as those which abound in Suffolk and Norfolk. The peal of five bells has been replaced. The whole of the work appears to have been executed by Mr. Hubbard, of Downham. The body of the church needed no reconstruction, but the ruinous and dilapidated condition into which it had fallen rendered necessary very extensive repairs and restoration. For these works upwards of 3,000l. have already been subscribed, and there still remains a debt of more than 300l. Mr. Street was the architect employed.

Uppingham (Rutland).—The chapel built for the use of the grammar-school has been opened for divine service. The style adopted is Early Decorated. The interior area is 100 ft. long by 30 ft. wide. The east window is of five lights, with tracery. The easternmost window in the south wall is of three lights, with tracery: this has been filled with painted glass, representing the Resurrection. The nave on this side is lighted by four windows of two lights each, with a quatrefoil in the head. There are corresponding windows in the north wall. The west wall is enriched with a wheel window, and below are three single trefoil-headed lights. The pulpit is of alabaster, intermixed with Derbyshire, Irish, and Italian marbles. The chancel is divided from the nave by a dwarf stone screen, the altar being approached by seven steps. The floor is laid with encaustic tiles, intermixed with black

and white marble. The roof is open, and of Memel timber. The chapel will be connected with the recently-built school by an open porch having a groined ceiling, over which will be the vestry. On the north side, partly in the wall, will be a round tower and spire about 90 ft. high, which will be ascended by a spiral staircase, and by which the vestry will be entered. The chapel has already cost nearly 6,000l., and it is believed that at least 5,000l. more will be required to complete it according to the adopted designs. The architect was Mr. G. E. Street. Mr. J. Foxton was clerk of the works; and the contractors were Messrs. J. & T. Davis, of Banbury.

Bedford.—St. Cuthbert's Church has been re-opened, after enlargement. The contract was taken by Mr. Conquest, of Kempston, builder, for 1,260l. He did not survive to superintend the works, but they were carried out under his foreman, Mr. W. Harris. The enlargement consists of north and south aisles, the latter, on account of its close proximity to the street, having an apsidal termination to the west, in which the font is placed. Each aisle opens to the nave by two wide arches resting upon slight granite columns. The columns which abut on the north-west and south-west angles of the tower being detached from the solid piers supporting it, the obstruction to sight and sound usually occurring in the case of a central tower is considerably diminished. The heat is provided for by the Gill-stove of Mr. Goldsworthy Gurney, placed within grated vaults in the middle avenue of the nave. Mr. Penrose was the architect employed.

Sittingbourne.—About 1,252l. have been either paid or promised towards the fund for building a new church in this town, and steps for the commencement will shortly be taken by the architect, Mr. R. C. Hussey. According to the plan, the building will be sufficiently large to accommodate 300 persons.

Lewisham.—The new church of St. Stephen, at Lewisham, has been consecrated by the Bishop of London. The church was designed by Mr. Scott, in the style of the thirteenth century, and built by Messrs. Bowley, of Westminster, at a cost of 12,000l., the entire sum, together with the endowment of 2,000l., having been provided by the Rev. S. R. Davies, of Lee, the patron and first incumbent. The site was the gift of Lord St. Germans, and the foundation stone was laid in May, 1863, by Viscount Holmesdale.

Clent (Worcestershire).—The parish church has been restored and re-opened for divine service. Excepting the chancel and tower, the whole of it has been reconstructed; that is, walls, arches, and piers, taken to pieces, and every old stone that was sound reset in its former place, and new work added where necessary. Entire new roofs, except that of the chancel, have been put on and are of open wood-work; a new north aisle, carried out 9 ft. further than the old one, has been added; and the south aisle has been widened by 6 ft. A new stone porch has been erected on the south side, where the old one stood, and that which formerly opened into the north-west angle of the building has been dispensed with. At the east end of the new north aisle is now a flight of steps leading up to a chamber on a level with the chancel, a portion of which chamber will be partitioned off for a vestry, and the remainder, it is hoped, will be occupied by an organ. The new arcade separating the north aisle from the nave has been made to harmonise, to a certain extent, with the Norman arcade on the south side. In restoring this Norman work the capitals were found to be coloured, evidently with the view of bringing out the carved work into higher relief. The tower is at the west end. The floor underneath was formerly 6 ft. above the level of the church floor: this is now carried up 3 ft. 6 in. above the apex of the tower arch, and the roof of the belfry reconstructed, louvre-boards inserted in the tower, &c., so that the west window and the space under the tower have now been opened to the church. In the restoration of this Perpendicular window, the old tracery has been restored and new mullions inserted. Several ancient monuments taken from the old north aisle and other parts have been fixed up on the interior of the tower walls. As to the windows generally, Decorated ones have been supplied to the new aisles, and it is contemplated to erect a memorial window (site not fixed) to the late Miss Goodman, who gave 600l. towards the restoration. The glazing of the windows, which is of transparent glass, has been done by Messrs.

Chance, Brothers, of Birmingham; and the ventilators by Mr. Moore, of London. Mr. Beale, of Newcastle-on-Tyne, carved the bosses, corbels, and the termination of the hood-mouldings of the arches. There is new seating, of varnished deal, the seats being open, and the backs slightly sloping. The church now contains about 500 sittings, which is an increase of 100 over the old accommodation. The architects were Messrs. Kirk & Parry, of Sleaford and London; builder, Mr. Lovatt, of Wolverhampton; clerk of the works, Mr. H. Charlton. The expense of the restoration has been so far about 2,500l., though more than that sum will be required. The deficiency prior to the re-opening was about 200l.

Fladbury.—The chancel of Fladbury Church has been for some months under repair, and will be re-opened shortly, when the new schools will also be opened, and a large addition to the churchyard consecrated. The same architect, Mr. F. Preedy, of London, is employed both for the restoration of the chancel and the erection of the schools. A stained glass window, the gift of Mr. J. Cartwright, of Graycombe House, has been placed at the east end of the chancel. The reredos will be of alabaster, by Mr. Bolton, of Worcester. The floor will be paved with Minton's tiles. The contract is taken by Mr. Espley, of Evesham, who has executed the stalls and roof. The builder contracting for the schools is Mr. Griffiths, of Eldersfield, near Tewkesbury.

Feckenham (Worcestershire).—The foundation-stone of the new church which is to be erected at Bradley, near Feckenham, on the site of the old dilapidated chapel which formerly stood there, has been laid by Lady Georgina Vernon. The design for the new church is by Mr. W. J. Hopkins, of Worcester, diocesan architect. It is of an Early Decorated character, and will consist of a nave 55 ft. in length by 24 ft. 8 in. in width, and about 30 ft. in height; chancel, 23 ft. in length by 18 ft. in width, and about 25 ft. in height. It will have a tower and spirelet 90 ft. in height, placed at the north-east corner of the nave. The lower portion of the tower will serve as a vestry. Over the vestry and approach, by means of a spiral staircase, will be the belfry. The porch entrance is to be on the north side of the nave. The church will be lighted by means of a large rose window at the west end of the nave, and by complements of a very simple character on the north and south sides. The windows to the chancel consist of single lancets, and a three-light Early Decorated window at the east end. The roof of the nave will be a plain open-timbered one; that to the chancel being of rather a more ornate character. The whole of the seats are to be open. The church will accommodate 200 persons. The contract for the whole, including tower and spire, is 1,200l. Mr. W. Nelson, of Dudley, is the builder.

DISSENTING CHURCH-BUILDING NEWS.

Clapton.—A new Wesleyan church has been opened at Clapton for divine worship. The style is Decorated, and the plan is a parallelogram, which measures 116 ft. 6 in. from end to end, and 57 ft. across. A tower and spire occupy the centre of the front, rising 165 ft. from the ground. The exterior of the walls is of Kentish rag stone, the interior of brick, finished with rough stucco and jointed. The public entrances are three in number, the centre one being the most important in size and appearance, occupying the base of the tower, having a stone groined ceiling, and ornamented with carving. The height of the chapel from the floor-line to the highest point of the ceiling is 45 ft. 6 in.; but on the outside the building rises from the ground to the ridge to the height of 62 ft. 6 in. Under each principal arch, reaching from column to column, spans the whole width of the chapel. The columns run up on each side of the building and support the galleries, continuing upwards to the underside of the hammer-beam, from which point a series of smaller arches spring longitudinally, the open spaces at the back being filled in with traceried woodwork. The roof is ceiled off above the arches with match-boarding and felt. The three windows of the apse and the centre window of the front are filled in with stained glass, which was supplied by Messrs. Ward & Hughes, of London. The front window is a present from Mr. James E. Vanner. The building has been erected from the designs and under the superintendence of Mr. John Tarring, of London; and the works have been carried out by Messrs. Dove, Brothers. No clerk of works has been employed. The warming appa-

ratus has been supplied and fixed by Mr. Boulting, of London; and the whole of the gas-fittings have been executed from the designs of the architect by Mr. Rothwell, also of London. The total expense, including stained-glass windows, warming, lighting, boundary inclosure, and architect's commission, has been about 5,600l.

Finchley.—A new Congregational chapel has been opened here for divine service. The style is Decorated Gothic, and the walls are of Kentish rag stone, with Bath stone dressings. There is a north-west tower, surmounted by a slated spire rising to the height of 100 ft. The chancel, which has a three-light window filled with stained glass, is entered from the body of the church by a moulded arch. Minister's and deacons' vestries are on either side the chancel. An organ is placed in a loft in the north-east angle of the church. The seats are open. The place is heated with hot-water, and lighted by starlight burners depending from the roof. There is a range of buildings for schools, and a house for the residence of the minister, to be called "the parsonage house," is to be erected. The architects are Messrs. Searle, Son, & Self, of London. The total cost of the erection of the chapel and schools was 5,500l., and the value of the land 500l.; making in all, 6,000l. The land for the chapel and schools was given by Mr. Puget, of Totteridge, who also defrayed half the cost of erecting the schools, and the sum of 2,500l. was given by one friend, who desired that his name should not be publicly known. The same giver has promised to pay half the expense of erecting the minister's house, which it is estimated will cost 1,200l.

Annesley.—The foundation stone of a Methodist chapel has been laid here. The chapel is situated on a very prominent site, at the junction of four roads. The design is Decorated Gothic. The material will be wall-stones and ashlar dressings of stone from the district. The plan comprises nave and aisles, organ chancel, with vestry below. The total length is 91 ft., and the width across nave and aisles 55 ft., the height to the nave ridge 55 ft. The tower and spire which stand at the corner of the road rise to the height of 135 ft. The organ chamber is elevated and forms a chancel, having a large pointed arch to the front. The roof is supported by five laminated principals resting on ornamented iron columns. The centre portion of the roof is divided into panels, and is intended to be decorated by stencil ornament. The interior woodwork of the roof, gallery fronts and seats, &c., is to be red deal, stained and varnished. The principal entrances face Hortons Lane: the side entrances are for the galleries. A five-light window is placed over the principal entrance. The aisles are lighted by two-light tracery-headed windows formed in dormers. The pulpit is proposed to be of Caen stone. The heating is to be by hot water. The chapel is intended to accommodate 1,000 persons, and the whole of the works are let for a little over 3,000l. to local tradesmen. The architects are Messrs. Andrews, Son, & Pepper, of Bradford. The contractors are,—excavators and masons, Messrs. F. Barraclogh & Co.; carpenter, Mr. Wm. Crabtree; plumber and glazier, Mr. J. Schofield; plasterer, Mr. M. Bolton; slaters, Messrs. Hill & Sutcliffe; painter, Mr. W. Hird.

Pudsey (Yorkshire).—The chief stone of a new Congregational church has been laid by Mr. W. H. Conyers, of Leeds. The church, which will be built upon the site of the old chapel, is in the Early French Decorated style of architecture which flourished in the thirteenth century. It consists of a nave and aisle, and transepts. In the front elevation there are three entrances, those at the sides leading to the gallery, and the middle one giving admission into the area of the church. Above the centre doorway there is a St. Catherine's window, and to the right and left of it are two long lancet windows. One of the windows on each side is set in a gable breaking the roof-line on the exterior. At the angle formed by the junction of the Fulneck and Lowford Roads, and directly opposite to the Bradford Road, a tower with a spire will rise to the height of 105 ft. In the interior the church will be 75 ft. long by 41 ft. wide. The ceiling will be arched, with curved principals moulded and plastered between them. The pews will be open, low, with leaning backs, and about 30 in. wide, accommodation being provided for about 800 adults. The windows will be glazed with cathedral glass with coloured margins. The warming will be by hot air. The church will be lighted by large gaseliers, with brackets under the galleries, which will run round the whole of

the interior. The architects are Messrs. Pritchett & Son, of Darlington. The contract has been let for a little over 2,200l., and the whole expenditure is expected to be about 2,500l.

Whiston (Rotherham).—The chief stone of a new Wesleyan chapel has been laid here. The style is the Early English Second Pointed, the walls being of random stone with dressed facings. Large three-light windows will be placed at the east and west ends: on the north side will be four single-light windows, and on the south side will be two windows, and a tower 65 ft. high, under which will be the entrance porch. Accommodation is provided for 250 persons. At the south end of the chapel will be a school-room to hold 100, which will be shut off by folding doors. The cost is estimated at 600l., more than half of which has already been subscribed. The contractor is Mr. Harper, of Masborough; and Mr. Roddis is acting as clerk of the works. The design was supplied by the Rev. J. P. Johnson, the superintendent of the district.

STAINED GLASS.

Bosley Church.—Three stained-glass windows have been placed in the chancel of this church, by the Rev. F. J. Richards (the vicar) and his family, in memory of their parents. There are two subjects in each window, and they include "The Annunciation," "The Meeting of Mary and Elizabeth," "The Virgin and the Child in the Stable," "The Presentation at the Temple," "The Saviour and the Woman in the Garden," and "Christ reproving Thomas for his unbelief."

Sutton Coldfield Church.—An unpretending window has lately been placed in the north chancel aisle of this church. The situation of the window facing north, strictly speaking, could not admit of highly-coloured glass, and has been filled, by Messrs. Hardman & Co., of Birmingham, with diaper and flowered quarries, every alternate four having a trefoil, but in the higher parts of the lights are medallions containing three shields of arms.

Staveley New Church.—Two painted windows have been placed in the new church at Staveley, near Ripon, lately built from the designs of Mr. John Lowe, of Manchester, architect. The style of the church is Early English, and the window in the nave has been filled with a picture of the "Raising of the Widow's Son," surrounded by suitable canopy-work and enrichments. This has been erected to the memory of different members of the family of Mr. John Freeman, who was the contractor for the building of the church. A window has been placed in the tower end of the church, of which the cost has been defrayed by public subscription. The subject is "The Ascension," and is arranged in two vesica-shaped panels, surrounded by deeply-coloured ornament. The upper panel contains the figure of Our Saviour, the lower being filled with the Apostles. These windows were executed by Messrs. R. B. Edmundson & Son.

Trinity Church, Southport.—A painted window has been placed in the nave of this church. It is formed of one large opening, of the Early Pointed style, and contains a picture of the Resurrection. The subject comprises a figure of our Saviour ascending, with an inscribed banner. The Roman soldiers are represented at the base of the picture, across which is written the text, "I am the resurrection and the life." The whole is enclosed within richly-coloured canopy-work and bordering. The artists were Messrs. R. B. Edmundson & Son.

Miscellaneous.

THE PRESIDENCY OF THE INSTITUTE OF ARCHITECTS.—On Monday last, Mr. A. J. Beresford Hope was elected President of the Institute.

ALOE.—The timber trade of Canada, in 1859, included the export of 555,000 cubic ft. of aloe wood. What is this timber used for, to require so large a quantity? Or is the word a misprint?—W. P.

METROPOLITAN DISTRICT MUSEUMS.—The Lord President of the Council has fixed Saturday next, at twelve o'clock, for holding the conference with those who are interested in establishing Metropolitan District Museums, already alluded to. The meeting will take place in the Lecture Theatre of the South Kensington Museum.

THE 2ND SOMERSET MILITIA STORES, BATH.—This new building, erected on the Lower Bristol-road, has been designed and carried out under the direction of Mr. C. J. Phipps. The buildings are entered from the roadway by an archway, and above is the drummers' room. On the left is the guard-room, six cells, and the sergeant-major's residence. On the right are two dwellings for other sergeants, with gardens attached. On the side next the Cemetery is erected a shed, 120 ft. by 20 ft., for shelter and drill in wet weather. The main building at the top of the ground has a frontage of 236 ft. The central portion is appropriated entirely to the stores of the regiment, arms, clothes, and accoutrements. The right wing contains orderly-room, private room for the colonel and adjutant, and residence for five sergeants. Over the orderly-room is an apartment for the use of a court-martial, library for the staff, and waiting-room. The left wing contains dwellings for six sergeants, and a hospital, providing surgery, waiting-room, hospital sergeant's residence, and three wards, each 30 ft. by 16 ft. The centre block is approached by two wide corridors, each furnished with a staircase to the clothing store over, so that ample facility is afforded for the speedy equipment of the regiment without inconvenience or confusion. The armoury on the ground floor is 41 ft. long by 20 ft. wide, and contains stands for a thousand muskets. The clothes store over is 60 ft. long by 81 ft. 6 in. wide, and has racks for the clothing of 1,000 men, ranged in ten compartments. Adjoining is the accoutrement store, 40 ft. long by 12 ft. wide. All the stores have direct passage ways: they are warmed by a circulating system of hot air, and lighted throughout with gas. At the back of the main building is a large gravelled court, 103 ft. by 47 ft. In a range at the back are stables for officers' horses, armorer's shop, and wash-houses. The work has been executed by Messrs. Bladwell & Ambrose, and the following sub-contractors (—Messrs. Morgan & Sewell, carpenters; Mr. Kerslake, plumber; Mr. S. Johns, painter, slater, and plasterer; and Messrs. T. Brown, smiths and gas-fitters. Mr. John Grant has acted as clerk of the works. The cost has been about 7,000*l.*

THE TERM "THEODOLITE."—A writer in *Notes and Queries* says:—"Has not an accident discovered the true derivation of this word? I have before me a copy of *Euclides Physico-Mathematica, de momentis gravium, de vecte, &c.*, dedicated to D. Carolus Theodolus, Marchionem S. Viti. Roma, 1685. He is described as belonging to a family renowned for their interest in mathematical sciences. Is it not very probable that the instrument was named after him or one of his ancestors? I have less doubt in offering this suggestion, as all others hitherto given seem so manifestly impossible."

PROPOSED PUBLIC BUILDINGS FOR WOLVERHAMPTON.—The special committee to whom this subject was referred by the town council have reported on it, to the following effect:—"Your committee are of opinion that a new sessions-house, with the necessary offices, suitable police-barracks, and prisoners' cells, may be erected on the site in North-street, at the rear of the town-hall, at a cost of about 8,000*l.* There appear to be two plans worthy of the consideration of the council, in case they resolve upon the proposed removal and erection. One plan is to erect, at the cost already stated, upon the 3,500 yards of land now vested in the municipal corporation, a sessions-house, police-court, police-barracks, and cells. The other plan is to pull down the whole of the North-street premises, and erect, *de novo*, a town-hall, sessions-house, and other public offices. Your committee are of opinion that the latter course is the preferable one. The erection of a new town-hall and offices would involve, in addition to the sum of 8,000*l.*, above mentioned, a further outlay of about 4,000*l.*

METALLIC CEILING.—While all other departments in the internal decoration of houses have kept pace with improvements in other branches of industry, it is a somewhat remarkable fact, and one that has long engaged the attention of architects, that the ceiling of our rooms, with their unseemly blisters and network of cracks, are still, generally speaking, just what they were many years ago. Mr. Little has invented a system for the construction of ceilings, which consists in the application to the joisting of very thin-stamped flexible metal in ornamental embossed panels of such sizes and shapes as may be required. These stamped panels are fitted for every kind of decoration in colour, and if inserted as plain surfaces, may be used as the ground for every description of cartoon painting, combining with lightness and durability artistic and ornamental effect, at a comparatively small cost. Besides its applicability to the ceilings of rooms, and all public buildings, churches, &c., the system may be made use of with the same effect in staircases, halls, and porticoes, and even on the walls of rooms.—*Ryland's Circular*.

TENDERS

For upper school, vestry, and raising tower-roof of Congregational chapel, Milton-next-Sittingbourne. Mr. W. F. Poulton, architect:—

Bennett	£493 0 0
Beaumont (accepted)	377 5 0

For sundry alterations at the Crown and [Wood] pack Taverns, St. John's-street, Clerkenwell, for Mrs. F. Hammond. Mr. D. G. Gylby, surveyor:—

Warne	£295 0 0
Hodges	487 0 0
Penlington	424 0 0
Hall	385 0 0
Selleck	286 0 0

All the above exclusive of painting and decorating.

For sundry alterations at the Balmoral Castle, Caldoman-road, for Mr. W. Earl. Mr. D. Gylby, surveyor:—

	in Mahogany.	Total.
Selleck	£38 ...	£289 0
Martin	18 ...	244 0
Davies	20 ...	220 0
Whiting		170 0
Williams		169 0

All the above inclusive of painting and decorating.

For alterations and additions to warehouse, No. 8, Castle-street, City, E.C., for Knight, Wells, & Braham. Mr. Hubert Ford, architect:—

Palmer & Son (accepted)	£200 0 0
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For addition to warehouse, 6, Russia Milk-street, City. Mr. William Smith, architect:—

When (accepted)	£139 0 0
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For new shop front and internal alterations at 7 and 8, Railway-place, Holloway. Mr. William Smith, architect:—

Harvey (accepted)	£209 0 0
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For infant school in connexion with Hancourt Chapel, Canonbury, Stoke Newington. Mr. William Smith, architect:—

When (accepted)	£349 0 0
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For alterations to premises No. 30, Patrick-street, Cork, for Messrs. Hawkin, Robertson, & Co. Mr. William Fogarty, architect. Quantities by Mr. E. P. Gibbon. Amounts exclusive of plate-glass, revolving shutters, grates, and chimney-pieces:—

Barrett	£1,900 0 0
Evans	1,865 0 0
McMullen	1,690 0 0
Ran & Son	1,464 0 0
Walker	1,460 0 0
O'Callaghan (accepted with some modifications)	1,393 0 0

Accepted for alterations to the Queen Insurance Office, Westmoreland-street, Dublin. Mr. Fogarty architect:—

Conolly	£266 0 0
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Accepted for alterations to the West of England Insurance Office, Dame-street, Dublin, exclusive of painting and paperhanging. Mr. Fogarty, architect:—

Conolly	£273 0 0
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For new house and shop at Battersea, for Mr. Thornton. Mr. Charles Bowes, architect. Quantities not supplied:—

Baker	£249 5 0
Lathry, Brothers	411 0 0
Lacey	411 0 0
Godbolt	402 0 0

For restoring and reseating the parish church at Emnash, near Wisbech. Mr. William Smith, Adelphi, architect:—

Tooley	£1,963 0 0
Bennett	1,742 0 0
Girling	1,741 0 0
Brown	1,696 0 0

For alterations and additions to the mansion of Mr. W. U. Heygate, M.P., on Charwood Forest. Mr. W. Millican, architect. Quantities not supplied:—

Wykes	£4,601 0 0
Osborne, Brothers (accepted)	4,601 0 0

For re-forming the road and footways in School-house-lane, and laying in drains, &c., for the Guildford local Board. Mr. H. Peak, surveyor to the Board:—

Tooley	£250 0 0
Loe	250 0 0
Carroll	231 0 0
Smith	224 10 0
Goft	188 0 0

For a house at Woodside, near Croydon. Mr. Perry, architect. Quantities supplied:—

Hollidge	£1,100 0 0
Collins	1,077 0 0
Jarrett	986 0 0

For certain buildings, &c. for the Kent Penitentiary, near Dartford. Mr. J. W. Bloomfield, architect. Quantities supplied by Mr. J. A. Banker:—

Allen	£3,355 18 0
Brown & Robinson	3,065 0 0
Turner & Sons	2,999 0 0
Robinson	2,942 0 0
Anson	2,890 0 0

Accepted for taking down the old vicarage (except the ancient pole-tower) and building a new vicarage, at Ponteland, Northumberland, subject to slight modifications. Mr. F. B. Wilson, architect:—

Donkin	£860 0 0
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Joiner's Work.

White 331 19 7 |

Plasterer's Work.

Pickard 126 0 0 |

Plumber's Work.

 Wilkin & Dickman | 114 4 10 |

Slaters' Work.

 Dixon | 74 12 0 |

Smith's Work.

 King | 48 15 0 |

Painter and Glazier's Work.

 Bowman | 35 0 0 |

Total
 1,380 11 5 |

For works in finishing house at Bormoor, Herts, for Mr. Micklethorn. Messrs. Drury & Lovejoy, architects:—

Dearly	£2,217 0 0
Little	2,190 0 0
Sewell	1,785 0 0

For new warehouse building, Clerkenwell, for Mr. Daniel Grant. Messrs. Lander & Bedolls, architects:—

Dore, Brothers	£12,425 0 0
Lucas, Brothers	12,396 0 0
Patman & Fotheringham	12,354 0 0
Kirk (imperfect)	11,989 0 0
Hill & Sons	10,846 0 0
Myers & Sons	10,778 0 0
Browne & Robinson	10,727 0 0
Sharrington & Cole	10,655 0 0
Higgs	10,371 0 0
Mann (accepted)	10,234 0 0

For alterations and new warehouse at 26, Sloane-street, for Mr. George Thompson. Mr. John Farring, architect:—

Conder	£295 0 0
Symons	979 0 0
Kilby	967 0 0
Sage	960 0 0
Richards (accepted)	828 0 0

For sundry alterations, additions, and repairs to Shawford Lodge, Inner Park-road, Wimbledon Park, for Capt. the Hon. Charles E. Hobart. Mr. Alfred Wright, architect:—

Adamson & Sons	£243 10 0
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For erecting two residences at Egham, for Mr. J. B. Mills. Mr. J. J. Hayter Lewis, architect:—

Simpson	£2,050 0 0
Oades (accepted)	1,746 0 0

For erecting a detached house in the London-road, Kildale. Mr. F. G. Widdows, architect:—

Patmas, Brothers (accepted)	£1,630 0 0
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For alterations at No. 5, Cambridge-terrace, Kingsland, for Mr. Theobald. Mr. F. G. Widdows, architect:—

Print	£310 0 0
Emery	288 0 0
Tully	245 0 0

For Church of St. Paul, Anerley-road, Lower Norwood. Messrs. Hauser, Keeling & Tyre, architects. Quantities not supplied. Messrs. Dove, Brothers, contractors:—

Contract No. 1. Carcase of church	£2,550 0 0
Contract No. 2. Finishing	1,450 0 0
Contract No. 3. Galleries	600 0 0
Contract No. 4. Tower and spire	1,400 0 0

Church complete £6,000 0 0 |

For a house at Sydenham-hill, for Mr. R. P. Harding. Mr. George Trustitt, architect:—

Stimpson (accepted)	£3,500 0 0
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For a rectory at Little Barford, St. Neots. Mr. George Trustitt, architect:—

Osborn (accepted)	£1,375 0 0
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For a house on the Tuffnell Park estate, Holloway, for Mr. J. W. Zambra. Mr. G. Trustitt, architect:—

Abbott & Hopwood	£2,667 0 0
Balmer	2,545 0 0
Kent	2,085 0 0
Patrick	2,069 0 0
Carter & Sons (accepted)	1,979 0 0

For the erection of a private residence at Huntingdon. Mr. R. Hutchinson, architect:—

Male	£335 0 0
Thackeray	427 0 0
Thackeray	421 0 0

For a new chapel, Brampton, Hunts. Mr. R. Hutchinson, architect:—

Balmer	£690 0 0
Allen	680 0 0
Smith	654 0 0
Richardson	619 0 0

For the erection of a new chapel at Fendrayton, Cambs. Mr. R. Hutchinson, architect:—

Bennett	£1,173 0 0
Smith	1,081 0 0
Thackeray	1,080 0 0
Saint	1,070 0 0
Bunting	1,068 0 0
Allen	1,062 3 6

For re-building St. John's National and Infant Schools, Upper Holloway. Mr. James Harrison, architect. Quantities supplied by Mr. Arthur W. Q. Nicol:—

Laughead & Co.	£1,540 0 0
Kent	1,540 0 0
Ennor	1,534 0 0
Coleman	1,491 0 0
Mason	1,491 0 0
Hill & Kedwell	1,441 0 0
Kilby	1,440 0 0
Little	1,435 0 0
Green	1,425 0 0
Allen	1,420 0 0
Henshaw	1,413 0 0
Canon	1,389 0 0
Carter & Sons (accepted)	1,350 0 0
Perry	1,343 0 0

For six warehouses, Hart-street, City. Mr. H. Ford, architect:—

Robinson	£13,679 0 0
Patman & Co.	11,872 0 0
Dove, Brothers	11,790 0 0
Laurence, Brothers	11,769 0 0
Adamson & Son	11,696 0 0
Canon	11,684 0 0
Brass	11,567 0 0
Browne & Robinson	11,392 0 0
King & Son	11,137 0 0
Myers	11,129 0 0
Henshaw	10,535 0 0
Anley	10,497 0 0
Hardman & Sandon	10,241 0 0

For seven warehouses, Monkwell-street, City. Mr. H. Ford, architect:—

Robinson	£11,639 0 0
Adamson & Son	12,083 0 0
Lawrence, Brothers	12,020 0 0
Patman & Co.	12,409 0 0
Dove, Brothers	12,361 0 0
King & Son	12,195 0 0
Canon	12,160 0 0
Brass	11,898 0 6
Myers	11,910 0 0
Browne & Robinson	11,570 0 0
Anley	11,147 0 0
Henshaw	11,341 0 0
Hardman & Sandon	10,981 0 0

TO CORRESPONDENTS.

J. A. B.—W. H.—C. D.—G. S.—A. H.—R.—H.—E.—S.—R. W. G.—T. F.—J. B.—P. P.—J. D. M.—E. M.—R. H.—J. H.—J. P.—W. F.—F. B. W.—W. S.—Messrs. L.—C. J.—J. S.—A.—W. L.—G. R. J.—One who has built Hundreds of Cottages.—H. J.—T. S.—L. & R.—J. R. D.—D. R.—T.—W. M.—R.—A. J. (equivalent to [unclear])—Geometrical (we do not know of any premiums offered for demonstrating how a circle can be divided geometrically into three equal parts).—F. C. (please see thicker paper).—E. H. (we do not find your paper in either of the dates mentioned).—Rev. G. W. (we do not have the advantage).—W. B. (no type).—J. K. (should send plan and specification).—M. P.—F. W. G.—J. A. F.—J. D. W.—D. F. W.—A. W.—R. E.—W. E. F. M.—A. S.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

The Builder.

VOL. XXIII.—No. 1162.

*Travel and Discoveries in the Levant.**



AS soon as the Natural History Collections shall have been removed from the British Museum to their destined galleries at South Kensington, and the fine suite of well-lighted rooms they now occupy shall be filled with the antiquities at present stored in out-of-the-way places; as soon as the sculptures from

Halicarnassos and Cyrene shall be properly housed, either in the east wing of the building or in other appropriate places—and there is space for the proper arrangement of every fine piece of sculpture in the light most suited for it—then our National Museum of Antiquities will be the finest in the world, and we shall have no occasion to envy other nations the extended space of their museums, nor the facilities thereby afforded for such an artistic arrangement of sculpture as may be observed in the cool halls of the Glyptothek, the Tribune of Florence, or the Octagon of the Vatican. We have now no cause to envy them for the number nor the quality of the works of art they possess; and, thanks to the liberal co-operation of Government with the Trustees of the British Museum, we have lately gained, and shall probably gain, year by year, many more valuable additions to the collection from the old long-buried world of art in the Levant, by means of information afforded by, and through the exertions of, consuls and other agents of the Foreign Office in that part of the world. We have good reason to thank Lord Clarendon for the appointment of so experienced an archaeologist as Mr. Newton to a vice-consulship at Mitylene; for it is to this circumstance that we owe the Badroum marbles, and indirectly those of Cyrene.

Other appointments have also been subsequently made which have added to the number of archaeologists in the East; and in this manner our National Museum will be greatly increased without detriment to the public service. Indeed, we consider a slight acquaintance with archaeology a most desirable acquirement for a Levant consul, especially when he is stationed in the interior of the country; for, now that the Ionian Protectorate has been abolished, the lonely official, without society, except that of stray travellers, and disgusted day by day with the thick atmosphere of deceit which hangs over all the East, may possibly fall a prey to *envie* unless he can take a direct and absolute interest in the things around him. But if he be ever so little of an antiquary, every carved stone which he sees in his rambles (and he cannot go many miles without finding some such record of past times) will afford subject for speculation; and every coin or gem he obtains from the peasants will be a source of great interest, and will tend to reconcile him to his otherwise monotonous existence, and probably to make him prefer it

to life in modern cities, where monuments of the past rarely abound. Great must have been Mr. Newton's interest in antiquity, and profound his knowledge of archaeology, to induce him to devote seven years of the prime of life to a residence on the shores of the Levant; and proportionately valuable must be the record of his experiences there, contained in the two volumes now before us—the *compte rendu* of his researches and discoveries during that extended period which culminated in his discovery of the Mausoleum. Though less strictly archaeological, and, from its lighter character, more addressed to the general reader than his former work, this has more solid qualities than most modern books of travel, and will therefore outlast them as a book of reference, and will be classed as a standard work on the East, and be placed on the library shelves of the scholar by the side of the volumes of Leake and Dodwell.

The narrative consists of extracts from letters written between the years 1852-59, with more recent interpolations. The epistolary form is preferred by our author because "the record of a traveller's first impressions in their original freshness will, in most cases, interest the public more than any subsequent composition which may be distilled in the laboratory of his memory out of confused and faded images."

Mr. Newton's first year in the East was spent chiefly in the beautiful island of Mitylene,—where he was vice-consul,—in making himself acquainted with the duties of his post, and in excursions to Salonica, Constantinople, and the Troad. With regard to the site of Troy, he is not favourable to the theory that the hill at Bounarbart was the real Pergamos. "If this hill has ever been an acropolis, we might expect to find those fragments of very early pottery, which, as was first remarked by Mr. Burgon, are so abundant on the Homeric sites of Mycenæ and Tiryns. Of such pottery I saw not a vestige in the soil, nor could I discover anywhere on the surface of the rocks those level beds out to receive the foundations of the walls which may be generally traced out on the sites of the Early Greek citadels, and the marks of which are as imperishable as the rock on which they are cut." Without entering into this much-vexed question, we may remark, that Mr. Newton's opinion is in opposition to the theories of most travellers who have visited the spot, viz., Choiseul, Gouffier, Lechevalier, Morrirt, Hawkins, Goll, Hamilton, and Leake, who seem not to have noticed the remarkable circumstance that every ancient site in the East is distinguished by broken pottery, which will not remain buried, but always comes to the surface, to protest against the site of the buried town beneath being entirely forgotten. Mr. Newton's notes on Salonica are very slight; he does not even mention the splendid Byzantine structures which adorn it. We presume that a natural disinclination to rob the ancient city of one of its ancient glories induced him to abstain from seeking the removal of the "Incontinentes." We regret to say that Mr. Muller, the agent of the French emperor, being less scrupulous in this respect, has lately succeeded in obtaining them for the Louvre.

In 1858, Mr. Newton went to Rhodes to act for the consul there during his absence. Rhodes afforded a wide field for his researches, as it contained the two most ancient cities of Lindos and Kamiros, besides the very interesting works of the knights; which happily our author does not neglect, as he devotes a whole chapter to them. This is the more valuable, from the fact that the Church of St. John the Baptist, there described, was, together with many of the surrounding buildings, subsequently destroyed by a terrific explosion of gunpowder stored in the vaults beneath it, through the negligence of the Turks, who despised lightning-conductors and trusted to *kismet*. Since this occurrence, however, the magazines in the castles of Kos and

Badroum have been furnished with lightning-conductors. The history of Mediæval architecture in the Levant has still to be written. M. de Vogué has thoroughly illustrated the churches of Palestine, but there are many remains of Middle Age buildings, at Latakia and other places on the coast of Syria, at Larnaca and Famagusta, in Cyprus; Rhodes, Lindos, Kos, and in many of the Greek islands, well worth illustrating, as developments of Gothic architecture in an Eastern climate.

The next two years were spent by Mr. Newton in exploring the islands of Rhodes and Mitylene, in excavations in the island of Calymnos (which resulted in the discovery of several valuable bronzes); in a visit to Constantinople, and in a journey to England. Upon his return to the East in 1855, he visited Badroum for the first time, and while there, saw sufficient evidence of Greek work underground to induce him to apply to Government for the expedition which had for its result the discovery of the Mausoleum.

The second volume contains a detailed account of the progress of the discoveries at Badroum, and from its pages may be gathered some idea of the difficulties the explorer had to contend with. These arose chiefly from the unwillingness of those persons whose houses and gardens stood upon the site of the Mausoleum to part with their possessions on anything like reasonable terms. The houses and gardens had to be bought one by one, and at exorbitant prices. At page 90, there is an amusing account of the determined hostility of an old woman, the *harem* of a Turkish prizefighter, and how she revenged herself upon the "big corporal" who superintended the "diggings." However, with perseverance, these difficulties were surmounted; the side of the monument laid bare to the very rock; and all the subterranean passages in its neighbourhood thoroughly explored. In proof of the care with which the task of exploration was conducted, and of the vigilance of the native workmen, we may mention that many very minute articles were found amongst the accumulated dust of ages, such as an ivory elephant, measuring about a quarter of an inch each way, small ear-rings, and an onyx ball, about half an inch in diameter. The progress of the excavations is described in a more continuous form, and in a more popular style than in the previous work. The evidences for the restoration of the Mausoleum are not recapitulated. We shall not now enter upon the question, as the subject has been before discussed in these pages. We are glad to find correct and beautiful representations of the principal sculptures that adorn the Mausoleum in a series of photographs from admirable drawings by Mrs. Newton's pencil. In many respects, this mode of illustration is to be preferred to photographs from the object itself, for by it many details of beauty can be illustrated that would not be illustrated by photographs taken from a single point of view. The etchings of Badroum, too, convey an excellent idea of that most beautiful spot.

The excavations at Badroum occupied from December 1856 to May 1858, at which period the expedition removed to the opposite peninsula of Cnidos, where a detached party had been at work for three months, and where that remarkable monument the Lion Tomb, and the grand sculptured lion which surmounted it, had been discovered. Here Mr. Newton remained digging, with varied success, until June, 1859, when the labours of the expedition,—the most successful of modern times,—were brought to a close.

We heartily recommend these interesting volumes to the public, as they contain a faithful account of the working of an exploring expedition which will be especially interesting at the present moment, when the exploration of Palestine, which we have lately advocated in these

* *Travel and Discoveries in the Levant.* By G. T. Newton, M.A., Keeper of the Greek and Roman Antiquities, British Museum. 2 vols., 8vo. Day & Son (Limited), 6, Gate-street, London, W.C. 1865.

pages, is about to assume a tangible form. They afford a precedent of the manner of conducting an expedition of an archaeological character; explain the manner in which excavations are carried on under the difficulties which arise in uncivilised countries; and show how necessary a previous training for, and experience in, similar undertakings, combined with a knowledge of the language and of the habits of the natives, are to success in expeditions conducted, like that to Budroum, upon an extensive scale.

STREET ARCHITECTURE OF THE OLD TOWN OF EDINBURGH.

In our last paper* we omitted to notice an occasional and very picturesque feature of the older stone tenements. On the ground floor there is sometimes found an arcade formed of a series of arches resting on pillars, whose massiveness is adapted to sustain the superincumbent weight of the upper stories. Until 1814, when it was totally destroyed by fire, there existed in the High-street a substantial building called "Bishop's Land," from its having been the town residence of the celebrated prelate, Archbishop Spotswood, the ground floor of which was formed of a deeply-arched cloister or piazza, supported by massive stone piers. The date of the erection of this mansion was 1578. A brass balcony projected from the first floor. The ground floor of the south facade of the Earls of Selkirk's mansion in South Gray or the Mint Close, appears to have been originally an open arcade or cloister. Sir Walter Scott passed much of his early youth, it may be mentioned, in this old mansion, which was occupied by his maternal grandfather, Dr. Rutherford, in the end of last century. From the first floor on the west side a picturesque turret staircase juts out into the close. There is an old building on the north side of the Kirkgate of Leith, which has a piazza formed by semicircular arches resting on massive round pillars, with moulded capitals, which extends along nearly the entire front, but which has been filled up and converted into shops. A building with the date 1579, in the Sheep's Head Wynd, Leith, has a piazza of a similar description. The quadrangle of Holyrood Palace, rebuilt in 1671, is surrounded by a piazza formed by semicircular arches resting on massive square piers. There are also piazzas on two sides of the quadrangle of Heriot's Hospital.

In the reign of James V. a castellated style of mansion, which was borrowed from the French, was introduced. It was chiefly characterised by circular turrets, with conical or ogee roofs, which rested on corbels, and were placed at the angles of the building so as to command the intervening curtains. These turrets, commonly called *pepper-box* turrets, generally present a stern bulging abruptness. In the lane which leads into St. Anne's Park at the back of Holyrood Palace, and which bears the Gaelic title of *Croft-an-rioh*, or the King's Field, there stands an old mansion belonging to this style of architecture. It was purchased, in the time of Charles I., by William Graham, Earl of Airth, from the Earl of Linlithgow, at the pressing instigation of his wife. The earl has left an account of the manner in which he was inveigled into the purchase. It occurs as the third of a list of grievances he had to complain of, and is extremely amusing.

"This woeful wyse wyfe of mine," he says, "made propositione to me that she conceived it not honorabill for me to pay rent for ane house, as I did then for a little house I duelled in, besyde the church-yaird, pertaining to ane Ridderford, who kade it in heritage; which foolish desyre of that wicked woman's I refused, and told her that I knew not how long I should stay at Edinburch, and would not give my money to buy ane house thair. Bot she replied, that it would serve for ane house for my lands of Kinpoint; which foolish answer of that wicked woman's shoud her vanitie, and the great desyre she had to stay still at Edinburch; for the like was never heard, that the house standeth seven mylls from the lands, Kinpoint being seven mylls from Edinburch. Alway, ther being some mysse between the Earl of Linlithgow and me, he did offer to dispoyn to me his house, which he hade at the back of the Abbey of Hallirow house, which sumtyme belonged to the Lord Elphinstounne. The E. of Linlithgow and I, for the pryce of the house, yairds, and

grass yairds, at the pryce of eight thousand fyve hundredth merks, did agrie, and he dispoyned them to me. And it was no ill pennieworth: for it was worth the money, had my *goode wyfe* contened herself so; bot she thocht the house too little for my familie, though it was large enough. It is to be remarked also, that she shoone as I removed from the little house I dwelt in besyde the church-yaird, and came to remaine in the house I bocht from the E. of Linlithgow, at the back of the Abbey, that fals knave Traquair did instant come to reside in the little house wherein I dwelt before, pretending that it wes to be neire the consell of state, which did sit in the Abbey; bot it wes for ane other end, that the villaine might wrik his ends against me. And, presentlie after this, I wente up to London; and I wes no shooner gone, bot my wyfe sett to werke all sorte of tradesmen, such as quarriers, maissons, skaiters, rightes, smiths, glasier, painters, and plaisterers; and I may say treulie, that the money which she bestowed upon hir re-edifying of that house and gardens wes twyse so much as I gave for the buying of them from the Earle of Linlithgow. So that in good faith, that house, and the gardens and orchards, and other things which my *wyse wyfe* bestowed upon it, stodee me in above 25,000 merks Scott money, bot I will only set down heir 20,000. Bot after all this, when I wes to remove from Edinburch, I dispoyned to my son James, heretablie, that house, gardens, and orchards, and grass yairds; and within two years after, or thereby, that house took fyre accidentally (as I conceive), and wes totallie burned, as it standeth now: and so became of *evrie thing that the wexkappy woman, my wyfe, lade hir hand to.*" He pathetically adds: "Bot this is nothing to that which will follow hereafter." His son afterwards dispoyned it (it had been rebuilt) to Charles I., and in that transaction his mother's evil star seems still to have been in the ascendant, for he never received payment of the price.

The square tower and spire of the Canongate Tolbooth, which was built in the year 1591, on the site of an older building, are flanked by two pepper-box turrets in front, from between which projects a gallery leading to a clock-tower, which is surmounted by an ogee roof, and rests on cast-iron supports springing from the wall-face, which have been substituted for the original oaken supports. The tower, which is more German than French in character, is exceedingly picturesque, and is much and deservedly admired. The very curious dwarf, antique, polygonal building near the Water-gate, which is known as Queen Mary's Bath, but which was one of the gate-houses of the abbey, has one of these circular cone-roofed turrets boldly corbelled out from the eastern angle. Pinkie House, a very elegant mansion in the vicinity of Edinburgh, built in the beginning of the seventeenth century, is adorned with turrets of this description; but their proportions are much more slender and graceful than is usual, and they are surmounted by waving tabernacular roofs. Altogether they much resemble the turrets of the French Renaissance. One end of this fine Scotch baronial mansion, of a considerably earlier date, is flanked by two very handsome square hanging turrets, which have high-peaked roofs, and are connected by an embraured barisane, behind which rises a gable with crows-steps, ornamented with *bottle and fillet* mouldings. The very beautiful corner turrets upon the towers of Heriot's Hospital have, in addition to their other ornaments, cannon-shaped gargoyles of various and elegant designs. In a view of the hospital, which was engraved in Holland in 1650, and which is believed to afford an accurate representation of the original design, the large towers are seen covered with ogee roofs, and it would appear that two of them had been so covered, and afterwards altered. The staircase turret at the north end of the ancient royal palace in the castle is covered with a lead ogee roof, as were also originally the turrets of the east and north wings, which were erected in the year 1616. It is evident from the notes of Sir William Forbes & Co.'s bank, that the Old Parliament House was ornamented with a variety of square corner turrets, resting on corbels, and surmounted by ogee lead roofs. Some of them still remain in the back part of the building. In the appendix to Mr. Daniel Wilson's admirable book, "The Memorials of Edinburgh," there is a view given of the picturesque castellated mansion of Wrichtie house, unfortunately taken down in 1800, from which we see that the central range, which was built in the reign of James VI., was

adorned with corner turrets with conical roofs. Near its site still stands, ornamented in the same manner, the venerable castle of Merchiston, memorable as the birth-place of John Napier, the illustrious inventor of logarithms. It is to be regretted that some modern additions, in the worst possible taste, have been made to this fine old castle. A circular tower, carried on very curious corbels, and ornamented with a handsome string-course, occupied one of the angles of a house in the Old Bank Close, which was taken down in 1835. In Mr. Wilson's "Memorials of Edinburgh," there is preserved a view of the French Ambassador's chapel, in the Cowgate, in which a long, graceful, circular turret is seen occupying the angle between the projecting staircase tower and the front of the building.

In James V.'s tower, Holyrood, the conical turrets, which still remain, and which rise from within the battlemented and corbelled-out parapet, previously to 1554 terminated in open crowns. In 1764 the Nether Bow Port, the most important as well as the most picturesque of the six gates of the ancient capital, was demolished by order of the magistrates, in order to improve the city! We are fortunately enabled, by the existence of some old drawings, to give a description of the "Temple Bar of Edinburgh," as it was rebuilt in 1606. In the "Diurnal of Occurrences," the journalist says at p. 241, "The Lords and Captains of the Castle causit big ane new Port at the Nether boll, within the auld port of the same, of ailar wark, in the maist strenthie manner; and tuik, to big the samyn with, all the ailar stanis that Alexander Clerk had gadderit of the Kirk of Restalrig to big his house with." This venerable collegiate church has been thrown down a few years before, by order of the General Assembly of the Kirk of Scotland, as "a monument of idolatrie." The Nether Bow Port, so constructed, presented to the spectator standing in the Canongate two massive circular towers, flanking and commanding an intervening curtain, which was pierced by a broad low-browed archway. The latter was furnished with strong iron-clad doors, and a grille above; while the cordeliers' rope formed the principal moulding of the arch. The towers were connected by a bold string-course, which marked the division of the first from the second floor, and had battlemented parapets carried on machicolated corbels, which were also continued along the face of the curtain. Within the parapet over each tower rose a conical turret, similar to those on James V.'s tower in Holyrood Palace. This feature, common enough in Scottish baronial architecture, is worthy of notice, there being no example of it, so far as the writer is aware, in England. Above the curtain, and in the centre, rose a square tower, divided by a string-course into two stages, and surmounted by a spire. This square tower was battlemented and machicolated, and had cannon-shaped gutter-spouts. A clock partially concealed a window filled with louver boarding. The spire, which was octagonal, with four pyramidal pinnacles at its base, was divided by corone into three stages, on the middle one of which were four gablet windows facing the cardinal points. A vane and weathercock surmounted the whole. In the angles formed by the round towers described and the main portion of the building, which stretched transversely across the street, with its gables facing north and south, were two circular turrets, one stage higher, and surmounted by conical roofs. Several stone panels, one of which contained the city arms, further adorned the walls.

Beyond their extreme height and the picturesque manner in which they are associated with the gables, the chimney-stalks seldom present any peculiar feature, and are singularly devoid of ornament. Sometimes, indeed, in the old timber-fronted lands, they seem thrust through the roof in front, to a stranger, is quite an unexpected and unlikely position, an effect arising from the upper stories projecting so much beyond the ground-plan. They are generally surmounted by a flat coping-stone, and not unfrequently taper in breadth as they ascend, the sides being divided into two or more stages, after the manner in buttresses.

When the chimneys are on the first or second floor, they are frequently carried so far through the thickness of the wall as to render it necessary to corbel out the chimney at the back. A good example of this arrangement is to be seen in Lord Dirlton's mansion, in the Canongate. I have said that the chimney-stalks are generally devoid of ornament; but Heriot's Hospital is a striking exception to the rule. There the roof is

* See p. 256, ante.

adorned with beautiful groups of clustered chimneys,—cylindrical, hexagonal, and octagonal,—enriched with spiral flutings and zigzag ornaments.

Towards the close of Charles II.'s reign, the principal features of the Italian style began to be adopted. The corbie-steps gradually disappeared, and the gables assumed the form of pediments, surmounted by urns and similar ornaments. The land on the south side of the Castle-hill, adjoining the Assembly Hall, is a good example of this style, which wants the picturesque of the one it superseded, or at least succeeded. The façade to the street is in the form of a pediment finished with coping-stones, and surmounted by urns. On the keystone of the centre window on the second-floor, are wrought the initials of Robert Mowbray, of Castleman, who built it in 1740. In Riddle's-court, Lawmarket, there is a very handsome house, ornamented by string-courses, and surmounted by a triangular pediment, with finely moulded coping-stones and globe-shaped ornaments, at the three angles. The house of Catherine, Countess of Galloway, in the Horse Wynd, is in the same style, having a handsome pediment in front, surmounted by urns.* I shall just mention one other example, the Golfers' Land, in the Canongate. Beneath a slab in the basement story, which contains an elegant Latin epigram from the pen of Dr. Pitcairn, are the words:—"I hate no person;" an anagram upon the name of the builder, John Paterson, who is said to have received a large sum of money from James VII., as a recompense for the assistance he lent the king, then Duke of York, in winning a match at golf against two English noblemen. Paterson's urns are sculptured in a large handsome tablet, placed on the front of the building.

The archways and square-headed entrances to the wynds and courts, which date from this period, are often highly ornamented, having pendent keystones, capitalised pilasters, and Doric entablatures. An archway nearly opposite St. Magdalen's Chapel, in the Cowgate, which gives entrance to the court of the house occupied by the celebrated Sir Thomas Hope, King's Advocate of Charles I., that over the entrance to the Hammermen's Close and a square-headed gateway in the Potterow, bearing the date 1668, are worthy of notice. A gateway adorned with a Doric entablature, on which is the date 1690, forms the principal entrance to Milne's-court, a fine open paved square, the principal building in which, forming the north side of the court, has a handsome entrance, with good mouldings. The court was built by Robert Milne, seventh Royal Master Mason, who was the builder of the most modern portions of Holyrood Palace. Alison-square, though of more recent date, is built in the same style. The broad low-browed archway, which gives admission to it from Nicholson's-square, is ornamented by a pendent keystone.

At the sides, square piers, with capitals and bases, support an ornamental Doric entablature. Pendent keystones also adorn the principal doorways on the walls and south sides of the square. The large square-headed windows are entirely devoid of ornament, and the general appearance of the square, once a fashionable and aristocratic locality, is undoubtedly monotonous and depressive. In one of its houses Burns had his first interview with Mrs. Maclellan, the Clarinda to whom, under the name of Sylvander, he addressed those amorous letters, which are as stilted and inane as his love-songs are simple and beautiful. We shall add only one more example of the new style of architecture, interesting not so much as such, as from its being associated with the most eminent Scotchmen of the last century. To the east of Milne's-court is James's-court, erected in 1727. This is a large quadrangle paved with flag-stones, and walled off from the Lawmarket by the intervening houses. It is entered by a low narrow alley. The buildings are lofty and substantial, but possess no other merit. Lord Alva, Lord Bankton, Lord Fountainhall, Hume the historian, Dr. Blair, and Dr. Johnson's biographer, Boswell, were among the distinguished residents in James's-court. Here, in 1771, Boswell entertained the patriot Corsican chief Paoli, as also the great lexicographer, when he passed through Edinburgh on his way to the Western Isles. There is one feature connected with the buildings on the north side of the court, which is thus described

by Mr. Burton in his life of Hume (vol. ii. p. 136):—"Entering one of the doors opposite the main entrance, the stranger is sometimes led by a friend, wishing to afford him an agreeable surprise, down flight after flight of a stone staircase; and when he imagines he is descending so far into the bowels of the earth, he emerges on the edge of a cheerful, crowded thoroughfare, connecting together the old and the new town, the latter of which lies spread before him, a contrast to the gloom from which he has emerged. When he looks up to the building containing the upright street through which he has descended, he sees that vast pile of tall houses standing at the head of the mound, which creates astonishment in every visitor of Edinburgh. This vast fabric is built on the declivity of a hill, and thus one entering on the level of the Lawmarket is at the height of several stories from the ground on the side next the new town. I have ascertained," he adds, "that, by ascending the western of the two stairs facing the entry of James's-court to the height of three stories, we arrive at the door of David Hume's house, which, of the two doors on that landing-place, is the one towards the left."

The most of the streets of the Old Town are *causewayed*, that is, laid with small blocks of whin or other stone, firmly jammed together by means of a wooden pavier or hammer, while, for the convenience of foot-passengers, the margins are laid with pavement, or *plainstones*, as they were formerly termed. It has been said, and often repeated, that the High-street was first *causewayed*, in 1532, by two brothers, John and Bartolme Foliot, Frenchmen; but this is evidently a mistake, as the desperate street fight between the rival factions of the Earls of Arran and Angus, which took place above the Nether Bow on the 30th April, 1520, has ever since been known by the name of *Cleane the Causey*, from the scene of contest. In 1535 we find the King granting to the Abbot of Holyrood a duty of 1d. upon every loaded cart, and a 1d. upon every empty one, to repair and maintain the causeway of the Canongate.

Side pavements seem to have been introduced about a century later. That they were not common before the beginning of the seventeenth century is evident from the petition of one Alexander Noble, in 1616, who prayed the Town Council for leave to "raise the calsay forment his tennement of land lyand at the fute of the Bow, forment the grey wicket, and to lay the same with plane stanes." In the Grassmarket a tenement bearing the date 1634 forms the front building at the entrance to Plainstone's Close,—a name evidently given to it as distinctive. Previously to the commencement of the South Bridge, in 1785, a row of six stones, forming the shape of a coffin, indicated the grave of Marlin, a Frenchman who first furnished the High-street with side pavements in the sixteenth century. By the end of the seventeenth century they had become quite general, and frequent allusion is made to them in the local balads of the time. Thus Robert Sempill, in his "Banishment of Poverty," a poem referring to the year 1680, says:—

"I greeved to gaug on the Plain-stanes,
To see if comrades would me ken;
We twa gaid pacing there our lains,
The hungry hours 'twixt twelve and aye."

We come now to consider the internal architecture and ornamentation of those old houses whose external features I have endeavoured to portray.

The principal staircase is, as already mentioned, almost always of the kind called *turnpike*, the spiral stairs winding in corkscrew fashion, round a central newel. There is a landing-place at each successive story or flat, giving entrance to a passage guarded by a door, and from the passage open the doors of the different houses on the flat. In houses built during the reign of James IV., the staircases were lighted by unglazed loop-holes in the wooden front, which were sometimes square, sometimes round, and which were called *shots* or *shot-windows*. Frequent mention is made of these in old ballads and contemporaneous chronicles. Gavin Douglas, Provost of the Collegiate Church of St. Giles in James IV.'s reign, thus describes the wintry prospect he beheld from his own window, from which he turned to his fireside, and the translating of Virgil:—

"The dew-droppis congelit on stibbill and rynd,
And scharp balistars mortifundit of kynd,
Hoppand on the thak and on the causay by;
The schot I elosit, and drew inwart in hy,

Chyvirrand for cald, the season was so small,
Schupe with hayt flambe to flem the freezyng fell,
And as I bownt my to the fyre me by,
Beith up and down the hows I did aspy;
And second Virgill on ane lettron stane,
To write onone I hysit a pen in hand."

We read, too, in Calderwood, how, when the Earl of Morton was beheaded by the Maiden, for the murder of Darnley, "Phairnhirst stood in a short over against the scaffold, with his large ruffs, delyting in this spectacle."* There are good examples of these shot windows in the antique tenement, known as the Cuznie Nook, in the Candlemaker's-row, one of the most interesting and picturesque of the old Edinburgh houses. In houses of later date the staircase windows are of good size, and generally strongly stanchelled with iron. Sometimes the grille is made of wooden in place of iron bars; and sometimes, as we have seen, the lower half of the window was occupied by two wooden shutters, which might be closed in bad, and opened in good weather, while the upper part was glazed. The glass was not usually fixed in the stonework, but was fitted into casements, which were moveable, and could be taken out and packed up when the family were from home. On a building to the west of Heriot's Bridge, in the Grassmarket, there may be seen a window with an oak transom and shutters, and the glass above set in an ornamental pattern of lead. Prior to the fourteenth century, when glass was introduced, thin horn or talc was made use of to fill the casements.

These winding stairs are by no means narrow or confined, but, on the contrary, are wide, commodious, and of gradual and easy ascent. Indeed, nothing is more likely to strike a stranger than the convenience of the Edinburgh turnpike stairs, which are comparatively rare in English houses.† Within the houses, too (for the turnpike stairs can be scarcely said to be within), the staircases are broad and commodious, and flanked frequently by curiously-carved banisters of oak. In that wing of the Cuznie House which was built in 1674, two broad flights of steps, with an oak banister on the left side and oak panelling enriched with carving on the walls on the right, lead from the principal floor to that above it. There still remains in Sir John Hope's house, although much dilapidated, an old oak staircase; and in the ancient tenement in Anchor's Close, which tradition asserts to have been once occupied by Queen Mary, there are some very fine oak balustrades. In describing the palace of Mary of Guise, Mr. Wilson says,— "There was access to the different apartments, as is usual in the oldest houses in Edinburgh, by various stairs and intricate passages; for no feature is so calculated to excite the surprise of a stranger, on his first visit to such substantial mansions, as the numerous and ample flights of stone stairs, often placed in immediate juxtaposition, yet leading to different parts of the building."‡

The doors opening from the turnpike stairs to the different flags are very strong and substantial, and are thickly studded with large iron nails. Bells were not known till a very late period, and their predecessors, the iron knockers, were themselves preceded by the risp or tirlipin already described. The inner doors of the better class of houses were often made of oak, finely panelled and carved. At the demolition of the Guise Palace, in 1845, there was removed from its first floor to the Museum of the Society of Antiquaries, where it now is, a beautifully-carved oak door. It is divided into four oblong panels, the upper two of which contain shields with heraldic bearings, supported by winged cherubs. The two lower panels contain portraits of James V. and his queen, Mary of Guise, carved in high relief, enclosed in circular borders, above and beneath which are ornamental scrolls of different designs. The door is furnished with a lock, which, however, has no ornamental pretensions. In the same building two richly-carved stone recesses were furnished with oak doors, on which were carved dolphins and other devices; and there was also found the finely-carved oak door of a cupboard.

The ground-floor was generally vaulted, and over it was placed the hall or principal apartment. The ceiling of the hall was sometimes arched, as in the house already mentioned as having the inscription "Laus Deo" on its front; at other times it was waggon-shaped, as was the case in two of the principal apartments in the

* In the satire of the Ridotto of Holyrood House, the Countess is described as

"— a lady well known for her airs,
Who ne'er goes to revel but after her prayers!"

* Calderwood, vol. iii., p. 675.

† There is a good turnpike staircase at Langley Castle, in Northumberland.

‡ "Memorials of Edinburgh," v. i. p. 146.

Guise Palace, which I shall have occasion to revert to by-and-by, and in General Dalryell's house, which was taken down about twenty years ago.

The earlier fireplaces were of immense dimensions. It is problematical whether, with one exception, any exist in Edinburgh which are of earlier date than the sixteenth century. In the fourteenth and fifteenth centuries the fireplace always had a hood over it of greater or less projection, and was generally corbelled out in a bold and picturesque manner; but Edinburgh possesses no fireplace of this description. In the kitchen of General Dalryell's house there was a fireplace of huge dimensions, formed of a plain semicircular arch. In a house which stood to the east of Sempill's Close, but was removed about thirty years ago, and was probably one of the oldest in Edinburgh, there was in the principal apartment, which occupied the whole of the ground-floor, an immense fireplace raised above the level of the floor and guarded by a stone ledge or fender.* In a very fine old stone mansion, in Sandiland's Close, supposed, on probable grounds, to have been the residence of Bishop Kennedy, in the reign of James III., there is a very fine old fireplace, one end of which only, however, can be seen, in consequence of some old partitions and panelling which conceal the rest. In that part of the architrave which is visible, being one of the corners, there is boldly sculptured a group of figures, which seems to be intended to represent the offering of the magi. The Virgin holds out the infant Jesus in her arms, while one of the Magi on his knees tenders his offering to the babe.† Unfortunately this interesting piece of sculpture is much disfigured by whitewash. In the quadrangular palace called Lockhart's-court, which was removed in 1785, to make room for the new building of the South Bridge, and which was the temporary residence in 1691 of James VI., and his queen, Anne of Denmark, there was a chimney-piece in the drawing-room of the most magnificent workmanship, and which reached to the ceiling. On it were carved the words, "Va d'un vol à Christ" (Go with one flight to Christ),—an anagram upon Nicholas Edwartus, the Latinized name of the proprietor Nicol Edvard, provost of the city.‡

There yet exist in Edinburgh, in houses of the sixteenth and seventeenth centuries, some large and very beautiful Gothic fire-places, decorated with rich mouldings, and with the mantels supported by clustered pillars with regular capitals and bases. There is one such in a very dilapidated house situated on the west side of the Old Fleshmarket Close. In Edward Hope's house in Todd's Close, removed about twenty years ago, there was another very beautiful Gothic fire-place, adorned with roses filling the interstices of the clustered pillars. There were several beautiful fire-places in the same style and of the same large dimensions in the Guise Palace. There is a fine fire-place still existing in an old stone land at the head of Lady Stair's Close; another in a house on the west side of Sellar's Close; and another, lined with Dutch tiles, in a house in Boswell's-court.§

THE MAJESTY OF ARCHITECTURE.

ALL study confirms the proposition that there are but few subjects in the range of history, art, and science, that are undebated to architecture either for illustration or confirmation. Thinking, in the exigencies of our daily tasks, of the requirements of modern life to be provided for in modern buildings, we are apt to undervalue the versatility, overlook the antiquity, and deny the majesty of the grandest of the arts. We have been especially impressed recently with the services architecture has rendered to ethnologists. No one now treats of the origin of the races of man without bringing forward in evidence the remains of Egyptian buildings. Dr. Nott, in his "Types of Mankind," Dr. Colenso, Mr. R. S. Poole, all produce the testimony of Egyptian remains in support of their views. Dr. Nott writes,—"Ethnology was no new science even before the time of Moses. It is clear and positive that at that early day (fourteen or fifteen centuries B.C.), the Egyptians not only

recognised and faithfully represented on their monuments many distinct races, but possessed their own ethnographic systems, and already had classified humanity, as known to them, accordingly. They divided mankind into four species, viz., red, black, white, and yellow. . . . When Egypt first presents itself to our view, she stands forth, not in childhood, but with the maturity of manhood's age, arrayed in the time-worn habiliments of civilization. Her tombs, her temples, her pyramids, her manners, customs, and arts, all betoken a full-grown nation." We are not going to follow Dr. Nott in the inferences he draws from this early civilization, our object being simply to show how ethnologists have turned to the architecture of the Egyptians as to a storehouse of proof of the antiquity of man. In the same strain we have Lepsius writing (*Briefe aus Egypten*).—"We are still busy with structures, sculptures, and inscriptions, which are to be classed, by means of the now more accurately determined groups of kings, in an epoch of highly flourishing civilization, as far back as the fourth millennium before Christ." Delitzsch awaits the proof of a manifold division of the human race from an investigation of Egyptian monuments. Kenrick notes that, 1,000 years before the Deluge, the same hieroglyphics were used on monuments as at the end of the monarchy of the Pharaohs, marking an organised monarchy and religion in that remote era. Additional researches have been made in the same field for the same purpose by Bunsen, Birch, Humboldt, Hincks, and Osborn. The size of the human race, too, in old times, is determined by the same test. The traditions of former gigantic stature are exploded by the passages, chambers, and sarcophagi of the pyramids. Again, students of theology, deciphering with microscopic care every passage in holy writ, find in architectural remains some of their most stupendous references. Thus, Dr. Colenso, connecting the mention of the tower of Babel with the famous unfinished temple of Belus (Birs Nimrod), quotes Kalisch for a description of that terraced pyramidal edifice. "The tower consisted of seven distinct stages, or square platforms, built of lime-burnt bricks, each about 20 ft. high, gradually diminishing in diameter. The upper part of the brickwork has a vitrified appearance; for it is supposed that the Babylonians, in order to render their edifices more durable, submitted them to the heat of the furnace; and large fragments of such vitrified and calcined materials are also intermixed with the rubbish at the base." Professor Rawlinson thus interprets the history of it, as related on the cylinders by Nebuchadnezzar, who endeavoured to complete the work. "The building named the Plainisphere, which was the wonder of Babylon, I have made and finished. With bricks, enriched with lapis lazuli, I have exalted its head. Behold now the building, named 'the stages of the seven spheres,' which was the wonder of Borsippa, had been built by a former king. He had completed forty-two cubits of height; but he did not finish the head. From the lapse of time it had become ruined. They had not taken care of the exit of the waters; so the rain and wet had penetrated into the brickwork. The casing of burnt brick lay scattered in heaps. Then Merodach, my great lord, inclined my heart to repair the building. I did not change its site, nor did I destroy its foundation platform. But, in a fortunate month, and upon an auspicious day, I undertook the building of the raw brick terraces, and the burnt-brick casing of the temple. I strengthened its foundation, and I placed a titular record on the part which I had rebuilt. I set my hand to build it up, and to exalt its summit. As it had been in ancient times, so I built up its structure. As it had been in former days, thus I exalted its head." Oppert, however, substitutes for the sentence "From the lapse of time it had become ruined," "Since a remote time people had abandoned it, without order expressing their words;" thus making the cylinder bear evidence of the identity of the building with that mentioned in the mosaic writings. We must see the incomparable value of ancient architectural testimony as opposed to that of early writings. In the latter case meagre outlines are filled up by different readers, according to their own measure of learning; but in the former there is reality before us. The superb remains uncovered by Mr. Layard in Assyria impress us more with the magnificence of that monarchy than any literary work could do.

Nowhere is the majesty of architecture more apparent than in our own land. What grandeur is shed upon the memory of the ancient Briton

by Stonehenge and Abury! In these examples of early effort we may recognise how potently architecture emboldens those who pay her tribute. But for these stupendous monuments of organized labour we should view with scepticism the Triads of Dyfnwal Moelmd, imputing a high degree of cultivation to the Cambrians 2,000 years ago. But with these temples before us we read them with light upon the page. Dyfnwal Moelmd speaks always of a verdict of 300 men to decide disputed questions. All contests about land were decided by appeal to this large number of men. "The counter party shall stand by the person who purchased the land, upon taking possession, and bringing forward unquestionable evidence of heirship, shall repay a just counter price to the previous purchaser, and shall lay down the money upon the back-fire stone, horse-block, boundary-stone, or upon the nearest white stone that is found in the place, or into the hand of the judge of the Court of the Commot, or upon the area in the presence of the Court. Where this is done the country enacts that he is to have his land, and the defendant the counter-price." Can we not picture these assemblages of 300 jurymen with almost photographic precision as we finger among their "stones of convention?" There is another triad we could scarcely comprehend, but for some such assurance of power and skill as the disposition of these mighty stones gives:—"There are three things that preserve a record respecting land and family, and stand as decisive evidence,—a back fire-stone, a lime-kiln, and a horse-block,—because the arms of a family are cut upon them." May some of the enigmatical figures now found in different parts of the country incised on rocks be interpreted as these "arms," or distinguishing marks? "There are three other stones," says another triad, "which, if any man remove, he shall be indicted as a thief,—the boundary-stone, the white stone of convention, and the guide-stone; and he that destroys them shall forfeit his life." Mention is made of a custom of writing the warning of the country upon the king's posts or stones. But these have all been lost sight of, as completely as we have lost all trace of the ship of Nwydd Nav Neivion, which brought in it a male and female of all living things when the lake of floods burst forth; or of the large horned oxen of Hu the Mighty that drew the crocodile from the lake to the land; or of the stone of Gwyddon Ganhebon, upon which all the arts and sciences in the world were engraven; whilst Stonehenge and other specimens of their concentric monolithic architecture stand as a testimony of labour as organised as that which conveyed the winged bulls to their sites in the palace at Konyunjik, and as sufficient as that employed by the ancient Egyptians in moving their colossal figures from the quarries. So expressive, too, as well as majestic, is architecture, that we may truly say, Show us a building or a pile and we will tell you who built it. Who could have reared Stonehenge but a race rejoicing in strength and might, scornful of ornament, regardless of colour, unimpressed by beauty of form, apparently conscious only of the dignity of simplicity? And, as if to confirm this estimate of the taste of the ancient Britons, we find their representatives, the Welsh, at the present day engaged in two undertakings, neither of which has colour, form, or ornament, in its composition. The principal manufacture of the modern ancient Britons, if we may call them so, is the colourless woollen textile known and esteemed as Welsh flannel: the principal export is slate despatched from the Cambrian shores in the same condition as that in which it is procured from the quarries. The unextinguished cast of mind that put the huge blocks of Stonehenge into place and left them in their natural simplicity is here apparent; we see no artistic feeling stirring to find vent in a manipulation of the slate; no craving for colour satisfying itself in rich dyes of the staple manufacture. The huge blocks of slate tell again of confidence in strength, and might, and admiration of masses, undisturbed by creations of the imagination calling to be expressed in material forms; and the vast lengths of colourless flannel, of continuous labour handed down from generation to generation in a certain groove, unassailed by temptation to riot or revel in the gorgeousness of colour. Contrast this with the tendencies of the Oriental mind, every phase of which, in its exhibition of colour, is as a plane upon a crystal prism, and which, in like manner, exhibits the same tastes as ancient buildings indicate that the remotest occupiers of the soil possessed. Exhumed speci-

* A very similar fire-place of the thirteenth century still exists at St. Mary's Abbey, York.

† A similar piece of sculpture, representing the offering of the Wise Men, occupies the tympanum of one of the doors of the church of Notre Dame de Treves.

‡ Reekians, p. 206.

§ To be continued.

ARCHITECTURE IN THE ROYAL ACADEMY EXHIBITION.

mens of Assyrian architecture, with their brilliant blue and red, deep yellow, and black and white decorations, assure us that under the glaring sun of the desert the earliest races rejoiced in colour as their modern representatives do to this day. They display, too, further characteristics of their builders which are also present in the people now occupying their neighbourhood. We have, in the multiplicity of figures and incidents, depicted in their baso-relieves traces of the root of the restless, passionate, impressionable temperaments that now inhabit the desert. The eye-hunger for colour of the ancient Assyrian could not have been more insatiate than that which induces the owners of the white asses of Bagdad to dye them with kenna and dip their tails and ears bright red, or dictates the use of variegated turbans and striped abas to the Bedouins, or of robes of the scarlet silk of Damascus, or of scarlet and white frothed with threads of gold worn by the ladies of Bagdad.

Philological archaeology affords us many clues which, if we follow, will lead us back across Europe and through faint-tinted and faint-outlined centuries into our old Asiatic home. Professor Simpson notes that the vast populations springing from the Aryan stock "all use words which, though phonetically changed, are radically identical for many matters, as the nearest relationships of family life, for the naming of domestic animals and other common objects. Some of these archaic words indicate by their hoary antiquity the original pastoral employment and character of those that formed the parental stock in our old original Asiatic home; the special term, for example, the 'past' of the old Sanskrit, which signified 'private' property among the Aryans, and which we now use under the English modifications 'peculiar' and 'pecuniary,' primarily meaning 'flocks,' or possession of flocks; the Sanskrit word for protector, and ultimately for the king himself, 'gopa,' being the old word for cowherd, and consequently for chief herdsman; while the endearing name of daughter (the 'dhitari' of the Sanskrit) as applied in the leading Indo-European languages to the female children of our households, is derived from a verb which shows the original signification of the appellation to have been the *nurture of cows*." But architecture, in its calm enduring majesty, does still more than this. The sculptured decorations of the ruined palaces and temples on the banks of the Tigris and Euphrates show us that their builders were acquainted with most of the arts now, and in Medieval times, common to Europe. The various contrivances used in the Middle Ages in warfare were all known to the people who reared and subsequently abandoned these piles. The movable tower running on wheels, the battering-rams, the catapult, scaling-ladders, huge shields capable of covering several men at work at the various processes of mining and picking a breach, were depicted by the Assyrians and Egyptians thousands of years ago. The prophet Ezekiel, announcing the approaching destruction of Tyre, says of Nebuchadnezzar, "He shall slay with the sword thy daughters in the field: and he shall make a fort against thee and lift up the buckler against thee. And he shall set engines of war against thy walls, and with his axes he shall break down thy towers." And the storied sculptures and bricks of the overthrown structures of Nebuchadnezzar—mere disregarded mounds in the desert for centuries—when examined "in a fortunate month and upon an auspicious day," confirm the fulfilment of the prophecy. In a word, Assyrian architecture tells us the language, the arts, and the materials at command of the nation in the days of its magnificence. Egyptian architecture, after centuries of reticence, yields similar information to modern explorers. We are still more familiar with the fidelity with which Roman buildings reflect the successive acquisitions of the mistress of the world. Seeing, then, that architecture thus tells the history of peoples, and thus teaches the measure of man's learning in so many of the arts and sciences, is it not meet that we should approach its practice with due reverence and understanding?

CONTINUING our survey of the architectural drawings in the rooms of the Academy,* we next meet with a design for the Scottish National Albert Memorial (801), exhibited by Mr. W. A. Carter. It represents a lofty and ponderous, but richly decorated, Gothic structure, having a peculiar character of termination, consisting of flying buttresses somewhat [after the manner of those carrying the spire in the churches of Newcastle-upon-Tyne, and St. Dunstan's in the East, but here bearing aloft a coronet. Through the interstices of them appears what might have been the actual termination to the structure, having a domical form, and finished by a finial. The whole of the upper portion of the memorial is carried by canopied arches, which spring from the slightest of coupled columns. We do not know how the structure could stand; but there is merit in some of the details of it, and in the drawing; and the chief feature might have a good effect. A design for the same Memorial, by Messrs. Slater & Carpenter (810), consists of different octagonal stages in the superstructure, and pinnacles upon a square base formed of four arches under pediments or gables of the Italian Gothic character, which is that of the whole design. The piers are enriched with nook-shafts. The idea, in the monument, is the same as in all works of the class,—a shrine over a statue. The Italian Gothic "proclivities" of some of our architects do not result satisfactorily. They indicate that there has been a certain sort of study,—that which should produce art; but the result generally is not what we can call work of art. Mr. R. P. Spiers's "Design for a Museum of Natural History and Science" (815) is that for which the travelling studentship of the Royal Academy was awarded in December, 1864. It displays much invention in detail, combined with good taste. The piers between the windows finish in coupled pilasters, the junction being concealed by tablets and busts. Suggestions have been derived from recent buildings of Paris, but not to a greater extent than would be permissible in like cases. The design has one attribute which we have taken opportunities to remark must belong to a work of good art-architecture at the epoch of its production: it is difficult of description in the language of words. Mr. Spiers has also exhibited some of his sketches of examples of architecture in Italy, as the "House of Cornelius Rufus, Pompeii" (819), "Arch of Titus, Rome" (835), and "Chapel of St. Bernardino, Perugia" (836).

Of works connected with the metropolis, there are several illustrated in drawings which we have reserved for notice. Mr. Bazalgette's Southern Outfall Station of the Main-Drainage works is shown in two views (808, 809), but of course not in the most interesting part of it, which is below ground. The most important work decoratively, is the "National Provincial Bank of England," which is now in course of completion, by Mr. John Gibson. It is represented by two views, one (814) of the exterior, and the other (805) of the interior. It is described as in Threadneedle-street. The chief part of the site, and the main front, however, are in Bishopsgate-street, next the South Sea House. Both exterior and interior should be looked at with acquaintance with the fact that everything has been designed under influence of difficulties of site, and of the rights of adjoining owners, such as are rarely experienced even in the City of London. The curvature of the street-line, together with value of ground, led to the curve just at that part of the frontage where the entrance is, which the architect, by extending and converting into a larger sweep, has made a feature in harmony with that portion of the front which is parallel with Bishopsgate-street. The necessity for not interfering with "ancient lights," combined with the effort to give as much height to the banking-room as possible, led to the cove which is so marked a feature in the ceiling. The principal features of the exterior are an order and six bas-reliefs. There are four bays, or intercolumns, on the Bishopsgate-street side, where the windows are, and two on the curve. The columns at the ends, and on the curve, are coupled. The capitals are of mixed Corinthian and Composite character; but, like the details throughout, are of an original treatment. There is only one range of windows, the intercolumns in the upper part being occupied by the bas-reliefs, which will represent the Arts, Commerce, Science, Manufactures,

Agriculture, and Navigation. Statues on the cornice of the building will, we believe, represent England, Wales, London, Birmingham, Newcastle-under-Lyne, Dover, and Manchester. Without going much further into description, which we shall have opportunities of resuming, we may mention that the interior of the banking-room is lighted in the main portion of its length, through the ceiling, by three domical lanterns, in each of which the ribs terminate at the top in a large circle or "eye," from which hangs a pendant, in glass and metal-work, ending in the "sun-burner" light, and serving the ventilation. The ends of the room are divided from the centre by arches, springing from columns, or rather directly from an interposed cornice and blocks. The columns are on pedestals, the columns detached from the walls being grouped, four together on a pedestal, whilst the columns next the walls will be coupled, and the shafts throughout will be of red marble. Not far off in the City, or at the corner of Leadenhall and Bishopsgate streets, are the London and Lancashire Insurance offices, now building, of which Mr. T. Allom exhibits a drawing (774). The general character is Italian. There will be four stories, and a range of dormers, arch-headed windows in the ground-story, and a canted or rounded angle, where is the doorway, which, as well as the features above it, will be of good character.

Mr. R. W. Edis exhibits a drawing of the new warehouses in Wood-street, Cheapside (780), which have been lately erected for Mr. W. Haynes. There are four stories of wide openings as required for light, and very narrow piers. Each of the three lower stories is arranged as an arcade, whilst the top story has the piers carrying the horizontal line of the cornice. The arches spring from enriched capitals; and in the top story, each opening is divided into two lights by an iron column. The style may be called Classical or Renaissance, with a Gothic modification. Some of the details are not good; but the design has character. Coloured marbles are introduced in panels; but they will be of little value for the effect in a couple of years. We advise all architects who would use coloured marbles on the exteriors of their buildings, to see what is the present appearance of those on the drinking-fountain erected by Miss Burdett Coutts in the Victoria Park, which was illustrated in our pages not very long ago. They are now no better than common slate. The white marble even has stood better than the coloured; though of what is the condition of that material very soon, in any part of London, we need say nothing. The statue of the Queen in the Royal Exchange, has been some time in a state which seems disgraceful to the citizens. Mr. E. Ellis exhibits under the title "City Improvements" (824) a view of the Queen Insurance Buildings, Gracechurch-street, lately mentioned by us; one of Offices in Billiter-street, with the usual wide openings; and one of Messrs. Hambro & Son's Offices in Old Broad-street; which last is Gothic, in part.

Messrs. Banks & Barry's "Westminster Chambers, Victoria-street" (793), have been illustrated in our pages. Their character of art, despite the ugly balls repeated in two of the lines of balcony, is vastly superior to that of the Piazza Statuto, supposing for a moment the latter to be their work. The five stories group well: for, the second and third story-windows are joined; and the string-and-balconet-line above, and that below, are well marked. The "Mansion for Sir S. Morton Peto, Bart., M.P., Kensington Palace Gardens," a view (823) of the garden-front of which is shown by the architect, Mr. J. Murray, has good Italian details. There are two octagonal two-storied projecting windows, and one similar feature, but square.

The select competition of designs for Grocers' Hall is represented by drawings by Messrs. E. M. Barry (800 and 816) and W. A. Boulnois (818). Mr. Barry's design externally, shown in No. 816, has a rusticated basement, with caryatides and arch-headed entrance-ways in the centre; and, above, there is an order of Corinthian columns, taking in the height of two stories, the centre of the front having the columns coupled in the depth. The centre and wings are carried up with attics. We admire this sort of design in a work of the date of Somerset House; but in order that work which is of the present day should be capable of being pointed to as art-work, there should be something added to it. The added element need be

ARCHITECTURAL ASSOCIATION.—The meetings of the Figure-drawing Class will cease after Thursday, the 25th inst., to be resumed in October, unless the education scheme proposed by the Royal Institute of British Architects be then in working order.

* See p. 308, ante.

very little; indeed, seeing that novelty, or rather what is the pretence of it, just now commits greater errors than skilful adaptation, or even copyism, we would prefer that the addition should be little, and that the bulk of the effort of the designer should be given to the skilful welding of all the elements which go to the formation of high art-architecture. There is no very new feature, more than in the exterior, in the interior of the Livery Hall (800) of Mr. Barry's design; but the members of the architecture are such as, arranged with skill, never fail to produce effect. They include salient columns, carrying arches which groin into a cove, and enclose lunettes. Of such an interior, perhaps the best example in London is in Clothworkers' Hall, of which Mr. Samuel Angell was the architect. A portrait of Mr. Angell, by Boxall, painted for the Clothworkers' Company, we may mention as being in the exhibition (No. 159). There is also a portrait of Mr. Thomas Page; it is by J. W. Walton (540). There is one feature in Mr. Barry's interior, that is not too common. Chandeliers are dispensed with; and the hall is lighted by three "sun-burners," placed in domical-formed spaces in the ceiling. Chandeliers, hanging from the ceiling, however effective in themselves they may be, are obstructive of intended general effect; and it is almost impossible, ventilating the lights, not to have something that is very unsightly. But "sun-burners" have yet to be made tasteful, as well as with variety in their forms. Eventually, as we believe, there will be a great modification in the architecture of interiors, through the extension and artistic treatment of methods of "exclusive" and ceiling lighting; and there will certainly be great sanitary benefit. What Mr. Gibson has designed will go some distance in showing the way. The design by Mr. Boulnois, for the interior of the Livery Hall (818) has a ceiling having a central space and coves at the sides, the total length being divided by ribs, and each bay of the centre having a domical light carried by pendentives and lunette-arches; whilst the lower half of the cove has three lunette-arches in each bay, and the upper half is enriched by scroll-work on a blue ground. The walls are pilastered in the upper part, and have piers and wainscoting below. A loggia or gallery at the end, looking into the hall, is the best feature of the design.

Some time last year, the Marquis of Westminster procured from several architects, designs for houses which might be erected on ground between Grosvenor-crescent and Halkin-street. Mr. Street's design, Gothic, in red brick and stone, is represented in the Academy exhibition by a view (795). Bay-windows, with the Venetian tracery; gabled hoods to the doorways, on very bold corbelling; window-lintels carried by corbelling from square reveals; and a window, circular on plan, with a balcony, corbelled out very boldly from an angle, are its chief features. Mr. E. M. Barry's design (806) is put forth as suggestive of the employment of terra-cotta. This material, red, would be used for the window-dressings, principal cornice, pilasters, and friezes. Certain columns, of a colour resembling stone, we imagine are intended to be of the light-coloured terra-cotta. The main walling would be brick, rusticated with the dog-tooth ornamentation, as in the Charing Cross Hotel. Windows boldly projecting to the extent of the ground usually occupied by the area, are features of the ground-story. The balustraded spaces to flats at the top of these windows, are joined across the front, and to the porch, by a balcony. There are balconies to three of the stories; and the pedestals in each case carry flower-pots. The plants and flowers in these, go to make much of the effect of the drawings.

We have omitted to mention the "Factory in course of erection at New Cross, Deptford, for Thomas Letts & Sons" (832), which was designed by Mr. J. P. Jones. It is a four-storied red-brick and stone structure, divided by broad and banded piers into five bays, each filled with window-openings of many lights. The general character is Italian. The piers are crowned by large vases, above the cornice; and there is a great arch, or one taking in the height of the second story, to the entrance. A drawing of the interior of the Sainte Chapelle is exhibited by Mr. W. Bayliss (831).

CHICHESTER CATHEDRAL.—The first stone of the spire of this cathedral has been laid by the Duke of Richmond.

THE ROYAL ACADEMY EXHIBITION.*

THERE is a scarcity of such productions as are illustrative of Biblical history, and nothing either of cognate attempt or accomplishment to compete with Mr. E. Armitage's masterly presentment of "Esther's Banquet" (422). Haman, kneeling at Esther's feet, is beseeching her to intercede for his life at the time that he is about to be seized and conveyed for the death the king has condemned him to. All the painter's generally accorded excellences, extraordinary skill in composition and drawing, with rare apprehension of apposite expression, are exhibited in great force; and in addition there is more appreciation of the worth of rich colour, with extra use of ornamental detail, than is common to most of his works.

If Mr. J. R. Herbert, R.A., is not very conspicuously represented this year by his single, and, for him, rather unimpressive picture of "The Sower of Good Seed" (46),—for the parable is not so significantly rendered as to be at once defined,—it is to be identified with more important productions by the simplicity of its design and the appropriation of present Eastern facts with their earlier associations, in preference to a more imaginative treatment of such subjects. As a record of customs and costume which obtain, in all their primitiveness, to this day, and therefore afford the most reliable authority for the propriety of such employment, there is great interest attached to it.

Mr. J. F. Lewis, R.A., is less curiously elaborate than is usual with him, though it would be difficult to find any other than he who could exceed the exquisite brilliancy and finish of the various flowers collected "In the Bey's Garden" (254) that a favourite Circassian slave is choosing from and gathering; or the delicacy with which the characteristic type of her race is preserved in this graceful figure. But in (321) "A Turkish School," a greater breadth of manipulation has imparted to an appearance of solidity and force that, with more minute observation of detail, he sometimes but partially succeeds in conveying. There is admirable variety of natural attitudes amongst the group of scholars, and every head is a distinct and lifelike study, with some real sunshine to lighten them.

Writers may differ in estimating her claims to it, but few characters have retained so permanent a position as Queen Mary Stuart, or stand out in more prominent relief, even in those pages of chronicle most replete with dramatic incident, and most remarkable for the confidence of actors and actions that are among the least likely to be forgotten. Further to commemorate one of the circumstances that help to lend the charm of romance to her biography, Mr. E. M. Ward, R.A., has selected the death of Rizzio, and, without depicting the actual deed, has most vividly implied the particulars of it. The moment of his description is when Ruthven enters like an apparition from the grave to disturb the supper-party, consisting of the queen, the hapless musician, and the Countess of Argyll, attended by Arthur Erskine the equestrian, Lord Robert Stuart, and the queen's French physician, on "The Night of Rizzio's Murder" (258). He has been preceded by Darnley, who, as a signal for a still less agreeable intrusion, embraces his wife. Mary, suspecting the two to be in concert, answers her kiss with the one word, "Judas," and confronting the ghastly Ruthven, demands his mission;—"Let your man come forth; he has been here over long." Rizzio, shrinking from the grasp of the outstretched hand, abjectly appeals for protection, but all save the colloquists appear to be paralysed, and there is evidently no chance of escape for him, the wretched victim of a fond woman's favour. This picture may be ranked with the best of Mr. Ward's illustrations of English history: for its admirable technical qualities it is a very valuable work. To succeed in acquiring fresh interest for an oft-told tale in the narrator's greatest triumph, and the attraction his version proves to be possessed of, whilst saying much for the enduring nature of the text, is a stronger attestation still of his power who propounds it.

Mr. Elmore, R.A., has painted very beautifully, with a strong opposition of gas-light and moonlight to help him in effects, a striking instance of the terrible results that so certainly await the votaries of "play," if the misnamed disease be allowed to obtain its thorough influence; but fortunately the episode taken for illustration

(138) must only be accepted as probable,—less probable of occurrence than powerful to point a moral, though this force is weakened by its attending suggestiveness of improbabilities. A foreign visitor to a German spa,—a girl without protection—or a naughty truant from it?—has retired from the gaming-tables, after having staked and lost all her immediately available means of living but those a handsome tempter is offering to provide for her, and she is hesitating to accept, involving as they do a further conjugation of the verb "to lose." Mr. Elmore leaves the quiet shades of convent gardens for no less a change than Baden would offer, and forsaking the edifying society he has been so singularly happy in gaining access to—that of the pensive nuns,

"Devout and pure,
Sober, steadfast, and demure,"—

for contrast, perhaps, introduces a sister of another community, of whom it may be asserted, doubtful as her after-fate threatens to be, with so ominous an intimation of it as her conscience is making questionable, that, at all events, "she won't be a nun." For a young lady who shares in that reckless spirit of gambling that knows no limit, and is capable of becoming regardless of consequences in the indulgence of a mercenary disposition, there can be little hope of escaping that vortex "on the brink" of which the artist has so clearly presented her. That she is more likely to take the plunge into the black tide of bitter experience, than a pledge to forswear as a falsehood its allurements, is too clearly shown to make the picture a pleasant one to contemplate.

It is some time since Mr. F. R. Pickersgill, R.A., has been seen to such advantage, with regard to manipulative proficiency, as in (76) "A Royalist Family, 1651," though the "unfriended" are too clean and nicely clad to betoken all the hardships of their momentous position, which is more that of cleverly prescribed arrangements for picturesque representation, than indicating those hastily conceived by the proscribed for hiding. The female figure is extremely refined, and the painting throughout very pure and bright. Mr. J. C. Horsley, R.A., essays to show the earliest period at which the fair sex evince the dominant spirit of coquetry; but obviously his pretty little specimen of six or seven summers old is a long-practised torturer, and she has kissed—or been kissed by—many a live doll, "Under the Mistletoe" (146), as that envious and worried Romeo, at least by one year her senior, knows to his cost, and he hates the wooden one who is now monopolising all those attentions and favours that the bewitching object of his consuming passion does not always withhold from him.

Another miniature edition of the volumes such early speech of instincts mean in proving the innate propensities of little men and women, is furnished by Mr. G. B. O'Neill (199), "The anxious Mother," a dot of a matron,—

"Who has so many children
She doesn't know what to do;"

and has carefully tucked up her family of dolls, whose wide-awake eyes have no speculation in them, or they certainly would never go to sleep for wondering at the most comically serious expression of enjoined silence that ever tender parent with a "hush," and a promonting finger on her lips, could possibly wear, as she sits by their bedside. It is pleasant as well as instructive to learn some of Nature's lessons in small print, and never too soon to recognise the lovable phases of it—for children do but grow—that promise so faithfully for the future; and where any, even the remotest indication exists, of a pinfolded pet maturing into such womanhood ("save the mark!") as Mr. Simeon Solomon reveals, O you to whom babies' shoes and bread and butter are no myths, and of whom it can be said, "Habet" (431), do as Saturn did, with no such justification—eat it, as soon as conveniently possible (N.B., the baby, not the bread and butter).

But Mr. Solomon's fish-blooded monstrous nonentities are horrid mistakes, and all alike;—their apathy quite incompatible with the excitement such savage spectacles entirely owed their popularity to; and he has worked to little end beyond that of immortalizing about the ugliest mode of dressing hair modern European ladies ever adopted. He is a clever artist for all that. In some respects, analogous to this, is the "Bravo Toro" (304), of Mr. J. B. Burgess, but with such compensating excuse as the oppor-

tunity it has given him for some capably-expressed knowledge of Spain and Spaniards, with their very varied emotions and characters, besides the palliation of having a large proportion of the spectators, men, and no great display of callous indifference on the part of the women. This is a great advance compared with antecedent, and amongst the most remarkable contributions from those exhibitors not directly connected with the Academy.

Mr. G. F. Watts's study of "Easan" (11), of rather gigantic stature, is distinguished by qualities not too frequently to be noticed—simplicity of treatment and independence of conventional aids amongst them; but in the (251) "Portrait of W. Bowman, Esq., F.R.S.," because it is so far above common-place in a department where common-place is more prevalent, Mr. Watts's relative position is more thoroughly announced.

Not but what there are others who leave the beaten paths, and succeed, like Mr. H. T. Wells, in shaking off at least some of the restrictions that would appear to be patent obligations with those who practise portraiture, did not such instances as (173) "Preparing a Tableau Vivant" occur in contrary evidence. But to return to subject-pictures, there was hardly material enough in Mr. J. Pettie's conception of (192) "A Drum-head Court-Martial" to make it worth an assumption of the importance assigned to it; and though very cleverly done, the execution is too sketchy to warrant it being considered a picture: another failing in it is that the heads are too small, and this with more direct reference to the triumvirate of judges. On the contrary, in Mr. F. D. Hardy's very telling tale of domestic trouble, "The Leaky Roof" (265), which appeals to so wide a circle of sympathisers, a very ordinary event is related with such eloquence of pencil as to raise prose to poetry by investing it with rare artistic performance.

Surely, Gallot himself would have envied Mr. H. S. Marks his long list of acquaintances amongst those happy miscreants of the cadging crew (331) who, to the unfeeling barking of dogs, are coming to town. It requires something like an initiation properly to value the distinctive attributes of this interesting fraternity, but from the old inured one on two sticks to the youngest, but not the least clever, of the gang, there is consecutive evidence enough that—

"Of all the occupations
A beggar's is the best;
For, whenever he's a weary,
He can lay him down to rest."

With no ugly dreams, founded on naked facts, of rent and taxes to pay, and no troublesome doubts as to how one is to return oneself under schedule D.

The individuality of all the heads is one of the recommendations of this work; and the firm, solid painting throughout of well-considered accessories, another,—whether dogs, draperies, or quaintly-carved old buildings. There is humour, without vulgarity, in all Mr. Marks's pictures, as his impersonation of "Francis Feeble,—Woman's Tailor" (591), may assist in proving.

(327) "The Lay of King Canute," in a boat, with the lap of a lady for a cushion, is, at the best, but an inanimate theme for a painter to give vitality to; and Mr. H. O'Neil, A., has been less happy than is often the case with him, both in choice of matter and method of dealing with it. The king is requesting the rowers to near the land, in order that he may hear the song that the monks of Ely are singing so merrily. There is a want of that realistic appearance which, in the absence of higher merits, would constitute all the worth of a meaningless representation.

METROPOLITAN DISTRICT MUSEUMS; AND A HINT.

THE conference on the 6th inst., invited by Lord Granville to consider how far, in establishing suburban museums, the original iron building at South Kensington could be made available, was numerously attended, and included many influential men from the various quarters of the metropolis. Lord Granville, who was supported by Mr. H. Cole, C.B., said, in opening the business, he should not like to perpetuate ugly buildings in different parts of the metropolis; but he had little doubt that, if advantage were taken of the offer of the Treasury to give the materials for the formation of museums in

the several districts desiring them, and that the necessary ground were obtained, great efforts would be made to complete their establishment. He had equally little doubt that the buildings once erected, the collections would soon become large and interesting. If they would permit him he would throw out the crude suggestion that different portions of the present iron building might be lent at a moderate rent-charge, or that they might be sold at the mere cost of materials, the money to be supplied by the different localities. He had very little doubt but that, when once established, the people of the several districts would soon make efforts to procure handsome buildings of their own. Claims were then made in rapid succession by the Rev. Newman Hall, Mr. Mandelay, Mr. Antonio Brady, Mr. Harvey Lewis, M.P., Dr. Hewlett, Capt. Rogers, and others, for various quarters of the town. Mr. Tite, M.P., did good service in showing how the building might be divided. Mr. Beresford Hope urged that five museums were required, and should be provided. Mr. Lucroft, a cabinet-maker, pointed out very sensibly the wants of his class in this respect. Lord Ebury, Mr. Briscoe, M.P., and others, spoke; and ultimately it was arranged that six months should be given for the consideration of the question in the districts, and that within that time special applications in writing should be made, showing what the neighbourhood in each case was willing to do. The building, which cost originally about 12,000l., could be made to form three structures, each about 120 ft. long, and 90 ft. wide. A new roof would probably be required, and the expense of re-erecting with a fresh arrangement would not be trifling.

We have to express a hope that in considering applications that may be made, preference will be given to those that are accompanied by evidence that there is good probability of the building being properly filled, and that the collection of objects to be exhibited will be under competent direction. Reference was made by one of the speakers to the Working Classes' Industrial Exhibitions that have been opened, leading to the notion that the exhibition of a collection similar to these was contemplated. We would carefully avoid saying one word damaging to the idea of these exhibitions. Honour to those who have promoted them, though they are overdoing it, and, if they go on subdividing as they have done, they will bring them to an end very shortly. Nevertheless, the collection to be formed in the museums contemplated must be of an entirely different character, and calculated to increase knowledge and improve the public taste; with a view to which it is clear that they must be under a different sort of guidance from that which serves well enough for the Industrial Exhibitions.

We should betray a trust if we did not say that, however interesting as evidence of advance under difficulties and the satisfactory employment of spare time, the "works of art" sent to these Exhibitions have been, as works of art, they were for the most part atrocious and frightful, damaging to the eye and mind of those who were led to contemplate them.

We are glad to learn that the South of London will not let the question of a museum for that part of the metropolis sleep, and that before the publication of our present number a public meeting will have been held to ascertain the amount of pecuniary support that could be obtained, whether for the erection of a new building or for the adaptation of that portion of the Kensington Museum which may be obtainable from the Committee of Privy Council.

THE ARCHITECTURAL EXHIBITION.

RENEWED attention to the drawings in the Conduit-street Exhibition has served to confirm our impression of its excellence by comparison with the exhibitions of recent years. There is indeed in it, evidence of the divergent practice which we have heretofore held had the tendency to exalt observance of style at the expense of art, or of so much of the manifestation of art as may be considered common to all styles, and to perpetuate controversy rather than to induce appreciation by the public, of what is the valuable part of architecture. There is also observable in the works of some of our best draughtsmen, an appreciation of what is rather quaint and Medieval, than beautiful and in association with the period of actual production of the designs. The mistaken taste for strong contrasts of colour,

and for colour in the architecture of the exteriors of buildings, as contributing to effect which predominates over that from form, is also manifested, as also is the seeking for variety which should be that of individual treatment in the field of art, in the merely varied selection of styles reproduced. Nevertheless, as we have said, we are disposed to regard the present Exhibition, not only as an improved representation of what may be the state of art in architecture, but as the evidence that the state is more one of progression than that of which we had evidence last year. It is clear that we, architects of the nineteenth century, heirs "of all the ages" are but children in the use of the abundant materials which we have been so industriously digging up: we have yet to learn that true architecture is the pursuit of a living "thing of beauty," and not the production of any "galvanized corpse" of any period. The style through which our art in architecture may be expressed, should not, perhaps, be such as to be recognisable now, or at least such as that of any distinctive previous period; but it should be such as will be recognised as of our age, by our successors. There are those who think that the works of this time will be recognisable as ours, though not standing forth so markedly to ourselves. In the improvement which we detect there is reason for such view. Much, however, remains to be done ere a tone sufficiently congratulatory can be assumed. The divergency which presents us with variety of imitation, and sometimes even with too much of mere novelty, rather than with art, is still characteristic of those in practice who should be identified as artists; whilst the quantity of art was never at any time more out of proportion than it is now, with money spent, with the quantity of carved ornaments and other decoration, and with the extent of the introduction of the members of architecture and styles.

Leaving these indents from the form and pressure of the actual architectural time, for the appreciation of them which our readers may deem fitting, we proceed to mention the designs in the Conduit-street Exhibition, which, for one order of merit or another, have most registered themselves on our attention. Our notice must be less detailed than usual, not with our wish, but from circumstances to which we may hereafter make allusion.

There is no architecture that is more deserving the attention of the student than that which is practised in the present time in France,—given all the faults that have been ascribed to it,—and those in many respects, as our readers know we consider, justly. The design bearing the first number in the catalogue, which is one that we noticed in the South Kensington Natural History Museums Competition, by Mr. W. Harvey, is one that might have claims to notice, did we not find in it too conspicuously reproduction of the features of certain well-known works. In this case the buildings are the new portion of the Louvre, the Palais de l'Industrie, and the Bibliothèque de Ste. Geneviève. The last-mentioned of these works seems to have struck out a train of ideas to an extent not usually to be credited of productions of our time. There are traces of the influence in some of Mr. Spiers's designs; but they are so largely accompanied by other ingredients, such as always have an origin in examples, models, and precedents,—whilst neither is reproduction the characteristic, nor is the formative process evident in its stages,—that the designs are as good in point of the art-element of architecture, as any that are now produced. They include drawings (225, 226) of the "Design for a Museum of Natural History," to which the travelling-studentship of the Royal Academy was awarded, December, 1864; and a "Design for an Academy of Music" (224). Mr. Spiers has done an abundant amount of work to make manifest that he can design, and draw; let him now show, by favour of the public, that he can build well; for, it is the latter qualification conjoined with the other, be it ever repeated, that constitutes the artist-architect. Our mention of the South Kensington Competition should not conclude without saying that some of Mr. F. P. Cockerell's drawings (87, 88) which bore the motto "Sublime Moliar Atrium," one of those belonging to Mr. Kerr's design which gained the second premium (326), and a design by Mr. Thomas Porter (143), all of which we described at the time, are in the galleries; but in neither case is the design adequately explained without the other drawings of the set.

From the Grocers' Hall competition, we find

designs by Messrs. Blomfield (16 to 22), Penrose and Goodchild (169 to 171), and H. Curry (189), in addition to those mentioned as at the Royal Academy. The first is Gothic. The most striking drawing is a view (19) of the Livery Hall. This apartment has a lantern-light in the centre of a ceiling that has sloping sides, the collar being round in cross-section, or having turned mouldings. The construction of the roof does not readily suggest itself. The character of the design accords with that of some of Mr. Blomfield's works which we have illustrated; only it is translated in stone, and with much use made of "plate-tracery," which is become the feature of modern Gothic designs to much too great an extent. "Plate-tracery," which really should not be called *tracery* at all, is manifestly an imperfect thing. The view, and other drawings, even the sections, have figures in Medieval costume, and titles lettered in the ornamental Medieval fashion. Surely, the love of accessories of this character in drawings, as well as illegible inscriptions in buildings, would tend to show that the art is not that, of our time, which should find expression in our architecture. The design by Messrs. Penrose and Goodchild, of an Italian character, has, in the Princes-street front, the entrance formed as a semicircular recess. The best portion of the design is the internal court, of which a bird's-eye view (171) is shown. Mr. Curry's design for the Princes-street front is at once effective and original. It may be called Italian with a combination of Gothic in some important, and indeed what may be leading, features. These consist of a range of gables. It must be obvious to any one who will read signs of the times, that the gable will be one of the chief contributions from the Gothic to the architecture of the future. The progress towards the tasteful use of the gable, where it would be well suited to play a part, as in our street-architecture of narrow frontages, and varying heights, is slow; but Mr. Curry's design may mark a step; though the front in this case does not immediately seem one that required the gabled treatment. The triangular form of ground led to ingenious planning in several of the designs sent in.

As we proceed with our inspection, we find some drawings from other competitors than those named last week. The most striking of these drawings in many respects are those from the Bradford Exchange Competition. The quality however that is most marked in the designs, is Mediaevalistic quaintness, rather than beauty in true art-architecture. Sculpture, somewhat extensively used, is contrasted with the most uncouth forms; and what would be only tolerated as accidents, were the designs real Mediaeval, are here introduced with a purpose of what might seem "malice prepense." The most noticeable design of this class, as shown, is that by Mr. R. N. Shaw, in drawings Nos. 67 to 70. The design of Mr. Burgess, for the same building, as to the exterior (207), is marked by a similar inharmonious combination of architecture and sculpture to that found in the other design. One of the drawings (208) shows a portion of the interior, a glass-roofed area. The pinnacles on the angles of the building, externally, as shown, planted behind a parapet, rather than terminating lines rising from the ground, are badly placed, besides that they are inelegant in themselves. Mr. Kerr was quite justified in remarking that there "has been growing up an incredible worship of the Ugly." Delineative skill, which should be the servant of art, seems, conjoined with the influence of the habit of observation of old models,—observation which should supply the food,—to be constituting for itself the mastery. Were this to be the universal end of the acquirement, we might almost ask whether it were worth the getting. Possibly there is one class of mind which is peculiarly fitted for work in the "restoration" or conservation of ancient monuments, and another similarly for architecture in its highest sense of art, and that the one capacity is to some extent in antagonism with the other.

One of the most interesting drawings in the room (66) represents the Church of the Austin Friars, in Old Broad Street, as restored by Mr. T. Anson and Mr. Lightly. The aisles are left free, the seats being in the nave; and the area which they occupy is enclosed by close screens, or boarded partitioning, plain in character, but according with the architecture of the church. The preservation of this building from the entire destruction by which it was menaced after the fire, is one of the most satisfactory results to be

chronicled of recent efforts for the preservation of such records and examples. What are important works of a very different class, are represented in Mr. Owen Jones's drawings (29 & 30) of his decorations of the Chinese and Indian Courts of the South Kensington Museum. Excellent however as the drawings are, they fail in conveying the beauty of the decorations themselves. All representations by even tints, of surfaces of colour that are over one or two superficial feet, belong to the class of working-drawings, and do not give the variation of surface-effect which is caused by accidental shades; moreover, the decorations at South Kensington require to be seen in their positions. But whether judged of there, or in the drawings, they reflect the greatest credit upon their designer.

A "Warehouse lately erected at Leicester" for Messrs. Hodges & Son (5) by Messrs. Shenton & Baker, is a commendable work of the class of which too little account is taken in estimates of the architectural movement in England. This building, which is in red-brick and stone, is of three stories. Corinthian pilasters occupy the height of the two upper stories, and are massed at the angle, where the entrance is, and in a corresponding position. By the arrangement of breaks in the frieze, pleasing variation is given from the ordinary Corinthian entablature; so that the latter feature of an order, and the cornice suited to the entire building, are well combined. The buildings in the City of London which also express the advance, are only part of them of the warehouse class. Amongst them, shown in a drawing (86), are the "New Warehouses, Wood-street, Cheapside," by Mr. R. W. Edis, spoken of as represented in the Exhibition of the Academy, where the drawing differs from that which is here, in some of the details. Mr. Edis also contributes a drawing (125) of "New Warehouses, White Hart Court, Bishopsgate-street, now in course of erection." Mr. Anson's works in the City, have been chiefly buildings for offices, such as the work represented in No. 85, "Street Architecture, 27, Mincing Lane," which is marked by rather more of Gothic in the detail, than there is generally in his works. This character is observable in the rain-water pipes, and in the coin-bells, the angles of which are slightly notched where one stone rests upon another.

Mr. M. D. Wyatt exhibits (6), "Original Sketches," nineteen in number, "for the architectural portion of the Terrace Gardens" Castle Ashby. They give chiefly forms of vases and balustrading. Mr. Wyatt's principal contribution (Nos. 115 to 120) is that of six working drawings, including one to half-inch scale, elevations, of different fronts, and of the stables, of a mansion to be erected for Mr. J. G. T. Sinclair, of "the Mount," Norwood. The general character is Italian; and the large drawing shows a considerable amount of surface-enrichment,—how to be executed is not described, but possibly in stucco by one of the methods coming quietly into use. One of these has been used by Mr. R. N. Shaw, in a plaster-ceiling to a new dining-room in Wellesley House, Kent, which is represented in a view (337). In this case, the plaster was lined and stamped whilst wet, and almost entirely by two country-bricklayers, to whom the work was entirely new. Detailed drawings in pencil, to half-inch scale, were sent to them; and with very little direction, they set out the various figures the full size, and marked the patterns, the architect says, "with remarkable precision." The drawing is exhibited only to show that a considerable amount of ornament may be obtained, using the commonest materials and the local labour. Mr. Lamb's designs, as usual, are characterized by art as one of the elements in their architecture. The "Design for the Town-hall, Ipswich" (51), is a very satisfactory evidence of independent thinking. This is remarkable as much in its general massing as in its detail. "Allenheads, Northumberland, designed in 1846" (52), is excellent in grouping, and in the harmony and continuity of major and minor elements of the design,—the latter including the garden-walls,—and remarkable for the effect produced with a simplicity that is not poverty. Mr. Lamb's contributions also include "Holt Hall, Norfolk, showing the alterations and additions recently completed" for Mr. John Rogers (44), "West Elevation of St. Martin's District Church, now erecting at Kentish Town" (53), "Manor House, Aldwark, near York, recently erected" (55), "House intended to be erected near York, for Captain Barnes" (289), and "First Sketches for

the Parsonage House, Whitton, near Hounslow, about to be erected" (290).

A view (38) of the Organ and East End of St. George's Hall, Liverpool, is exhibited by Mr. J. E. Goodchild; but it is not the best of his drawings; and it omits some of the important features of the interior, the pendent gaseliers, or *coronae lucis*, amongst the number. Messrs. Thos. Smith & Son exhibit a view (34) of the exterior of "Christchurch, Naples," a building which is Gothic, and English in most of its features, but has an arrangement of western porch that is designed with a reference to the circumstances of the climate. A view of this church has appeared in our pages. Noteworthy designs in some points, are these for the new Auction Mart, namely, one (61), by Mr. F. Chancellor, one (138) by Messrs. Wadmore & Baker, and one (196) by Mr. T. C. Clarke. Mr. E. M. Barry contributes a drawing (145) of a work in progress, the "City Terminus Hotel, Cannon street." The view shows the front that will be on the station side, and which has a general resemblance to the similar front of the Clapham Cross Hotel. The "Sablonière Hotel, to be erected in Leicester-square, for the Foreign Hotel Company, Limited" (168), is shown in a drawing by Mr. J. Whichcord, who is also the author of designs for "New Buildings to be erected in King's-road, Brighton" (127, 128); but in none of these works has he quite met the difficulty of external effect, which is apt to be entailed by the provision of stories that are many in number. It may be desirable that the appearance of the actual number of floors should not be lost; but we cannot think a satisfactory effect can be given, unless the total height is divided into a much smaller number of main divisions than that of the stories, that is, unless the latter are grouped in parts together. There is some very good design in Mr. Colling's Liverpool Exchange Competition Drawings (159, 195, 197, 198). Mr. C. F. Hayward has an effective Gothic design for the re-building of the Bell Hotel, Gloucester (204), besides some other works.

Mr. Truettitt is as usual a contributor of clever representations of picturesque and well-grouped buildings which he is erecting, or has lately erected (211 to 215). They include Little Barford Rectory, St. Neot's; a cottage at Worthing, two houses at Sydenham Hill, and a house in Tufnell Park, Holloway. Mr. Truettitt is one who can be indebted to the Gothic, without producing what is Mediaevalistic, and whose power of pencil does not get "the whip-lash" of him. Mr. C. Gray's "Queen's Gate Terrace" building, is shown in photographs (239, 240), and has been partially illustrated in our pages. It is one of the best of its author's works; which are very unequal, and present some uncouth forms, as in cantilevers, and some defects of proportion; but which nevertheless, or several of them, contain much that deserves praise. Yet the talk of the neighbourhood is against this house, and decidedly prefers the houses close by, which are of the speculative-builders' sort of Italian, repulsive in their soot-begrimed walls as they might be to us. It is impossible to induce the speculative builder to change his style, whilst there is demand for it; we may however bring about infusion of a better character of art in his buildings; and the talk of Queensgate-terrace might give a hint of how to get the infusion made. Mr. J. P. Seddon exhibits a considerable number of works, amongst which are elevations of St. Nicholas Church, Great Yarmouth (315 to 318); and many good designs for encasement tiles for Messrs. Maw (320, 324, & 325), and for various articles of furniture (323). We should not conclude our notice, which does not pretend to be at all complete, without naming Mr. H. H. Barnell's "Japanese Villa, with Offices" (328) to be erected for Mr. James Veitch, at Coombe Wood. Contemplators of the changing presentations of our art have got to the state of not being surprised at the advent of any foreign style, and copyism of it; but ought the importation, which is that of the style, rather than of any lesson in art, to go on,—since, under present circumstances, often, the more material we have, the less good use we make of it?

Whether we can return to the Exhibition must depend on circumstances.

After having devoted, during many years, some of our best exertions in furtherance of the interests of the Architectural Exhibition, we find ourselves under the necessity of offering to the committee a particular remark in the way of suggestion, namely that they should make such

arrangements at the galleries, as may prevent the possibility of insult to a representative of the press.

CONTINENTAL NEWS.

St. Petersburg.—The Imperial academicians, Mr. Mikechine, was requested last year to submit a design for a monument to Catherine II., of Russia; he did so, but certain alterations were suggested and insisted on, which led to the artist remodelling the whole design. This has now been done, and the monument is at present being executed. After the manner of Ranc's Frederick the Great, at Berlin, the figures are arranged in such a manner as to give the idea of generals and others supporting and guarding Royalty. The empress stands on the upper pedestal, whilst a little below her are ranged Derjavin and Madame Baschkow on the left, Betzki and Bezborodko on the right, and Rumiantzow, Potemkin, and Suwarow in front.* The figures, medallions, &c., will be in bronze, the pedestal in Labrador stone from Kiev, and gray Serdopol stone, and the plinth and steps in red granite. The whole monument will reach a height of 48 ft., and will take three years to finish. The estimated cost is 39,000*l.* It was Catherine II. whom Byron called "the greatest of all empresses and"—we forget the rest of the quotation.

Athens.—Mr. Bernadaki, a wealthy Greek, has given 100,000 francs towards the erection of an Archaeological Museum in this city, in the hopes of inducing others to follow his example. Of the plans submitted for this purpose that by Professor Lange, of Munich, was chosen, and will, it is believed, be carried out at once. The Royal Commission appointed to conduct excavations and other archaeological researches, stopped working, and also the collection of funds for the purpose, when the revolution broke out, and King Otto was driven away. Lately, however, the Commission has been armed with fresh powers, and now continues its work with new energy. —The new Roman Catholic Church in the University-street is being rapidly completed, and will, when finished, be one of the chief ornaments of this city. The great Sina Academy, the works of which were stopped for upwards of a year from want of funds, is also progressing.

Dresden.—An enormous musical festival is about to be held here this month, and 600 men are daily at work in erecting the hall in which the concerts are to take place. The building covers an area of about 100,000 square feet, and will be about 92 ft. high in the centre. There will be comfortable sitting-room for an audience numbering 28,000, besides an immense orchestra, and ten refreshment-rooms, of which eight are specially for beer, whilst the other two will supply wine, coffee, cakes, &c. In order to avoid the difficulties which would constantly arise from the variety of money brought by people from all parts of Germany, a special temporary coinage will be adopted which will have currency not only at the hall but throughout the city, and which can again be exchanged for real money at certain offices opened for the purpose. It is expected that the advantage will be very great, and that the expenses will be covered by the number of coins left unexchanged, because taken away to thousands of homes as mementos of the festival. —A statue of Melancthon, to be erected by the side of that of Luther, on the market-place at Wittenberg, will be inaugurated on the 25th of next month, in the presence of the King and Crown Prince. The 26th of June, 1524, was the day of the publication of the Augsburg confession.

Brunswick.—As was to be expected, the rebuilding of the palace, which was for the most part destroyed by fire, one bitterly cold night last January (a court ball going on at the time), is at once being proceeded with, and all rubbish and charred debris are being carted away. Before being taken away, however, everything is carefully examined, and all ashes are screened; by this means several diamonds and pieces of gold have been recovered. —The fine old Kaiserhaus, in the neighbouring town of Goslar, seems in danger of "going," from sheer old age. It was built by Henry III., in the year 1050, as the residence of the Salic emperors, and has of late years been used as a granary. A few days ago the greater portion of the south-western front suddenly

gave way and fell, fortunately inwards. Means were immediately taken to prevent the whole building from collapsing, and it is to be hoped that this interesting specimen of secular Mediæval architecture may yet be preserved.

Cologne.—Whilst engaged in deepening a dry well near the church of St. Martin, the sinkers came upon two daggers at about 4 ft. below the bottom of the well, which was 50 ft. deep. One of these daggers was found deeply inserted in a human skull; the blade, about a foot long, is of iron as is also the cross hilt. The handle is of hard wood carved and inlaid with coloured stones. —The King of Prussia has notified to the committee of the restoration of the Dom at Aix-la-Chapelle, that he will give the munificent sum of 52,000*l.* towards the restoration, provided the remainder of the sum (50,000*l.*) can be collected by the Karlsverein and its branches. The Karlsverein, like the Cologne Domverein, is an association for the worthy and efficient restoration of the church founded by Charlemagne.

THE PRACTICE OF VACCINATION IN FRANCE.

From time to time, when the effects of small-pox have been more severe and fatal than usual, we have directed attention to an objection which a very large number of persons, not only of the poorer classes, but also those in a superior position, have to the system of vaccination as generally practised in this country, —that if vaccination as practised be a means of preventing a large part of the mortality which would otherwise result, contamination and impurity of blood are caused by the transfer of the lymph of children whose constitutions are scrofulous and in other ways diseased. Difficulty has thus arisen in applying with vigour the law which exists respecting the enforcement of vaccination, especially since eminent authorities also differ respecting the safety of the applications of the vaccine matter throughout a long succession of persons; and the anxiety of medical men to vaccinate from healthy children, shows a latent opinion that otherwise it may be injurious. On this most important subject M. Depaule, the director of the small-pox hospital of Paris, has reported to his Government the serious evil that exists in inoculating children with vaccine matter taken from diseased or scrofulous constitutions. That gentleman enumerates instances in which healthy children have been thus injured for life.

In France no conscript is allowed to enter the army, and no boy received at either a public school or a college, unless he can produce a certificate of vaccination. M. Depaule justly observes, that as Government enforces this precautionary measure, it is bound at least to see to its being enforced in the most safe manner. He therefore urges the primitive system of vaccinating from the cow, —which was Jenner's original idea, —being again resorted to. The only European city where this is practised is Naples, and there M. Negri has established a park of heifers, which he infects in rotation with cow-pox, in order to have a fresh supply of pure matter. Last year he vaccinated 12,000 persons, and sent to the Medical Congress, held at Lyons, his friend Dr. Paleisciano, to explain to the French physicians the advantage of the Neapolitan system. The result has been that Dr. La Noix started for Naples, and after studying the subject, purchased an infected heifer, with which he returned to Paris, telegraphing, however, to the Lyons College of Physicians that he and his heifer would arrive by a certain train at Lyons, en route for Paris. Dr. Favre, of Lyons, with several adults and children, met him at the station; and while the train waited the usual three-quarters of an hour, all these persons were vaccinated from the infected heifer; and notwithstanding the extreme cold of the weather, the exposure to the outward air at the platform of the railway terminus, and the hurried manner in which the operations were necessarily performed, all succeeded perfectly. M. La Noix has now established a park at Bel Air, where he has inaugurated the Neapolitan system. The Parisian correspondent of the *Star* mentions that, strange to say, the vaccine matter which M. La Noix has in use at Bel Air may be traced to a royal gift of Queen Victoria, in 1855, to M. Negri, of matter taken from a cow on one of the Royal farms discovered to have natural cow-pox.

All the pupils of the Prince Imperial College

at Vannes have been re-vaccinated at Bel Air, but it is reported that the most curious instance of its efficacy is the case of a child, which the doctors of Nogent-sur-Marne had vainly attempted five times successively to vaccinate. As he could not produce his certificate of vaccination, he was refused admittance into all the schools in the department. The boy was vaccinated by the Neapolitan method, and the result is that he is learning to read.

The lesson in vaccination which has with so much advantage been taught in Naples and Paris, should not be without use in our own country, and in its metropolis and large towns especially. The medical officers of health should spare no exertion in placing the question of vaccination completely beyond dispute, and should adopt such measures for carrying a proper method completely into use, that none may have an excuse for neglecting the application of an important means of preventing a deadly and loathsome disease.

ADMIRAL FITZROY.

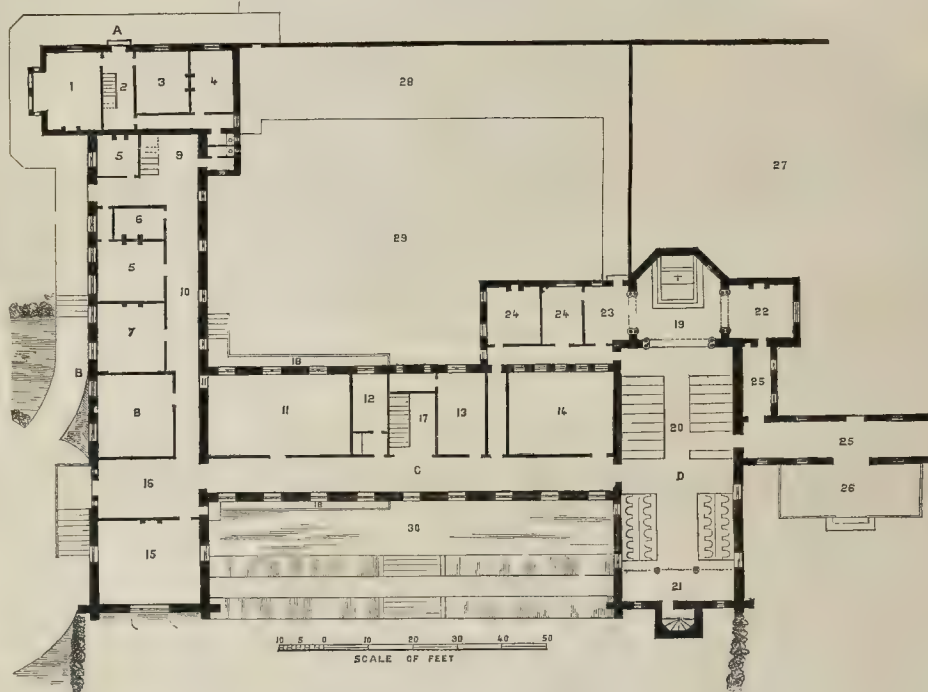
THIS gentleman may be classed in that numerous band of martyrs who, in these days especially, have sacrificed themselves for the advantage of others. Admiral Fitzroy had bestowed long and intense study on the discovery of means for the protection of those who are not generally provided with learning, but who are exposed, even more than miners, or those who form the ranks of our army and navy, to sudden destruction.

To the sailors of our coasting vessels, to the fishermen who, in their comparatively frail boats, put to sea in all seasons of the year, on all parts of the British coast, the labours of Admiral Fitzroy have been of the most vital importance. To many a woman and her children—the father—the bread winner—has been spared; and, as time rolls on, in each year, if proper management be used, we may expect a large salvation of life in consequence of better understanding the principle of storms, which Admiral Fitzroy succeeded in discovering to a certain extent. Although much had been done by the deceased gentleman in giving warning of coming storms, still the principle has not yet been reduced to a certainty, and partial failures probably caused Admiral Fitzroy intense worry of mind; and this was increased by the circumstance that the admiral felt himself on the verge of discovering one of nature's laws, which, rightly established, would be the means of preserving the lives of brave sailors and fishermen, and valuable cargoes, to an extent of which we can form but little conception. Many a man has been placed in similar circumstances to those under which the Admiral stood, who, feeling on the verge of a great discovery, applied himself more and more to conquer what was deficient; and so the most intense mental work went on, nature was over-taxed, and in the end the intellect gave way, and the kindly-hearted gentleman, who had laboured and striven with so much perseverance for the good of others, brought his own life to a lamentable close. It is to be hoped that his labours may not prove in vain. It has happened before now that when a man who, having ability himself, and support from the strength and intelligence of the country, had closed his labours, cold water was thrown on the department which he had endeavoured with success to establish. Let us trust that, in the case of Admiral Fitzroy, the Government will not act in this way. We require, in fairness, that some public monument should be erected to his memory; and it would be far better than works of stone and other memorials to give the needful support to Admiral Fitzroy's department, and enable those who are capable of doing so to continue the inquiry respecting the cause of storms—to afford the opportunity of collecting and arranging the materials which are gathered in many parts of the world,—until, in the end, the coming of storms and their peculiarities may be foretold with certainty.

MONTREAL.

AMONGST the new works in progress here, of which particulars have reached us, is Erskine Church, now in course of erection, at the corner of St. Catherine and Peel streets. It is for the congregation of the Rev. Dr. Taylor, one of the oldest and most respected ministers of the

* "Achilles' self was not more grim and gory Than thousands of this new and polished nation, Whose names want nothing but—pronunciation."



THE ABBEY DUN ESK.—Plan of Ground Floor.

Scottish Presbyterian Church. The design was accepted in competition in August last, and the foundations having been put in, the works have just been resumed, and are now being proceeded with rapidly. The walls throughout are of the Montreal limestone, in small regular courses, with rough faces, with cut stone quoins, window and door panels and arches, tower, &c. The interior has a gallery on three sides, open-timbered roof, groined recess, &c. The pews are radiating from the pulpit, and, together with the galleries, will contain 1,250 persons. The roof is covered with purple, green, and red slates, in ornamental bands. The total height of the tower and spire is 190 ft. The amount of the contract for the whole of the work is 8,300*l.*, exclusive of ground. The architect is Mr. C. P. Thomas.

Some large warehouses are in progress, with cut stone fronts, at a cost of 16,000*l.* To show what is doing in Canada, now so often discussed, we shall take an opportunity to publish a view of these buildings.

THE BENEDICTINE CONVENT AT TEIGNMOUTH.

THE new Benedictine Abbey at Teignmouth, of which we give a view and plan, crowns the locality known as Dun Esk. It is built of limestone, crossed at intervals with bands of red sandstone. The sills and pillars of the windows are composed of freestone. On entering the door at the west-end of the terrace, the visitor finds himself in a long corridor, upwards of 90 feet in length, which runs the entire length of the building, and communicates at the farther end with the church. Numerous apartments branch off this long passage,—a spacious chapter-room, the lady abbess's room, and the nuns' dining-room, in one corner of which is an apparatus

for lifting the viands intended for the repast from the kitchen.

At the southern extremity of the church is a gallery or tribune for the organ, and at the northern end is situated the sanctuary. This is separated from the main body of the church by an arch supported by pillars formed of polished Devonshire marble. Two chapels branch east and west from the sanctuary: one is for the laity, and the other belongs exclusively to Miss English (the lady-founder), who has a passage communicating therewith from her dwelling-house close by. The roof of the church is panelled, and the various arches are relieved by the introduction of red sandstone. Carved capitals adorn the sanctuary, side chapels, and organ gallery. The altar is sculptured in stone, with marble columns, and the floor is laid with tiles.

Ascending the stairs, we find, another long corridor, similar to that on the first floor, runs throughout: the apartments which open on either side are for the inmates of the house; and, at the extreme end of the passage, and in communication with the church, are the sick wards and lavatories. Another flight of stairs leads to the nuns' dormitories. At the further extremity, forming a wing of the main building westwards, is the children's dormitory, with a large oriel window looking south. Another apartment on the same floor is a lavatory for the children, fitted up with marble basins. On the lower floor of this wing are school-rooms, refectory for children, communicating with the kitchen by a lift, parlour, &c. At the rear of the school wing, and entirely separated from the other portion, is the residence of the clergyman belonging to the establishment. This comprises sitting, dining, and bed rooms, &c. The woodwork throughout is of red pine and pitch pine. All the walls are coloured in distemper without papering. The tower forms the principal feature outside. It stands at the

southern extremity of the church, and attains an altitude of 65 ft. surmounted by a bell turret. It bears on its front an image of St. Scholastica, the patron saint of the order, presented by the architect.

Mr. Simpson, of London, was the contractor: Mr. Copping was the clerk of works: Mr. Earp, of Lambeth, executed the carving; and the iron crosses and finials came from the workshops of Messrs. Peard & Co. Mr. George Goldie was the architect.

REFERENCES TO PLAN.

- A. CHAPLAIN'S HOUSE.
 1. Chaplain's Room.
 2. Stairs.
 3. Dining-room.
 4. Kitchen.
- B. THE SCHOOL.
 5. Parlour.
 6. Porters.
 7. Recreation-room.
 8. Dining-room.
 9. Stairs.
 10. Corridor.
- C. THE CONVENT.
 11. Dining-room and Lift.
 12. Stores and Lavatories.
 13. Superior's Room.
 14. Chapter-room.
 15. Common-room.
 16. Hall.
 17. Stairs, &c.
 18. Atrium.
 19. Infirmary, Dormitories, &c., over. Kitchen and offices, &c., under.
- D. THE CHAPEL.
 19. The Chancel.
 20. Body of Church.
 21. Organ Gallery.
 22. Private Chapel.
 23. Secular Chapel.
 24. Vestries.
 25. Private Corridor of communication with Dun Esk House.
 26. Conservatory.
 27. Garden.
 28. Laundry and Offices, &c.
 29. Yard and Drying-ground.
 30. Terrace.



THE ABBEY DUN ESK, TEIGNMOUTH.—MR. GEO. GOLDBY, ARCHITECT.

POCKET-HANDKERCHIEF ART.

WHEN we look around (and in our pockets) at various articles which are made in enormous quantities for the use of particular classes, it seems wonderful, in the first instance, how manufacturers are found who undertake, at a large pecuniary risk, the production of such things; and also, where the purchasers are to be met with who render these speculations remunerative.

Amongst many other matters which are curious in their way as examples of the condition and progress of taste, is art as it has been shown for at least fifty years in pocket-handkerchiefs. These are in many ways singular, and deserve a little passing attention. A long time since, we can remember pocket-handkerchiefs for children on which there were boys and girls at play, cottages, lambs, shepherdesses, and a variety of other devices. And there was no lack of picture pocket-handkerchiefs for those of older years: for sportsmen and others there were printed on these articles representations of fighting-cocks, dog-fights, hunting scenes, stage-coaches, and horses; and even recently, there have been shown in this way ships and steamers of various kinds, and conspicuous amongst them the *Great Eastern*, in divers positions; groups of sailors with the Union Jack and other devices; soldiers of the cavalry and the line; parties of pikemen, navigators, cotton spinners, and those who form representative figures of large classes.

In our time we have noticed many peculiar hobbies of collectors, some having bestowed an extraordinary degree of pains and industry in collecting play-bills, election squire, caricatures, &c. We once knew a collector who had, at considerable expense, purchased little pieces of the ropes by which notorious criminals had been put to death, and the instruments with which murders had been committed. This, however, is, we hope, a rare kind of collecting; but it would not be so singular or objectionable if some persons may have been minded to collect picture handkerchiefs. They would present a curious illustration of passing events. We should find portraits of George III. and the Princess Charlotte, William IV. and Queen Adelaide; Earl Grey, Lord Brougham, and their associates in the passing of the Reform Bill; then of Lord Palmerston, Sir Robert Peel, Bright, the lamented Cobden, Garibaldi, and so on. There would also be representations of Tom Spring, Tom Sayers, and many others who have achieved fame in the fisticle line. Thurtell and other murderers have in this way been handed down to detestation; and such events as Rose's voyage to the North Pole, the burning of the Tower of London and the Royal Exchange, the shooting of the elephant in the Strand, which have shared a large amount of public attention; also views of noted buildings and large towns, had all been thus depicted more or less graphically.

Some of these illustrations are printed on humble cotton of various tints, others on silk of an expensive kind; and, no doubt, before the days of illustrated publications, the picture work of this kind was not without its use, however tasteless or objectionable the application of pictorial art in this direction may for the most part have been.

THE NEW BRIDGE AT HAY.

WHILE the Hereford, Hay, and Brecon Railway was in course of construction, it was found necessary either to erect a new bridge, or to carry the line round the town. The former alternative was decided on; and Mr. Savin, the contractor of the line, offered to erect a new bridge at a higher level than the old one, on the grant of a lease of the tolls for ninety-nine years. The undertaking has now been carried out. The new structure is of iron, and is a lattice girder bridge, the girders 71 ft. long, 7 ft. high, and weighing each 8 tons. It stands at an elevation (counting from the parapet) of 50 ft. above the bed of the river,—16 ft. above the level of the old bridge. It consists in all of six bays, four of which cross the river in spans of 76 ft. each, while the two remaining ones carry the roadway over the railroad on the Breconshire side, and over a corresponding interval on the Radnorshire side. The total length of the bridge is 388 ft. The supports of the central bays are wrought-iron columns fixed in caissons, which are sunk into the bed of the river. The side bays are supported by stone piers of masonry. The floor of the bridge is of

wrought channel iron. It is trussed below so as to give it the necessary rigidity. A coping, surmounted by eight pairs of lamps, gives a finish to the whole. The bridge was designed by Mr. Hughes, of the office of Mr. Piercy, engineer, and executed by Messrs. Handyside, of Derby, under the superintendence of Mr. J. Smith, as resident engineer. Mr. H. Wakefield, of London, examined and reported on the bridge. It is said to have stood the test satisfactorily, the deflection amounting only to 5-16ths of an inch. Mr. Wakefield made some suggestions with regard to details.

THE BRITISH MUSEUM, NATIONAL GALLERY, AND KENSINGTON MUSEUM.

ON the motion for going into Committee of Supply in the House of Commons, Mr. Gregory called attention to the condition of the National Gallery, the British Museum, and the Kensington Museum. He declared that these valuable collections were in a state of chaos, and laid the blame of this on the Government. If the Government had come forward with all their strength with a well-arranged proposal for the extension of the National Gallery they would have carried it. He contended that the cartoons from Hampton Court ought to be in the National Gallery, and that some of the pictures in the South Kensington Museum and the National Portrait Gallery ought to be there also. He did not wish to see the Royal Academy removed from the National Gallery, but he urged that steps should be taken to secure space for the enlargement of the gallery. He urged the Government to take steps for providing more accommodation for the Museum.

Mr. Cowper said the delay in dealing with the National Gallery and the British Museum had arisen from a difference of opinion as to what should be done. So far as the National Gallery was concerned, however, it had been determined to extend the building, and they must do the best they could with it.

Mr. Tite said he had no doubt if a comprehensive plan for dealing with the National Gallery were introduced it would be freely supported.

The Chancellor of the Exchequer said that in these matters the Government had deferred to the wishes of the House. Eight acres of land would be required for buildings for the natural history department of the British Museum. The land in the neighbourhood of the Museum would cost 50,000l. an acre; but a good site had been obtained at 7,000l. an acre. The Government were proceeding in the matter in connexion with the trustees, but they could not lay a vote on the table until a plan was arranged. When the proposal was made the House would judge on it.

Some other members also spoke, and the subject then dropped.

In reply to a question by Lord J. Manners in the House on another occasion, Mr. Cowper said it was his intention to submit to Parliament an estimate for enlarging the National Gallery in the rear on the north side; and that the estimates will be laid on the table of the House in time for full consideration before the vote comes on.

COMPETITIONS.

Cheltenham College Boarding Houses.—The building committee received twenty-three sets of plans in competition for the above works, and have accepted the designs submitted by Messrs. Medland, Maberly, & Medland, of Gloucester, under the motto "*Finem respice*." Four houses are to be commenced immediately.

New Public Dispensary, Leeds.—A design submitted by Mr. William Hill, architect, Leeds, was selected in a competition confined to local architects. A premium of 10l. was awarded to Messrs. Perkin & Son for a design contributed by them. The design selected is in the Italian style of architecture. The building will be of brick, ornamented with stone dressings. The principal entrance, which will be under a portico, with coupled columns, is in the centre of the elevation to Belgrave-square. The base of the building will be battered and moulded; the windows enriched with carved and moulded impostes, archivolts, and sills; the main cornice ornamented with moulded modillions, and surmounted with balustrade, relieved at the breaks with

pedimented blocks supporting moulded vaults. The accommodation will embrace on the ground floor, physicians' and surgeons' consulting-rooms, with retiring-rooms attached, office for house surgeon, two offices for assistants, dispensary, laboratory, and large waiting-room to accommodate 200 persons. The board-room, private rooms for house surgeon, and kitchens, will be on the first floor, store-rooms will be on the basement, and attic on the second floor. A private entrance is provided for the house surgeon, and a separate entrance and outlet for the patients. The building is estimated to cost 3,500l.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE annual meeting of this Society was held on Wednesday evening, the 3rd instant, at the Royal Institution, Mr. Joseph Boulton presiding. The report, which was read by the hon. secretary (Mr. Chas. Z. Hermann), stated that the Society contained in an improving condition. Twenty-three new members of all classes had joined the Society during the past session, whilst they had lost only six in the same period; thus giving a net increase of seventeen members. Owing to the state of the finances, the publication of the proceedings for the past year had been suspended. It seemed probable that by the end of the financial year the Society would be clear of all liabilities. The want of interest shown by the students in the competition was a source of much regret, and the council reported that they should be reluctantly obliged to discontinue offering prizes should they not receive greater encouragement from those for whose benefit they were designed. The committee recommended the following gentlemen for the officers and council of the Society for the next session:—President, Mr. Joseph Boulton; vice-presidents, Messrs. W. H. Pictou & F. Horner; librarian and curator, Mr. Wallace; treasurer, Mr. J. B. Bradley; council, Messrs. Weightman, Andsley, Grayson, Wylie, and James Hay; honorary secretary, Mr. Charles Z. Hermann.

THE COLOSSUS OF RHODES.

DR. C. F. LIDERS, professor at the Johanneum at Hamburg, has just published a critical-historical treatise on the Colossus of Rhodes, about which the most crude ideas and fabulous exaggerations exist in the public mind. According to the researches of Dr. Liders, this monument, one of the seven wonders of the world, is reduced to nothing more than a colossal statue, standing on terra firma, like the Bavaria at Munich, but near the harbour, and dedicated to Phoebus Apollo. He insists upon it that its standing open-legged across the mouth of the harbour, and being used as a lighthouse, is a pure invention, and an emanation of fancy from later writers. Who is not reminded of Robert's picture, its bold conception, and wonderful colouring?

COMPENSATION CASES.

Holborn Valley.—At the Lord Mayor's Court, last week, in a compensation case "*Hoar v. The Corporation of London*," a special jury awarded 2,439l. 15s. for the premises and loss of trade as a bootmaker, in Skinner-street, Snow-hill. The case occupied several hours.

London, Chatham, and Dover Railway.—On the 6th, in the same court, in *re Balemund and London, Chatham, and Dover Railway*, the company had taken the whole of the property, nearly all freehold, in New Bridge-street, Blackfriars, between Union-street and Earl-street, and the claim made out by several witnesses in their behalf exceeded 26,000l. After being viewed by the jury, and hearing evidence of valuation on the other side, a sum of 17,500l. was agreed upon between the parties.

DOMESTIC INSECTS.

IN this great and marvellous universe, of which the best of us form such minute atoms, an all-wise Creator has sent amongst us visitations which in our short-sightedness we are too liable to look upon with impatience; and, instead of judging them to be as they are, blessings in disguise, to consider them as harsh dispensations of that beneficence from which we have daily good; but careful comparison and investigation

show that in the storm, pestilence, and fire,—even in the stark wandering of famine and the ravages and dire doings of war,—there comes a universal advantage, for which we cannot feel sufficient thankfulness.

Wolves, lions, and other wild beasts have been a means of advancing civilization; and the carrion and other birds of the air, the fishes, and the insects have all their appointed work; the house-flies, the beetles, and other loathsome creatures—the house rats and mice—are not without their use; and if we fail to see their sanitary advantage in some cases, the fact that their presence leads to the enforcing of cleanliness and care amongst those who would otherwise be negligent in this respect, is at any rate too apparent to be disputed.

We have before briefly referred to rats, flies, and some other household pests; but there is one of such a loathsome nature, that but for the present extent of the annoyance which it causes in so many houses, both in town and country, and the likelihood that if vigorous measures be not resorted to, the evil will be increased in the metropolis and the suburban parts by the alterations which are now going on, we should have preferred some other subject. In nearly all the old houses of the metropolis, the bug, that plague of the housewife and the detestation of all, has firmly established its unwelcome presence; and even new houses are not without these visitors, in consequence of the working into them of old materials which are inhabited by the vermin.

To thoroughly clean and keep a house and the furniture within it clear of these vermin, is a matter of anxious care to all good housewives; and there can be no doubt that the efforts made for this purpose, although the labour is considerable, are of advantage to the health of families in more ways than one. Without, however, further considering the matter in this way, there is undoubtedly an incessant warfare being waged between house-wives and these domestic enemies; and in this, as in connexion with other battles, it is useful to resort to those stratagems which will be likely to produce the most decisive results. But, as we have said, the unpleasant nature of these creatures has prevented that amount of inquiry respecting their habits, being made, that would render their destruction more easy. Even the date when these insects were first introduced into England seems to be a matter of doubt. It has been said that bugs were unknown in England before the rebuilding of that part of London which was destroyed by the Great Fire of 1666; and it is supposed that they were brought in the timber which was imported on that occasion. This, however, appears not to have been the case, for Muffet, in his "Theatre of Insects," published in 1634, says,—“In the year 1503, when Pennius [Dr. Penny] writ this he was caught in great haste to a little village called Mortlake [Mortlake], near the Thames, to visit two noblemen, who were much frightened by perceiving the prints of wall-lice, and were in doubt of I know not what contagion; but when the matter was known and the wall-lice were caught, he laughed them out of all fear.”

A writer says, that the favourite aliment of these insects is blood; but in unfavourable situations where this is not to be found, they feed on the sap of various kinds of wood, such as deal, beech, and osier; but from oak, walnut, cedar, or mahogany, they are unable to extract any nutriment. Several pairs which were kept in these last-mentioned kinds of wood soon died; while those kept with the other kinds continued to live throughout the year. The female generally lays about fifty eggs at a time, which are white. When first laid they are covered with a viscous matter; and this, by firmly hardening, sticks them firmly to the substance on which they are deposited. These eggs are usually hatched in about three weeks; and the same writer says, the usual times of laying are March, May, July, and September, and that from every female bug there is an average of about 200 young ones produced every season.

If these particulars are to be relied on, we have a hint of the best periods for dealing effectually with these troublesome creatures; for, if the means for their destruction be taken at the right times the effect will be much more satisfactory than at others.

As regards the best methods of destruction, a skilful hunter suggests that we should reduce one ounce of corrosive sublimate (perchloride of mercury) and one ounce of white arsenic to a fine powder, two ounces of oil of turpentine, and

two ounces of yellow wax, to which add eight ounces of olive oil. Put all these into a pipkin, placed in a pan of boiling water, and when the wax is melted, stir the whole till cold in a mortar. This seems to be a powerful decoction, and, says our authority, “applied to the crevices and holes in which the unconscious innocents secrete themselves, will effectually do their business.”

A more simple recipe is, that at the breeding seasons above mentioned, the beds, &c., which are infested should be stripped of all the furniture, which must be thoroughly washed; if linen, it must be boiled; and, if stuff, it must be hot-pressed. The bedstead must be taken to pieces, dusted, and washed with spirits of wine in all the joints and crevices. This done, all the cavities should be filled with the best soft soap, mixed with verdigris and Scotch snuff. It is said that upon this composition the young will immediately feed after leaving the egg (if any escape the cleansing), and will be destroyed, as well as such of the old ones as happen to have been left.

At present we have many (so called) certain destroyers of bugs and other house troubles advertised, and some of these powders have a destructive effect; but the most effective means of keeping bed-rooms free from invasion, is to use metal bedsteads instead of those made of wood; to do away with bed-hangings; and to place at windows only such curtains as can be easily and frequently washed. Wall-paper is a sure nursery for bugs, and for this and other reasons should be exchanged for coloured washes or paint. But when once bugs have got a firm establishment in a house, it is only by incessant care and watchfulness that they can be kept under: the ill-fitting parts of skirting boards, mantel-pieces, and door jambs, should be attended to, and such open spaces as are visible filled with destructive paste or powder, and putty then freely used.

The cracks in ceilings, the openings between the planks of floors, staircases, and other faulty parts of badly-finished houses, should all be filled up, and by this means many of these creatures would be effectually shut up and killed, and others would fail to find a harbour. Great good has often been done by caulking the openings in the boards: this gives some trouble at the time, but the ultimate advantage will be considerable.

The worry, vexation, the sleepless nights, and other sources of inconvenience which are experienced in many houses, in consequence of the inroads of these insects, render the subject, unpleasant as it is to think, speak, or write about,—one which should have more serious consideration than it has yet had. The matter, as we have said, is beset with difficulty, for even as to new houses we cannot be sure that they are free; and if they should be so, the first tenant is liable to introduce troublesome company. And in tenement dwellings, the cleanest and most careful persons often strive in vain to prevent the consequences of the want of attention by others.

ABSORBING WELLS.

It is probable I may publish a pamphlet on the subject of absorbing wells and borings, and on their influence on the underlying strata, and on water contained in it. In continuation of my communication, I am desirous of stating that absorbing wells are common enough both in this country and on the Continent; but the system of filtering and purifying the water, as far as practicable, by the method I adopt, and the saving of the filtering materials as manure, are matters new in their present form as concurrent arrangements. As a few examples of the mass of information that I have collected relative to the distinct character of the water, chemically considered, and the geological separation of the water above and that in the chalk, I append the following:—

At the outcrop of the tertiary sands near Ewell, in Surrey, they yield no water without deep sinking, but the water in the chalk adjoining is close to the surface.

At two borings at Merton, not far from the railway-station at Wimbledon, the sands, when reached, supplied an overflow of decidedly chalybeate water, perhaps three gallons per minute, from each boring; but on sinking to the chalk, the other water being stopped over, the pure chalk water rose 4 ft. 6 in. above the surface of the ground, and flowed over the stand-pipe at fifty gallons per minute from each boring. The

distance from one boring to the other is less than 400 ft., yet they do not seem to affect one another in the least.

In a boring at Garrett-lane, the sands were reached, in which was a large quantity of free water; this was tubed out, and the boring was continued into the chalk without success: the consequence was, that holes had to be bored through the piping to let the water in from the sands.

At East Ham, a boring was made, and the sands reached with a good supply of water; but it was decided to sink down to the chalk, and more than 50 ft. of the chalk had to be pierced before water was found.

In our well at Barnet, for the water supply, the sand water, when reached, was inferior in quality and small in quantity; it was effectually stopped from the well, and the chalk bored into, which yields an abundant supply of excellent water.

In fact, I have always found, not only that the character of the water in the chalk and in the sands differs greatly in its chemical qualities, but I have also found an argillaceous stratum at the bottom of the sands of the plastic clay formation, which effectually prevents any percolation (in almost all cases) of the water from that deposit into the chalk. I have given but a few, but I have many other examples in my possession.

Without proper filtering apparatus and proper filtering materials, I should hesitate to construct absorbing wells of large capacity, even into the sands of the plastic clay formation. I take care also to make proper arrangements for the filtering materials to be changed at proper times, because (and this is universally the case with all filtering matters), when once the materials are thoroughly saturated, they no longer act as filters in a proper sense.

I will now refer to a few absorbing wells without proper arrangements for filtering. One was constructed several years ago in the city of London, not five minutes' walk from where I am now writing, in the cellar of a butcher's slaughtering place, for absorbing the blood refuse and soiled water from his premises: this continued to act for years, but at last became stopped, by reason of solid matters, through carelessness, having been allowed to pass into the boring. It was cleaned out, and again set to work. No sewerage then existed.

An absorbing well existed, or does exist, at the City of London Cemetery, capable of swallowing seventy gallons per minute. This became choked with sand and solid matters, and had to be cleaned out: an operation described to me as not to be envied.

The cemetery at Nunhead is, I believe, drained to this day by what the French call a “*boitout*,” and many other cemeteries possess similar contrivances.

An absorbing well was attempted at the Woking Necropolis, and a considerable sum was expended upon it; but it proved a failure. The Bagehot sands are not favourable to schemes of this kind. I have now nothing to add further than that I have selected but a few out of the many examples of wells into and through the tertiary sands. The outcrop of the plastic clay series is less known to geologists and engineers generally than any other formation I can mention. A correct map, embracing all the upper and lower tertiary, would be a boon to the public.

With reference to the construction of absorbing wells in the French empire, I was not aware of any prohibition, but simply what would be a very desirable regulation in this country. The following is a translation of what I allude to:—“A Police Regulation of the 20th of July, 1858. No wells of ordinary construction, nor absorbing wells, shall be bored, nor any digging work in connexion therewith shall be undertaken; no cesspool or private sewer shall be established, without previous notice given in writing to the prefecture of police in Paris, and at the town-hall in suburban districts; and this notice shall be carried out.” The 14th clause states:—“No cesspool, nor absorbing well, shall be made without special authorization, which will be granted if thought proper, according to the notice required by clause 1.

The depth of the absorbing wells shall be fixed in the permission which will be granted if thought fit. All the arrangements in connexion with cesspools shall be also applicable to cesspools [filtering beds] to be made near to or at the openings of absorbing wells.”

JOHN BLENKARN.

PROVINCIAL NEWS.

Eastbourne.—The new pier and hotel have been commenced. The foundations for the hotel are got out. Mr. T. E. Knightley, of London, is the architect engaged; and the contractor is Mr. Foster, of London. The plans for this building were before the Society of Arts last year, and were for some time hung up in the rooms of that society. The coffee-room will have a pitch of 17 ft., and its sitting accommodation will be 73 ft. by 27 ft. There will be also fresh and salt water baths, and the bed-rooms will be laid out in the Continental style. Altogether the building will contain about 140 apartments, besides conservatories, &c.

Maidenhead.—At a meeting of the town council it has been finally decided to build a new town-hall and hotel. The money, a little over 3,000*l.*, is to be borrowed on the security of the rates, to be repaid in thirty years. A yearly rate of 1*d.* in the pound will be sufficient for the purpose, it is thought.

Petersfield.—The site selected for the proposed new corn exchange is opposite the Swan Inn, and known as Moulds-corner, leading from the square to the railway station. It has been unanimously resolved at a local meeting,—"That, in the opinion of this meeting, it is desirable to build a corn exchange in Petersfield; that a company, to be called, 'The Petersfield Corn Exchange Company (Limited),' be formed to carry out the objects proposed; and that a subscription-list be at once circulated, and the gentlemen and farmers in the neighbourhood invited to subscribe." It is understood that 500*l.* were subscribed in the hall.

Gateshead.—The foundation-stone of the St. James's Lecture-hall, Park-lane, Gateshead, has been laid by the Ven. Archdeacon of Durham. The building is at the expense of Mr. Bruce, who has offered to erect it to meet the growing demand for a building to allow meetings to be held in connexion with the Church Mission. The building is of Gothic architecture, 45 ft. by 26 ft., and is of stone, with oaken timber roof. It has four windows on the east side, and two at the front of the building. There will be, in addition to the large room, another room at the back of the building, 20 ft. by 16 ft., for tea meetings. There will be accommodation for 400 persons. Mr. John Harrison, of Gateshead, is the builder; and Mr. Thompson, of Newcastle, the architect.

Carlisle.—Great improvement has taken place within the last few years in the street architecture of Carlisle. In English-street, Devonshire-street, Botchergate, and elsewhere, new business premises have been erected to supersede insignificant buildings, and the work of improvement is still progressing. Mr. Head having sold the Old Bank to the Cumberland Union Banking Company (Limited), says the *Carlisle Journal*, the building is to be pulled down and a new bank erected, from plans that are now being prepared by Mr. D. Birkett. It will be the largest establishment of the kind in the county. In connexion with this rebuilding of the corner of Botchergate, probably the erection of the new County Hotel Hall will be proceeded with. This new hall will be but a small room, calculated to accommodate only some 600 or 700 people. The great desideratum in Carlisle is a hall capable of holding from 1,500 to 2,000 people. The theatre question, it is said, is not quite dead: the proprietors of an eligible site have been asked to put a price upon it, with a view to the erection of a theatre. A wooden booth on the Sands is the only refuge of the drama at present in Carlisle.

THE BUILDING TRADES.

At Kilderminster, the bricklayers and bricklayers' labourers are on strike. They regard the suspension of work, however, more as a lock-out than a strike. A meeting was held not very long ago with the view of devising means for the settlement of trade disputes by arbitration, and on that occasion delegates were appointed, mutually on the part of masters and men, to draw up rules and arrange other details. Since then the delegates have met, and come to an agreement as to the rate of wages, working time, &c. One point, however, was mooted, upon which it appears both parties did not so well agree. This was the question of "non-interference" with society and non-society men. The delegates, on the part of the masters, proposed the following

rule on this point:—"Every master or employer shall be at liberty to employ any man or men he may think proper, and that no interference shall be made with society or non-society men. The society men pledge themselves not to interfere with non-society, and the masters pledge themselves to allow no interference with society men." The men opposed this rule, and on the 21st ult. the masters' delegates cancelled it. The masters have now brought it forward again, and require the men to adopt it. The men refuse to do so, and they state that is the reason they are not at work, the masters wanting them to sign it, "or," say the men, "they will not let us go to work." An increase of wages has recently been agreed upon, and the question at issue is said to have no connexion with that of wages.

In consequence of the strike among the artisans and labourers at Plymouth, and of the interference of the union men with others willing to work, the Government has, it is said, determined to suspend, for the present, all progress in the construction of the fortifications in that vicinity.

The master builders of Stockport have advanced 2*s.* per week on the rate of wages to the carpenters and joiners in their employ.

The dispute between the master plasterers of Leeds and the workmen has been arranged. The masters have agreed to grant the terms demanded, viz. 2*s.* instead of 2*s.* 6*d.*, and 56 hours' work instead of 59 hours per week. At the same time, the code of rules drawn up by the masters was adopted by the workmen, with some slight alterations. A meeting was to be held for the purpose of coming to an agreement, if possible, with the labourers.

The strike of the joiners of Newcastle, we regret to say, still continues without any immediate prospect of a termination. The only works of an extensive character at which the men confine their services are those of Messrs. C. & W. Burnup, at the Barras Bridge; but these gentlemen, equally with the rest of the more extensive employers, resist the demand for a half holiday.

MASONIC MUSINGS.

THE ARCHITECTURE OF THE GAEL.

WEIRD old sentinels of monarch time,
Mute and motionless, yet mighty and erect,
Clearer than thy concrete bond in lime,
The secret lies of thy unknown architect:
Egyptian, Syrian, Roman, Greek, and Goth,
Their spires and shafts, and pyramids full fail;
Wizard Round Towers, that shall perish not,
The grand old architecture of the Gael.

The world long since has solved thy mystery, if
In Coptic, Sanscrit, or Arabic tongue;
Nor Hebrew, Greek, nor graven hieroglyph,
Nor complex Ogham would have held it long;
Keeps, helms, beacons, or what else thou wert,
Decey and war as whilom may assail,
Wizard Round Towers, time-proof on the earth,
The grand old architecture of the Gael.

Oh! couldst thou speak, we surely then would hear,
Did Druids hold converse, in your cone-capp'd head,
To fix the stars and cycles for each year,
Or offer holocausts to gods instead,
Pagan or Christian, wherefore unexplain'd;
Why standing lone thou in Innisfail;
Wizard Round Towers, proudly you have reign'd,
The grand old architecture of the Gael.

Old bards have sung and senachies relate,
Thy founder was the mighty Goban Seer;
Who flourish'd back, beyond the Christian date,
A wondrous architect without a peer.
With many a castle and old fort, his name
Is link'd by odes and Ossianic tale;
Wizard Round Tower of his majestic fame,
The grand old architecture of the Gael.

Live on, old sentinels of monarch time,
Your heirs are dead, your treasure-trove is gone;
Some grand old prophet, with a soul sublime,
May tell thy secrets to the world anon.
Live on, old wardens, challenging assault,
Inspire with hope, give courage to the frail;
Wizard Round Towers, piercing heaven's vault,
The grand old architecture of the Gael.

C. C. H.

THE COURTS OF JUSTICE BUILDING AND SITE BILLS.

On the motion in the House of Lords that the Building Bill do pass, Lord St. Leonards moved to leave out clause 16, allowing the Lord Chancellor to purchase or redeem Chancery compensations with the moneys forming funds belonging to the suitors of the Court of Chancery in addition to the one million of stock previously authorised to be taken from the same funds.

The Lord Chancellor, the Earl of Derby, Lord St. Leonards, and Lord Chelmsford spoke on the subject, and the clause was finally struck out by a majority of 47 to 46, amidst loud cheering; and the Bill, as amended, was then passed.

The Sites Bill having been read a third time, Lord Redesdale moved to omit the words "bridge over or" from clause 14, which provided for a communication across the Strand between the Temple and the proposed courts. It was simply impossible to derive any such bridge so as not to disfigure, and very difficult to contrive one so as not to obstruct, that crowded thoroughfare. His lordship was content, however, to make his protest, and did not trouble their lordships to divide.

The words were, therefore, retained.

Lord Redesdale then moved a new clause to follow clause 13, to the effect that no notice should be given of an intention to take any property under the Bill and no contract should be entered into until plans and estimates had been prepared, and until they had received the sanction of Parliament.

The Lord Chancellor said he hoped this clause would not receive any countenance from their lordships. It would require the spirit of prophecy to say exactly what would be the sum actually expended; but the utmost care had been taken to obtain the most trustworthy estimates. If the cost should exceed the sum which had been named, he must remind their lordships that the tax which it was proposed to levy might be doubled without inflicting the least hardship upon the suitors. The noble lord proposed that no notice should be given to take the lands until plans should be prepared by Government. He (the Lord Chancellor) did not want the plans to be prepared by Government, but by the profession with the aid of the Government, who should then hand over the building to the architect. It was impossible that the commission to be appointed could allow the spaces till the buildings now thereon had been cleared away. He never knew an amendment which contained within itself more impossibilities than did this. The noble lord proposed that they should stay their hands till they saw what land they required, but they could not possibly tell till they had cleared the site, and determined not only on the plan, but the manner in which it was to be carried into effect. The measure had already received a severe blow, but this amendment would defeat it altogether if carried.

The Earl of Derby thought the course proposed by Lord Redesdale was the one which would be taken by any private individual of ordinary prudence, and one which ought to be taken by the Government.

The Duke of Argyll remarked that the last words of the amendment would prevent anything being done till another Act of Parliament had passed.

Lord Redesdale said it would be impossible to begin the building till next year or the year after. There was plenty of time.

The Lord Chancellor said if the amendment were agreed to there would be no less than four distinct Acts of Parliament required to carry out the Bill, and therefore the amendment was nothing less than a covert way of defeating the Bill altogether.

The House then divided on the question that the clause be added to the Bill.

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The Bill as amended was then passed.

QUERIES CONCERNING STAINED GLASS.

The following queries, suggested by the late exhibition of Mr. Winston's drawings, were sent to us "for publication." As, however, they are calculated to induce thought, and may possibly lead to some useful expression of views, we overlook the prohibition—

1. What is the object of stained glass: is it an effect of colour?
2. What is good colour in stained glass: loud and flaring or quiet and cool?
3. Is it advisable to place figures coloured on broad spaces of white glass, as in Perpendicular glass? Does not this get a quiet, cool effect?
4. Ought canopies to be much coloured, or in simple white and black, to get quiet effect; and how drawn, with reference to next paragraph?
5. Ought geometrical diagrams to be drawn with absolute mechanical accuracy, or to be freely drawn?
6. How ought draperies to be drawn; thinly, or richly à la *Dürer*?
7. What is the difference between a thinly designed or richly designed canopy?

FROM SCOTLAND.

Auchtermuchty.—The foundation-stone of a new town-hall has been laid here with Masonic ceremonial.

Montrose.—A rather odd occurrence has taken place at Sunnyside Asylum, thought to be caused by strong gales of wind. The smoke chimney-stalk immediately at the back of the Asylum, and built on the top of the engine-house, was discovered to have shifted about 5 or 6 inches to the west from its original position. The change in the position of the stalk was discovered by the small amount of draught in the chimney.

Inverness.—The new public hall, occupying the centre of the north side of Union-street, is now on the point of completion. The interior is about 80 ft. by 40 ft., with lofty ceiling.

Duthil.—A memorial stone has been erected on the bank of the Spey, to commemorate a traditional "dividing of the waters" which afforded a pathway to a funeral procession from the Braes of Abernethy to the churchyard of Duthil. The occurrence took place in the begin-

ning of the thirteenth century! It may be a question whether it was the river or the funeral procession that became "dry;" but if the latter, no doubt the "mountain dew" had found a pathway down their thirsty throats long before they reached the Spey.

Cathcart.—The new Free Church, Cathcart, has been opened. The situation is about equidistant from the town of Cathcart, Langside, and the rapidly extending suburbs of Crosshill and Prospect Hill. The church, which is a very simple little Gothic building, is cruciform in plan; the east end of the nave being semicircular. The entrance is on the south side by a porch, which has an open timber roof, and a floor laid with Maw's encaustic tiles. There are no galleries, but the pews rise considerably towards the end, and in the transept at each side. The pews are all 33 in. wide, and 20 in. are allowed for each sitting. At the west end there are session-house, vestry, and other apartments, and the west gable is surmounted by a slender timber belfry. The church is seated for 500 persons, and the cost (including varnishing, hot-water apparatus, gasfitting, &c.) will be a little over 1,500*l*. The accounts, as far as received, including that for mason-work, are said to be all under the original estimates. The whole has been carried out according to the designs of Mr. J. Honeyman, jun., architect. The contractor for mason and wright work was Mr. A. Fraser; and the clerk of the works was Mr. J. M. Robertson.

FROM IRELAND.

Drogheda.—The first sod of the new water-works has been laid by the Lord Lieutenant of Ireland, who then opened the new town-hall. The first sod of the waterworks was turned at Killencer, a few miles outside the town. As stated by Lord Wodehouse, the new works will supply 800,000 gallons of water a day. Half the cost has been subscribed by Mr. Benjamin Whitworth, of Whitworth & Brother, of Manchester, who must be a sort of Brother Cherishable, in his way. The contract for the execution of the works has been taken by Mr. Ashcroft, of Preston. The site of the new town-hall was given by Mr. St. George Smith, and the building by Mr. B. Whitworth. A manufactory has also been commenced by Mr. Whitworth, and is destined to employ a very large number of hands.

The Dublin Exhibition has been opened very satisfactorily.

PARIS.

Two new schools were opened, some months ago, by the Society for the Professional Instruction of Females, at the Rue du Val Sainte Catherine and the Rue Rochechouart; and so far as they have gone they have been a complete success, especially in the wood-engraving branch, which is eminently adapted for female students, as they can work at their homes without interfering with their domestic duties. The school in the Rue Rochechouart was opened last October, and at the end of six months counted thirty scholars. M. Isaac Pereire has liberally come forward in aid of the above Society, and M. Alexis Godillot, the celebrated manufacturer, has decided upon paying half the expenses of any of the children of his numerous workmen sent to these classes. The payment is 10 francs a month (not quite 5*l*. a year), and the general course of instruction comprises morality, French language, arithmetic, history, geography, applied sciences, writing, drawing, &c. There are four special courses,—commercial, industrial drawing, wood-engraving, and the making up of clothes and linen. These schools are the germs of future establishments, the want of which is daily manifested with increased energy among the labouring classes.

The neighbourhood of Saint-Antoine and the ancient valley of Fecamp in the Faubourg Saint Antoine is undergoing a complete transformation by the opening of new thoroughfares, and a circular place is being formed in the Rue Rambouillet, from which several new streets will radiate. On this spot, in 1465, was signed the treaty of peace putting an end to the *ligue du Bien public*, and in which Louis XI. skillfully evaded the onerous conditions imposed upon him. This ground was for a long time afterwards known by the name of Le Champ des Trahisons; and in 1562 were found the remains of a cross, with the date

MCCCLXV. marked thereon, recording the above event, and invoking, by an inscription, a malediction upon the authors of the treaty.

The works for the further development of the arterial drainage are continued actively during this season. At the Butte Montmartre the sewerage is being carried as far as the top of the hill by the Rue du Vieux Chemin, where it lies at a depth of 24 ft. 4 in. below the surface. The drainage of the northern slopes of Montmartre will be collected by the main sewer of the great collector of Anières, beyond the Boulevard Malesherbes. Meanwhile, operations of another nature are being carried on to improve the aspect of Montmartre by filling with earthworks and new thoroughfares the ancient quarries which have, since the commencement of the seventeenth century, furnished so much stone and plaster to the capital. Hence the name of Ville Blanche given to the Marais quarter, which was built with stone from these quarries. New sewers have been laid down in the Rue de Balaguy and the ancient Chemin des Beufs, and the Chemin des Epinettes is about to undergo the same alteration. There remain yet in the outskirts of the capital in this quarter a few open drains or sewers, but they are soon to give place to the extended system of sewerage now in progress.

IMPROVEMENTS AT SYDNEY, NEW SOUTH WALES.

Two blocks of buildings are about to be erected in the most central part of Pitt-street. Adjacent to the Union Bank of Australia four spacious warehouses have been commenced, after the designs of Mr. T. Rowe. On the opposite side of the street, adjoining Mort's buildings, the foundations are being excavated for the erection of three lofty houses with shops for Mr. H. Bell. The masonry will be carried out by Mr. M. Credie, and the interior fittings by Mr. Dyer; the architect being Mr. Munro. At Darlinghurst Gaol, the four watch towers for the use of the warders are nearly completed, the masonry having been prepared by the prisoners. Competitive designs for the enlargement of the Congregational church in Pitt-street having been invited from some of the Sydney architects, that of Mr. G. A. Mansfield has been selected. The estimated cost of the enlargement is 6,000*l*. A contract was recently taken by Messrs. Love-ridge for a stone tunnel for the sewerage of Woolloomooloo Bay. Plans are being prepared by the city engineer for covering the new market ground at the Haymarket. Under the colonial architect's department contracts have been taken for an additional wing to the Tarban Creek Lunatic Asylum, for a look-up at Ashford, and for additions to the court-houses at East Maitland, at Bathurst, and at Braidwood, and to the police-station at Urara. At Wollongong, the masonry of the new basin is nearly finished, and the outside wharfs will be completed in about a month. The harbour works at Kiama have been temporarily stopped in consequence of a dispute between the contractor and the Government.

ALOE WOOD.

This is the common name for the wood of a large Eastern tree, a native of the mountainous districts of Cochin China and the East Indian islands. It belongs to the family of pod-bearers, and amongst its other members may be mentioned the indigo plant of commerce, liquorice, earth-nut, manna, tamarind, cassia, and the gum-bearing acacias, not forgetting the peas and beans of our gardens. Aloe-wood, or *Alceylon agallachum*, is also known under the name of lign. aloes and calambac wood: its popular name of aloe-wood is evidently derived from the scientific name of the genus, and is in no way connected with the true aloes, which are succulent plants. It is said to attain a height of 60 ft., and to contain more resin than any other known wood; it is extremely inflammable and highly aromatic; of little weight and very porous; the interstices being filled with a sweet-scented resin. It is held in high estimation in the East on account of its perfume and medicinal properties, and is occasionally used in the higher class of manufactures. In ancient times it was burned by various Eastern peoples in their religious observances: many poetical legends are extant, regarding this tree and its origin, that are of extreme interest.

W. G. S.

LABOUR SAVED, BOTH TO MAN AND HORSE.

SIR,—While we admire the buildings and monuments, in your publication, do we not often forget the unnecessary labour, both of man and horse, in their erection? You will ask, how can this be diminished? I answer, first, by laying down a granite tramway (not raised) for the transit of the heavy materials, Mr. Jessop having proved that one horse on the Darlington rail drew twelve tons three miles an hour, and that one gig-horse drew forty-two people eight miles an hour. Next, a carriage which would convey the men to and from their work, propelled by themselves. I have tried it with success, even on a common road. Lay a platform on the axle (perhaps bent) of a pair of wheels, with a smaller guide-wheel in front, and a broad step behind: let two arms open like a pair of compasses from the axle near each wheel, and from the two arms let two legs press the ground together, or alternately, the arms being pulled down by ropes from a cross-bar. To impede it down-hill, there are many ways: perhaps 5 or 6 inches of gravel or sand may suffice.

NEMO.

WATER FOR LONDON.

SIR,—Is it impossible to effect an amalgamation of the water companies in the metropolis so that they may jointly obtain Parliamentary powers to procure the requisite increased supply of water from the Severn? The town of Chesham is proposing to make use of the same source.

J. W. H.

"METALLIC CEILINGS."

SUCH a material as that quoted from *Ryland's Circular* in the current number of the *Builder* would make our living-rooms unwholesome, and be to public buildings, churches, &c., the worst possible description of ceiling, it being of great importance, in a changeable and humid climate like our own, to provide a certain and a large amount of absorbing or breathing surface in rooms. Witness the bad effects where the walls are painted and woodwork varnished: moisture may be seen trickling down them, and for this reason oil-painted ceilings are objectionable. Plastering, if properly done, and the coats laid at proper intervals, will never crack objectionably: the whitening fills up all the fine pores, and gives texture, which it seems the object of modern improvements to ignore. For decoration the new material offers no advantage over plaster, the treatment of which may be very much improved. Mr. Norman Shaw opportunely shows (No. 397, Architectural Exhibition) a very suggestive revival carried out by him of an old method of plaster decoration, something similar to which, in a primitive way, may now be seen on vineyard walls in Tuscany.

THOMAS H. WATSON.

SHOE-TIES AND BOOT-LACES DANGEROUS TO THE WORKING CLASSES.

It is a pity that the revolution of fashion has put away the usage of buckles as fastenings for boots or shoes amongst our working population, because neither a boot-lace nor a shoe-tie is so much to be depended on.

In a social point of view the boot-lace is a ruinous loss to the house-wife who has a large family, and her hand is never out of her pocket to supply it. People in a higher position can scarcely form any idea of the yearly expenditure of poor families alone for these frail unserviceable cords, or strips of leather. Nor is this the only point in which they are to be condemned; for (quietly be it spoken) they have been the fruits of many a "corner's inquest." In the ship-yards they are guilty, as elsewhere, of tripping little rivet-boys, as well as men, into eternity.

But this is not the only argument against their usage. You must count uncomfortable journeys, and the slovenly swings of the loose lace painting your polished boot with mire every stride, until, probably, some friend calls your attention to it. You must have sprained ankles, stockings holed, and awkward gait, to be the result. Ask the workman how many inconveniences he has had from them,—how many heart-palpitations races he has had through their use to catch the workshop gates open at six o'clock in the morn-

ing,—how many quarter days he has lost. Ask the workmen how many oaths they have sworn while their patience has been strained and tampered with by laces cracking at every twitch, and having them to do and undo; and then, after all, to be accommodated. The boot-lace, or shoe-lace, is one of the greatest of pests they have to deal with; and, therefore, one cannot but think that the sooner the old-fashioned buckle (somewhat modernised) is adopted the better. The tradesman of the future, then, who rescues the *British workman* from the slavery of such dangerous shoe-fastenings as have been commented on, is worthy of all the patronage that will ensure his permanent respectability.

ALEXANDER HAY.

DE TURRIBUS.

SIR,—It is now six years since I wrote upon this subject, under the head of "Notes on Towers;" and, as so many bell-towers have lately been and are being erected, intended to contain peals of bells, or large bells, it may be as well to say a few more words upon the subject, particularly as we often see structures of this kind erected only with a view to architectural effect.

Before I say anything with regard to the building of new towers, I must make an observation or two upon furnishing with bells those already built.

If a church-tower be of a certain internal capacity, and the walls ever so thin, and the foundation ever so bad, perhaps Mr. Green, the churchwarden, at the instigation of Mr. Nottoblaime, the brass-founder, without consulting an architect, will get on the right side of Sir Good-natured Fool to supply funds and hang in the flimsy structure before mentioned a set of bells which will have the ultimate effect of involving both tower and church in ruin. Nothing of this kind should be attempted without the advice of an architect versed in these matters. I once heard of a person who had hung three bells in a chapel tower offering to hang six in the tower of the parish church, the walls of which were 14 in. thick, the quality of brickwork rendered invisible with compe, and the foundations probably like those of a common house.

Though it is my opinion that one good-sized bell of 4 or 5 tons has a much better effect, especially in a large city, than a peal; though this may be my private opinion as a matter of taste; and though bells of this size are not generally raised, and are consequently safer; there are many at the present day who cannot endure the thought of being summoned to church by the sound of less than at least five bells; and it is therefore as well to consider how a tower for this purpose can be constructed.

I noticed that (vol. xvi. p. 260) the towers in Suffolk were built without diminution of diameter towards the top; and this being the case I am not surprised that so many of them are totally in ruins, simply from bell-ringing and bad construction. Here are a fraction of their number: Whitton, East Bergholt, Trimley, Flemp-ton, Westleigh (rebuilt since), Bradfield Com-bust, Thurston (rebuilt immediately), Sutton.

For the foundations, if the soil be faulty or of plastic clay, or abounding in springs, by all means give up your bells in favour of some other luxury, such as stained glass, pictures, or sculpture; but if, on the other hand, the ground is solid and regular, it will do no harm to dig down to a depth equal to half the width of the tower if concrete is required; but if no concrete is wanted, considerably less. Then upon the concrete or natural bottom lay 6-in. York landings in two or three courses, according to size of proposed superstructure.

To get the outline of the tower in elevation: describe a circle about the outer line of its plan, and make this circle the base of a cone four or five times the height of the tower. Through one side of the line of plan project a plane, cutting the cone parabolically. The parabolic curves thus found will serve as the outlines of the tower in elevation. A tower thus constructed will be much stronger than a straight-sided one, and will not have the same top-heavy appearance.

A tower of parabolic outline exists in London in connexion with that hideous structure White-chapel Church; a church, by the way, standing on a site which ought to be occupied (and might be) by a most magnificent structure. For it is the best site, notwithstanding the inferior class of houses surrounding it, in any part of London, to show off a good building.

There is another at Hendon; and the old and lower part of St. Clement Danes tower is thus constructed; also the new tower at Kirstead, in Norfolk. Mr. Christian's tower, in Nutford-place, is also diminished slightly towards the upper part.

There should be an offset to support the ringing floor and the bell floor, so that no timber be run into the wall to act as battering-rams. Neither should a bell be hung on cross-beams resting on the walls, but always in a trussed cage. To get the thickness of the upper walls let diameter of tower at bell-floor = a , then $\sqrt{\frac{a^2}{2}}$ = internal dia-

meter, and $a - \sqrt{\frac{a^2}{2}}$ = thickness of two opposite walls.

There should be as many ringing bells as can hang upon one level. If there is too much space their sound is lost before it comes forth, as at St. Alban's, Trinity, Paddington, and Bury St. Edmunds. If they are hung in two tiers in one story it impairs the sound.

Sir Christopher Wren's towers, and those built immediately after his time, are well worthy of study: though Italian in detail, they resemble in their plans some of the Mediæval Gothic specimens on the Continent.

W. SCARGILL.

CHURCH-BUILDING NEWS.

Cirencester.—The augmentation of funds since the recent meeting in February last, although far short of the required 12,000*l.*, approximates to an amount which has enabled the committee to give instructions to Mr. G. G. Scott for proceeding with the church works as soon as the tenders shall be received from proposed contractors. The sum promised and paid, including interest, together with the first portion of the grant from the Warneford Ecclesiastical Charity, amounts to 9,650*l.* The committee have recommended that the contracts shall be undertaken in such a form, as that tradesmen in Cirencester may have an opportunity of tendering for portions in detail, according to their business, as glass, lead, iron-work, &c. The churchwardens will, in course of time, dispose of materials and internal fittings, which consist of oak-panelling, gas standards, and other available articles.

Frome.—Another portion of the work of restoring the parish church has just been completed, namely, the south porch, which has been entirely rebuilt. Over the arch, which is carved, is sculptured the emblematic lamb and banner; and over the inner arch is a triptych filled with sculpture representing St. John and St. Peter "going up together to the Temple at the hour of prayer." The sculpture is the work of Mr. Ezard, of Bath.

Liverpool.—The foundation stone of a church, to be called the Church of St. Mark the Evangelist, the fifth district church in the parish of Beblington, has been laid near the river at New Ferry. The building, of which Mr. Edward Haycock, jun., of Shrewsbury, is the architect, will be Gothic in style, and consist of a nave, north and south aisles, chancel, chancel-aisle, vestry, porch, and bell-turret. It is to be built of Transmere stone, with Storeton dressings; and will contain open-seat accommodation for 450 adults and 100 children. The contractor is Mr. R. Lloyd, of Shrewsbury, who hopes to complete the building by the end of the present year; and the cost will be about 2,500*l.*

Bury (Lancashire).—The Bishop of Manchester has consecrated a church dedicated to the Holy Trinity, which has been erected in this town. The site is in Spring-street, and is the gift of the Earl of Derby, who has also subscribed 1,000*l.* towards the endowment fund. About 5,000*l.* have already been expended on the building, and the entire sum has been obtained by voluntary subscriptions. The church has been erected from plans by Mr. Paley, of Lancaster, architect. The style is Early Gothic, and comprises a north aisle and nave with chancel, to which is yet to be added an ante-chapel, another aisle, and also a tower and spire. The arches are constructed of red and blue bricks, and the windows are filled with geometrical tracery. The church will accommodate upwards of 600 persons, all free. The building is not yet completed.

Hamer (Manchester).—The corner stone of the proposed new church of All Saints, Hamer, has been laid. It is to be built on a site adjoining

the grounds of Mr. Entwistle, of Foxholes, by whom the ground is presented. The rapid fall of the ground on the south and west will add to the effectiveness of the building. The plan of the church consists of a rectangular chancel, having north and south aisles, the former of which, under a lean-to roof, will contain the organ; and the latter, gabled towards the east, is arranged for vestries for the clergy and choristers. A lofty arch, springing from corbelled marble columns, marks the division between chancel and nave: the latter is of six bays, with north and south aisles, the pillars supporting the arcades of which have carved and flowered capitals of white stone, and cylindrical shafts of red sandstone. At the south-west corner of the south aisle is the steeple, the basement of which forms a porch, and is the chief entrance to the church. From the south aisle projects a double transept, equal to two nave bays in length, and with a porch and double doorway for the use of the school children, whose seats are here. The chancel rises two steps from the nave, the sacristy two steps more, and the Lord's table stands upon a foot pace. The style is Early Decorated. The spire will rise to a total height of 133 ft. from the ground. The belfry is adapted to receive a full octave of bells, with about a 14-cwt. tenor. On the south face of the tower, in its lowest stage, is a shallow open porch, with moulded, enriched, and shafted archway, through which the tower porch is entered. There is a large west window of four lights, and an eastern window of five lights. The aisle windows are of two and three lights, and the clerestorial lights are circular and cusped. From the south chancel wall rises the chimney, not disguised. The church will be of stone, and altogether there will be eight or nine kinds employed. The roofs will be slated, with coloured bands, and the ridges finished with ornamental cresting. There will be seats for about 650 persons in open benches. The contracts have been taken by Mr. W. Leach, for the masonry; J. Dawson, for the joiner's work; W. H. Best & Brother, for the plastering and painting; G. Kirkley, for the slating; and J. Kershaw, for the remaining trades. The architect is Mr. J. M. Taylor, of Manchester.

York.—A new church has been erected in the grounds adjoining the Lunatic Asylum in Bootham, for the use of the patients in that establishment. It has been erected at the sole charge of the asylum authorities, the cost amounting to about 1,500*l.* The architect for the church was Mr. Rawlins Gould, and it has been built for the accommodation of 200. The building, which is in the Geometrical style, is 72 ft. long, 22 ft. broad, and 19 ft. high to the wall-plate, above which is a perforated frieze. There is an open timber roof, covered with green and blue slates, which are surmounted by ornamental iron cresting. A spire, about 66 ft. high, rises from the south-west corner of the building, the dressings of which are of Ancaster stone, and the walling is composed of stone from Bradford. There is a transept on the south side, and a vestry on the north side. The entrance to the church is by the west end. The fittings are of oak, and the seats are surmounted by carved poppy-heads supplied by Mr. Shepherd, carver. The stone carving was done by Mr. Hessay. In winter the church will be heated by an apparatus supplied by Mr. Longbottom, of Leeds. The following were the contractors for the work:—Messrs. Bowman & Co., the builders; Mr. Franklin supplied the iron-work; Mr. W. Ellis was the slater; Mr. W. Hartley the plumber; Mr. F. Bawling the plasterer; and Mr. R. Pearson the painter. The two acres of ground on which the church stands are being laid out as a pleasure-ground for the patients.

Welburn.—St. John's Church, Welburn, which was built several years ago by the late Earl of Carlisle, in memory of his mother, has been consecrated by the Archbishop of York. The church was built from a design by Messrs. Mallinson & Healey, of Bradford, and is in the decorated style of the fourteenth century. The church is dedicated to St. John, and stands in a very conspicuous position on a knoll to the south of the village, and in full view of the mansion of the Howards.

SCHOOL-BUILDING NEWS.

Norwich.—A new parish school in St. Peter's Mountgate has been opened. Last year, a piece of ground adjoining the church, on the north side, was purchased of the Town Council

for 300l., as the site for the school, the building of which was commenced by the contractor, Mr. Fyson, in the following September. The structure, of red brick, and designed by Mr. R. Kition, is oblong in form, and Elizabethan in style. It will accommodate 200 children, and is lighted by windows at the east and west ends, and on the south side. The window facings are of red brick. The total cost of the work, including site, fittings, &c., is 1,000l.

Deftford (Newcastle-upon-Tyne).—New parochial schools have been opened at Deftford. Messrs. Austin & Johnson, of Newcastle, were the architects for the building, which is situated in Neville-street, not far from the church. The schools, which are on one flat, under the same roof, are capable of accommodating about 400 children. The entire cost of the building is 1,883l. 5s. 6d.; value of land, 453l. 2s. 7d.; making a total of 2,336l. 8s. 1d. Mr. J. H. Aylmer gave a site for the schools, which was subsequently sold to the North-Eastern Railway Company at a profit of about 510l.

Higher Crumpsall.—A new school and lecture-room have been recently erected in St. Mary's-road, and opened. The room is intended to serve as a Sunday-school in connexion with St. Mary's Church, and also as a lecture-room for the working classes, and for tea parties and public meetings. It is a plain Gothic structure, placed in the centre of an open space of ground. Its cost has been 470l., and it will accommodate about 250 children.

Books Received.

A Manual of Gothic Mouldings, with Directions for Copying them and for Determining their Dates. By F. A. Paley, M.A. Third edition. With additions by W. M. Fawcett, M.A. London: Van Voorst. 1865.

MR. FAWCETT has added a number of woodcuts, by way of additional illustration, to Mr. Paley's well-known and useful little volume, and given such further explanations as seemed desirable to render parts clear. The necessity for using what is called "correct mouldings," mouldings exactly like those employed at the different periods of Gothic architecture, seems urged in the book; and if the object be to produce an exact imitation of a building of the twelfth, thirteenth, or other century, this advice may still be dwelt on. This, however, was not the course pursued by the men who erected these buildings, as the author shows by a quotation from the "Analysia." In completing or altering buildings at a later date, even if the style were occasionally imitated, the mouldings were always worked in conformity with the system prevalent at the time, and thus the actual date of the erection is marked.

It is, nevertheless, desirable that the peculiarities of the mouldings of the different styles should be thoroughly understood; and, towards that end the book before us will be found a great assistance.

The Early English Organ Builders and their Works. By E. F. Rimbault, LL.D. London: Whittingham.

AN "unwritten chapter on the history of the organ" by the Musical Examiner of the Royal College of Preceptors cannot but be interesting to all who love music. This volume comprises a lecture delivered before the College of Organists in November last; and it treats of the history of the noblest of instruments from the fifteenth century to the period of the Great Rebellion,—a new field of inquiry, and of more than archaeological interest.

A Dictionary of Science, Literature, and Art. Edited by W. T. Brande, D.C.L., and the Rev. Geo. W. Cox, M.A. London: Longman, Green, & Co. Parts I. & II.

BRANDE'S Dictionary, excellent when first published, has fallen behind the age, which has been going fast for four-and-twenty years. Since that event, the owners have wisely determined on a new edition, revised and added to throughout, and Parts I. and II. already published show that this will be well done. A long list of contributors to the new edition is given, but it is scarcely fair, perhaps, to omit the names of the original writers. For example, "Architecture" stands in the present edition against the name of the Rev. G. W. Cox; but the article under that special title is, in truth, Gwilt's article, though

revised. The exact state of the case, however, will doubtless be explained in the work.

The Dictionary will be completed in twelve monthly parts, forming three volumes. A more legible type than that used in the first edition is adopted, and the titles are made very prominent.

VARIORUM.

"A Descriptive Catalogue of the Geological, Mining, and Metallurgical Models in the Museum of Practical Geology," by Hilary Banerman, F.G.S. London: printed by Eyro & Spottiswoode. 1865. The skill with which this instructive catalogue has been prepared is endorsed by Sir Roderick Murchison, director of the Museum. It contains descriptions of numerous models, as of boring machinery, cranes, pumping-engines, &c., as well as of geological strata, and other useful matter.—"London Society" for May contains a very good portrait of William Paterson, of Dumfries, the founder of the Bank of England, from a pen-and-ink drawing in the British Museum, together with a memoir, forming a portion of the series of chapters on the Merchant Princes of England.—"The Churchman's Family Magazine," May number, has a paper on "Christian Art in Sculpture," besides the Churchman's usual mental provender. The March and April parts of "Cassell's Illustrated Family Paper" contain a great deal of useful and entertaining matter, with engravings, which are often surprisingly good for a penny periodical. Cassell's paper, we are inclined to think is not only superior in itself to most of the other penny papers, but has been the means of improving them, at least in respect to engravings, which had degenerated into scratchings of a horrid description, such as even now, not seldom disgrace and must damage even a penny periodical.—Notwithstanding the invariable difficulties attending first numbers, the first of the *Shilling Magazine*, produced under the editorship of Mr. Samuel Lucas, is a fairly good one, including contributions by Mr. Stirling, Keir, Mr. W. J. Thoms, Mr. R. Bell, Mr. Edwin Arnold, and others. Mr. Tom Taylor, in an article on "The Pictures of 1865" (too wide a title), speaks of Mr. Ford Madox Brown and Mr. Holman Hunt, and weighs with candour the characteristics of these artists, condemning in them a deficient sense of beauty, some harshness, and proneness to excess of labour in details, while applauding the conscientiousness of their work, their earnestness, and rejection of dead conventionalities:—

"The school of painting," says the writer, "to which Mr. Holman Hunt and Mr. Ford Madox Brown belong has done much to bring these great life-giving influences to bear upon English art. They have asserted the need and nobility of zealous labour from nature, the dignity of fact, the necessity of the painter's looking at things for himself, and his right to bring Art to the standard of truth. They have revived landscape-painting, and given a new interest to the representation of incident. But, like all young proselytisers, they have rushed from one extreme to another; have pushed truths so far that they become, in their turn, errors; have strained their eyes on in gaining one kind of light, that they have become blind when turned to other objects. Even the sun of truth may blind us if we do not use the proper media for its contemplation, 'smoked' glass, if need be."

—In the current number of *Fraser*, on the other hand, is found a paper on Mr. Madox Brown's exhibition, by Mr. W. M. Rossetti, wholly laudatory and without qualification.—Mr. W. F. Watson has printed a "Catalogue of original drawings, engravings, &c., selected from his private collection," for the inspection of the members of the Architectural Institute of Scotland, at his private residence on a recent occasion. The general subject is indicated as being "Edinburgh: its Houses and its noted Inhabitants." The selections, says Mr. Watson, "are from the portfolios of a general series of contemporary and other portraits; original manuscripts, letters, and documents; prints, drawings, and printed papers, mounted on sheets of Bristol board of three sizes, demy, folio, and imperial, grouped or otherwise, thereby attempting to display a man's likeness, birthplace, and tomb; his writing, drawing, or etching; his calling card, book-plate, or coat of arms; the advertisement of his works; the proposal for publishing, or title-page of his book; the intimation of his death, or invitation to his funeral; or, it may be, ticket for his trial or speech at his execution." Mr. Watson's collection must now be an exceedingly valuable and curious one, being the result, if we mistake not, of the continued accumulations of at least more than a quarter of a century, made by one who possesses both the knowledge and the opportunity requisite for making such a collection.

RECENT PATENTS CONNECTED WITH BUILDING.*

APPARATUS USED TO REGULATE THE SUPPLY OF WATER TO WATER-CLOSETS, WASH-HAND BASINS, AND URINALS.—F. G. Underhay & C. Heyworth, jun. Dated 19th August, 1864.—For the purposes of this invention a vessel, by preference a cylindrical vessel, is used, which is closed at the bottom, within which vessel another vessel of smaller dimensions and closed at the top, works readily up and down. Around and near the lower part of the inner vessel is a cupped leather, or other suitable flexible material, the lower edge of which cupped material descends into oil or lubricating fluid at the bottom of the outer vessel each time the inner vessel is caused to descend, by which the interior of the outer vessel is lubricated each time the inner vessel is raised. At the upper part of the inner vessel an air-cock or valve is applied, the passage through which is capable of being regulated according to the time during which it may be desired the inner vessel should take in descending. The outer vessel is fixed in any convenient position, and the inner vessel is connected to the lever or other instrument of a water-closet, which acts on the water-supply cock or valve in such a manner that, when the lever or instrument is acted on, it moves the inner vessel above mentioned, which it can readily do by reason of the cupped leather or other cupped flexible material giving way and acting as a valve, while, in its return, the pressure of the air keeps its outer edge against the interior surface of the outer vessel. By this arrangement there is no induction air-valve other than the cupped flexible material around the inner vessel required. This arrangement of apparatus, when applied to a wash-hand basin or urinal, is similarly to be connected with the lever or instrument acting on the cock or valve by which water is supplied, and the weight or spring acting to close the same will be retarded by the regulating apparatus.

MACHINERY FOR DRIVING DRIFTS OR GALLERIES THROUGH STONE OR ROCK.—F. E. B. Beaumont. Dated 30th July, 1864.—For the purposes of this invention the patentee employs a series of chisels or jumpers worked so as to produce a continuous chase or groove, not a number of holes. The chisels or jumpers act to cut the stone or rock by striking it with blows, which are rapidly and continually repeated, and they are made to cut a continuous chase or groove by causing them each to take short steps forward in the intervals between the blows. He prefers to employ a strong disc with the chisels or jumpers fixed around its periphery at equal distances apart: this disc is mounted on a strong axis, which is carried in bearings on a base plate or carriage in such manner as to be able to slide longitudinally, and also to rotate. The longitudinal sliding motion is conveniently given to the axis by a cylinder and piston worked by compressed air, or by water, and in this manner the disc (with its chisels or jumpers) is made to move to and from the face of the stone or rock in which the chase or groove is to be cut, and the chisels or jumpers strike the stone or rock at each stroke. It is convenient to make the cylinder itself the axis of the disc, and to work it in conjunction with a stationary piston fixed to the frame. The slow rotary motion is given to the disc and cutters in any convenient manner; it may be by having a groove on the axis, into which there enters a stud capable of being slowly traversed around the centre of motion.

MANUFACTURE OF GLAZES OR ENAMELS FOR POTTERY WARE.—J. H. Johnson. A communication. Dated 2nd August, 1864.—This invention relates to the manufacture of certain glazes or enamels suitable for pottery ware of all kinds, which glazes or enamels are perfectly innocuous, both to the user and to the manufacturer, by reason of the entire absence in their composition of all deleterious or poisonous metallic oxides so objectionable in the glazes or enamels ordinarily employed, while at the same time their cost is not augmented. In carrying out this invention for the manufacture of glazes or enamels which are to be applied to the articles of pottery ware by the ordinary process of dipping, two successive operations or processes are employed. The first process consists in the preparation of a frit, and the second in effecting the intimate admixture of this frit in proper proportions with clay of a peculiar composition.

* Selected from the *Engineer's* Lists.

Miscellaneous.

BRISTOL ARCHITECTURAL SOCIETY.—"The Architecture of Towns" formed the subject of a lecture read by Mr. J. Hine, of Plymouth, at the meeting of the Bristol Society of Architects, on the 3rd instant, and this meeting brought the Society's present session to a close.

ROYAL ITALIAN OPERA.—"L'Etoile du Nord" has been given with considerable success; Madame Van den Heuvel (better known as Caroline Duprez) singing the part of *Caterina*, if not powerfully, very pleasantly. Signor Atrii is the *Pietro*, and acts the part better than he sings. The "getting-up" of the opera is beyond all criticism.

BUILDING OPERATIONS IN LEWES.—The pasture field to the left as you walk down Rotten-row, is about to be absorbed by the builders, who have already laid the foundations for several residences, which will apparently present "villa" characteristics. The growth of the Sussex town of Lewes has been very palpable during the past ten years, a better class of houses having been erected according as the demand for modern dwellings has increased with the prosperity of the town.

UTILIZATION OF SEWAGE.—The experiments carried on at Moor's Farm have been most successful. The grass of the acre first irrigated by Mr. Nicholls is in a luxuriant condition, being in most parts 18 in. high, with a thick bottom growth. That portion of the acreage recently irrigated shows a corresponding increase, while half an acre left untouched is almost barren. The cattle show a decided preference for the grass on the irrigated land.—*Cheltenham Times*.

OPENING OF BOGNOR PIER.—The ceremony of opening the pier which has recently been completed at the improving watering-place of Bognor has just taken place. Since its connexion with the London, Brighton, and South Coast Railway it has greatly increased in importance. Mr. J. W. Wilson, of London, engineer, devised the form which the pier should take, and the work was placed in the hands of Mr. Dowson. The first pile was fixed in the month of April, 1864. The pier is constructed on the screw principle, and is mainly of iron. It is 1,000 ft. long; the head is 40 ft. across; and the width of the deck is 18 ft., and its height above high-water mark about 12 ft.

BRICK-KILNS IN LIVERPOOL.—At the local health committee's usual weekly meeting, among the notices reported as served was one on Messrs. George Thomson & Co., in reference to a brick-kiln in Bootle-lane, just beside the Industrial Schools, on the ground that it was injurious to public health. Notice was given that proceedings would be taken if the kiln were used. Dr. French said he had in no instance taken action where the kilns were not prejudicial to health. The only question was within 4 yards of a public thoroughfare, and even horses passing by might be frightened by the smoke. Mr. Jeffery said, the inhabitants around were under the impression that they had no control over these kilns, and it was under that impression that they had suffered them to remain there. Alderman Dover said he had been told, that in some parts of London the burning of bricks was prohibited altogether. The engineer stated that this was only where it was injurious to health.

NEW EXPERIMENTS WITH MAGNESIUM.—In experimenting with this new metal Mr. J. N. Hearder, of Plymouth, is said to have discovered some explosive compounds of tremendous power and striking peculiarities. He ignited a small portion (about 20 grains) of one of these compounds during a lecture which he gave at the Plymouth Mechanics' Institute, the instantaneous and dazzling effect of which upon the audience was like that of a flash of lightning. On causing two bars of magnesium to form the terminals of a powerful voltaic battery, a most intense combustion ensued: one of the bars speedily became red hot, entered into ebullition, and then burst so furiously that it became necessary to plunge it into water to prevent its falling on the platform. In this process portions of the burning metal detached themselves, and floated blazing on the surface of the water, decomposing it after the manner of potassium, and liberating hydrogen, which also burned.

THE LIVERPOOL BOROUGH ENGINEER'S SALARY.—An increase of Mr. Newland's salary to 1,300*l.* per annum has been agreed to.

MONUMENT TO RAFFAELLE.—The eldest son of Victor Emmanuel has accepted the honorary presidency of a committee formed for the purpose of erecting a monument to this great artist in the city of his birth, Urbino.

ENGLISH COMMISSION FOR THE UNIVERSAL EXHIBITION IN FRANCE.—Her Majesty has nominated a commission to act for England in connexion with the French Universal Exhibition. The Prince of Wales is President. Lord Granville, several peers and gentlemen, with the presidents of artistic and commercial bodies, are appointed. Mr. Henry Cole will act as secretary.

WALL DECORATIONS, SOUTH KENSINGTON.—It will be remembered that the Department of Art have invited designs in competition for a picture illustrative of workmanship in any decorative art, to be afterwards enlarged, and executed in mosaic. Three artists were each to receive a special fee for their design, the competition beyond that being open to all. The three artists who have undertaken to submit designs under these terms, are Mr. F. Leighton, Mr. Eyre Crowe, and Mr. Marks. Mr. E. M. Ward, Mr. Holmes Hunt, and some other leading artists have undertaken to paint each a figure of an artist for execution in mosaic for the panels in the courts.

JUNIOR ATHENÆUM CLUB.—It is understood that the committee of this club will continue to elect original members, with an entrance fee of twenty guineas, to the 5th of July next, when the list of original members will be closed. We are glad to hear of its steady progress. We are told of a movement to form a new artistic club. Such a scheme could not be better carried out than by junction, if it could be arranged, with the club we are speaking of, the Junior Athenæum having already a body of carefully-selected members attached to art and literature.

CRYSTAL PALACE.—The advantages offered to purchasers of the new guinea season ticket are such as will probably induce a large sale. What with Ten Opera Concerts, comprising the entire artistes of the Royal Italian Opera, and her Majesty's Theatre; the Great Flower Show of the Season in May, the Rose Show, the German Gymnastic Fête, the Dramatic College Fête, the Archery Fêtes, with a Grand Pyrotechnic display, and many other great gatherings, including the Winter Saturday Concerts, of which last year there were twenty-six, and some advantage as to the Handel Festival, there will certainly be plenty for the money.

THE INAUGURATION OF THE BREST RAILWAY.—On the 25th ult. the Brest Railway, opened for the last two years as far as Guincamp, added another length of communication to the lines of Brittany. One of the most important works of this line is the Gouet Viaduct, 249 yards long and 187 ft. high, built of semicircular arches, 49 ft. 2½ in. span. The cost did not exceed 120,000*l.*, which was defrayed by the State, who undertook the earth works and masonry of the line from Rennes to Brest, leaving the company of L'Ouest to lay the permanent way and build the stations. A banquet followed the ceremony of opening the line. Thus Brittany has been brought within the pale of railway civilization. The immense works of the Port Napoleon, at Brest, are carried on actively, and for which the town has engaged itself to pay to the State the sum of four million francs (160,000*l.*).

THE NEW SURREY THEATRE.—The foundation stone of the New Surrey Theatre was laid on Saturday last in the presence of a large concourse of persons, including Mr. W. Early (the clerk of the works), Mr. Bilborough (the foreman to Mr. Wilson, the builder, of Whitefriars), and others. Mr. Albert Harris laid the first brick of the side wall next the Equestrian Tavern, and other gentlemen also laid bricks in commemoration of the event. The new theatre will differ materially from the old one, inasmuch as it will occupy a far greater space of ground. What was considered waste land at the back of the stage will be thrown into the building, and the boxes, pit, and gallery will be constructed in a new form. The entrances and the means of exit will, it is said, be well considered. It is expected that the theatre will be finished in about five months.

THE PHOTOGRAPHIC SOCIETY.—The president and Council of the Photographic Society held their annual *soirée* on Monday evening last, May 8th, in the Architectural Galleries, Conduit-street. The rooms were crowded, and the evening passed off remarkably well.

THE RESTORATIONS AT MANCHESTER CATHEDRAL.—The hoarding recently placed on the south side of the cathedral, enclosing the three windows on the west of the chapter-house, and defining the extent of the Byrom chapel, denotes that this portion of the cathedral is about to be restored. Miss Atherton has undertaken the work at her sole cost. The Trafford chapel now alone awaits the hand of the restorer. Meanwhile the works at the tower are progressing, the style and dimensions of the east window, and the entrance porch, being observable.

PROPOSED ENLARGEMENT OF THE GENERAL HOSPITAL, BIRMINGHAM.—The board of governors have unanimously confirmed a resolution by the weekly board on this subject, and referred the matters in question back to that board to be carried into effect as speedily as possible. The resolution of the weekly board, which was also unanimous, is to the following effect:—"That it be recommended to the quarterly board to sanction the removal of the present fever wards, the conversion of the present out-patient department into wards, and the erection of a portion of the proposed east wing, consisting of a new out-patient department, two wards, and nurses' rooms, in Loveday-street, the whole at an estimated cost of about 5,800*l.* They further recommend that, if during the progress of the work the public generously supply the necessary funds, the whole of the proposed east wing, consisting of four wards, be erected instead of the two wards as suggested above, at an estimated further cost of 2,600*l.*

CRIMINAL RETURNS: METROPOLITAN POLICE.—These instructive returns, for 1864, have been printed and issued. The table of comparative statements shows an improvement in police practice since 1831, the first year here recorded. Thus, out of 72,824 persons taken into custody in 1831 no less than 48,026 were discharged by the magistrates, while in 1864 the number taken into custody was 65,827, and of these only 29,640 were discharged by the magistrates: while the number convicted and sentenced moreover, was 3,042 in 1864; only 1,932 were convicted and sentenced in 1831. The number acquitted in 1831 was 616, while in 1864 it was 557. In 1831 the number of cases summarily disposed of was 21,843; in 1864, 32,387. It thus appears that while fewer persons are now taken into custody by the police, more in number than formerly are convicted and sentenced, which goes to show that more discretion is exercised in depriving persons of their liberty, and more activity and skill displayed in bringing real criminals to justice; and that with less of reckless show in doing their work more really useful work is done.

ON FOOD AND WORK.—At the Royal Institution, after the Easter recess, Professor Lyon Playfair delivered a lecture "On the Food of Man in relation to his useful Work." In his treatment of the subject he considered almost entirely nitrogenous food, or that kind which produces flesh, on which he remarked the power to do work depends; and consisting of the lean part of flesh, of corn, beans, and peas; such food as fat and potatoes only tending to keep up the animal heat. The amount of work which a man could do in a day had been estimated to be equal to a force that, if properly applied, would raise the weight of his own body one mile—the standard weight of a man being assumed to be 150 lb. To enable him to do that amount of work he should eat 4½ ounces of nitrogenous food, in addition to food that produced only heat. A horse could do eight times as much work as a man, but it eats rather more than eight times the quantity of nitrogenous food in beans and corn. The lecturer alluded to the dynamical theory of heat, according to which heat and mechanical power may be converted into each other; but he did not explain why that theory does not apply to heat-producing food, such as fat and potatoes, which ought, he supposed, to have its dynamical effect. He mentioned, indeed, that the heat-producing food might probably contribute something towards the work done, but he considered it to be an insignificant portion, if any, and that the useful work of man is produced almost entirely by nitrogenous food.

THE PROPOSED MEMORIAL IN BIRMINGHAM TO JAMES WATT.—The local Watt Memorial Committee have resolved that the memorial to be erected shall take the form of a statue. The subscriptions already received amount to about 750*l*. Arrangements have been made for a canvass of the engineers, and also of the working classes, in support of the movement.

SHEFFIELD WATERWORKS AND THE INUNDATION.—The directors of the Sheffield Water Company have issued a circular, in which they state that the total amount claimed against the company for damage done by the flood was 455,164*l*.; and the amount of claims to be paid by the company, as determined under the Inundation Commission, was 276,821*l*., being little more than three-fifths of the amount claimed. The directors estimate that not more than 150,000*l*. will be required to meet those claims and the yet unpaid costs.

THE DWELLINGS OF THE POOR IN IRELAND.—A meeting has been held in Dublin, for the purpose of establishing a society, on the principle of limited liability, to improve the dwellings of the poor. At a meeting of the committee, held at the Mansion House, with a large and influential attendance, it was resolved, on the motion of the Lord Mayor, that a sub-committee be appointed to confer with the leading manufacturing firms in the city, and others employing many workpeople, for the purpose of ascertaining how far they would co-operate with the company about being formed. The sub-committee consists of the following gentlemen:—Alderman Hudson; Mr. Valentine O'B. O'Connor, D.L.; Mr. Maclean, T.C.; Mr. Georgehegan, O.B.; Mr. Norwood, T.C.; Mr. Byrne; and Mr. Nugent Robinson, hon. sec.

STRIKES AND LOCK-OUTS.—In the House of Lords, Lord St. Leonards has laid upon the table a Bill to establish councils of arbitration to settle disputes between workmen and employers. His lordship justified the proposed Bill by reference to the recent strikes in the iron manufacture in North Staffordshire. He thought that the mode of settling disputes between labourers and capitalists by strikes and lock-outs was a disgrace to what was called the civilization of the age. Three different committees of Parliament had reported in favour of courts of conciliation and arbitration; but past legislation establishing arbitration was inoperative, because the workmen did not like the modes of arbitration established by that legislation. The proposed Bill he did not intend to proceed with further than the first or second reading, because he thought it right to have it circulated. It provided for the establishment of courts of conciliation, by authority of the Crown, and to consist of not less than two or more than ten masters and men. It would also establish, on the model of the French law, a Bureau de Conciliation. The object would be to prevent strikes.

ACCIDENTS.—A serious accident, which resulted fatally to three men, has happened at a mill situate at Gaythorn between the Rochdale Canal and the viaduct of the South Junction and Altrincham Railway. Owing to the mill being considered unsafe by the city authorities, the premises required to be strengthened, and with that view six men were employed in erecting brick pillars in the basement for support of iron girders, over which arches were to be built. The part of the building where they had been employed, namely, towards the centre of the lower end of the mill, gave way, and fell in from the roof downwards. The crash carried away the whole of that portion of the building which connects the two main portions of the mill, and the whole materials of eight stories fell upon the unfortunate men, and buried them, killing three of them as already said.—For some time past a large engine-shed has been in course of construction at the Pontypool-road station of the Newport and Hereford (Great Western) Railway. The building was about 200 ft. in length, and constructed in three sections. The centre and left sections gave way, and fell, carrying with them every portion of the works, and burying many of the workmen in the ruins, two of whom were crushed to death, four seriously injured, and several others but slightly hurt. There were upwards of fifty labourers about the building, and the escape of some of them was marvellous. It is said to be believed that the accident arose through the iron pillars or supports not being placed exactly vertical, and the roofing in consequence slipped.

THE LOCAL GOVERNMENT ACT.—One of the largest and most important town meetings ever held in Frome has just resolved on adopting the Local Government Act of 1858. The vestry-room of the parish church was found totally inadequate for the purpose of accommodating the ratepayers, and an adjournment was made to the Court-hall. The resolution was ultimately carried by a majority of two to one. The number of commissioners was fixed at 15.—By a majority exceeding two-thirds of its members, the Town Council of Canterbury have decided to adopt the Local Government Act.

A FLOWERY TESTIMONIAL.—The friends of the East Grinstead Dispensary, for which Dr. Rogers has worked earnestly from the commencement, as well in establishing it as in carrying on its operations, subscribed something like sixty guineas, and presented it to him, to mark their sense of his arduous and voluntary labours on behalf of that charity. In acknowledging the receipt of the testimonial, Dr. Rogers said he had decided it should take the form of a conservatory, which to him was a constant source of pleasure and occupation for leisure hours. Thus he will never walk among his plants without recollecting how good opinion, at first backward, has grown; and seldom cut a flower without being reminded of the fragrance of good deeds.

PLANS OF TOWNS: CHESTER.—At a recent meeting of the town council of Chester it was resolved "that the offer of Messrs. Palin & Son to furnish the council with a block plan of the city, upon the scale of 40 ft. to an inch; two plans upon a scale of 3 chains to an inch; and three plans upon a scale of 6 chains to an inch, for the sum of 157*l*. 10*s*., be accepted." "The plan," said the mover of the resolution, "will show the projections in the streets and in the rows, all the gas and water mains,—in fact, everything desirable they should possess. It will give the boundary stones in the borough. Of several towns that have maps of the description, that for Derby cost 1,500*l*.; the one for Coventry, 890*l*.; Cambridge (which was done by contract), 650*l*.; Reading, in Berkshire, 900*l*.; Carlisle, 754*l*.; Wigan, 400*l*."

WEEK-NIGHT OPENING OF THE NATIONAL COLLECTIONS, &c.—The popularity of the movement for the week-night opening of the national collections, and the establishment of local museums, appears from the experience of the South London Committee on Museums. Petitions to Parliament have been sent, not only from inhabitants of the district, but from workmen of particular trades, such as builders, fire-engine constructors, engineers, floorcloth manufacturers, and others. Those forwarded, however, are not a tithe, it is said, of the number known to be in course of signature in the factories, workshops, and yards. Unanimous resolutions have been passed by twelve public meetings, attended by 4,174 persons, and petitions have been officially signed by the chairmen. Votes have been taken in eighteen societies, having 3,842 members, and the officers have, with the unanimous approval of the members, signed petitions on their behalf. Cordial and unreserved support has been given to the movement by persons whose lives have been passed in the voluntary service of the country. Foremost among these may be named Miss Florence Nightingale.

THE FIRST IRON SHIP.—An ironmaster, named John Wilkinson, writes to the *Kendal Mercury*, stating that he has found among the letters of his grandfather, James Stockdale, of Cork, one addressed to him on 14th July, 1787, by John Wilkinson, of Castlehead and Brosely, "the great ironmaster" of the time, in which he says,—"Yesterday week my iron boat was launched. It answers all my expectations, and has convinced the unbelievers—who were 999 in 1,000. It will be a nine days' wonder, and then be like Columbus's egg." The correspondent of the paper named, therefore thinks that John Wilkinson, and not Mr. Ramsden, was the inventor of iron ship-building. John Wilkinson was an eccentric man. In his garden grounds at Castlehead, for many years, he kept a large iron coffin to be ready for himself. It stood amongst the laurel trees near the house, along with many other smaller ones, which he took a delight in showing and offering to his friends gratis, to their utter horror and dismay. This coffin led to his being three times disinterred and four times buried.

TYPHUS AND OVERCROWDING.—A severe form of typhus fever has lately been very prevalent in several of the country districts in Malta. Its virulence has now abated; and, from a report made by order of the governor, it appears that it was due to overcrowding in ill-ventilated apartments.

TENDERS

For four houses and shops at Forest Gate, Essex, for Mr. Jarvis. Quantities supplied by Mr. F. Warburton Stent.

Rivett	£1,143 0 0
Fisher	1,075 0 0
Mortar	1,013 0 0
Hill & Keddell (accepted)	1,038 0 0

For alterations to the Town-hall, Huntingdon. Mr. Robert Hutchinson, architect:—

Smith	£230 0 0
Rowe	303 0 0
Richardson	273 0 0
Thackeray	265 0 0

For additions to the Race Stand, Huntingdon. Mr. R. Hutchinson, architect:—

Balmer & Rowe	£310 0 0
Smith	305 13 0
Cannell	300 0 0
Male	295 0 0
Thackeray	280 0 0

For alterations and additions to the Bourne Valley Wharf, Nine Elms, for Messrs. Standing & Marten. Messrs. Wimble & Taylor, architects:—

Stone & Pearce	£1,032 0 0
Ransay	946 0 0
Smith	728 0 0

For the erection of two warehouses, Love-lane, Liverpool. Messrs. J. A. Pictou & Son, architects. Quantities supplied:—

Burroughs	£7,254 0 0
Ray	7,220 0 0
Mullin	7,190 0 0
Hughes	7,170 0 0
Haight & Co.	7,100 0 0
Wimson	7,098 0 0
Rowe	7,012 0 0
Jones & Son	6,973 0 0
Holme & Nicol	6,750 0 0
Tomkinson (accepted)	6,675 0 0

For Messrs. Lettis, Son, & Co.'s factory. Quantities supplied by Mr. Campbell. Mr. J. F. Jones, architect:—

Rider	£6,850 0 0
Gommon	6,250 0 0
King & Sons	6,180 0 0
Nyers	6,242 0 0
Anley	6,840 0 0
Piper & Wheeler	5,825 0 0
Dove, Brothers	5,770 0 0
Scrivenor & White	5,025 0 0
Matthews	5,514 19 3
Sharphington & Cole	5,469 0 0
Streeder	5,130 7 10

For the erection of the New Cripplegate Boys' Schools, Bridge-water-square, City. Messrs. John Young & Sons, architects. Quantities supplied by C. J. Shopper:—

Piper & Wheeler	£2,997 0 0
Oxford	2,980 0 0
Henshaw	2,873 0 0
Larko	2,843 0 0
Prince	2,849 0 0
Turner	2,815 0 0
Brass	2,789 0 0

For restoration of St. Giles's Church, Norwich. Mr. R. M. Phipson, architect:—

Burrell	£3,650 0 0
Bocking	3,606 0 0
Rust	3,521 0 0
Brown & Bailey	3,062 0 0
Atkins	2,979 0 0
Lacey	2,969 0 0
Balls	2,969 0 0

Accepted for the erection of a Methodist New Congregation Chapel, at Forest-hill, Kent. Mr. William Hill, architect:—

Mr. J. W. Sawyer	£2,350 0 0
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Accepted for the erection of a Methodist New Congregation Chapel at Wakefield. Mr. William Hill, architect:—

Bricklayer and Mason's Work. E. Latham & Son	2,930 0 0
Joiner's Work	668 0 0
Plasterer's Work	65 15 0
Slater's Work	49 15 0
Plumber's Work	47 10 0
Painter's Work	39 0 0

For a house and stabling, Mostyn-road, Brixton, for Mr. Abbott. Mr. S. C. M'Murdie, architect:—

Brown	£261 0 0
Taughan	780 0 0
George	697 0 0

The Builder.

VOL. XXIII.—No. 1163.

The Dublin Exhibition Building.

HE Dublin International Exhibition, which was opened with a suitable ceremonial by the Prince of Wales on the 9th of this month, reflects great credit upon those who have undertaken it. Not

the least noteworthy, and we are glad to be able to add, by no means the least successful of the features of this Exhibition, is the building in which it is held, erected from the designs of Mr. Alfred G. Jones, a Dublin architect; and we propose to give some account of this building, gathered from a careful inspection made at the time of the opening. A plan and interior view with some description were given at p. 279 of the present volume, and in our volume for 1863 will be found a view and some statement of what at the outset of the undertaking it was proposed to do.

The Dublin building stands at some disadvantage as compared with all previous buildings employed for International Exhibitions, in consequence of its not having been exclusively built for an Exhibition. It has been designed to combine a permanent group of public rooms and a large conservatory, or winter garden, with a comparatively small Exhibition building; and some inconvenience, though not much, has been experienced from some of the peculiarities of such parts of the structure as were not intended for the purpose to which the whole is just now put. The public-rooms part of the building is of brick and stone, with a cement face, and the remaining portions are of iron and glass; but the architect, instead of masking his iron construction externally by his brick building, as was partly done in 1862, has adopted the bolder and wiser course of placing the two side by side.

It was no doubt a difficult task to harmonize the two adjoining buildings into one whole, and we cannot say that the wide difference between masonry and what we may call crystal-building has been entirely overcome; but there can be no question that it has been successfully grappled with to a very remarkable extent, and that the resulting effect is picturesque, and in the main satisfactory. Beyond and in addition to these two classes of buildings a third description of erection, in the form of timber annexes of an extremely inexpensive character, occupies part of the site. These, which are not shown on our engraved plan, are unsatisfactorily prominent in most aspects of the group of buildings, but in themselves they are cheap and not ugly.

The reader can form a general idea of the arrangement of the plan of the structure, by comparing the iron and glass building to a capital L, of which the long arm is the Winter Garden building, and the short arm the permanent Exhibition building, while the masonry building would be represented by a square block filling up the internal angle of the L. The entrances from the high road are all through the masonry block, and an open porch of iron and glass, running completely across its front, affords shelter to those arriving at the several entrances, and also serves an artistic purpose

by helping to connect the two classes of construction together. Passing direct through one of the wide corridors provided for circulation, we will suppose that we reach the iron structure without pausing on our way to notice the public rooms and picture-galleries.

The whole of the iron structure is planned with bays of 16 feet 10 inches from centre to centre. The winter garden has a width equal to five of these bays, or 84 feet 2 inches, divided into a nave of three bays, or 50 feet 6 inches, and aisles, of a single bay each, at the sides. The aisles are of two stories in height, reaching to the springing of the nave ribs; the floor of their galleries is about 18 feet from the ground, and they are roofed over with a continuous span roof. The columns are of cast-iron, and are square, with the angles rounded. They have spreading bases, and other features of an ornamental character, designed with much originality; and the points of connexion between them and the girders carrying the galleries, and all similar points of junction, are suitably and skilfully emphasized.

The nave roof is carried on semicircular lattice ribs built up of wrought-iron, and growing wider as they approach the columns from which they spring. A very ingenious kind of flying buttress, above the roof of the aisle, distributes the thrust of the nave roof between the outer and inner line of columns, and as these are connected together by strong plates below the ground-floor level, and are braced diagonally with horizontal braces at the level of the gallery floor, it has been found possible so to stiffen the whole aisle, as to form a series of buttresses or piers to the nave roof, without recourse to diagonal braces fixed vertically.

The bracing of the gallery floors especially deserves notice, as it is cleverly contrived to discharge two duties at once; it stiffens and supports the floor, at the same time that it retains the columns in their position. The covering of the main roof in the winter garden part of the iron building is entirely of glass—and lengths of straight glass extend from purlin to purlin, approximating to the curve of the extrados of the rib sufficiently to satisfy the eye both inside and outside the building, without the use of curved glass.

In the centre of the winter garden occurs a polygonal, apse-like projection, on the side next the pleasure grounds (for the building stands on a large piece of ground laid out ornamentally) and this central feature forms both internally, and externally a satisfactory break.

The angle-ribs of this apse, and the hips at either end of the nave-roof, have presented difficulties which appear to have been carefully considered, and on the whole are very satisfactorily got over; and round the octagon an external gallery or balcony has been thrown with very good effect.

The winter garden portion of the building we have been now describing has a total length of 477 feet. At right angles to it is the permanent exhibition portion of the iron structure, forming the shorter arm of the L, and to which a greater width has been given. This portion of the building is seven bays (or 118 feet) wide in place of five, and its galleries are two bays wide. It differs also from the winter garden in having its nave partly covered with an opaque roof (of Italian zinc), and in having no central projection. The two parts of the structure are ultimately intended to be separated by some sort of glass screen. At present, however, no such separation has been made, and the best view of the building is obtained from the gallery near the angle, from which point both arms can be seen at once.

This iron structure has the merit of being well proportioned, as well as good in detail. Its module is smaller than we have been accustomed to, and the same moderation in dimensions has

been observed throughout. A bay of 16 feet 10 inches is not, however, by any means so well adapted to the requirements of an Exhibition building as the 24 feet bays of 1851, and the 25 feet bays of 1862; and some inconvenience has evidently been felt in the arrangement of goods. The height, up to the galleries, though considerably less than in the buildings we have just quoted, or than at Sydenham, is perhaps ample for galleries of one bay in width, considering how much narrower the bays are than in previous instances; but it is not sufficient to be satisfactory in the part of the building where the galleries are two bays in width, and throughout the building there is a want of height in the aisle roofs, producing an impression of contractedness which is to be regretted.

Another defect is the entire absence of courts for exhibiting goods. All the large cases placed on the ground floor are either put under the galleries, where they are not well seen, or put in the nave, where they will interfere with circulation in the principal promenade, and where they certainly damage the general effect of the interior. In this respect, the arrangement of the goods is hardly as happy as it might have been made, even in the building as it is, and is certainly inferior to what would have been natural and practicable had they not been placed in a structure the larger portion of which is intended ultimately for the reception of plants. No attempt whatever has been made to cluster the articles round the columns as was so happily done in 1851, and at present the nave seems encumbered rather than adorned by its contents. There is, too, a superabundance of light in the Winter Garden, and those who were oppressed throughout a long bright day by the heat of the building on the day previous to the opening were heartily glad that during the ceremonial itself the sky was overcast rather than fair. The opaque roof over part of the nave in the Exhibition-building proper is a great improvement upon the entirely glazed nave of the main limb; but here there are places under the wide galleries where there is a deficiency of light, rendering some of the most convenient exhibiting space less valuable than it otherwise would be, and suggesting the thought that well-holes, or even open courts, might be formed with great advantage by removing the flooring of some of the exterior bays of the gallery. In fact, this portion of the Dublin Exhibition building seems to demonstrate that galleries, two bays wide, although they may themselves furnish good exhibiting space, are damaging to the value of the space under them.

The ironwork of all this portion has been unobtrusively decorated in colour, but with a rather timid hand, and the features of the building are not brought out as they might have been by bolder treatment: this is especially the case with the roof, the curves of which are far less prominent than we should wish to see them owing to this circumstance. It is to be regretted that Mr. Owen Jones was not consulted upon this head, and upon the general arrangement of the contents of the building.

Externally, the curved forms of the iron flying buttresses bring down the line of the nave roof to the aisles in a line very satisfactory to the eye. The segmental heads of the openings, shown in our recent illustrations, are extremely simple, but answer their purpose; and certain ornamental finials freely used on the exterior deserve a passing word of praise, as clever examples of inexpensive ornament.

It is now necessary that we should glance at one or two of the features of the stone building. This block is two stories in height, and on plan is divided by an entrance-hall running through it from front to back and opening into the winter garden opposite the central projection. Nothing can look better than this arrangement does on paper, but its actual result in the building has

failed of success, and in a manner which is instructive as showing that symmetrical planning does not necessarily produce all the results one might hope from it. The entrance to the winter garden from this hall has been partially blocked up for purposes of exhibition, and hardly catches the eye at all; while just beyond it, and on the same side, the end of a very much larger feature, the music-hall, abutting on the winter garden has been for the present left entirely open, and catches the eye at once almost as prominently as the apse on the other side, producing the uncomfortable effect of two features intended to be opposite to one another which have been misplaced and do not match. It is probable that when the Exhibition is over this will be remedied. At present, however, it is an unfortunate defect.

Of the entrance-hall itself, however, it is possible to speak in terms of high praise. This hall extends through the height of both the floors of the building, and is lighted from the top only. At the level of the upper floor of the adjoining structure, it has a broad gallery supported by columns and the wall-space above this gallery is intended for and employed in exhibiting pictures, while the lower portion is used as a sculpture hall. The ceiling, which was to have been ornamental, is left in an unfinished state to save expense; but the general proportions are good, and the lighting, both of the pictures and of the most conspicuous statuary, is admirable. The walls of the lower part of the hall have been decorated in dark colours, Pompeian red being the prevalent tone, and this, deepening the gloom of the shadow thrown by the galleries, serves to throw up the sculpture, which stands well forward from the walls, in a remarkable manner. In fact, it is not too much to say that in no previous International Exhibition has the sculpture been at all so well displayed; and this is the more fortunate since the collection in Dublin is one of unusual merit. The lighting of this gallery by night in a manner similar to that followed at the South Kensington Museum, is as successful as are the arrangements for admitting the daylight.

A picture gallery, built as such, in this part of the building, may also be named as a satisfactory specimen of lighting. The pictures exhibited in the upper part of what is to be the small concert-hall are by no means so well seen.

This block of buildings contains a large concert-hall, of the merits of which it is hardly possible to speak, as it is seen at present incomplete, and with its chief architectural features encumbered and concealed by a series of large cartoons, for the display of which no other place seems to have been found.

This hall seems to have been designed with a general reference to the interior of the Free Trade Hall, Manchester, and seems to promise well as a music-room, so far as its capabilities can be said to have been fairly tested by the performance of a band and chorus out of all proportion to the dimensions of the room, and accommodated, for the most part, in a temporary orchestra. This hall is lighted at night by sun-burners.

The block of buildings containing these halls also includes sundry committee-rooms, refreshment-rooms, and other apartments not calling for special notice. It appears to occupy about an acre of ground, and the permanent iron structure not quite so much as an acre and a half more. This space, however, would have been quite insufficient for the display of the goods sent, and about another acre is covered by annexes. Of these buildings, one portion is rather strongly built with iron columns and girders, and will, we understand, remain permanent.

The other annexes, which will be removed as soon as they have served their purpose, are remarkable as specimens of cheap temporary structures. Their roofs are segmental in section, and covered with felt, resting on boarding, the boarding being carried by wooden lattice-trusses or girders of very considerable span, but made of material little stronger than common laths, and with ties and ribs of the lightest possible scantling. So slight, indeed, are these trusses, that some difficulty was at times experienced in getting them into place without their breaking under their own weight; and yet, when fixed and steadied by having the roof-boarding nailed to them, they prove sufficient for their purpose. In annexes of this character are placed the whole of the display of carriages, and many of the special refreshment-rooms, the permanent annex being occupied by the

display of machinery, a section of the Exhibition in which a great deal still remains to be done.

The contents of the building it is not proposed here to examine in detail. As has already been noticed, the collection of modern sculpture is a good one; this has been chiefly contributed from Italy. The paintings, modern and ancient, are also of great merit, and include a series of water-colours, a small gallery of old masters, and several valuable specimens of Continental contemporary artists, as well as British pictures. Among the Continental contributions to this gallery some modern Spanish pictures have attracted notice. The other departments of the Exhibition we cannot even mention: they will be found more or less complete representatives of the industry and the arts of various parts of the world. Of one department, however, it is impossible to omit a notice as conspicuous for its completeness, the excellence of its specimens, and its forwardness at the time of opening: we refer to the Indian collection, arranged by the skill of Dr. Forbes Watson, in the northern gallery. This department will well repay a careful study, as will also the beautiful contributions of Sévres and Gobelins work, exhibited by the Emperor of the French.

The opening of the Exhibition was a complete success; and, as a display, was as charming to witness as it would be impossible to describe. The building proved well adapted for the purpose of such a ceremony, and nothing that Dublin—in fact, that Ireland—could do was wanting to add brilliancy to the scene. A considerable number of persons interested in arts and manufactures had come over from England to be present, among them several gentlemen officially connected with the proposed Indian International Exhibition, to be held at Bombay, and the architect of its buildings. Several London faces that one naturally looked for were absent; but this is a time of year when it is difficult for those much occupied in London to leave town. Altogether, however, the Dublin people are to be congratulated upon the successful inauguration of their scheme, and upon the satisfactory nature of the building with which the skill and labours of their contractors, engineers, and architect have furnished them.

THE CULTURE-HISTORY OF MANKIND.*

THERE are, and have been in all historic time, curious coincidences in the matter of manners, customs, and legends, in different parts of the world, among the various races of men, that lead to one of three inferences;—Common descent from one origin; or means of early intercourse of which no tradition exists; or that the human mind is so constituted that under whatever circumstances it may be placed, it is likely to generate a similar class of ideas. As an instance of our meaning we may cite the use of bows and arrows in the most remote ages in Europe, Asia, North and South America, and Polynesia. In which of these three ways can this coincidence be accounted for? Did the residents of both worlds spring from one family? as Professor Harley inquires, the members of which, before its various branches began to spread abroad over the face of the earth, were familiar with the use of the bow and arrow; or were all races distinct from vast ages, but managed from time to time to meet and teach each other the use of these weapons; or were they the independent invention of all these races? When we come to look around for further instances of similar wide-spread customs, we find their name is legion, and that the consideration of them opens out trains of facts bearing with much weight upon the origin and diffusion of mankind. Mr. Edward Burnet Tylor has been at the pains of collecting a large quantity of this peculiar information, and of arranging it under several headings in a volume entitled, "Researches into the Early History of Mankind," which we recommend to our readers, impressively, as of more than ordinary interest. He first treats of the various ways in which man has uttered his thoughts,—by gestures, words, pictures, and writing; next of the condition of mind inducing a belief in magic and worship of idols; then of the growth and decline of culture; and, lastly, of curious customs, with a classification of myths and an indication of their geo-

graphical distribution. He aims not so much at drawing conclusions, the time for which he believes has not arrived, as at grouping the mass of evidence in such a manner, and at bringing into view certain lines of argument, as may lead to the possibility of doing this with greater certainty than we may now calculate upon,—a task hitherto unattempted and sufficiently difficult. To show the amount of caution to be exercised in the acceptance or rejection of evidence, and the startling way in which new information sometimes turns up and upsets that previously relied upon, Mr. Tylor mentions that after having followed other observers in setting down as peculiar to the South Sea islands, in or near the Samoan group, an ingenious little drilling instrument, he found it kept in stock in the London tool-shops. Again, in looking over the world's creeds, it would be unwise to receive the general prevalence of the conviction of the soul's existence after death as a proof that all mankind inherited such a belief from a common stock, because it is possible that certain natural phenomena, such as dreams or phantasms, may have suggested to the mind of man, in different regions and at different times, the idea of the future state. But when we find, as in the class of stories known as beast-fables, that similar myths are found current in widely distant regions, for the invention of which no natural phenomena can account, we may fairly view them as important clues by which we may hope to unravel the early history of man. After having, however, run through all that can be said for and against the various ethnological theories, from a consideration of the evidence of which we are now in possession, we must be struck with the uniformity of the human mind. The skull of the Australian is supposed to present the greatest difference from that of the most civilized races; and yet he is scarcely in the practice of an art or custom, or in the enjoyment of a belief, that cannot be found in some other race separated from him by thousands of miles of ocean-waters. The Australians have a mode of raising scars on their bodies as practised by African tribes; they circumcise as Jews and Arabs have done since the days of Abraham; they bar marriage in the female line like the Troquois; they maintain a constant change in their language by dropping out of it all words resembling those by which the dead were recognised in their lifetime,—a practice found in Africa and South America; they endeavour to bewitch their enemies with locks of hair, and perform quack-like cures upon the sick by pretending to suck stones through their skin. The most distinctive item they possess is the boomerang, their other weapons, utensils, canoes, fire-drill, &c., being all found elsewhere. Out of a list of twenty items of art or knowledge taken at random from any uncivilized race, it is difficult to pick out one to which something closely analogous may not be found among some other race.

An illustrated chapter in Mr. Tylor's work is that in which our readers are likely to be most interested, on picture writing. The dumb make use of a kind of picture-writing when they configure in the air the objects to which they are referring; and savages largely avail themselves of gesture-language to assist in conveying their meaning. Captain Burton mentions a tribe who make such an extensive use of gesture that they can hardly understand one another in the dark; and, to converse with a stranger, they are obliged to repair to the camp-fire; and there is a large array of further evidence in favour of the existence of tribes whose vocabulary is so scanty as to necessitate the use of signs. From making outlines of objects in the air with the hands, it is but a step to make them upon convenient surfaces with an implement. We find the North American Indians clever at outline drawings, which they make on pine-trees, barked on purpose in patches. These consist principally of the figures of animals, dots, strokes, canoes, hatchets, pipes, &c., and serve them as records of hunting-parties, battles, treaties of peace, &c. They incise, too, upon grave-stones, figures and strokes which serve to indicate the tribe to which the dead warrior belonged, the number of battles he had fought, the honours awarded him by his fellow-braves. But as these curious drawings are as difficult to describe intelligibly without *fac-similes*, as they are to be read by those outside the circle to whom they are addressed, or as some of our own technical forms of expression are to be rendered in terms more familiar use, we will pass on to our author's interesting arguments connected with image-worship, contenting

* Researches into the Early History of Mankind, and the Development of Civilization. By Edward Burnet Tylor, author of "Mexico and the Mexicans." London: John Murray, Albemarle Street. 1865.

ourselves with directing attention to the fact that he looks upon rock-sculptures as an ancient form of picture-writing. The natives in the neighbourhood of rock-pictures generally say they were done by the people long ago. They are to be seen in Mexico in places well-nigh inaccessible at the present day; but a reply made to Humboldt, in answer to his inquiry as to whom some figures of animals and symbolic signs sculptured high up on the face of the crags along a river were to be attributed, explains this circumstance, and, at the same time, confirms the supposition of their great antiquity. "At the time of the great waters our fathers went up to that height in their canoes!"* We should scarcely suspect ourselves of retaining any traces of the rudest picture-writing. But the Roman numerals have this pictorial origin; and our almanacs, in signs for the sun and moon, "☉ before clock 4 min.," and "☿ rises at 8 h. 35 m.," perpetrate the practice. The T square is an instance equally familiar.

A most important difference between the mind of an educated man and a savage is the ability to separate subjective and objective impressions. An uncivilized American or Polynesian gradually acquires the strength and stature of a man, while his mind remains at a stage we can only compare to that of a child. Toys furnish to the latter exactly that material form to deal with without which his play is at a standstill. Take away the rough bits of wood or empty reels with which he is *making believe*, and the child is at a loss immediately. As years pass on, we acquire mental strength enough to do without material objects to strengthen our ideas; although we are under the identical influence when we derive definiteness in our conception of a transaction by seeing it described in a picture. But the savage never gets beyond an unfathomable confusion between the image of an object and its reality. When a North American squaw loses her child, she carries its cradle about with her, and talks to it as though her baby were still in it. In Africa the bereaved mother and the expectant mother alike carry about with them a counterfeit baby; and, among the Ostyaks of Eastern Siberia, a widow consoles herself for some time by caressing a rude wooden image of her husband. The idol fills the same void for the savage that the doll does for the child. He sees in it a material form from which his personous imagination is enabled to make its sluggish flights towards the realization of a higher being; and he dresses it in precious stuffs, or assigns it a place of honour, or propitiates it with offerings according to his conception of what is likely to be acceptable to the vague personalities it represents. Mr. Tylor takes up the original view that the idol thus once served a definite and important purpose in the education of the human race. When we treasure a lock of hair we know that all real connexion with its owner has ceased, although from its intimate association with our reminiscences of that person we permit ourselves to regard it as still belonging to him. The uncivilized man is unable to see this distinction. For him the lock of hair and its owner have still an objective relation, and magic arts practised upon the former will, he believes, affect the latter. The sorcerer has only to get possessed of clippings of the hair of his enemy, or parings of his nails, and leavings of his food, to bring about his death. Mr. Turner, in his work on Polynesia, relates that there was a colony of disease-makers on the island of Tanna, that lived by their art. When any one fell ill they knew that one of these sorcerers was practising upon some of his leavings in the way of food; and night after night a melancholy too-tinging might be heard from the signal shell-trumpets beseeching the wizards to desist from torturing their victims, and to wait for the presents that would be sent in the morning. And when a disease-maker fell ill, he was so persuaded of the adequacy of his own sorcery, arts, that he believed some other wizard was practising upon him, and had his shell-trumpets blown for mercy. The fear of being bewitched through the instrumentality of a lock of hair is one of the widest-spread opinions; it is found all over Polynesia, in Africa, in India, in North and South America, in Australia, and even in Italy, as recently related by Mr. Story, in his

"Roba di Roma." When Dr. Martins, the Bavarian traveller, saw an old woman, a captive, get up from the corner of the hut in which he and his Indian host and family had disposed themselves for the night, and, quietly blowing up the fire, commence a course of magic arts upon bits of the hair of her enemy's children so as to insure their destruction, he remarked upon the complicity of the delusions and darkness that must have been working in the human mind to complete the degradation of a pure worship of nature into an invocation of dark unknown powers for another's hurt. Mr. Tylor thinks this deduction the reverse of fact; and that the practices of sorcery among the lower races, as a whole, have not the appearance of mutilated and misunderstood fragments of a higher system of belief and knowledge, but should be dated from the childhood of the human race; and if we take into consideration the fact of the important part the rattle plays with the magician and medicine-man we shall probably agree with him. A rattle is carried before a Siamese prince when the dignity of manhood is conferred upon him, to show that up to that point he is still a child; and the savage clings to the use of the same instrument as if to show by its means his place in creation. Sometimes it is a bunch of hoofs tied together, or a blown bladder with peas in it, and more frequently a calabash with stones or bones or shells in it; but in whatever form, the rattle is the great instrument of cure and the symbol of the profession of medicine. The connexion of the drum with sorcery in Lapland, in Siberia, among some North American and some South American tribes, is consistent with the theory that rattles, drums, and sorcery belong to the infancy of mankind; and the similarity that prevails in many of the magical practices would seem to indicate one geographical source.

To pass from the presumed connexion between an object and its image to that believed to exist between an object and its name, we come to another curious string of facts extending over a large geographical area. In some uncivilized tribes a man will not utter his own name; in others, husbands and wives will not utter one another's name, or a son- or daughter-in-law will not mention the name of the father- or mother-in-law, and *vice versa*; and in others the name of the chief, or of supernatural beings, or animals to which supernatural powers are ascribed, must be scrupulously left untold. Among the Algonquins, the real name of a child seldom transpires, and is indeed only known to the old woman who confers it in secret, the one in use being a nickname, such as "Little Fox," or "Red-head," and that inscribed on his grave-stone being the *totem*, or clan-name of the tribe. A Hindoo wife speaks of her husband as our domestic servants speak of their employer, "the master," taking scrupulous care not to degrade him by uttering his name. Among the Omahas of North America, the father- and mother-in-law neither speak to their son-in-law nor mention his name, an arrangement that looks upon the face of it to be highly conducive to domestic peace and concord. The Arawaks have a custom that many a long-suffering benedict would rejoice to find spread over a district that included his own. They never look upon the faces of their mothers-in-law. If these ladies live in the same house with them, a partition is set up to keep them out of sight; and if they travel by any chance in the same boat, they enter first, so as to keep their backs towards their sons-in-law. The Caribs, too, deny themselves the pleasure of ever conversing with the relations of their wives, except on very extraordinary occasions; and other tribes in South America exercise similar exclusiveness, even going so far as never to enter the houses of the parents and brothers of their brides, and to go a bowshot out of their way rather than pass near them. In North America there are the same curious restraints put upon family intercourse. We, perhaps, might look in the right direction for the origin of them, if we turned our eyes to those dim times when a man captured his wife from another tribe, and so was not desirous of confronting those whom he had robbed of a daughter. Among some of the Arab tribes they keep up a trace of this wife-stealing age in another way, having mock-fights and captures in the wedding ceremonies.

If we would explain many of our own customs we must refer to their origin among rude and early peoples. The ear-rings still worn by European ladies are traces of the very general and ancient custom that prescribed the use of similar ornaments on the nose and through the

lips. Cross the Asiatic frontier and you will find the nose-ring still in use among ladies of rank. Mr. Tylor refers the practice to a state of society identical with that which approves of the thrusting of rings, bones, and feathers through the cartilage of the nose, the letting in of ivory studs in the corners of the mouth, the larding of the human cheek with the teeth of animals, stuck point outwards &c.; and points to it as an instance in which progress has not been positive in adding, but negative in taking away. When we tie a knot in the corner of a handkerchief to assist us in remembering anything, we unconsciously use the most primitive form of keeping count of all things. The Chinese have a legend to the effect that, before the invention of writing, they used little cords on which they made knots to assist their memories. The rosary and wampum-string are other forms of the same invention. In an elaborated form, known as *quipus*, these rope records served the Peruvians for army registers, census records, taxation lists, accounts of the property of deceased persons, &c. Von Tschudi says this mode of reckoning is still in use among the herdsmen of the Puna (the high mountain plateau of Peru), who, by its means, keep count of their herds, flocks, produce, &c. One cord, known by its colour, or by the twining of its knot, or by its place on the root-cord on which the others are fastened, relates to the number of bulls, the next registers the cows, divided into two kinds—milk and dry: the calves are counted on the next branch, then the sheep are numbered on another: additional cords give the number of foxes killed, or of cattle that have died, the quantity of salt used, the quantity of milk, cheese, and wood yielded. The drawback to knot-reckoning is that oral information must be added, or it is impossible to make out their subject-matter.

Another early custom that we retained long after it was superseded by new inventions, was the giving of wooden tallies for exchequer-receipts. We yet use the tally in the counter-foil in a banker's cheque-book. It was this same retentive feeling that induced men to build in stone precisely the same designs they had before been accustomed to rear of wood; and that is present to-day as in old time the resistance to any kind of change, in many minds. Why does a gentleman take off his glove when he shakes hands? Because his forefathers, some hundreds of years ago, took off their steel gauntlets to perform the same greeting, and the habit has not yet died out. There are, however, customs in savage life which we retain no trace of, and can scarcely account for, and yet they are spread over a large area. Why, in Africa, as in Siam, are divine honours paid to *white elephants*? How can we account for the general belief in the smoking cure? In Africa, in North and South America, and in Australia, sick persons consult sorcerers and doctors who pretend to suck out of them small foreign substances, such as grain of Indian corn, bits of knives, bits of wood and stone, bones, balls of hair, and sometimes lizards, and produce these objects to their patients' gaze. In the *comrade*, or "hatching," we have a custom that, although unaccountable, has some grounds for recommendation. In several nations when a child is born the mother goes about her work as if nothing had happened, and the father takes to his bed with the baby, and remains comfortably ensconced there, the object of great attention for days and days. The savage concludes there is a link between him and his offspring which entails on it suffering for any error of diet or accident on his part. Dobrizhoffer relates of a fierce equestrian tribe of the Abipones,—"No sooner do you hear that the wife has borne a child, than you will see the Abipone husband lying in bed, huddled up with mats and skins lest some rude breath of air should touch him: fasting, kept in private, and for a number of days abstaining religiously from certain viands, you would swear it was he who had had the child. . . . For they believe that the father's carelessness influences the new-born offspring, from a natural bond and sympathy of both. Hence, if the child comes to a premature end, its death is attributed by the woman to the father's intemperance, this or that cause being assigned. He did not abstain from meat; he had loaded his stomach with water-hog; he had neglected to shave off his long eyebrows; he had devoured under-ground honey, stamping on the bees with his feet; he had ridden till he was tired and sweated. With raving like this the crowd of women accuse the father with impunity of causing the child's

* This is of interest with reference to our suggestion as to the cause of the rock sculptures of Northumberland being all on high ground. If the low land was under water at the time, they could not be there produced, and hence their extreme antiquity may be inferred from their high level, unless we consider their connexion with fortified heights to be sufficiently explanatory of this fact.

death, and are accustomed to pour curses on the unoffending husband."

There are other customs which do not recognise physical severance in individuals, or, as Mr. Tylor puts it, in which man does not separate the subjective mental connexion from the objective physical connexion; the connexion which is inside his mind from the connexion which is outside it. When a Greenlander dies, those who mourn his loss, knowing the long travel on which his soul has set out, abstain from all noisy work and from certain food, so that it may be undisturbed and unburied. The imaginary tie even extends to birds and animals, who are supposed, in some places, to be affected by the diet of their owners.

The mass of information concerning traditions and myths of observation test the truthfulness of the moral of the old story of the three black crows, in the frequency with which "it may have been" is converted, in telling, into "it was." Given any suggestive object, and a story more or less extravagant is coined to suit it and handed down as a fact. Thus the small round stones, about the size of lentils, found among the masons' rubbish, in front of some of the pyramids, were set down, in the time of Strabo, to be the leavings of the workmen's food turned to stone; and large bones, whether fossil or recent, are deemed, in most parts of the world, to be portions of the skeletons of giants. From the fact of the Siberians finding teeth and bones of mammoths imbedded in the faces of cliffs and river-banks, at some distance below the surface, accidentally exposed by landslips or other causes, they have come to the conclusion that they were huge burrowing animals that lived underground; nay, more, they sometimes feel the earth undulating as the monstrous creature is picking its way to its subterranean residence. The Chinese, following the theory started by these semi-barbarous savans, have given it a place in their natural history, and describe it, under such names as digging rat, burrowing ox, and mother of mice, to be of the form of a rat and size of an elephant, excellent eating, and as yielding an ivory of better quality than that of the last-mentioned animal. We all know that the Persians, Hindoos, Chinese, Greeks, &c., employed and preserved traditions, parallel to the Mosaic accounts, of the fall of man, expulsion from Paradise, the Deluge, &c.; but it is rather surprising to find that some of the rudest tribes are in possession of legends embodying the events related in our most popular national stories. "Jack and the Beanstalk," "Tom Thumb," "Little Red Riding Hood," "Hans and the Wolf," as well as the story of "Jonah and the Fish," of "Noah and his Ark," of "Cain and Abel," but we must leave this branch of Mr. Tylor's contribution to ethnological lore, to give a sample of the materials he has collected on fire-making, cooking, and vessels.

The lowest condition of mankind of which we can form conception is that of a people living without fire, and in ignorance of the art of making it. Early travellers have frequently declared they have met with such people, whose food consisted of raw fish, fruit, vegetables; but when their accounts come to be critically examined, or when further intercourse has taken place with these people, it turns out that although they ate their fish raw, they could kindle a fire if they desired to do so. The stunted imaginations of uncivilized people seem to rejoice in creations of tribes destitute of something that is common to man, such as speech, ideas of superior beings, dreams, names, and even months, heads, and noses; or else possessed of additional features, such as four eyes, eyes under the armpits, ears large enough to cover the body, long tails, just as in a more advanced stage their artists delighted in the marvellous. But these curious tribes are never seen: they are simply heard of. Mr. Tylor finds more evidence of the possibility of the existence of people possessed of fire, but unable to make it for themselves. A native of Van Diemen's Land informed Mr. Backhouse that his ancestors had no means of making fire before their acquaintance with Europeans. They got it first from the sky, and preserved it by carrying firebrands about with them, and if these went out they looked for the smoke of the fires of some other party, or for the smouldering remains of some of their own fires, and so procured fresh. Curiously, some of the highest races of mankind have clung to the rudest processes of making a fire, when it is unlikely that they could have adopted a newer mode if they had chosen to do so. Russian peasants and Portuguese Brazilians, within the

last century, have used the "fire drill" for this purpose. This is a wooden stick with a point at one end, which is made to revolve quickly in a hole in a flat piece of wood, by rolling it backwards and forwards in the hands. This plan, improved by the addition of cords so arranged that they cause the stick to revolve by twirling round it on being pulled, has a large geographical area; while a still simpler process, that of rubbing a pointed stick up and down a groove in a flat piece of wood, has a very limited one. Possessed of fire, the next difficulty to be overcome by the human race was the want of vessels and apparatus by which to cook their food. Roasting and broiling were probably the first forms of cooking, as the processes simply require exposure to the open fire. The oven, perhaps, we may look upon as the first contrivance. Some islanders use hollow trees for this purpose: in Africa an empty ant-hill is made use of, of which, made red hot, bakes such dainty dishes as joints of rhinoceros. In the Canary Islands the meat is buried in a hole in the ground, and a fire lighted over it; but the most common oven is the pit into which hot stones are put with the food. Boiling was a later process, owing to the advance required to invent a vessel that would at once hold water and stand fire; and the first step made in this direction is probably that retained by many uncivilized tribes to this day, which Mr. Tylor calls *stone-boiling*. Catlin describes this process as carried into effect by the Assinaboins, whose name, "Stone-boilers," has been conferred upon them in virtue of this art. They dig a hole in the ground, and line it with a raw hide. This sort of pot thus formed they fill with water, and place the meat in it; and then, from a fire close by, they throw in red-hot stones, till the water has boiled long enough to cook the meat. The Sioux, Micmacs, Souriquois, Blackfeet, and Crees, are known to have used the same tedious process, and other tribes to have varied it by throwing the red-hot stones into vessels instead of pits. Captain Cook saw the stone-boiling mode of cooking at Nootka Sound; La Pérouse, at Port François; Sir Edward Belcher, at the Ice Cape. Thomson mentions that the New Zealanders made their shellfish open by dipping them into water, in wooden vessels, brought to the boiling point by red-hot stones dropped into it. That it is likely that stone-boiling was practised in Europe seems evident from two facts collected by our patient author, who appears to have examined every traveller's tale that has ever been told. Linnæus states that the Finns prepared their liquor called *tulla* much in the same way that other beer was made, except that it was not boiled,—red-hot stones being thrown into it instead; and quantities of calcined stones are found in our own country, on the sites of ancient dwellings, which may have been used for boiling as well as baking. The vessels used for the higher kind of boiling are of various materials. Paunches of animals slung over a fire seem one of the rudest contrivances; but these paunch-kettles, as Mr. Tylor calls them, have been observed in use in Asia, among the Esquimaux, and in the Hebrides. Vessels of pot-stone, lapis ollaris, bark, split bamboo, the spathe of palms, of cocoanut-shells, of whale's fins combined with stone, have been resorted to as links in the chain that resulted in pottery and metal pans. Goguet, in the last century, assumed that the potter's art must have developed itself out of a savage practice of daubing combustible vessels with clay, to prevent them burning; and all evidence collected since his time tends to confirm his view, indicating the gradual steps from covering gourds or wicker-work moulds with clay, to the inverse process of lining these rough moulds with clay, and the ultimate production of independent clay vessels. Dr. Klemm observes,—"In the Friendly Islands we find vessels which are still in an early stage: they are made of clay slightly burnt, and enclosed in plaited work; so also the oldest German vessels seem to have been; for we observe, on those which remain, an ornamentation in which plaiting is imitated by incised lines. What was no longer wanted as a necessity was kept up as an ornament."

We have thus slightly indicated the nature of the contents of this thought-stirring volume, although there are still classes of facts we have left untouched. We have, however, shown the attraction of the subject, and indicated its bearing upon such old-world races as the Swiss and Scottish lake-dwellers, the Reindeer tribes of central France, and those who in British graves have left us specimens of their rude arts. Mr.

Tylor does not indicate his preference for any theory as to the origin of the various types of mankind: he shows all the facts and leaves his readers to apply them. And we are bound to say, that those who entertain the conviction that the various races of man have come of one medium type, which has been divided, by the influences of climate and circumstances, into several, will find as much to confirm their views as those who point to Egyptian, Assyrian, and Mexican monuments, the Jews, the Gipsies, and the Negroes, as evidence of fixity of type, will see. But both theorists will realize that the condition of mankind, socially, is one of progress, and that in the uncivilized tribes of to-day we may perceive much of the rough schooling and gradual culture of the human family from its infancy.

SIR JOSHUA REYNOLDS AND HIS TIMES.*

In our last notice (p. 309) of Mr. Tylor's volumes we expressed a wish "that the authors could have found a place for the preamble or opening paragraph of Sir Joshua's will." A correspondent (who gives his name) directs our attention to vol. ii., p. 621, of the volumes, where the preamble, he says, is printed,—and so it is, but imperfectly. Hear what it says:—

"On the 5th of November [1791] he [Sir Joshua] made his will, writing it himself, with this affecting preamble:—
"As it is probable that I may shortly be deprived of sight and may not have an opportunity of making a formal will, I desire that the following memorandum may be considered as my last will and testament."

Now, in reply to our correspondent, we beg to observe that the words in Sir Joshua's will are instead of "may not have an opportunity of making a formal will," these, still more expressive of his condition, "be incapable of executing any formal will." But the omission of *all* is Sir Joshua's commendation of his soul, though not in words uncommon:—

"I commend my Soul to God, in humble hopes of His mercy, and my body to the Earth."

Southey, in his Life of Cowper, expresses a sort of holy horror that Churchill, the satirist (who had been in holy orders) died, leaving a Will without any expression of commending or bequeathing.

Another correspondent sarcastically tells us, "when you don't find anything in 'Leslie and Taylor' where it ought to be (as you would in other books) conclude that it isn't there." The writer refers to Walpole's eulogium on Reynolds, vol. ii., pp. 308-9, of Mr. Tylor: we will ask our correspondent, in reply, if he can find in Mr. Tylor's volumes any allusion to this Walpole remark to the purpose. Walpole is talking to Pinkerton:—

"Sir Joshua gets avaricious in his old age. My picture of the young ladies Waldegrave doubtless is very fine and graceful; but it cost me 800 guineas."—Walpole, vol. ii., p. 109.

And in the next edition of the "Life and Times of Sir Joshua" it will be well not to ascribe Walpole's "quickeness of art" in his quotation from the Walpole eulogium to the year 1780 (as he does, vol. ii., p. 308), but to Walpole's "Advertisement to the Fourth Volume of the Anecdotes of Painting, edit. 4th, 1786." The "hearty tribute," as Mr. Taylor calls it, of Walpole, must be post-dated from 1780 to 1786.†

A tradition of the London studios may be related here. Pallet, the painter, a well-known character of Smollett's "Peregrine Pickle," was meant for Reynolds. Peregrine was published in 1751, and has many personalities in it. The Reverend Alexander Dyce has proved beyond all question that the English physician whom Pickle encounters with Pallet the painter in the Palais Royal at Paris was the poet and physician Akenside. The poet and physician has a most entertaining conversation there with the painter Pallet. The talk is high about Homer and Michelangelo, Findler and Poussin. The poet is most amusingly ignorant, self-important, and self-sufficient. Chapter xvi. of Pickle is thus headed:—"Peregrine resolves to return to England, is diverted with the odd characters of two of his countrymen, with whom he contracts an acquaintance in the apartments of the Palais Royal [in Paris]." And then Smollett proceeds:—

"As Peregrine proposed to make the tour of Flanders and Holland; in his return to England, he resolved to

* See pp. 270, 309, ante.

† See "Walpole's Works," 4to., vol. iii., p. 398.

‡ Which, curiously enough, Reynolds afterwards did.

stay in Paris a week or two after his affairs were settled, in hopes of finding some agreeable companion disposed for the same journey; and, in order to refresh his memory, made a second circuit round all the places in that capital, where any curious production of art is to be seen. In the course of this second examination, he chanced to enter the Palais Royal just as two gentlemen alighted from a fiacre at the gate.*

The conversation begins at once, and expressions of "magnifique" and "sans prix" are translated by the painter into expressions of "manufacture" and "Poussin." The almost superabundant humour of the whole scene is in Smollett's richest vein:—

"When they came to consider the 'Murder of the Innocents,' by Le Brun, the Swiss [the guide] observed that it was an *bon morose*, and Mr. Fallet replied:—'Yes, yes; one may see with half an eye that it can be the production of no other; for Rembrandt's style, both in colouring and drapery, is altogether peculiar; then his design is lame, and his expression anti and unnatural. Doctor, you have seen my 'Judgment of Solomon'?"

"In this manner did Fallet proceed with an eternal relation of tongues, floundering from one mistake to another, until it was the turn of Poussin's 'Seven Sacraments' to be examined. Here, again, the Swiss, out of the abundance of his zeal, expressed his admiration, by saying these pieces were *inappreciable*; when the painter, turning to him with an air of exultation, 'Pardon me, friend; there you happen to be mistaken. These are none of *inappreciable*, but done by Nicholas Poussen. I have seen prints of them in England, so that none of your tricks upon travellers."

Let us add what handbooks do not tell us, that the Palais Royal "Poussens" of this diverting conversation came to England with the Orleans Collection, and are still a part of the Bridgewater Gallery in London.

A little bit of "Sir Joshua" that has been missed by all who have written about him contains a piece of advice that may still be of use. Reynolds painted the portrait of Robert Dodsley, the celebrated bookseller. It was painted in 1760 for his friend Shenstone the poet. When the picture was sent to the Leases, Dodsley wrote to Shenstone thus:—"If the picture should be turned yellowish, by being packed up, Mr. Reynolds advises that it be set in the sun for two hours, which will quite recover it." Let us add that the "whereabouts" of Reynolds's Dodsley has eluded our researches. There is an engraving of it by Ravenet.

Sir Joshua was fond of attending sales of pictures, drawings, and prints by the old masters. One of the pictures he acquired at a sale at Christie's in Pall Mall was the well-known Sebastian Bourdon, "The Return of the Ark,"—now in the National Gallery, part of Sir George Beaumont's generous gift. Sir Joshua bequeathed it to Sir George; but what Reynolds gave for the picture has not been told. The picture was brought to England by Sir Robert Strange, and sold, 5th May, 1775, at Christie's to Sir Joshua—the price twenty-three pounds two shillings. The description in the catalogue is as follows:—

"48. Sebastian Bourdon.—'The Return of the Ark,' in which is introduced a variety of figures, characterised with simplicity and expression."

Reynolds has praised this picture in one of his discourses, and Mr. Wornum, we would suggest, should relate the history of the picture in the next edition of his National Gallery Catalogue. Mr. Taylor mentions the bequest of the Bourdon to Sir George, but when, where, or for what sum Sir Joshua acquired it, is not told.

How, in the name of the prophet Figs, Mr. Taylor, when mentioning (vol. i, p. 197) Sir Joshua's portrait of Lord Erroll, could have omitted to insert Johnson's rapturous encomium on the painter made before Reynolds's Lord Erroll, we are at a loss to understand. Johnson and Boswell were on their tour to the Hebrides, and at Slanes Castle were reminded of their friend in Leicester-fields by the sight of Lord Erroll's portrait from his pencil. "Sir Joshua Reynolds," (exclaimed Johnson, looking intently at Boswell), "is the most invulnerable man I know; the man with whom, if you should quarrel, you would find the most difficulty how to abuse." This noble compliment to Reynolds adds a money value to the Erroll portrait.

And how, in the name of the same Vicar of Wakefield prophet, did Mr. Taylor omit inserting Reynolds's dedication to Goldsmith of the print called "Resignation"? "This attempt to express a character in the 'Deserted Village' is dedicated to Dr. Goldsmith, by his sincere friend and admirer Joshua Reynolds." We do not find, either, a note of the price paid to him by Sir William Chambers, the architect, for the "Theory of Painting," let into the ceiling of the Council-chamber of the Royal Academy in Somerset House, and since removed to Trafalgar-square.

Some of the most valuable contributions to

Mr. Taylor's volumes—we use a long term for a few words—are in the shape of notes made at the time by Horace Walpole in his Royal Academy catalogues, to which Mr. Leslie had access through the late Mr. Sheepshanks, to whom they belonged. As these are scattered roughcast throughout Mr. Taylor's volumes, we were at first inclined to bring them together, but space prevents us. "A word on the spot," says the poet Gray, "is worth a cartload of recollections."

Our readers will be pleased, we have little doubt, with some extracts from Mr. Taylor's volumes. Here is an "Appendix" passage on "Reynolds's Early Reading":—

"As to Reynolds's knowledge of Latin and early reading, I have some little evidence in his school 'Ovid,' well thumbed in parts, and in the commonplace-book mentioned at p. x. It is inscribed in a stiff but neat hand, 'Joshua Reynolds, ejus liber ex dono Patris mei.' Evidently his first 'cast,' for a gentile for *pater* was *pater*, and he rests content with *pater*. But the extracts show a varied and very intelligently directed course of reading; and it is worth noting that the great majority of them indicate a decided turn for the classical, readable, sensible, and kindly, in life and manners. The extracts are (on life and morals) from Theophrastus, Plutarch, Seneca, Marcus Antoninus; (on criticism and for poetry) Pope (a great favourite, especially in his 'Dissertation on Criticism'), Milton, Dryden, the 'Spectator' and 'Tatler,' Cat's 'Book of Emblems,' and even *Alfa Behn*; (in art) Leonardo da Vinci, Du Fresnoy, and Richardson; and (in religious matters) Nelson and the Bible, Ecclesiasticus chiefly."

Another Appendix bit gives us something new about Sir Joshua's father, the Rev. Samuel Reynolds:—

"Since this volume was printed off I have come upon some very characteristic letters of Samuel Reynolds, showing both his intelligence and gentleness, from which I extract.

Speaking of his eldest sons, March 3, 1742.—

"I have disposed of my eldest sons entirely to my satisfaction, because it is to theirs. In relation to my elder son, among my other studies and amusements, I have ordered masters to teach him the mathematics, and he is better put in hand for the sea than he is. He has by my means the whole foundation for the theory of navigation, so that there is nothing that he need take upon himself, nothing but that he may have demonstration for if he pleases, it having been my way to fill up the intervals of his coming home by going on just where we left off last; and thus I have gone through with him the first six books of Euclid (and half the eleventh which was all that was necessary); plane trigonometry, the last of which was very fiddling, and which I was forced to write out of several authors to make clear work. I was entering into astronomy when he was last called off."

S. REYNOLDS.

In another letter, January 11, 1730, he says:—

"I cannot forget adding that the mathematical education I have given my eldest son has been hitherto attended with success vastly beyond my expectations, from the kindness and character he has received from those officers under whom he has served, and likewise from the facility he has found, even in these times, in obtaining such a post as is proper for him to pretend to."

S. REYNOLDS.

Writing in allusion for the death of a son, he says:—

"That Providence orders all things for the best I do verily believe, and I presume upon it in the conduct of my life. But still I should be glad to make it out free from all clouds of objections not clearly than I can. But still that argument does not come to the point in our grief for persons deceased; in other afflictions it does. When Job loses his sons, would it have been a proper consolation to say, 'You shall have as many in their room?' That argument would do for his sheep and oxen well enough, but not for his children. But in submitting to the will of God, I allow that there is a pleasure which I never yet attempted to decipher, any more than the love which we bear to those persons who are dear to us, for I am in doubt whether all these things are not better left undeciphered. It may seem an extravagant thought of the Archbishop of Cambray, speaking of the death of the Prince of Burgundy, but I admire it. 'If there needed no more than the moving of a straw to bring him to life again, I would not do it, since the Divine pleasure is otherwise.' I doubt whether fully can say anything more noble. Thought that impress themselves so strongly on the mind I have no wish to criticise upon."

Ten pages of hitherto unpublished extracts from Reynolds's "Notes on Pictures at Rome and Bologna," enrich an Appendix. The notes are preserved in the Soane Museum:—

"Reynolds's notes," says Mr. Taylor, "on the works of the Bolognese School are only second in interest to his notes on the Venetian pictures. It is instructive to see how completely he ignores the earlier schools of Bologna, and how even the beautiful frescoes of Francia are passed unnoticed. He probably never saw them. On the other hand, we may well wonder not at the praise given to the Carracci, or even Guido and Guercino, but at the respect with which men like Tiarni are here treated, and the notes taken at Rome of the works of painters now held in even less repute than Tiarni. The perusal of these notes should impress on us the useful lesson of toleration and distrust of our own judgments and those of our generation, by the evidence they afford in so many places of the degree to which, according to the present estimate of painters and schools, even Reynolds was blinded and misled by the conventional taste of his time."

We shall part company from Mr. Taylor by extracting the final paragraph of his preface:—

"In sending to the printer the last sheet of 'The Life and Times of Sir Joshua Reynolds,' I lay down a task which would have been delightful had I not felt so painfully my own inadequacy to complete Leslie's unfinished work, and had I not been hampered by the sense that much which I was attempting to do would only be water to the mill. I may have erred in my conception of the way in which the work ought to be done, but I can conscientiously say I have not spared on it either time or trouble. I joy and honour in my subject, and the man to whose unfinished labours I succeeded too much not to do my best for the sake of one as much as the other."

THE MANUFACTURE OF ENCAUSTIC TILES AND CERAMIC ORNAMENTATION BY MACHINERY.*

It was in the year 1830 that the late Mr. Samuel Wright, then of Shelton, North Staffordshire, revived the manufacture of encaustic tiles, by specifying, under his patent of that date, his mode of making them. He employed a mould within an iron frame, with a removable top and bottom, the inner surfaces of the mould being of plaster of Paris, which does not adhere to plastic clay. Once set, plaster of Paris is very hard, and hence Mr. Wright found no difficulty in forming in it the most intricately wrought designs, in alto-relievo, for impressing the upper or outer surface of the tile. It is now time to describe the manufacture of encaustic tiles, as patented by Mr. Wright, from whom Messrs. Minton & Co. obtained a licence, extended by a prolongation of the patent by the Privy Council, to 1851. There are, no doubt, some gentlemen here who accompanied the Archaeological Association to Shrewsbury, in 1850, and who then partook of the elegant hospitality of Mr. May, at Benthall Hall, near Broseley, and who there listened to a very succinct and interesting account, from that gentleman, of the whole process of encaustic tile-making. While referring to that account, the author gives the following, almost identical with it, but derived from his own observations in the potteries.

The stronger and purer clays and marls, from the coal measures, as also other clays brought from the south of England, burn, without the mixture of colouring matter, into red, buff, and fawn-coloured tiles; and, with the addition of different proportions of oxides of iron and manganese, they burn into the black, chocolate, and grey tiles. The higher qualities of tiles, such as the white and those of richer colour, are made from a kind of porcelain clay, or Parian, the white being left uncoloured, while the blues and greens are coloured with oxides of chrome and cobalt. Where the clay is too strong or adhesive, from a deficiency of silica, a greater or less proportion of sand is added for the coarser tiles; but for the finer qualities, the proper proportions of silica and alumina should exist in natural combination in the clay itself. The clay is all the better if "weathered" by exposure, in thin layers, to sunshine or to frost, the effect of both of which is to break it up into fine particles, and to secure increased waxiness, if the term is permissible, in working. The clays are then, and in mixture with whatever colouring matters are employed, reduced to a state which not only potters, but many others besides, know as "slip;" that is, they are mixed with water until the mixture becomes sloppy, and in this state they are strained through a sieve of fine lawn; the finer the better; and the fineness often amounts to fifteen thousand meshes or perforations in the square inch. This process of subdivision, resembling filtration, although only the coarser matters are retained by the lawn, gives great fineness and evenness to the texture of the clay, while it adds also to the brilliancy of the colour. Thus strained, the viscous clay is then dried to a plastic state, upon what are called the slip kilns. It is as well to say at once that, even for plain tiles, or those of but a single colour, two qualities of clay are taken, one for the body of the tile, the other and finer sort for the upper, or perhaps, both the upper and the lower surfaces. As in much modern furniture, so in tiles, where the visible grain and colour are but superficial, the coating of the finer material is called veneering. The workman first fills the bottom of his plaster-mould with a thin layer of the finer or veneering clay, and then beats upon it the coarser or body clay, of which nearly seven-eighths of the whole thickness of the tile is formed. Upon the body clay he places a further coating of veneering, and upon this he closes the mould. The bottom of the plaster-mould has raised upon it, in alto-relievo, the design for the impressed pattern, and on reversing and separating the parts of the mould, and removing the tile, it is left standing with its impressed design on its upper face. In its still plastic state, the impression upon the tile is filled with a semi-liquid preparation of clay, or "slip," of a quality which burns to the contrasting colour or colours of the pattern. This "slip" not merely fills, but overflows the impression, and leaves the tile covered with a rough coating, in which state it is taken to the drying kilns, and in perhaps forty-eight hours

* From a paper by Mr. Zerah Colburn, read at the Society of Arts, on Wednesday, May 17th.

(often much more) it is brought to the consistency of bees-wax. In this state of the tiles a workman, provided with a flat steel blade or scraper, proceeds to scrape down or shave off the superfluous coating of overflowing "slip" on the surface, and he continues this operation until he has removed it exactly down to the original surface of the tile, so as to bring out the pattern sharply and distinctly. The tile is then ready for the burning kiln. The burning occupies, in all, about a week, half the time being occupied in gradually raising the heat, and the other half in as gradually letting it down. This stage of the manufacture requires much care, as is indeed the case with all the finer kinds of terra-cotta and pottery. The goods gradually shrink in burning, and the progress of the burning is indeed judged of from the appearance of proof tiles, introduced with the charge, and successively withdrawn, as the fire is got up and let down. The shrinkage is not always uniform, and tiles intended to be of the same size, inasmuch as they were formed in the same mould, often differ so much in their dimensions after burning that they cannot be laid in the same pavement. They are, therefore, carefully gauged, and assorted into lots each of one size.

Tiles so made are comparatively indestructible. A sharp file will hardly cut them, and considerable exposure to the weather affects them but little. Ancient tiles are still found, sharp and apparently unchanged in colour, where stone of strong texture has crumbled almost into dust. Care is requisite, in order that the body clay of the tile and that introduced into the pattern have equal shrinkage, as otherwise the pattern will not be firmly attached to the body. Encaustic tiles made from well-selected clays, and properly burnt, will not, when broken up by a hammer, show any separation of the veneering from the body, or of the pattern from the veneering. In other words, a fracture across any joint between different clays will bring off portions of both in each and every fragment broken off.

But, apart from pugging the clay and first drying and afterwards burning the tile, the process of hand-moulding is not a rapid one. A good workman will mould from 200 to 220 tiles, each 6 in. square, and in two colours only, as an ordinary day's work. Plain tiles, or those in one colour, are moulded at the rate of only 750 quarries, each 6 in. square, per day, although very rapid workmen may turn out as many as 1,000. In the Potteries it is estimated that the cost of labour only in moulding and trimming encaustic tiles is from 1s. 9d. to 6s. per dozen tiles, or from 5s. 3d. to 18s. per square yard, according to the intricacy of the patterns and the number of colours filled into them. This may be much cheaper than mosaics, but the cost is still sufficient to preclude the use of encaustic tiles in a vast number of cases where, but for their cost, they would be most usefully and suitably employed. Where, on the one hand, the architect can command the means requisite for the best class of ornamental paving, he will naturally select the smaller and richly variegated *tesserae*, arranging them in mosaics of his own or of some approved design; but where he is limited to encaustic tiles, the very considerable difference between the cost of the plainer and the more elaborate designs will often induce him to employ the former, to the sacrifice of effect; and where the choice lies only between tiles and oil-cloth, the latter, although not nearly so durable, will commonly produce by far the best effect for the money.

It must have long ago occurred to many persons interested in constructive and decorative art, that to introduce encaustic tiles extensively it would be requisite that they were made by machinery. It is a singular thing that the art of working in clay—possibly the earliest of all the arts practised by man—should have been almost the last to derive advantage from mechanical ingenuity. Not but that there have been many attempts to employ machinery in brick-making; but even here it is but a few years, very few, indeed, since machine-made bricks were scarcely known. It is ten years only since the first step was taken towards the manufacture of encaustic tiles by machinery; the son of the late Mr. Samuel Wright, the inventor of the hand process already described, having, as a joint inventor, obtained his first patent in 1855. The encaustic tile machine, the joint invention of Mr. Samuel Barlow Wright and Mr. Henry Thomas Green, has been successively improved, until it now appears to have been perfected, and it is in successful use in the Potteries, although

not to an extent commensurate with the importance of the new manufacture. The machine is very simple, and its general construction and mode of action may be easily understood from a verbal description and without illustrative drawings. At one end of the machine are three common pug-mills, placed side by side in a row, in the direction of the length of the machine. The middle and larger mill is for pugging the coarser body clay, the other mills at the same time tempering the finer clay for the top and bottom veneering of the tile. The three pug-mills discharge their clay in three continuous streams, between a pair of polished rollers, which compress and, so to speak, weld the three streams into one. This is received upon, and carried forward by, an endless travelling table, or band, which extends horizontally for the whole length of the machine. As delivered upon this table, the compound stream of clay is of the intended thickness of the tile before burning, and of a little more than its intended width. It first passes under an impression roller, perhaps 2 ft. in diameter, and around the circumference of which are fixed the plaster dies, corresponding to the intended encaustic pattern on the face of the tile. In the old or hand process the die is flat and the face of the tile is formed by pressing the clay equally over its whole surface. In the machine the convexity of the die does not admit of a simultaneous impression of the entire pattern over the whole surface of the tile, the place of deepest impression, at any moment in the progress of the clay, being in a line across the width of the tile. But notwithstanding this fact, and that the alto-relievo surface of the die (being one-eighth of an inch, or so, further than the bottom from the centre of the impression-roller) moves forward about the one-hundredth part faster than the surface which presses upon the face of the tile, the impressions are nevertheless sharp, no matter how intricate the pattern may be. The impression-roller, as well as all the other working parts, must be driven so as to correspond exactly with the progress of the travelling table, or, in other words, with the progress of the advancing stream of clay. It will be understood that the impression-roller does not revolve by friction merely, as the clay is drawn under it, but that it is driven by gearing, at a definite speed, or, as mechanics would say, it has a positive motion. As soon as the continuous slab of clay has received the intended impression, it is cut into lengths corresponding to the intended size of the tile. This is effected by a guillotine wire cutter, which rises and falls at definite intervals, cutting the clay in its descent. Although the action of this cutter is only in the vertical direction it is so arranged that during the brief interval while it is passing through the clay it shall move forward with it, returning again to its original position after the cut is completed.

Simple as all the parts, so far described, may appear to be, everything depends upon absolute synchronism in their action. A greater amount of ingenuity, or, perhaps, it will be more truthful to say, of ingenious perseverance, has been devoted to this point than those unacquainted with the constant, but seldom recorded, skirmishes on the outposts of invention, would perhaps believe. Six years ago, my friend, Professor Hughes, or rather, his representative, Mr. Henry Hyde, described in this room his beautiful type-printing telegraphic instrument, to which, perhaps, we owe the introduction of the shilling telegram, which promises to become as general throughout Great Britain as the penny postage of Sir Rowland Hill. As in Messrs. Wright & Green's tile-making machine, so in Professor Hughes's telegraphic instruments, everything depends upon synchronous action; and this has been at last secured, beyond all doubt, in both inventions. In the tile-making machine, the rate of progressive motion is about 12 ft. per minute, corresponding to the moulding of twenty-four 6 in. tiles per minute, or to 14,400 in ten hours, as compared with 200 or so moulded by hand in the same time. It is absolutely necessary that the pug-mills deliver at the prescribed rate, that the polished compressing rollers move at that rate; and that the travelling table, the impression-roller, and the guillotine-cutter exactly conform to it. The rate may be 10, 12, or 20 ft. per minute; but, whatever it is, all the parts of the machine must, as they do, work in perfect concord with each other.

After the advancing slab of clay has been cut into tiles, it passes under a reservoir, or trough, of which indeed the procession of tiles forms the

bottom, and within which the clay for the contrasting colour of the pattern is mixed with water to the consistency of "slip." The slip is filled into the impressions upon the tiles, and overflows the whole surface of the tile to the depth of perhaps an eighth of an inch. The tiles are taken from the travelling table as they emerge from the end of the slip trough, and are conveyed thence to the drying-kilns, where they remain until they are of the firmness of wax. They are then taken to a machine, consisting of a vertical spindle, in rapid revolution, and having one or more cutting blades fixed to its lower extremity, and revolving in a horizontal plane, as in one form of planing-machine for planing wood. The tiles being placed, one by one, upon a horizontal bed-plate, which can be elevated or depressed through a small range beneath the revolving cutters, are rapidly surfaced, the overflowed slip being removed, and the pattern brought sharply out. This operation is almost instantaneous, and it leaves the tile with its two surfaces absolutely parallel with each other, and insures perfect equality of thickness in any number of tiles surfaced. Thence the tiles are squared to gauge upon the flat revolving side of a large grindstone, and, this operation being over, they are ready for burning.

The machine, with two or three attendants, does the work of from sixty to a hundred hand moulders. It works the clay more uniformly into goods than can be done by hand, and the slip pattern is deposited with more uniform density and with less risk of imprisoned air, so that the pattern burns better, and is still less likely than in hand-made goods to crack out from the body of the tile. Nothing, it is believed, can exceed the soundness and truth of the machine-made tiles here upon the table; the patterns being as integral with the veneering, and the veneering with the body, as if the various clays had been actually incorporated together into one homogeneous mass. On the other hand, although the machine can make tiles with most intricate and delicate designs, even to the filiform tracery or tendrill-like stalks of the most curious arabesques, it can only make bicoloured tiles, as the details of the pattern can only be filled from one and the same trough of slip clay.

Another, and possibly a still more important purpose of the machine is that of making both intaglio and relievo ornaments upon slabs of plastic clay, to be burnt into terra-cotta decoration for walls. In this way cheap and most durable friezes and dados, enriched ante, and other work, whether anaglyphic or sunk, and, indeed, ornate slabs for covering the entire façades of buildings, may—if we disregard the extra cost of the finer clay required—be made almost as cheaply as bricks themselves. No matter how enriched may be the design, these slabs may be produced by one machine at the rate of 5,000 square feet per day, equal to the encasing of a façade, allowing one-half its surface for windows, of 200 ft. long and 50 ft. high. Such ornamentation, produced by hand moulding, has been more or less employed for a long time, but it is costly in the first place, and it is commonly made of a close-grained clay, which does not withstand the weather as it ought. By the aid of machinery, with its increased power of compression and consolidation, a more open and durable quality of clay—that is, one having more silica—may be employed; and, at the same time, still larger slabs may be produced. The known cost of production is so low that it may be at once declared that such slabs may be sold at a cost below that of rough stone, at the quarry or without labour, the plainer slabs being sold at 6d. per superficial foot, and the enriched patterns, which are made with almost the same facility, at from 9d. to 1s. 6d. Ordinary bricks are now made by machinery, with projecting dovetails, and these bricks may be built into walls, so as to project from two inches to two and a half. The terra-cotta slabs are formed with corresponding grooves. When the brick-work is raised to the height of one course of blocks, these are affixed, and the joints run with cement grout; and the façade of slabs is secured in successive courses in the same manner until the whole is complete. In this way a building of a richly ornamented character could be erected in less time, and at as little cost, as the present unsightly structures in brick.

It may be that enough has been already said of the commercial advantages of the new manufacture. Far more might, however, be added. In the presence of so practical an assembly as this, it

may be as well to enable those who are disposed to check every statement of the cost of production, to do so with the light already derived from experience in working the new machine in the potteries. For a production of 12,000 6-in. tiles per day, or 2,000 square yards of tiles per week, about 72 tons of body clay and 45 tons of slip or veneering clay, would be required weekly. In certain localities, furnishing the required qualities, the coarser clay can be raised and moved for 3s. 6d. per ton, and the finer for 7s. 6d. per ton, including royalties, making 30l. 12s. weekly for clay. The coloured slips might cost 10l. more. The wages of men and boys at the machine are taken at 6l. 14s. per week, and the cost of labour in facing and edging tiles at 25l. The cost of setting, burning, and drawing the tiles may be set down as 18l. more per week. The coal for drying and burning, and for the engine, may be taken as 20l.; the cost for warehousing, sorting, and packing as 10l. per week; wages of engine-driver and fireman as 3l.; and wear and tear, oil, and grease, as 5l. The cost of management, clerks, and designs would be, say 21l. per week; rent and taxes, 1l. 6s.; commission on sales (450l. weekly at 10l. per cent.), 45l.; stationery and advertisements, for the first year, 22l.; loss and contingencies, supposing them to be 20l. per cent. upon the whole sales, 30l.; and interest on capital expended, say 30l. This makes in all, 387l. 12s., or say 16,800l. per annum. The sales, on the other hand, at 2,000 square yards weekly, for 50 weeks in the year, at the low price of 5s. 6d. per square yard, which is less than the cost of labour alone in making hand-made tiles of equal quality, would amount to 22,500l., leaving 5,620l. profit, or about 22½ per cent. profit upon a fixed investment of 25,000l., in itself ample for the working of a single machine. The profits upon an additional investment to the same extent, in the department of terra-cotta or ceramic decoration, making 30,000 square feet weekly, to be sold at 6d. per foot, would, upon the ordinary experience of potters, be quite as great. These details, the result of careful inquiry and of accumulated experience, are given rather to show the advantages in cheapness and in the character of work obtainable in the new manufacture. The architect—as are nearly all who are engaged in the arts of construction—is more or less bound in his designs by commercial considerations; and to give him a known material at a cost commercially within the limits of general application, where previously it could only be sparingly employed, is virtually to give him a new material.

THE HOMERIC MARBLE.

MR. GRIFF has presented to University College, London, a large and costly work, by Baron H. de Triqueti, entitled by the sculptor, the "Marmor Homericum." It has been called a *sgraffito*, and so it is, in so far as *sgraffito* means "scratched." But it is not the sort of work that is ordinarily described by the term. This is the mode of executing a *sgraffito*: the ground is prepared with dark stucco, on which a white coat is applied. This white coat being scratched away with an iron instrument, the black ground is seen through, and forms the shadows. In M. de Triqueti's work, on the other hand, the forms are engraved on marble, and filled in with coloured cements, which, the sculptor asserts, have "the same hardness, adherence, and durability as the marble itself." This, however, we must take leave to say, is open to doubt; and, should the colours fly, in the way we know them to do from the monumental stones of our cemeteries, the picture would of course proportionably disappear.

The "Marmor Homericum" consists of a large central composition, with smaller compositions in a border all round it, and marble bas-reliefs at the four external angles. The central group represents Homer singing to the Grecian people of Delos. "His song depicts the agony of Andromache." Around him are grouped the Delian maidens attached to the Temple of Apollo, with listeners of various character. In the border, on the left side, top and bottom, we have a symbolic figure of the Iliad suspending, in token of triumph, the shield of Minerva at the feet of Victory; the quarrel of Agamemnon and Achilles; and Achilles, in his tent, mourning with his followers the death of Patroclus; Priam, embracing his knees, supplicates him to surrender the body of Hector. On the right side are a symbolic figure of the Odyssey.—Calypso,

in obedience to the commands of Jupiter, conveyed by Mercury, consents to the departure of Ulysses; and Ulysses slaying the suitors. The first arrow has pierced the throat of Antinous, who overthrew in his fall one of the festive tables.

The white marble retains its natural colour for the flesh, and is modelled by slight hatchings in red, indicating the principal forms; while in the back-ground, draperies, and accessories, the engraved lines are filled with cement of various colours.

The question of durability, as regards the coloured cement, is of importance to us, inasmuch as M. de Triqueti is commissioned to execute a number of pictures in this manner for the Memorial Chapel at Windsor. The "Marmor Homericum" is in many respects a fine work: the forms are for the most part good, and the intended expressions are well conveyed. It is not to be denied, however, that its general effect is somewhat cold and hard.

DWELLINGS FOR THE LABOURING CLASSES.

THE committee appointed by the council of the Society of Arts to consider this subject have made a report, from which we take some passages:—

At the first meeting of the committee it was unanimously resolved that it was not necessary to collect facts to establish the unfitness of the greater part of the dwellings of the labouring classes as habitations for respectable and well-conducted families, or to prove that the excessive overcrowding which now exists in such dwellings promotes crime and immorality, harbours disease, and materially lessens the effective power of the working classes, by injuring their health and shortening the duration of their lives.

Nor was it considered necessary to inquire into the effect produced by these badly-constructed, ill-ventilated dwellings on the poor rates, or into the amount of discontent which the admitted want of proper dwellings creates in the minds of the working-classes. The committee also recognised the distinction which must be drawn between associations for providing improved dwellings by investments for the labouring classes, the capital for which is subscribed with the double object of obtaining a fair interest on the money advanced, and of elevating the social and moral condition of the working classes, and the regular investment in such buildings by builders who must obtain the ordinary commercial profit on capital used in business. In the first case, a dividend of 5 per cent., with an ample fund to provide for all contingencies, might be considered sufficient, whilst in the other case a very much larger return would be required. Considering these facts as fully established, the committee proceeded to inquire into—

1. The causes which appear to retard the erection of proper house accommodation, and the improvement of existing houses, for the working classes in town and country.
2. The operation of imperial and local taxation on such dwellings; and the expediency of relieving them from all or a portion of such taxation.
3. The effect of the law of settlement and removal of the poor upon such buildings in country districts.
4. The probable effect of extending the area of local taxation in town or country.
5. The operation of the laws relating to the transfer of real property in small plots, and the conveyance of chambers and suites of rooms.
6. The operation of the destruction of houses by railways and other local improvements.
7. The desirability of facilitating the conveyance of labourers to and from their work by railway.
8. Whether the provisions contained in the existing Acts of Parliament for granting loans for the improvement of estates, might not be extended to the building of cottages, and if so under what special conditions.
9. Whether the provisions of the Common Lodging-house Act, and other statutes relating to the public health, might not be advantageously extended.
10. Whether there are any other means by which the Legislature can promote the object in view.

It was at first proposed to divide the subjects between three sub-committees, according to their relation to town dwellings, country dwellings,

and proposed legislation; but it was found in practice better to amalgamate the sub-committees, as the subjects referred to each sub-committee were so similar. The following gentlemen attended the meetings: Mr. W. Hawes (chairman), the Hon. and Rev. S. Best, Mr. D. R. Blaine, Mr. C. B. P. Bosanquet, Mr. C. S. Barker, Mr. Edwin Chadwick, C.B., Mr. G. R. Burnell, Mr. H. Cole, C.B., the Right Hon. W. Cowper, M.P., Mr. J. B. Denton, Mr. J. Dillon, Mr. H. B. Farnall, Mr. P. Le Neve Foster (secretary to the Society of Arts), Professor Fawcett, Mr. C. Galliff, Mr. G. Godwin, F.R.S., Dr. Greenhill, Mr. T. Hare, Mr. H. Harwood, Mr. E. T. Holland, Mr. C. Wren Hoskins, Mr. H. Maynard, Mr. H. Pownall, Mr. S. Redgrave, Mr. B. Shaw, Dr. E. Smith, F.R.S., Mr. S. Teulon, Mr. T. Twining, Mr. G. H. Walker, Mr. Alderman Waterlow, Mr. G. F. Wilson, F.R.S., Mr. T. Winkworth, Mr. J. Young; and Mr. M. Ware, who acted as secretary to the committee.

Various resolutions were passed with respect to the questions considered by the committee, the recommendations of which are embodied in this report.

Improved Dwellings for Labourers not Remunerative.—It was shown that labourers living in the metropolis and other large towns pay a larger proportion of their income for rent than any other class in the country, and even then are unable to obtain suitable accommodation. The immediate cause of this state of things, in places where the law of parish settlement does not cause an additional difficulty, is the fact that providing such dwellings for labourers has not been found commercially remunerative. The efforts of societies and benevolent individuals are every year becoming more extensive, and from the beginning have been appreciated by the industrious classes. They have already accomplished a great amount of good, and have set an example which, it is hoped, will be more extensively followed; but it will be long before the existing evils can be more than slightly mitigated by such means. At present the dwellings provided in this manner in the metropolis only accommodate about 7,000 persons, and the commercial results are not such as to encourage builders and capitalists to undertake the building or renovation of dwellings for labourers as an ordinary matter of business. It appears, from the statistics collected by the Society of Arts, that it rarely happens that such undertakings produce a higher dividend than five per cent. on the original outlay, and that in most cases the returns are smaller. This rate of interest may be expected to satisfy a large number of capitalists, who are willing to accept a moderate return upon capital when connected with such important philanthropic objects; but it can hardly be expected that dwellings will be provided in anything like sufficient numbers until they can be made to produce such a return as will compensate a builder for investing his capital in this kind of property, attended as it is with so much more risk and trouble than houses of a superior class.

The difficulty of remedying this state of things is aggravated by the fact that the wretched houses which too many of the labouring classes now inhabit are, in their present condition, highly remunerative to the landlords. Consequently such houses fetch a high price when brought into the market. They may be made to yield a good profit in the hands of those who care nothing for the moral and physical well-being of their tenants; but the expense of putting them into proper sanitary condition, and adapting them to the wants of respectable working men, reduces the returns so much as to render the undertaking, in a commercial sense, unprofitable.

Enforcing the Sanitary Laws.—Whatever progress may be made in building or adapting houses by individuals or societies, the great mass of the labouring population for many years to come must necessarily live in very crowded neighbourhoods, in houses now existing, and not originally adapted to contain several families under one roof.

It is, therefore, of the first importance that the owners of existing houses, inhabited by the poor, should be obliged to provide those sanitary appliances which are required for the preservation of the health of their tenants, and to check, when it occurs, the progress of infectious disease. Long experience has shown that nothing but constant inspection and compulsory measures will meet the carelessness and cupidity of the owners of this kind of property.

The present sanitary laws are comprehensive, and on the whole efficient, although there are some particulars in which the committee think they require amendment, especially with relation to the inspection of houses let to lodgers, but not now subject to the provisions of the Common Lodging-house Act. The provisions of the sanitary Acts are not, however, sufficiently known, nor do those who are qualified by intelligence and position to attend to the sanitary condition of their own neighbourhood interest themselves as much as could be desired in seeing that the powers of the law are put in execution.

The committee recommend that a concise analysis of the sanitary laws should be prepared, and that the defects of the existing law should be printed and circulated. In this way the attention of men of education and intelligence would be called to the subject, and they might be induced to take part in sanitary work in the neighbourhood in which they reside or carry on business.

In the country districts the sanitary condition of the people is regulated by the Nuisance Removal Acts, 18 & 19 Vict., c. 121, and 23 & 24 Vict., c. 77, and the Local Government Act, 21 & 25 Vict., c. 98; the power being vested in the Local Board of Health, or, if there be none, in the corporation of towns, boards of guardians, or parish vestries, according to the circumstances of each locality.

In the City of London the power is vested in the Commissioners of Sewers, under the Acts regulating the administration of the City.

In the other metropolitan districts the vestry or district boards are the local authorities for the removal of nuisances, under the Metropolitan Management Acts, 18 & 19 Vict., c. 120, and various Amendment Acts.

By the 21 & 22 Vict., c. 97, the powers of the General Board of Health were transferred to the Privy Council, which has a general superintendence of sanitary matters. This branch of their duties is practically exercised by the medical officer of the Privy Council. The committee think that there should be a committee of the Privy Council constituted as a separate department, to which appeals might be made from the local authorities, and whose duty it would be to consider the recommendations dictated by the experience of the district medical officer.

They also recommend that the appointment of proper inspectors of nuisances should be compulsory in all places, so that it should be the duty of such inspectors to report forthwith to the local authorities all nuisances which exist without waiting for the complaint of other persons.

The committee further recommend that the medical officers of health should be irremovable without the consent of the Privy Council, and that the amount of their salaries should be subject to the approval of the same authority. The duties of these officers, if properly performed, are liable to bring them into collision with the interests of persons having influence in the vestry, and it appears of great importance that their independence of action should be secured.

It appears also to the committee, that both the Nuisance Removal Acts, and the Metropolitan Management Acts, are deficient in not giving to the local authorities sufficient powers to oblige the builders of houses to make proper provision for drainage and ventilation.

The 29th section of the Nuisance Removal Act (18 & 19 Vict., c. 121), also requires amendment. It gives power to the local authorities to take proceedings against the owner of a house inhabited by more than one family, if it shall be found to be overcrowded; but it leaves in doubt the case where particular rooms in a house are overcrowded, as well as the case of a single family in a small house of one or two rooms. It is, however, to be remarked that the medical officers find it impossible to interfere as they wish with the overcrowding of houses, because of the difficulty, it should rather be said the impossibility, of the poor finding accommodation elsewhere. In this, as in other details of sanitary inspection, over-strictness may become oppression, and aggravate instead of alleviating the hardships of the poor. Until more and better dwellings are provided, and until the labouring classes have learnt more fully themselves to appreciate the blessings of air and cleanliness, no sanitary regulations can be satisfactorily carried out.

The committee, in conclusion, recommend to the Council—

1. That corporations, limited owners, &c., should have increased power to sell land for the

erection of dwellings for labourers, under conditions as to proper drainage, ventilation, and sanitary regulations.

2. That the Public Loan Commissioners should be authorised to lend money, at a rate not exceeding 3½ per cent. per annum, for building dwellings for the labouring classes, under suitable guarantees and with due regard to sanitary arrangements.

3. That in all future railway Acts, and Acts for local improvements, when houses inhabited by the working classes are destroyed under compulsory powers, such companies should be compelled to provide, within a convenient distance, other dwellings in lieu of those destroyed.

4. That the following amendments should be made in our sanitary laws—

a. That the appointment of inspectors of nuisances throughout the country should be compulsory.

b. That increased power be given to the proper local authorities, to oblige builders of houses to provide adequate drainage and ventilation.

c. That the medical officers of health should be irremovable without the consent of the Privy Council, and that the amount of their salaries should be subject to the approval of the same authority.

d. That houses in which lodgers are taken, especially where particular rooms in a house are overcrowded, should be brought under more efficient inspection.

5. That, with the view of extending an accurate knowledge of the powers contained in the various Acts relating to the removal of nuisances, the council is recommended to prepare and publish a concise analysis of the existing law, calling the attention of the educated classes to this important subject, and pointing out how they may, merely by a little attention and exertion, confer most important benefits upon a large mass of working people, and upon the country generally.

6. That the council be requested to take such measures as it may think advisable to bring the first four of these recommendations as soon as possible under the notice of her Majesty's Government.

BRIGHTON.

It is intended to form a limited liability company for the purchase and rebuilding of the present theatre, or the erection of a new one, and about 6,000*l.* worth of shares are already promised to be taken up. Two sites on the Pavilion estate are probably open to negotiation, and there are now two others equally eligible. Mr. George Cobb, the owner of the existing theatre, is willing to arrange as to the purchase of the present theatre.

A new "Catholic Apostolic" church has been built and consecrated, in the angle formed by Carlton-street with the Grand Parade. The congregation are commonly known as "Irvingites," although they themselves repudiate this and every other sectarian title, calling themselves simply members, together with all baptised Christians, of the one Catholic and Apostolic Church; or, in other words, they are desirous of adding all other sects to theirs. Their distinctive position is said to result from their belief that the Lord of the Church has already restored apostles and prophets to prepare it for His own immediate coming, although it is said that His second coming will be sudden and unexpected, and although, at His first coming, He first came and then appointed His apostles, without any such preparation in His absence.

The new building is entered from Carlton-street by a Gothic arch, from which a narrow pathway leads to the north door. It is plainly built, in the Gothic style, the material being variously-coloured bricks, with occasional stone facings. The window over the altar is coloured, and other windows are, it is said, intended to be also coloured. The seats are all free and open, made of light wood, and facing the altar, which stands at the west end. The chancel is spacious, and furnished with the necessary chairs, kneeling-desks, &c.: at its south side, but external to its precincts, stands the pulpit, opposite to which is a harmonium.

The first stone of the new workhouse has been laid, on the site purchased thirteen years ago, for the parish of Brighton, at the top of Elm-grove, where considerable progress has already been made in getting out the ground, and putting in the foundations of the building. Mr. G.

Maynard, of Brighton, is the architect; and Mr. J. Reynolds the builder.

The governors of the Sussex County Hospital have decided on a plan for the enlargement and improvement of their hospital, at a cost of 4,206*l.* The plans have been provided by Mr. Scott, a local architect.

THE HOLBORN AND WHITECHAPEL IMPROVEMENT ACT.

This important measure has received the Royal assent. With reference to Middle-row, Holborn, it provides for the speedy removal of that portion of the public thoroughfare of High Holborn which has been for many years an impediment of a serious character to the traffic east and west of the metropolis, known as Middle-row, Holborn, in the parish of St. Andrew, Holborn-above-Bars, immediately westward of the City boundary in that direction. The words of the Act are (sec. 7), "To widen and improve the public thoroughfare of High Holborn, near its junction with the city of London, at Holborn-bars, by removing the dwelling-houses, messuages, and premises forming the north side of the passage or place commonly called Middle-row, and lying between that passage and the north side of Holborn aforesaid."

High-street, Whitechapel.—The Act also provides for the opening up of a spacious and convenient communication between High-street, Whitechapel, at its junction with Leman-street, and Commercial-road East, at its junction with Church-lane, the said extension "to commence at or from High-street, Whitechapel, at or near its point of intersection by Leman-street and Commercial-street, and terminating at or near the west end of the street or road called Commercial-road East, at its junction with Church-lane."

The Act is to be carried out by the Metropolitan Board of Works.

ARCHÆOLOGIC ITEMS FROM ROME.

The longer one considers the procedure of those responsible for the interests of antiquity in Rome, the more is one astonished at those inconsistencies and the strange contrasts from time to time presented, between inertness and zeal, carelessness and neglect. For some time have been progressing works for a new road towards the central railway-station, which now obtrudes a frightful and paltry front on the planted esplanade where the Thermæ of Diocletian rise in ruins, to so great a degree obscured by the Carthusian monastery in their midst. Various remains of those imperial baths, in form of low brickwork vaults, extending in a direct line westward from the entrance to the monastic church, have been gradually laid open, and we may suppose these to be bathing-chambers for private use, of whose masonry only remain inner walls and hemicycles thus preserved. Nearer to the church front have been found other objects—the remnant of a semicircular structure in lateral brick, two wells of some depth, two marble baths, the imperfect shaft of an enormous granite column, and various other fragments in marble. One detail worth noticing is the *opus reticulatum* in these smaller structures, a series of semicircles, like the inner extremities of many ancient Roman interiors, being in this style of tufa masonry, said to have fallen into disuse soon after the time of Antoninus Caracalla, but in this instance shown to have been continued by Roman builders till the beginning of the fourth century. The absence of statuary from these thermæ is accounted for by what several writers of past ages—Albertini, Flaminio Vacca, Ficorini—tell us respecting the successive discoveries and removal of buried sculptures from this site, between the earlier years of the sixteenth and the end of the seventeenth century; on one occasion eighteen busts of philosophers, immured together in a recess like an oven, as described by Vacca. The same line of new road is now being carried on through a hitherto solitary and picturesque region—the narrow valley, occupied by gardens, between the Quirinal and Viminal Hills. Opposite the isolated old church of S. Vitale, on the slopes of the Viminal, has been laid open, a long substruction, partly of the same reticulated tufa, partly of brickwork, opening in several niches, or small chambers, along the front, with vaults retaining coloured stucco on their surfaces; in one of these was a mosaic, not without beauty, representing a female in the act of leaving the bath, whilst a servant-maid presents to her

a mirror, which valuable art-relief, through the clumsy proceeding of those who endeavoured to detach it from the wall, was totally destroyed. On the story supported by this substructure are traceable the plans of several rooms, with some portions of wall, on the stuccoed surface of which are painted ornaments of graceful character; elsewhere, on the areas of two chambers, remains some tessellated pavement; and, under the acclivity of the hill, open several galleries, or tunnels, whose walls are covered with inland work known as *opus signinum*. As yet we are left quite in the dark respecting the future fate of these lately disinterred ruins; but antecedents must lead us to conclude that they will share the destiny of various other antiquities in Rome, swept away for utilitarian purposes. Thus were doomed to disappear the structures found, in 1862, near the railway station, consisting of a cupola-roofed hall, and several bathing-chambers, enriched by mosaic pavements and fresco-pictures representing females in the act of dressing or undressing before and after the enjoyment of the bath. Another interesting discovery, among results of the works for levelling on this spot, was that of the Agger, and a remnant in massive stone courses of the walls called after Servius Tullius; and, though the originals of those frescoes have been destroyed, we may console ourselves by the knowledge that, in copies at least, they will be handed down to posterity, as engraved in the annals of the Archaeologic Institute.

Two sites, where the Papal Government is now carrying on excavations, are Ostia, and an estate on the western slopes of the Palatine Hill. At that ancient part of Rome has lately been opened a sepulchre, whose owners were the Cæcilian family, profusely adorned with stucco reliefs and paintings; among the subjects of the latter, figures of a priest and a genius; Saturn in the act of seizing one of his children while a stone is presented to him by Rhea; also the "Rape of Proserpine." In a sepulchre near this had been previously discovered several other mythologic paintings,—"Orpheus and Eurydice," "Hercules and Proserpine," and one of the numerous mosaics, in temples or thermae, found at Ostia, within recent years, is now being laid down in a hall (not yet public, but eventually to be so), in the Vatican.

The excavations ordered by the Emperor of France, on the Palatine, are being prosecuted with regular activity; and the public are admitted every Thursday to see discoveries important in respect to light thrown on topography and general plans in the very complex structures on that Imperial Mount.

The Pope has approved a project for enlarging the Lateran basilica, by the addition of arcades and pilasters, between the transepts and the tribune, which would involve the necessity of taking down (to be reconstructed) the most interesting, the only venerable and hitherto unspoilt antique portion of this church; its apse, namely, with the fine mosaics of the thirteenth century, and the (for Rome) unique example of the semicircular pillared aisle, with groined vaulting, behind the same ancient sanctuary, part of the buildings raised in the tenth century. That such procedure should be projected by artists, and approved by highest authority here, is a deplorable fact quite beyond comment.

The English Archaeologic Association has held four meetings since its birth in the last month,—two for the examining and explaining of ancient churches *in situ*; one at the Christian Museum, in the Lateran Palace, for the study of the monuments in that collection; and one at the English Consulate, for a lecture on "Ancient Roman Mosaics in Great Britain," delivered with much ability and knowledge of the subject by Dr. Wollaston, who illustrated his exposition by various coloured drawings and engravings as he proceeded. As this society is now definitely organized, its vice-presidents (Lord Talbot de Malahide being president) are the Hon. Henry Walpole, the Rev. Dr. Smith (a Benedictine priest and professor of Hebrew), Mr. Severn (H.B.M. Consul), Mr. G. N. Parker, and Mr. C. D. Fortnum; and a committee of six members,—Messrs. J. Lecky, Christie Miller, Charles Perkins, C. J. Hemans, Francis Samwell, Charles Wilshire,—meet, as occasion requires, at the house of the secretary, Mr. Shakspeare Wood. After the last lecture, which gave general satisfaction and elicited a vote of thanks to Dr. Wollaston, the committee met to bring to a close the proceedings of the season, in the intent of resuming operations, with ampler means and larger projects it may be hoped, in the ensuing autumn. On an average about fifty ladies and

gentlemen have been the number of auditors hitherto at the several *réunions*, to which admission is by ticket or invitation, the party who reads on, or otherwise explains the archaeological subject of the day being entitled to invite six strangers: occasional hearers admissible by tickets at one scudo.

HOW METROPOLITAN NEIGHBOURHOODS GROW.

THE CALEDONIAN-ROAD, ISLINGTON.

It happens to be Saturday night; brilliant gaslights are blazing. In all directions the shops of the grocers, butchers, bakers, green-grocers, coal dealers, pawnbrokers, stationers, newsmen, and others are thronged with customers: the resplendent public-houses and beer-shops, which stand on the line of this thoroughfare, number about twenty: the goods of leather-dressers' and grinders' shops, tailors, hair-dressers, and almost everything which is needful for the support or covering of the body, are here now to be found in profusion. Even the coffinmaker has not failed to establish his trade. Ballad-singers, beggars of various kinds, a long line of costermongers, their goods lighted with smoky lamps; fish, fruits, and flowers, are mixed in profusion; and in the press and confusion of this part of the thoroughfare it is scarcely possible for the people who are marketing to pass along the foot-path.

Remembering the scene which was presented here about twenty-five years since, the change is remarkable. Then at King's-cross stood that statue which has given name to one of the most bustling and important central points of the metropolis of the present date. The Fever and Small-pox Hospital stood in its own grounds, on a site which forms part of the front of the Great Northern Railway terminus. Agar Town, and the changes which are in progress there, have already been referred to by us; but for the present purpose it will be sufficient to mention that at the date in question there were two lines of road leading from King's-cross or Battle Bridge northward, viz.—Maiden-lane, now the York-road, and Chalk-road. With the exception of the large tract on which the premises of the Great Northern Railway Company stand, the York-road, until it reaches the new Cattle Market and Camden Town, has been but little changed. The old taverns have been enlarged, and some new ones built in anticipation of increased traffic arising this way in consequence of the removal of the Cattle Market: on the west side of this road there was a view over the fields to Agar Town, and Belle Island formed the northern point of building on the east side.

Along the Euston-road, as it is now named, to the "New" St. Pancras Church, the transformation of the garden-ground into shops is being carried on extensively. Statuary, architectural ornaments, and other matters are displayed. Amongst them is a monster reflecting-telescope, and there may be also noticed the covered sheds of carriage-makers, and others: where flowers and shrubs formerly grew, the sheds of the photographers now are reared; and in this and in other parts of the same road, the covered seats which, shaded by trees, stood in the frontage of the public-houses, in which, on Sundays and holidays especially, the Londoners liked to partake of refreshment and enjoy their rest, have been removed to make way for gaily-decorated and handsomely-fitted bars, in which "Old Tom," the "Dew" from Glenlivet, and other evil commodities are shown to the best advantage.

About twenty-five years since Mr. Rhodes's fields of mangold-wurzel, and other parts of his great milk-farm, kept a considerable space open from the neighbourhood of Mornington-crescent towards the old church of St. Pancras. Part of Camden-street, College-street, King's-road, Friar-street, Clarendon-street and square, &c., were built, but in the neighbourhood there were several nursery gardens; on portions of these the model houses for families, and Oakley-square, have been erected; then, looking westward from Maiden-lane, the huge dust-heap, the dwarfed and unwholesome cottages, the picturesque weather-beaten tower of the old church, the thick white masses of the grave-stones of St. Pancras and St. Giles-in-the-Fields, the unsightly range of the workhouse, and afterwards the temporary church and school, formed a sort of margin between Camden-town, Somers-town, and Islington.

Near Battle Bridge, on the "Chalk-road," now

the Caledonian-road, a few houses had been erected: amongst these are Caledonia-crescent, and some of those houses which are still remaining near this point; but standing here and looking northward was seen an open road. In parts the hedges and palings had been broken down, and what had once been green meadows had either been trodden by numerous foot-steps, or broken by chalk and other quarries. In one part on this ground there was a group of ill-constructed hovels, in front of which were swings, ginger-beer and fruit stalls, pop-guns, pitch-and-toss, and other doubtful kinds of amusement, which were allowed to go on with the greatest activity on the Sundays. Then (a quarter of a century since) we have no recollection of buildings, except sheds, along the line of this road from near Battle Bridge to the Royal Caledonian Asylum, an excellent institution, from which this now well-known thoroughfare has been named. In several directions the tile and brick makers might be seen at work, and the line of the Caledonian-road became more distinctly marked; the foot-path was indicated by a marking of curb-stones; and no end of rubbish was shot on what was afterwards destined to be the carriage-way, over which, in succeeding years, countless numbers of vehicles and droves of animals of various kinds were to move from year's end to year's end again,—from morning to night and night to morning, with a slight lull of an hour or two in the night,—when even the metropolis is in a state of quiet and repose. Notwithstanding, the road for a long time continued to be of a troublesome nature,—and especially when the weather was wet: when the thaws in winter time occurred, it was not good for either man or beast. Improvements came slowly, and builders and others saw the value of this road as a means of communication between the Borough, the City, and the vast population which is in the course of being planted in the north-west portions of Islington, in Highgate, and in the districts of Camden Town, Holloway, &c. There seems, however, to have been a sort of rivalry between the York-road and the Caledonian-road; and certainly the former is very direct in its course towards the neighbourhoods mentioned; and also to Hampstead, the Regent's Park, and elsewhere; whereas at the north extremity of the Caledonian-road there is a troublesome elbow, which was made formerly of more consideration, by reason of the turnpike-gate which blocked up the freedom of the way in all northerly directions. The results of experience, however, show in favour of the Caledonian-road; for, with the exception of the railway works in the York-road, the place has made but little progress; whereas, in the other instance, the onward course has been remarkable.

Near Thornhill Bridge, not far from All Saints' district church, is one who carries on the business of a chemist and druggist, and who also manages one of the two district post-offices which are now in the thoroughfare, and to whom we are inclined to give the position of the oldest inhabitant; for when he opened his shop there was no other finished and occupied. Then, however, the land, on which there was soon to be gathered a large population, had for the most part been partitioned out in a wholesale way: the lawyers were kept busy enough in preparation; and then more lawyers, on a smaller scale, arranged for the sub-division and terms of ground-rents. All this was, however, done with due regard to the ideas and instructions of the chief proprietor, into the possession of whose family it is probably destined to fall in after-years. Then came the negotiations of builders; and, always having reference to the original intention, the neighbourhood began to be planned out, and places of less traffic were joined to this leading thoroughfare. But the main road was itself a source of trouble, and long after this had been reduced into some kind of order, the tributaries were a cause of annoyance; and even now we doubt if the drainage is in such good order as it should be. However, as time passed on, the Caledonian-road presented a handsome and complete appearance, for both the roadway and footpath were wide, and in parts, where the shops had not been brought out, the garden space, of somewhere about 30 ft. on each side, added to the good effect; and, although the Caledonian-road seems to have been planned as nearly as possible along the line of the original way, it is for a considerable distance perfectly straight,—a circumstance which helps to the general effect.

The gas-lighting, the water-supply, the pave-

ment, the houses and shops, &c., being in tolerable order, the tenants were not long in taking possession; but the time of their stay, except in very few instances, was of very short duration. And it is to be remarked here, as we have noticed it in other localities, the publicans and those who are connected with medicine were the first to commence business; for in the metropolis, except under peculiar circumstances, business comes slowly to the newly-established medical practitioner, and it is often found to his advantage to begin in a recently built and improving neighbourhood. In the Caledonian-road, without taking into account the streets which lead into it, there are now either nine or ten medical practitioners and chemists. Public-houses are also a matter of much speculation: persons who have capital and a fair character purchase or take a lease of one of those large buildings which are reared in what seems to be a desert region, for the purpose of a public-house: for this a beer licence is easily got, and a trustworthy person is put in to manage, and in due

sively brought into use; and the observant wayfarer will note the increased number of assistants who are behind the counters, and the substantial Oxford-street kind of appearance which the road begins to assume. The great Model Prison, as it is called, is a feature of the Caledonian-road; and towards the north, where a junction is formed with the Holloway-road, there is a view of the City prison. These are in no way connected with the prosperity of the neighbourhood, but in this way the new Cattle Market has done useful work; and although the viaduct of the North London Railway has not added to the picturesque beauty of this street, it has brought into it a very large amount of traffic. In the mornings thousands, with carpet-bags in hand, come and go this way citywards: many go to the King's-cross railway station, which has also been a means of causing numbers to come this way. Often at night-time we used to come westward from Islington; and, when we think of the solitude which then reigned, and of the quiet nooks

elsewhere in Ireland. In 1862 a minute description of them was given in a series of articles in *Harper's New York Magazine*. One of the numerous illustrations accompanying them



represented a skeleton which was found "standing with its face to the east," and enclosed between slabs of stone. The student of Celtic antiquities will not require to be reminded that, before his death at Tara, King Leaochaire (Leary) directed that he should be buried "standing, with his face to the east." The place where he was buried is so precisely indicated in the "Annals of the Four Masters," that there would be no difficulty in digging up his skeleton. E. CULLEN, M.D.



Building in advance.

course of time the proprietor applies for a spirit licence, and this, if the position is well chosen, is worth five or six hundred pounds, and often a very much larger sum. In some cases the speculator is satisfied with this amount of profit, and he disposes of it to some one who intends either to try to make a living out of the business, or to improve it, so that, as the locality improves, the sale of the goodwill, &c., would produce a larger sum in the market; and in this way, in the course of a few years, premises of this kind change hands with profit several times. In connexion with business of this kind, the sums advanced by the great London brewers, so that they may ensure the opportunity of supplying houses with ale, porter, &c., are enormous.

At the first opening of the shops in this thoroughfare, they seemed in most instances to be a sort of forlorn hope. Some houses and shops were let to women whose husbands were engaged in some pursuit which turned in a small but certain amount of income, with a view to add to the sum provided for the family support. Many opened newspaper and tobacconist shops: they also let off apartments; and in consequence of not getting the rent regularly, and not rightly understanding the trade in which they had embarked, such persons have often found themselves in a very short time in debt to the extent of 100l. or 200l. and more. Widows, and persons who have failed in business, have in these new shops embarked all they possessed in the toy or sweetmeat business, and have generally lost it. Some, with ill intention, have taken houses at a quarterly rent, and having let apartments with flourishes of music, have soon become closed; and the experienced eye might formerly have noticed a large quantity of "dummies," in the shape of hams, sugar-loaves, tea-chests, and other things sold in the chandlers' trade. As the adjoining streets began to become properly inhabited, businesses began to have more substantial results; and there could be no doubt that the butchers', and some of the other shops, had become firmly established, and year after year the number of removals has become smaller. And as the demand for shops became greater, the gardens were taken possession of, and devoted to trading purposes; and now the old shops are being newly decorated, plate-glass and brass-work are more exten-

sively brought into use; and the observant wayfarer will note the increased number of assistants who are behind the counters, and the substantial Oxford-street kind of appearance which the road begins to assume. The great Model Prison, as it is called, is a feature of the Caledonian-road; and towards the north, where a junction is formed with the Holloway-road, there is a view of the City prison. These are in no way connected with the prosperity of the neighbourhood, but in this way the new Cattle Market has done useful work; and although the viaduct of the North London Railway has not added to the picturesque beauty of this street, it has brought into it a very large amount of traffic. In the mornings thousands, with carpet-bags in hand, come and go this way citywards: many go to the King's-cross railway station, which has also been a means of causing numbers to come this way. Often at night-time we used to come westward from Islington; and, when we think of the solitude which then reigned, and of the quiet nooks

THE PETROGLYPHS.

SIR.—Having read with great interest the articles which have appeared in the *Builder* relative to the petroglyphs, or circles incised on rocks in Northumberland and Scotland, it occurred to me that they might have had some symbolical meaning in reference to serpent-worship, and that the cup-like hollow in the centre might have been intended to represent the head of the serpent. This conjecture will appear somewhat plausible when it is considered that similar markings have been found on rocks in Central America, and that occasionally also, in the same country, representations of a serpent have been discovered. On this point the following extract from a letter from the Hon. E. G. Squier, American consul at Nicaragua, may be interesting: "Leon de Nicaragua, October 10, 1849. A short distance back from Santiago is the crater of an extinct volcano filled with water. It is surrounded by bare cliffs, some 3,000 or 4,000 feet high, in all places perpendicular, and having but one narrow descent to the water. Upon these cliffs, at the height of 50 ft. or even 75 ft., are paintings of the aborigines, precisely in the style and of the character of those found in the Mexican and Guatemalan MSS. They more closely resemble those of the MS. of the Royal Library of Dresden than any other, which MS. I am convinced was of Guatemalan origin. Some of the figures are identical, and amongst them stands out the symbolical feathered serpent, of which I enclose you a sketch. This is a valuable fact in my serpent philosophy. The lake bears the name of Nehapa."

A more decided instance of resemblance between the Celtic remains and those of extinct American races is presented by the mounds which have been found in immense numbers from Ohio to Mexico, and which are precisely similar in construction to those at Dowth, and

THE CHURCH OF THE AUGUSTINE FRIARS, OLD BROAD STREET, LONDON.

WHEN fire some time ago destroyed the roof and fittings of the church formerly belonging to the house of the "Austin" Friars (founded in the year 1243) the removal of the ancient structure, it will be remembered, was threatened. Fortunately, however, better councils prevailed, and London still retains one of the landmarks of its ancient history. Henry VIII., at the dissolution, gave away the house and grounds, but reserved the church, which his son, Edward VI., gave to the Dutch or German nation (1550) "to have their service in, for avoiding of all sects of Ana-Baptists, and such like." From that time to this it has continued in that use. In our second volume will be found views showing the aspect of the church at the time of their publication.*

The present fabric is the nave only of the original building, which was granted by Edward the Sixth to the strangers in London. This contained also, north and south transepts, choir, chapels of St. John and St. Thomas, chapter-house, cloisters, &c., and there was a remarkable spire, or *fleche*, at the intersection of the cross, all of which were destroyed by the Marquis of Winchester, to whom they had been granted at the Reformation.

The extreme length between the walls is 163 ft., divided into nine bays; the extreme width is 83 ft., the nave being 32 ft. in the clear, and the aisles 21 ft. each. The internal walls are of chalk, and have been carefully restored; the external facing is of Kentish rag, the restoration of which has also been commenced. The window-tracery, where too much decayed to be retained, has been restored with new Portland stone, and all the windows have been reglazed with plain glass, by Messrs. Powell. The roofs of the nave and north aisle, which were destroyed by the fire, have been replaced by under-boarded roofs of fir, and the plaster ceiling of the south aisle was removed, and the old roof made to correspond. The tie-beams which secure the walls together form an important feature of the design. The old south porch has been removed. The new interior fittings are all of oak, as are also the two vestries at the ends of the north and south aisles. The general works have been carried out by Messrs. Browne & Robinson; the oak fittings, by Mr. Spawl, of Norwich; the encaustic tile paving, by Godwin, of Hereford. Messrs. Hill & Sons are building the organ. Messrs. Edward Tanson & William Lightly are the architects, the latter gentleman having, we believe, furnished the designs.



THE INTERIOR OF THE AUSTIN FRIARS' CHURCH, OLD BROAD STREET, LONDON.

RESTORED UNDER THE DIRECTION OF MESSRS. EDWARD P'ANSON AND WILLIAM LIGHTLY, ARCHITECTS.

OUR SOOT-BEGRIMED STATUES AND BUILDINGS.

We have complained many a time, and others have done the same, of the state of the street statues in various parts of the metropolis. Bright and clean as newly-coined money do the memorials of our eminent men appear when they first leave the studios of the artists, and are inaugurated with much pomp and ceremony. Soon, however, their appearance changes, and the countenances of certain of our sovereigns, statesmen, and soldiers assume an Ethiopian tint, which much damages the effect of these works of art. Notwithstanding all complaints, it seems that but little has been done. Within the City the street statues are small in number, and within the metropolitan circuit these art works are but few and far between. To wash them, and make them pleasant-looking would be but a small labour, and would be attended with very little cost. An experienced fire-man, with the judicious use of either the hose, or one of the hand fire-engines which were so much recommended by the late Mr. Braidwood, could soon put a new face upon them. The process of cleaning might be managed at the cost of a few pounds a year. In some instances there is a doubt as to whose duty it is to keep the street monuments clean. This is a question which should at once be settled. The example which might thus be set would, perhaps, be usefully followed in other ways; for instance, in connexion with the City buildings, some of which, now span new, and looking resplendent and bright, will soon, like the statues and so many buildings of older date, be black and unsightly unless something be done to prevent it.

COMPETITIONS.

Covering in Area, Abbey Ruins, Reading.—The committee appointed to obtain designs for the above have selected that submitted by Messrs. Wm. & J. T. Brown. The competition was confined to local architects. The dimensions of the building will be 160 ft. by 90 ft.

COMPENSATION CASE.

Combe and Delfield v. The Metropolitan Railway Company.—This was a compensation case in the Sheriff's Court, Red Lion-square, before Mr. Humphreys, coroner, and a special jury, and occupied several hours. It was for the George the Fourth public-house, Farringdon-road, and adjoining property. The claim was 7,750l. the property was said to be worth between 7,000l. and 7,000l.

The jury assessed the value at 4,750l. In answer to the court, the jury said they did not include the tenant's right in the sum. They intended that he should still have the claim on the way.

NEW WING FOR ST. MARY'S HOSPITAL, PADDINGTON.

AND with its new wing, may the hospital take higher flight! On Tuesday next, at half-past three o'clock, H.R.H. the Prince of Wales is to lay the first stone of the addition, of which Mr. Litherden Young is the architect, rendered necessary by the growth of the district. Since 51, when the hospital got into work, about 700 cases annually have been received within its wards, while upwards of 150,000 have been treated in the out-patient department. The need of the metropolis generally has, however, its effect upon this particular district; and at barely supplied the want of 1851, is found to be inadequate to meet the requirements of 1865. Additional accommodation to provide for annual influx of accidents or urgent cases is consequently imperatively called for, and it has therefore been decided to erect a further portion of the building contemplated in the original plan. Great preparations have been made for the ceremony. Seats have been built up and covered over, and an energetic committee of useful ladies have been working hard to give the ceremony a pleasant aspect, to raise funds, and to be disposed to help, walk up with your ladies! The Prince will himself receive them.

SIR GOLDSWORTHY GURNEY AND THE STEAM JET.

SIR GOLDSWORTHY GURNEY, on whom the honour of knighthood was conferred in September, 1863, for his services, was but two months afterwards seized with a violent attack of paralysis, materially induced by constant mental application to those services which nearly put an end to his life. He has ever since been completely withdrawn from the scientific world, his right side being still so affected that he cannot rise from his seat, or walk across the room without assistance. He has great difficulty in talking so as to make himself understood, and signs his name only with his left hand. He had previously held the appointment of director of the lighting and ventilating of the Houses of Parliament for ten years. Leave of absence from his duties was granted up to the 20th of July, 1864, when there being no chance of his recovery, he was compelled to retire. During his absence, his system of lighting and ventilating was conducted by Mr. A. Gordon, and it speaks well for the soundness of the system that a comparative stranger to it should have been able at once to conduct it satisfactorily.

Sir G. Gurney first introduced his mode of lighting into the temporary House of Commons in 1839, and his plan continued in use till the new Houses of Parliament were opened; his light was then placed in them, under other management, and without reference to him, and was not arranged so as to give satisfaction. His services were therefore again required, and he made the same arrangement for the new Houses of Parliament that he had made for the temporary House of Commons. His Bude light gas-burners are placed over the ceilings, which are of glass, and so contrived that no heat from the light is allowed to enter the Houses.

The Houses of Parliament are warmed by apparatus invented by him especially for this purpose, viz., by small batteries, which are placed under the floors: they work well, and regulate the temperature of the Houses, which during the sittings is by this means almost self-adjusting, and but few attendants are required to watch it.

When Sir G. Gurney was requested to arrange the lighting of the new Houses of Parliament, he found great complaints with the ventilation; and having suggested the application of his steam-jet, he was engaged to arrange the ventilation of the House of Commons, and succeeded so completely, that in 1854 he was, at the recommendation of committees of both Houses, appointed to take the whole charge of the lighting and ventilating of both Houses.

The steam-jet is used not only for the ventilation of the Houses of Parliament, but also for the sewers underneath those buildings. It was also used for the ventilation of the Friar-street sewer, at a time when its noxious vapours were poisoning the whole neighbourhood, and a report of this operation was printed by order of the House of Commons in 1850.

He had indeed suggested the steam-jet for the ventilation of coal mines, before a committee of the House of Lords on accidents in coal mines, so long back as 1835; and the principle was introduced at Seaton Delaval, where it continues to be used with complete success. He also extinguished the Ashley coal-pit fire, by using it to draw choke-damp through that mine, in 1850.

The steam-jet is used in the blast furnaces in Wales; and for chemical works in the north of England. Where great heat or great draught of air is required, it is a steam engine in itself; and for these purposes no other steam-engine need be used in connexion with a boiler. The steam-jet is applied to many great and useful works in this and in other countries.

This steam-jet, indeed, may be described as Sir G. Gurney's greatest invention; he conceived the idea, during a course of lectures on the "Elements of Chemical Science," which he gave at the Surrey Institution in 1822, and the jet itself was used by him in the year 1825 for creating a draught through the boiler fire of a steam carriage, which he had constructed to run on common roads, and with such success that a journey from London to Bath, on the 28th of July, 1825, with this carriage was accomplished at a rate of from fourteen to twenty miles an hour. Some of these carriages were finished in 1830; and Sir C. Dance ran them between Cheltenham and Gloucester four times a day for four months—from the 21st of February to the 22nd of June, 1831—at the average rate of twelve miles

an hour on the common road, the rate at times being twenty or more; but alarm being felt by the public, and opposition arising from the coach proprietors, Parliament was induced to suppress these carriages, by imposing heavy and prohibitory turnpike tolls upon them.

Three months after Sir G. Gurney's successful journey to Bath, his invention of the high-pressure steam-jet was applied by Stephenson to railway carriages, and the slow rate of travelling previously obtained by them, viz., eight miles an hour, was by their means suddenly raised to the speed of forty miles an hour.

Sir G. Gurney's steam-jet was about the same time applied to all steam-vessels, and their speed was also proportionately increased by this powerful agent.

In 1822 Sir G. Gurney had invented a blow-pipe for mixing the inflammable gases with safety, for which he was presented, by the Duke of Sussex, with the Gold Medal of the Society of Arts: he burnt the gases on lime, and thus discovered the lime-light, which he treated of in his lectures, published at that time by Whittaker. And, when his common road steam-carriage project was crushed, he again turned his attention to light, and was engaged by the Trinity House to perfect the lime-light for lighthouses; which, however, could not be done owing to its liability to sudden and unexpected extinction, from the cracking of the lime under the intense heat of the flame. His experiments were made at Bude (his residence), which resulted in the discovery of what was afterwards called the Bude Light.

The last light invented by him was the oil gas light: it has been in constant use in H.M.S. *Resistance*, where it was placed by him more than two years since.

To this light-apparatus he added a plan for flashing in time (as by the electric telegraph); and suggested to the Admiralty, War Office, and Trinity House, a mode for ship and land signalling with it (by day as well as by night); in other words, for a flashing-light telegraph.

At a *soirée* of the Royal Society, held at Burlington House, on the 2nd of May, 1863, the Prince of Wales flashed this light. Sir G. Gurney was again turning his attention to light-houses; and was writing a pamphlet showing a means whereby a seaman may identify light-houses and find his ship's distance therefrom; when his hand was seized, and his career of usefulness suddenly brought to a close.

THE BUILDING TRADES.

Dorking.—The bricklayers' labourers in the employ of the different builders in this town have struck for an advance of wages, an increase of 6d. a day being stipulated for—a request, however, their employers have not yet acceded to.

Plymouth.—The Government authorities have arranged for the employment of soldiers where their services can be made available, and of convicts as excavators, and have expressed their intention of relieving the contractors from any penalties arising from the non-execution of any work according to the terms of the contract. It is estimated that some 4,000 to 5,000 workmen in the various branches of the building trade will be thrown out of employ should the dispute remain unsettled.

Swansea.—The painters of Swansea, who have been out on strike, have resumed work, the masters having unanimously agreed to grant the advance of 6d. per day.

Wolverhampton.—The bricklayers and labourers are now on strike for an advance of fourpence a day. The painters have also given notice for an advance of sixpence a day. The works of the new Independent Church, now in course of erection at the top of Queen-street, have for the third time been brought to a standstill by strikes.

Darwen.—The master plasterers have complied with the request of the men in their employ for an advance of 3s. per week on their former wages. All the men have resumed work.

Stockton.—The joiners of Stockton-on-Tees have struck. They demand a half-holiday on Saturday, and an advance of 2s. per week on their present wages.

Rotherham.—The bricklayers and their labourers at Rotherham are for the most part out on strike, in consequence of the employers having refused to accede to their demands. A month ago the men gave notice of moving for an advance of wages. The bricklayers asked for an advance from 4s. 6d. to 5s. per day, and the

labourers from 18s. to 20s. per week. A stipulation was also made that the employers should engage no men but such as were connected with the unions. Some of the employers have decided to give the advance asked for, and some will not; but they are unanimous in refusing to have anything to do with the question whether or not a man is a member of the union. Under these circumstances most of the men have left their work, and are now out on strike. The measures taken by the operative painters to obtain an advance of wages have proved successful. A resolution was passed, and forwarded to the employers, asking for an advance of 2s. per week upon the present rate of wages. The employers promised to grant the advance asked for. The standard wages of the painters in this town will now be 24s. per week.

Newcastle-upon-Tyne.—The operative painters of Newcastle, a short time ago, gave notice to their masters for an advance of wages. A deputation from the men has waited upon the masters, and the result was that the masters offered to give the men an advance of 1s. a week, and 6d. an hour overtime. The men accepted the offer, and, to the satisfaction of all parties, a strike was avoided.

Penrith.—The joiners and carpenters of Penrith, having been working at the rate of sixty hours per week, and having observed the successful issue of the late strike in Carlisle, a large portion of them solicited a reduction of two hours per week. The employers resolved that a six months' notice should be required. The men have offered to "split the difference." The painters, plumbers, and plasterers have made application for an advance of 2s. per week. It is thought the employers will accede to the application.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening (the 12th inst.), at the House in Conduit-street.

The chair was occupied by Mr. R. W. Edis. Mr. T. W. M. Mansell, of 9, Alma-terrace, Kensington, was elected a member of the Association.

The Hon. Secretary reported that a visit had been paid by some of the members to the model lodging-houses now being built by the trustees of the Peabody Fund, in Islington, under the direction of Mr. Derbshire. A vote of thanks to Mr. Derbshire for his courtesy in the matter was agreed to.

Mr. H. Dunphy withdrew his motion to alter the hour of meeting to eight o'clock, explaining that he found it unnecessary to press it, as practically the hour for assembling was nearer to eight o'clock than half-past seven, as it had been predicted it would be when the change was made.

Mr. J. D. Mathews read the report of the delegates from the Association who had attended the meeting of the Architectural Alliance on the 6th of July last.

Mr. L. W. Ridge read the draft of a circular suggested by the Architectural Alliance to be forwarded to the managers of competitions.

The Chairman said that as two of the delegates who had attended the meeting of the Alliance were present (Mr. T. Blashill and Mr. T. M. Rickman), it might perhaps be desirable to ascertain whether they had any observations to make.

Mr. Rickman said that the delegates did not desire to express any decided opinions upon the circular, as they conceived it to be their duty simply to report, and leave the matter to be dealt with by the Association. He might, however, observe that the circular was intended for the guidance of such persons as might be unfortunate enough to be in the position of inviting competitions.

Mr. Ridge expressed his opinion that the circular might, perhaps, do some good, but that he objected to many of the details as being minute and unnecessary. He objected, for instance, to its being laid down that the walls should be coloured with Indian ink, sepia, or neutral tint, &c.; that no colour should be used in perspective drawings; and so forth. He suggested that all the paragraphs relating to these details should be struck out.

Mr. Mathews also stated his objections, and suggested that the circular should be sent as early as possible, in order to be of use. He was decidedly of opinion that the question of cost

was essential, and that the scale of drawings should also be fixed.

The Chairman was of opinion that many of the paragraphs in the circular were susceptible of modification, and hinted that it would be desirable in the preparation of such a document to avoid the use of any terms which might be considered in the slightest degree dictatorial. He was sure the architectural body did not wish to dictate to those who might invite competition, and that their only object in moving in the matter was a desire that those who might devote their time and trouble in preparing designs should be fairly treated. He agreed with the last speaker in thinking that the question of cost was a *sine qua non*; and he also thought that the scale of drawings should likewise be fixed. With regard to drawings he thought the point ought to be left open, as it would be impossible to give the necessary effect to certain drawings without the introduction of colour. In the paragraph suggesting as an invariable condition that the author of the selected design should be employed to carry it out at the usual rate of remuneration, "should he be a person of sufficient experience to warrant the promoters in entrusting the work to him," he would suggest that all the words after "remuneration" to the end of the sentence should be struck out. He quite agreed, however, with the circular that, in certain cases when works of any magnitude were to be carried out, it would be desirable, in order to secure a more experienced tribunal than a committee, that the matter should be referred to one or two architects of "admitted experience, honour, and discretion."

Mr. Rickman said that, as the great object of competitors was justice, it was but right that they should keep to their instructions; and to enable them to do so, the instructions ought to be as clear and explicit as possible. This was what the Alliance recommended. In his opinion an architect wishing to compete ought to send to the Alliance for a copy of their circular, in order to adhere as much as possible to its suggestions.

After some further conversation,

The Chairman read the suggested amendments, which were eventually agreed to, and a vote of thanks was passed to Messrs. Blashill, Rickman, and Bunker, the delegates of last year. Messrs. T. R. Smith, Rickman, Christian, and Eddis were elected as delegates for the current year.

The Chairman brought under notice the recent cottage competition of the Society of Arts, and observed that, in his opinion, the Association had been badly treated by the council. He called upon Mr. Blashill to make a statement relative to the matter.

Mr. Blashill said that the instructions issued by the council were very clear, and that the task of competing was a very severe one. Nine designs had been forwarded by members of the Association, and ninety-nine were sent from the United Kingdom. Looking at those proportions, he could not agree with the judges that the Association had not been well represented. He thought the report was a very unfair one, and that the Association ought to protest against it.

A protest in accordance with the views of the meeting was agreed to.

THE BRAYE MONUMENT, STANFORD-ON-AVON.

The Countess of Beauchamp, one of the four owners of the Stanford estates and one of the four co-heirs of the barony of Braye, has recently erected, in the church of Stanford-upon-Avon, in Northamptonshire, the mausoleum of the Cave family, a monument to the memory of her mother, the late Baroness Braye, the joint production of Mrs. Thornycroft and of Signor Giovanni Fontana, kindly superintended by Mr. Gibson, the sculptor.

It consists of a life-size portrait recumbent statue, in Carrara marble, the feet resting upon a greyhound couchant, by Mrs. Thornycroft. The figure reposes upon an altar tomb, of statuary marble, on which the inscription and the heraldic quarterings of the deceased are carved. The background of the monument is formed by a bas-relief, the work of Fontana. It represents a figure kneeling by a cross near a bed of snow-drops, finely carved, above which float a group of three angel children, designed by Gibson, supposed to be in the act of receiving the spirit of the departed.

The bas-relief is inclosed in a moulded Gothic

arch, of Sicilian marble, 10 ft. 8 in. high, supported by two buttresses, 12 ft. 8 in. in height, in the style of the architecture of the church. The text, "I know that my Redeemer liveth," is carved in raised white marble letters above the arch, surmounted by a battlemented cornice.

The architectural portion of the work was executed by Mr. Underwood, of Camden Town. The white marble platform, on which the altar tomb is placed, is inlaid in Mosaic, by Mr. Poole, of Westminster, in the style of the *tre-cento* period of Italy: the pieces of marble employed are cut from 700 fragments of antique marbles, collected by the lady to whose memory the monument is erected, at Tuscum and other ancient ruins in Italy. The design for the mosaic was suggested by a mosaic in Westminster Abbey. This platform is approached by a plain white marble step, upon which are placed, in relief, some religious emblems to illustrate an illuminated marble scroll, with the 5th, 6th, and 7th verses from the 12th chapter of Ecclesiastes. The cost of the monument exceeded 2,000l.

PROVINCIAL NEWS.

Horsham.—It has been determined to establish a corn exchange and market here, by means of a joint-stock company.

The Potteries.—We are requested to state that the architects of the North Staffordshire Infirmary are Messrs. Lynam & Nicholls.

Towyn (North Wales).—New brick-fields have recently been opened in this neighbourhood, and excellent clay found for the purpose. Machinery, stoves, and sheds have been erected at Brompys Brick and Tile Works, which have changed hands lately; and at Caethle Yard, a large water-wheel is in course of construction, besides all the other requisites for carrying on an extensive trade. Brick-fields near a neighbourhood like Towyn, where so much building is going on, and where there is every likelihood of a large town being built near the beach, will be very convenient.

Blackburn.—The new Exchange has been opened. Its site presented difficulties. Besides the irregularity of the plan, the levels must have caused trouble, there being over 6 ft. of fall in the length of that which may be called the principal front: for one-half of this front faces the town-hall, whilst the other half forms the north side of King William-street. The latter portion may be described as retiring from the line of the former at about 45 degrees, the apex of the obtuse angle being covered by a large radius. The front in Town-hall-street forms an acute angle of about 70 degrees with that facing the town-hall, and presents the same difficulties in the levels of the ground as in the main front. The Exchange-room, with its minor entrance-hall, approaches to the basement, &c. occupies the whole site in King William-street. The room is 53 ft. in clear width, from wall to wall, and 149 ft. in its extreme length, giving an area of about 800 square yards. Centred with the room at one end is the principal entrance vestibule, an octagon of 25 ft. in internal diameter, having two entrances from the street, one parallel with King William-street, and the other parallel with the town-hall front. From this vestibule is also the principal entrance to the exchange-room, the news-room, and thence approach to the other portions of the building, to be retained for the business of the Exchange Company. This vestibule external finishes as a tower of separation to the two portions of the principal front. The Exchange proper has been treated as a distinct feature in the composition, excepting that all the main horizontal mouldings above the plinth are to be repeated, and will be on the same level also, on the other fronts. The first contract has been confined to the Exchange, and the principal entrance vestibule or tower, up to the level of the parapet, with the offices and ware-rooms the basement. The style of architecture adopted was suggested by the irregularities of the site which precluding the use of any architecture Classic severity, Gothic was chosen by the architect, who studied under Sir Charles Barry. The building is wholly of stone, excepting the piers and groined arching of the basement, and the cross walls of the offices, which are of brick and cement. The tower vestibule is faced, both inside and out, with Longridge stone, as well the front of the exchange externally, and the external dressings of the back and flank, and the Darwin stone parapets are used for the wall face. The internal dressings of the exchange

are of Burnley stone. Mr. Brakspear, of Manchester, has furnished the designs for the whole of the works, and under his direction they have been carried out. Mr. J. Simpson has acted throughout as the clerk of works. Mr. Farrell, of Manchester, has been the general contractor, under whom many townspeople have acted as sub-contractors. Messrs. Gabbott & Son, of Liverpool, were the contractors for the masonry and brickwork; Messrs. Edmundson & Son, of Manchester, for the glazing throughout; Mr. J. H. Dovey, of Manchester, for all the metal-work and gas-fittings; Mr. J. Casartell, of Manchester, did the asphaltting of the roof; Mr. Banks, of Manchester, executed all the wood-carving; and Mr. Gregg, of Darwen, all the stone-carving; Messrs. Minton & Co. were the contractors for the tiling; and Messrs. Haden & Son, of Trowbridge, for the heating.

Cockermouth.—A company is likely to be formed in Cockermouth for the purpose of building a public room for entertainments, lectures, &c., with shops on the ground-floor. Building appears to be in an active state in Cockermouth. Station-street is springing up, as also is the Mountain View suburb. It is not unlikely, it is said, that a hotel will be built close to the new railway station.

WESTMINSTER PALACE.

On the vote of 49,456l. for defraying works and expenses of the new Houses on Parliament, being taken in the House of Commons on Friday last, Mr. Cowper, in reply to questions asked, said that upon the recommendation of the Select Committee, it might be remembered, the sum to be paid to Mr. Herbert for the painting of "Moses delivering the Law," was raised to 5,000l. The committee also recommended that the existing agreements, being found inapplicable to present circumstances, had better be cancelled, and this had been done. The Government had also asked Mr. Herbert what sum he would receive for the other painting, the "Judgment of Daniel." Mr. Herbert had mentioned 4,000l., and the Government had been advised that that was a very proper sum; accordingly, an agreement had been entered into with Mr. Herbert for that amount. The design for this picture had been approved by the Fine Arts Commission, and was greatly admired. Mr. Wallace had nearly finished his picture, and he would be entitled very shortly to receive payment for it, the sum having been raised to 5,000l. In the same way the paintings of Mr. Hope and Mr. Ward were to be raised by 1,000l. each, and every painting would in future be made the subject of a separate agreement.

The sum proposed for the completion of the clock tower and New Palace-yard was intended to be spent in this way. The clock tower was to be completed, so that the side which was now imperfect might have the same form and the same front as the sides which were finished. It was proposed to take the opportunity of making a subway, by which hon. members might reach the other side of Bridge-street by a much safer route. This subway would open into the station of the Metropolitan District Railway, which was proposed to be made on the other side of Bridge-street, so that persons coming to and from Westminster would be able to pass into and out of the station without crossing the road.

With regard to the open space it was not considered desirable to carry out the suggestion of Mr. G. Barry, of constructing New Palace-yard into a quadrangle. There was now such an opportunity for producing space in combination with Parliament-square, that it was thought desirable that attention should be directed rather to produce a large open area than to diminish it by new buildings. Hence the space could remain. An iron railing would be substituted for the wooden temporary fence which is now erected, and the slope would be turfed and planted with trees.

There was to be a station of the Metropolitan Railway opposite the clock tower. The remaining houses in Bridge-street would be given up to the company for that purpose only on the understanding that they would erect their buildings in a style that would harmonise with the new palace;—namely, in the Tudor style.

ARCHITECTURAL MUSEUM.—On Tuesday last a paper read was on "The Precinct of a Gothic Master," by the Rev. Mackenzie E. C. Walcott. This was the last lecture for the season.

FACTORY CHIMNEYS.

Mr. PETER CARMICHAEL has recorded a series of experiments for ascertaining the best size for factory chimneys, in a paper read at a recent meeting of the Institution of Engineers in Scotland. He observes that the importance of an effective chimney need only be named. On it depends in a great measure the success of the firing, so as to raise steam quickly and keep it up steadily, and also the perfect combustion of the fuel with the least amount of smoke. With a draught in the chimney less than 5-10ths on the pressure-gauge, the firing of the furnaces will, in most cases, be a constant toil to the fireman. He cannot avoid making a large quantity of black smoke, and in cases of an extra demand for steam, it is impossible to meet it, for no stirring or coxing of a fire will make it burn brightly, or produce the red glow which is the perfect condition for raising steam, without a full command of draught. His experience is, that most factory chimneys are too large for the work they have to do; not too high (they can hardly be that), but too wide, especially at the top. In their practice, invariably as more boilers and furnaces have been added to a chimney the draught has been improved, and it is obvious that if the opening in the chimney be too large compared with the whole of the openings in the dampers passing into it the draught will be reduced. Hence it is very noticeable in many chimneys, which are large in proportion to the number of furnaces they serve, or the coals consumed, or where a new chimney is put up to serve for prospective additional furnaces, the smoke issuing from such has a very lazy ascent, and they are generally blackened a long way down from the top by the smoke; for when a breeze is blowing, the smoke, instead of ascending, falls down the leeward side of the chimney, and clings to it like a regged black flag. From observations, frequently repeated and tried under various circumstances, it has been found that the temperature is nearly uniform at 600° behind the dampers. He builds his chimneys in the form of an obelisk. The taper top is found to answer the purpose well, the smoke ascending from it very freely, especially when there is a breeze of wind. At such times the ordinary top is acted on like a key when blown into to make it whistle, the blasts of wind affecting very perceptibly the draught of the furnaces. In the taper top this is not much felt, as the wind can only blow into one or two of the four compartments at a time, and this still allows the other two to vent freely. The greatest want of draught is occasionally on Monday mornings, after a cold wet Sunday. In such cases the flues and chimney are cooled down, and the draught greatly reduced, so that the firemen have much difficulty in getting the fire to burn brightly, and keep up the supply of steam.

ARCHITECTS' ACTIONS.

KNIGHTLY v. WAITE.—This was an action in the Lord Mayor's Court, before the Recorder and a common jury, to recover 12l. 12s., for architectural drawings for stables.

Mr. McIntyre, in opening the plaintiff's case, stated that in October last he received a communication from the defendant, a gentleman of Norbiton, requesting him to make drawings for some stables. This was done, and the drawings duly delivered. After some delay, defendant made an objection to the expense that would attend the erection of stables upon the drawings furnished; but the drawings had not been returned, and it was clear plaintiff should be paid for them.

Evidence having been called in support of this case, Mr. Talford Sillar urged that the defendant should not be called upon to pay the demand. He had taken a cottage for three years, and the landlord had allowed him 200l. to build certain stables. The plaintiff's drawings and estimates would come to 400l., and he was requested not to exceed 200l. The defendant had had very convenient stables erected at a cost of 200l.

His lordship, in summing up, pointed out to the jury that they would have to say whether the plaintiff had obeyed the instructions of the defendant as to the expense of erecting these stables.

The jury found for the defendant.

TOTTENHAM COURT ROAD TO THE STRAND.

SIR.—As your paper is the only reliable organ of information regarding public improvements and the construction of new streets, I have ventured to call your attention to the strange apathy exhibited by the promoters of the North-Western and Charing-cross Railway Bill with the contemporaneous formation of new streets from Tottenham-court-road to the Strand. It

is now some nine months since the Bill became law, and they have made no sign. It was carried through Parliament with a high hand, at a vast expense, with the unanimous approval of an able and painstaking committee; the engineers, of the highest standing, including Mr. Hawkshaw; the London and North-Western Railway giving their support to the undertaking. Accidents are of constant occurrence, especially at the junction of Chandos-street and St. Martin's-lane, in addition to others in the neighbourhood of St. Giles's. Probably the insertion of the above, or a few remarks from you, may rouse the dormant energies of the originators to a sense of their obligation to the public, as the thoroughfares in this district are daily becoming more crowded and dangerous.

A DENIZEN OF CHARING-CROSS.

ST. BARTHOLOMEW'S, DUBLIN.

SIR.—In the account of St. Bartholomew's Church, Dublin, in the number of the *Builder* for May 6, it is stated that "the Archbishop of Dublin contributes the handsome donation of 500l. in aid of a fund for augmenting the endowment." This sentence is from the original circular respecting the church, but it requires considerable modification. In the first place, we must read, "the late Archbishop of Dublin;" for it was Dr. Whately who gave this contribution. And, in the second place, instead of its being devoted to augmenting the endowment, "it was thrown into the building fund," which, even so, exhibits a deficit of nearly 2,000l. This sum I am now making earnest efforts to raise, and I trust that many who are friendly to the principle of free and open churches will be moved to aid me.

ARTHUR DAWSON, Incumbent.

CHURCH-BUILDING NEWS.

Diss.—A school-chapel has been opened at Diss Heywood. The edifice is of red brick, and in the Early Decorated style. The school is held in the western part. The cost amounted to 728l. The backs of the benches, by the adjustment of a screw, are elevated so as to form desks, and by being further elevated into a horizontal position they become tables. There is a residence for the schoolmaster attached.

Knapwell (Cambridgeshire).—The parish church of Knapwell has been consecrated. The old tower still remains, but the rest of the church has been completely rebuilt. As the village is small (consisting only of a population of 150), and the funds were not abundant, it was not considered advisable to attempt to build on the original design; and therefore a nave and chancel, with vestry on the north side, form the present plan. The chancel is furnished with an apse at the east end, and separated from the nave by a small screen. There is no chancel arch, but the formation of the roof is different, so that the division is marked. All the seats are made of oak, and the old altar has been reworked into the new one. The church is 17 ft. 6 in. wide, and 61 ft. long, and accommodates 119, including the school children. The contract has been executed by Messrs. Bell & Son, of Cambridge, and the whole work has been designed by Mr. W. M. Fawcett, of Cambridge, architect.

Idle Hill (Kent).—The foundation stone of the new church, in this village, has been laid. It is in the Early Decorated style, and consists of nave, chancel, north and south transepts or chantries, and a tower and spire. The height of the tower and spire together, is 90 ft. The church is to be built to seat 200 persons. The architect is Mr. C. H. Cook, of London, and the contractor is Mr. John Kirk, of Woolwich. The cost will be about 2,500l.

Cranley.—It has been resolved that the alterations and additions in the church shall be made, as originally contemplated, under the superintendence of Mr. Woodyer, the architect; and that Mr. Thurlow be required to enter into a bond, to commence and complete the work in a stated time, and in such manner as may be approved of by Mr. Woodyer, on the part of the parish, and according to the plans submitted to the vestry.

Romsey.—The subscriptions for the new roof of the north transept of the Abbey church are progressing. Upwards of 500l. it is said, have been promised, and there is good probability

that the sum required for this alteration and improvement of the church will be soon realized.

Tettenhall Wood (Staffordshire).—The foundation-stone of a new church at Tettenhall Wood has been laid. The edifice is to bear the name of Christ Church, and is to have a separate district assigned to it. The designs of the church have been prepared by Messrs. Bateman & Corser, of Birmingham, architects, whose plans were selected in a limited competition of local architects. The style of architecture adopted is Decorated Gothic, of simple character. The length of the building will be 100 ft., the width 60 ft., and the height 75 ft. The tower and spire will be 150 ft. high. The church will consist of nave, north and south aisles, with north and south porches, chancel and chancel aisle, tower and spire, with vestry in tower, and organ-loft over. The whole of the roofs will be open-timbered. The nave will be separated from the aisles by four arches, and the aisles covered by four span roofs at right angles with the nave. In each aisle will be four three-light tracery-headed windows, and a five-light window at the west end of the nave; and in the chancel (which is apsidal) will be three-light windows, with external gables over each window. The church will provide accommodation for 700, and the school children will be located in the chancel aisle. The whole of the exterior of the church will be built of Codrill stone, as also the internal arches and piers. Mr. John Cockerill, of Wolverhampton, is the contractor for the building, which is to cost about 2,700*l.* exclusive of the tower and spire.

Llanelli.—We understand the contract for erecting St. Peter's Church, Llanelli, has been taken by the firm of Messrs. Jones & Co., of Gloucester, the contractors who are erecting Neath Church.

Books Received.

The New Path: a Monthly Art Journal. April, 1865. New York: James Miller, Broadway.

The New Path for April contains a paper on Miss Hosmer's statue of Zenobia, and one titled "Our Furniture: what it is, and what it should be." The writer of the first, instead of taking a new path, follows an old one, and a wrong one, in asserting that the American works sent to the 1862 Exhibition were treated with the same "studious disrespect which everything American instinctively received in England at that time." Mr. Page's portraits, says the writer, were left to shiver by themselves in the gloomy American department; Mr. Story's fine statues were placed so that they could not be seen; and Miss Hosmer's "Zenobia" had an "ignominious position" at the "back door" of Gibson's Temple. Such evil misrepresentations are to be regretted; and, when made, as in this case, by one professing to write with high aims, and with truth for a watch-word, to be wondered at. The position of Mr. Page's pictures was determined by the small committee of Americans who at the last moment arranged their department: one of Mr. Story's striking statues was placed so that it was the first thing that met the eye on entering the Roman Court, and the other so that it was the last object seen on quitting it; while Miss Hosmer's "Zenobia," set up by special arrangement in connexion with her master's works, had one of the most prominent sites possessed by statue in the whole exhibition. Not the least curious part of the matter is that, after these unfounded complaints, the writer proceeds to show, by nine columns of print, that the "Zenobia" is a thoroughly worthless statue, unworthy of any place at all!

We have pointed to these observations because we revolt against any attempt that is made to foster unkind feelings between two kindred nations, speaking the same tongue and animated to a great extent by the same motives; and would reprobate it strongly from whichever side of the Atlantic it might proceed.

Lacon in Council. By J. F. BOYES, author of "Illustrations of Æschylus." London. 1865.

Books of aphorisms are generally peculiarly interesting as well as instructive; they may not quite resemble "the Iliad in a nutshell," but they may be regarded as the concentrated essence of the thoughts of an observing and reflective mind. We know few books more attractive, or the spirit of which more thoroughly penetrates, and communicates its flavour to,

our own mind, than Arthur Warwick's "Spare Minutes," or Owen Feltham's "Resolves." Save Colton's "Lacon," few modern works of the kind have appeared which have attracted a moderate degree of attention, for even the clever "Guesses at Truth" made their way slowly into favour. French literature has always been much richer in works of this kind than our own. It may be that the French mind is more readily taken with anything that partakes of epigrammatic smartness, or antithetical point. It may be, also, that John Bull's John Bullism indisposes him from accepting readily the thoughts of another man, when offered to him in a shape that seems to indicate that they are in any degree better than his own; hence he looks at them askance, and with some sort of jealousy, as if they jarred against his *amour propre*.

From the works thus alluded to Mr. Boyes's differs, inasmuch as each subject is introduced by a quotation from some other writer. These quotations are made the subject of comment, either in confirmation or elucidation, and sometimes in refutation: they show a range of reading only surpassed in extent and variety by that of Southey, as manifested in his "Common-place Book." To attempt to convey an accurate notion of the contents of this work from a single or a few specimens would be nearly as ridiculous as the conduct of the well-known foolish fellow who carried a brick about with him to give an idea of the house he had to sell. One such, however, we must give:—

"When writing earthworms meet th' unwelcome day,"
Bloomfield: "Spring."

"As true of the human heart as of the field, when the sun and the ploughshare of truth and conviction are at work upon it."

To the book itself we refer our readers, not doubting but that by its perusal they will obtain a rich supply of intellectual matter, which they may read, mark, and inwardly digest.

VARIORUM.

"Murray & Co.'s Book of Information for Railway Travellers and Railway Officials." By R. Bond. Murray & Co., Paternoster-row. This is both a useful and an amusing volume; but it must be kept in mind that it gives the public advice and instruction from the superintendent's point of view, the author being the superintendent at the Newport station of the Great Western Railway. The information is illustrated with anecdotes, &c., which render it all the more readable and instructive.—"The Acts concerning Inventions and Designs exhibited at the Dublin International Exhibition, 1865, and Industrial Exhibitions generally." By F. W. Campin, barrister-at-law. London: Stevens, Lincoln's-inn. This comment on the Act 28th Vic., cap. 3 and cap. 6, will be useful for the purposes in view. It contains notes and citations of modern and important cases, as to exhibition, publication, and user; also a statement of some principal points in the law and practice of patents; with an appendix, containing the provisions of the Art-copyright Act, 1862, and the Merchandise Marks Act, 1862.—"An Appeal to all Christians and the Jewish Nation to liberate Jerusalem." By C. F. Zimpel, F.M.D., Chief Engineer of different railways in America and Europe. London: Stevenson, Paternoster-row, 1865. On the title-page of this pamphlet are the words, "100,000 copies in different languages," which mean, we suppose, that 100,000 copies have been so printed, or are to be. The author ingeniously proves that Jerusalem and the surrounding country belong at present to the Devil, at least if that gentleman is to be believed; for he himself said, upon a well-known occasion, "It is delivered unto me and to whomsoever I will give it." Mr. Zimpel does not want either to purchase or to ask it from the present proprietor, but he wants his fellow Christians, and the Jews, to help him to take it from him and to hand it over to the proper owner. If this can be done, by running railways through it and otherwise improving it, as Mr. Zimpel no doubt contemplates, good and well: the proper owner is one who requires no other sort of human agency to help him towards the repossession, if he desires it. Perhaps he did not unmercifully deliver it over to the Devil after all, although the Devil said so. We ought, at all events, to have better authority than this before we cast a greedy and worldly eye upon a fine country in possession of even "a sick man" whose Christian and semi-Christian subjects we have already defended from the attack of a Christian emperor

who coveted this neighbour's land, as others seem to be inclined to do. Our possession, we fear, would not make it more holy or less desecrated than it is: witness even now the unseemly Christian squabbles over the holy sepulchre itself.

Miscellaneous.

ARCHITECTURAL PUBLICATION SOCIETY.—The annual general meeting of this Society will be held on Friday afternoon, the 26th instant, at No. 9, Conduit-street, Mr. Beresford Hope taking the chair at three o'clock.

THE DANTE FESTIVAL, FLORENCE.—The Festival passed off most successfully. The statue is described to us as horribly ugly and out of drawing. An expected account of the Festival, from our correspondent there, had not arrived at the time of going to press.

THE SURREY THEATRE.—We are requested by Mr. C. N. Foster, the builder, to state that the formal doings as to the laying of the first brick in the foundation of the new theatre, of which an account was recently forwarded to us, was an affair of the neighbourhood; and that due notice will be given of the formal laying of the chief stone.

PERUVIAN RAILWAYS.—The National Bank is authorised to issue 66,800 shares of the Peruvian Railway Company, Limited, of 25*l.* each, representing a first issue of capital aggregating 1,670,000*l.* The Peruvian Government have granted a concession in the shape of a guarantee of seven per cent. per annum on the whole capital, viz. 3,340,000*l.*; and a redemption fund is also to be formed from the capital raised, by means of which shares will be periodically drawn after the expiration of twenty years, and paid off at a stipulated premium of 100 per cent. The International Contract Company, Limited, have entered into a contract for the construction of the works.

INSTITUTION OF CIVIL ENGINEERS.—The anniversary dinner of the Institution of Engineers was held on the 12th instant, in Willis's Rooms, St. James's. The chair was occupied by Mr. John R. McLean, C.E., the president, who was supported by Mr. Fowler, Mr. Gregory, Mr. Scott Russell, Mr. Cubitt, Mr. Harrison, Mr. Hemans, Mr. Vignoles, &c. The company numbered between 200 and 300, and included the Duke of Somerset, Earl Granville, the Earl of Devon, the Earl of Donoughmore, Lord Stanley, M.P., Sir Charles Wood, bart., M.P., Sir John Pakington, bart., M.P., General Sabine, Sir Roderick Murchison, the Lord Mayor, Sir Rowland Hill, Admiral Robinson, and many other men of note.

THE BALL-ROOM AT "CREMORNE."—Sir: With reference to the report of the action, "Bliss & Smith," in the *Builder* of the 6th inst., I beg to say that I in no way acted in conjunction with Mr. Allom, in the construction of the ball-room at Cremorne Gardens, my duties being solely in connexion with the building of the new suite of offices attached to the Cremorne Hotel. Both works were certainly proceeded with at the same time, and included in the same contract as between Mr. Smith and Mr. Davis, but our duties were quite separate and distinct. Since we are not anxious to rob Mr. Allom of any portion of the credit due to him from the design of the ball-room, you will oblige me by inserting this in your next.—JAMES J. LAFOREST.

METROPOLITAN MARKET BILL.—On the motion for the second reading of this Bill, Mr. C. objected to the Bill, on the ground that it would authorise the conversion of two large buildings in the Cattle Market into model lodging-houses, and would appropriate space which would be required for the extension of the market. He moved that it be read a second time that day six months. Mr. Crauford said the buildings referred to had been originally erected for hotels, but they had been found unsuitable for that purpose. It was therefore proposed to turn them into model lodging-houses, and he thought, considering the great clearance which was being effected in the City by railways, that this was an object with which the House would sympathise. Alderman Siddons thought the ground of objection to the Bill unreasonable. After some remarks from Mr. Ayrton the amendment was withdrawn, and the Bill read a second time.

WELDING STEEL AND CAST OR MALLEABLE IRON.—Mr. William Carson Corson, of Sheffield, provisionally specified the use of a composition, consisting of borax, fifty parts; Calais sand, thirty parts; emery, ten parts; and manganese, ten parts, in the welding of steel and cast or malleable iron; but he does not restrict himself to these precise proportions.

USE OF WASTE HEAT IN KILNS.—Our North-east correspondent, "W. May, jun.," again presses us on this subject. He says,—"I produce my plan of furnace to another good purpose,—for drying Portland cement before sent, where cement-makers dry with ovens lead of the waste of the kilns. This plan of oven burns the gases from the kilns; and, by lying it to outlets of ovens, why should this be an answer for consuming the smoke from the kilns and using the heat from the same, instead of its going into the air as waste, and a great deal of fuel also? If cement-makers were to take this into consideration, a great saving of fuel might be effected by this simple plan." Mr. May also speaks of a method to prevent the heat from forcing out the walls of the floors, which were well. This improvement, he says, can be applied at a small outlay, or it might be effected on the principle of "no cure, no pay," would soon pay for itself.

WILMINGTON SEWAGE WORKS.—The experiments are at present entirely confined to the tank which has its outfall at the Arle tank, which comprises that of the town on the left side of the Chelt. The outfall of the Arle tank is into the Chelt, which runs close by, and attention of the surveyor, Mr. Humphris, has been for some time directed to this tank as being a situation favourable for experiments in irrigation, and because the diversion of the sewage into the Chelt had become absolutely a necessity. The course of the sewage has already, it is reported, had a most marked effect on the character and quality of the herbage within its of its fructifying influence. A meadow which it bears a crop of grass which is to be somewhat astonishing. By rapid irrigation offensive odour seems to be avoided. The fertilising power which the land possesses over sewage is shown in one or two spots very early. The liquid running in the carrier along top of a ridge has percolated through the soil into the furrow, and there collecting, is as bright and colourless as though it had escaped into a limpid brook.

MASTERS AND OPERATIVES.—Lord St. Leonard's has been printed. It proposes that any number of masters and workmen in any trade or occupation, having been for the previous six months resident householders, or part occupiers in the same (the masters having carried on their trade for six months, and the workmen having been at their trade for the seven previous years), may at a meeting agree to form a council of conciliation and arbitration; and, after due notice in a local newspaper, a licence may be granted by the Crown for the formation of such council. The council is to consist of masters and workmen, not less than two nor more than ten each, and a chairman unconnected with trade, to be elected by the council. The council is to be elected annually by masters and workmen qualified as above described, the masters appointing their portion of the council and the workmen theirs; and a register of electors is to be formed and kept by the clerk of the council. The council are to have power to hear and determine all disputes and differences between masters and workmen, as set forth in the Act of George IV., cap. 96, which may be submitted to them by both parties, the award to be final and conclusive; and the council may adjudicate in any other disputes submitted to them by the consent of masters and workmen. But nothing in this Bill is to authorize the council to establish a rate of wages, or price of labour or remuneration at which the workman shall be employed; and no member of the council is to adjudicate in any case which he, or any relative of his, is plaintiff or defendant. Disputes are to be first referred to a committee of the council, the committee of conciliation, consisting of one master and one workman, who are to endeavour to reconcile the parties; if they are unsuccessful in this, the dispute is to go before the council, a quorum to consist of not less than one master and one workman with the chairman. Counsel or attorneys are to be allowed to attend any hearing.

METROPOLITAN MEMORIAL OF RICHARD CORDEN. It has been resolved to erect a statue of Corden on a site at the entrance to Camden-town, granted by the vestry of St. Pancras for the purpose.

PROPERTY IN THE CITY.—The premises No. 29, Cornhill, lately vacated by Messrs. Currie & Co., were, on Wednesday, sold by auction by Messrs. E. Fox & Bousfield, and realised the sum of 40,000l. The tenure was freehold, and the superficial area 2,200 feet.

DEMOLITION IN CLERKENWELL.—The fittings have been removed from upwards of fifty houses, situated in Baker-street, Lloyd-square, Wharton-street, Bagnigge Wells-road, and in the Farringdon-road, Clerkenwell, which have been purchased by the Metropolitan (Underground) Railway Company, who require the sites for widening the line, which is rendered necessary in consequence of the junction of the London, Chatham, and Dover Railway, and the Finsbury extension of the line. The houses above alluded to are to be pulled down immediately for the commencement of the works. The City dwellings for the industrious classes have not been erected too soon.

BRITISH ARCHEOLOGICAL ASSOCIATION.—At the annual general meeting, May 10th, Dr. James Copland, F.R.S., vice-president, in the chair, the report of the auditors, the balance-sheet of the treasurer's accounts, and the list of associates elected, withdrawn, deceased, and proposed to be removed from the list of associates for non-payment of their subscriptions, were read and adopted. The state of the Association was pronounced to be very satisfactory,—an increase of fifty-five members in the year, fifteen withdrawals, thirteen deaths, and six to be removed,—a balance of 26l. 6s. 4d. in favour of the society, and every account discharged. Thanks for services were voted to the president, officers, auditors, &c., and a ballot was taken for the executive for the session 1865-66.

THE METROPOLITAN GAS COMPANIES.—The receipts by each company in 1861, 1862, and 1863, from the sale of gas, according to a table in the *Mining Journal*, were as follows:—

Company.	1861.	1862.	1863.
Chartered	£207,061	£222,948	£231,220
City of London	81,277	92,578	94,917
Commercial	94,325	103,654	113,129
Equitable	66,053	69,361	69,627
Great Central	61,883	72,485	73,040
Imperial	356,930	367,947	419,081
Independent	69,391	60,659	69,667
London	127,683	135,776	142,894
Phoenix	127,431	136,912	142,976
Ratcliff	27,477	29,033	29,960
South Metropolitan	57,407	61,168	65,327
Survey Consumers'	46,410	49,292	51,769
Western	62,124	69,160	77,405
Total	1,374,732	1,498,670	1,573,201

RESERVING "MINERALS" ON SOLD LAND.—In a case Bell v. Wilson, before Vice-Chancellor Kindersley, the question was the construction of a reservation or exception contained in a deed of conveyance of lands in Northumberland, at a place called Long Benton, dated in 1801. The bill was filed by the owner of the land to restrain the defendant from digging freestone, the plaintiff representing the purchaser, and the defendant the vendor. The reservation, as far as was material, was in these words:—"All mines and seams of coal, and other mines, metals, or minerals." Freestone was commonly found in the district, at distances varying from 6 ft. to 20 ft. below the surface. After hearing the parties, the Vice-Chancellor said that there was great difficulty in determining what the word "royalty" meant, but the strong probability was that in this particular locality it was understood to apply to "mines and minerals." As to the exception, the word "mineral," in its largest sense, applied to every production constituting the earth's crust, even including the mould on which the vesture grew, but it was hardly possible to conceive that a vendor having sold land to a purchaser could reserve the right to that which formed, in fact, the whole subject matter; and it must, therefore, have some more limited meaning. The etymology of the word mineral was, that which was dug from a mine; but there was a clear distinction between a mine and a quarry. The words used did not include freestone; "mines" being the governing word; and inasmuch as it never could have been the intention that having sold the soil the vendor should have a right to come and break up the ground at any time and to any extent, the plaintiff was entitled to a decree for an injunction, for damages, and an account, with costs.

NEW DOCKS AT PRESTON.—New docks, which will cost between 30,000l. and 40,000l., are about to be made at Preston. The river Ribble will have to be diverted for a mile, opposite Preston, in order to afford the necessary accommodation.

THE CORDWAINERS' COMPANY'S SURVEYORSHIP. Arrangements are making to supply this vacancy. Mr. Harry Oliver, of the firm of Wigg & Oliver, appears to be the favourite candidate. The company could scarcely get a better man for their purpose.

OXFORD SCHOOL OF ART.—It is understood that the sub-committee of this institution have appointed Mr. R. Macdonald, of the South Kensington, and formerly of the Dundee School of Art, as instructor to the school about to be opened here.

A CAUTION TO PLUMBERS.—The ball-tap, connected with a kitchen-range at Reading being out of repair, a plumber was sent for to remedy the defect. The ball was placed on the fire, when a loud explosion followed, water having found its way inside the ball. One person sustained a severe cut by the fall of a fragment of the broken range, and others escaped with slight bruises. Fortunately the windows were open at the time of the explosion.

NEW FRENCH CHURCH IN LONDON.—Under the title of "Notre Dame de France à Londres," a French Roman Catholic church (it is said) is to be founded in Leicester-square, the quarter in which the greatest number of Frenchmen of all classes reside, and there will be annexed to it free schools and an establishment of Sisters of Charity. Subscriptions are said to have been received on so liberal a scale, as to enable the promoters of the work to secure the site on which Burford's Panoramist stood for many years. Previously to the erection of the church, the Sisters of Charity will occupy the building.

PHOTOGRAPHY ON WOOD.—A new process of photographing on wood has been patented by Messrs. W. & H. Smith & Co., Bow-lane, Cheapside. For decorative purposes, it is said, it will be found advantageous, as pictures can be transferred to panels, ceilings, or any surface that may require ornamentation. Graining can by this new process of photography be multiplied and transferred to a surface with accuracy. For household ornamentation, and for decoration of public edifices, this method of applying photography is said to be economic in its application and artistic in its effects, while it is as durable as the material upon which it is transferred.

THE DEODORISING WORK AT STROUD.—The system introduced by Dr. Bird for deodorising the sewage of Stroud has been in operation for several months. Some gentlemen, on behalf of the Bristol Board of Health, have just made a formal survey of the works, with a view to the recommendation of the system for adoption at Bristol. Dr. Bird took his visitors to the waterfalls, and, having filled a jug with the water, showed its comparative purity. One or two of the deputation tasted the liquid, and agreed in stating that there was no offensive taste. They were shown samples of the different qualities of the manure. A farmer's man, who had come for a supply, said that where the manure had been tried the grass was very healthy and strong. The deputation expressed their satisfaction at the completeness of the deodorisation and the purifying process.

EPIDEMIC AT ALDERSHOTT.—We are sorry to hear that there is an unusual mortality amongst children at Aldershot. On falling sick they are immediately ordered into hospital, and all access to them denied to the parents. The highest state of excitement prevails in the camp amongst the married people, and the harsh measures of the medical authorities have provoked some half-frenzied parents into acts of insubordination in their attempts to see their children. A Board of Inquiry on the subject has been held, in which the chief medical officers of the camp took part, when it was determined to remove those families where the sickness has been, out of the camp under canvas. There are great complaints of the crowded state of the quarters in camp, and of the scarcity of water, there not being sufficient to flush the drains. The system of drainage at Aldershot was never of the best, and with a deficiency of water it is now in a very bad condition.

RAGLAN CASTLE.—We are glad to find that, in consequence of the assessment committee having reconsidered and rescinded their late decision in reference to Raglan Castle, on which we recently commented, the Duke of Beaufort has given directions that the castle and grounds be at once re-opened.

ST. BARTHOLOMEW'S CHURCH, ISLINGTON.—The ceremony of consecrating this church, situated in Shepperton-street, New North-road, Islington, took place on Friday, the 12th instant, in the presence of a crowded congregation. It was expected that the Lord Bishop of London would have consecrated the church, but owing to his being unexpectedly summoned to the House of Lords the Bishop of Ripon performed the duties.

BREATHING IN SMOKE AND POISONOUS VAPOURS. An ingenious Frenchman has invented a respiratory apparatus, by means of which a man, it is said, may breathe and walk about in the midst of the most deleterious atmosphere. The invention consists of a tin knapsack, which is strapped to the back, and filled with compressed air. Communicating with the mouth is a series of tubes, which supply fresh air to the lungs, and carry off the exhalations; and the nostrils are closed with a spring, and the eyes protected from the action of injurious vapours or dense smoke, by tightly-fitting glasses. Experiments are being made with this apparatus at the Polytechnic.

COMPRESSED-AIR HIGH-SPEED HAMMER.—Mr. W. D. Grimshaw, of Birmingham, has read a paper at the Institution of Mechanical Engineers, descriptive of a high-speed compressed-air hammer, for planishing, stamping, &c. The air is compressed by a force-pump, worked by a crank-pin on the driving-pulley, and is delivered into the interior of the hammer-frame, which forms the reservoir. The working cylinder and piston, with hammer, are arranged as in an ordinary steam-hammer, but driven by the compressed air, which is admitted above and below the piston alternately by a slide valve, the pressure of the air being regulated by a throttle-valve worked by a foot-treadle. The force, rapidity, and quality of the blow given by the hammer can be changed with great promptness and accuracy; and the hammer is found very advantageous in many situations, such as where there would be a loss of power by condensation in bringing steam from a great distance, or where the damp from leakage of steam or the dropping of condensed water on the anvil would be objectionable, as in planishing bright work.

HYDRAULIC POWER AT THE MIDLAND RAILWAY CO.'S STATION.—At the goods station of the Midland Company, Agar Town, the trucks are brought up to the landing-stage by hydraulic machinery, loaded or unloaded when required by hydraulic cranes, and they are shifted from one set of rails to another by means of traverses worked by hydraulic power. Press a lever, and in an instant the loaded truck glides noiselessly away; another lever is pressed, and forthwith a huge bale of goods, or a heavy forging, is seen dangling in the air, and is swung round, and deposited in the truck or wagon, as tenderly as a mother would place her sleeping child in its cradle. The *Railway News* says:—The machinery by which all this power is made so readily available consists of the water-engines of Sir William Armstrong, situated some hundred yards distant from the place. Our readers are familiar with the principle upon which this power is obtained and applied. The effect of a pressure of water from natural sources is got by what are termed "accumulators," which, in this instance, consist of a large reservoir formed of iron plates, and filled with seventy tons of gravel and sand, and its pressure is about equal to that of a head of water 1,500 ft. This force is raised by the hydraulic power, and is ever ready and available for acting on a column of water, and the pressure may be regulated as required over every part of the system. A small steam-engine is employed for pumping the water into the cylinder of the hydraulic press. This hydraulic pressure is obtained at a very small cost. Some engines of this description which are employed at the Newport Docks, in Monmouthshire, delivered, last year, 219,000 tons of coal, at a cost of about one farthing per ton for pressure, and about one halfpenny for wages, stores, and repairs; the cost of loading by hand having previously been from 5d. to 7d. per ton.

CHURCH-BUILDING IN THE SANDWICH ISLANDS. There are about 100 meeting-houses in the Sandwich Islands, erected by the islanders, at a cost of 150,000 dollars. The one at Honolulu is built of coral rock.

ORIGIN OF THE WORD "NAVY."—The ordinary idea as to this is, that the word is a contraction of "navigator," as first applied to the workmen of our "inland navigation," or canals; but a writer in *Chambers's Journal* rejects this theory, and suggests that the word "navy" is "identical with Nabbi or Naabbi, a word of Danish origin, but in common use among the Gaelic population of the counties of Sutherland, Ross, and Inverness, to denote neighbour. During the construction of the Crinan Canal, which connects Loch Fyne with the Atlantic, and was commenced in 1793, numbers of Highland workmen were assembled from the counties just mentioned, and by them the word Nabbi or Naabbi was constantly employed in addressing each other, just as an Englishman in similar circumstances would use 'mate' or 'comrade.' This is a well-ascertained fact; and it is also equally certain that most of the engineers and contractors connected with the works came from, and returned to, the south of Scotland and England."

TENDERS

For erecting two small houses near Wimbledon station, for the British Land Company, from plans and specifications by their architect, Mr. Blenkins.—

Butcher	.....	6645 0 0
Robinson	.....	630 0 0
Smith	.....	697 0 0

For erecting a warehouse, No. 4, Chiswell-street, Finsbury, for Messrs. Blyth & Sons. Mr. F. G. Widdows, architect.—

Child & Son	.....	25,460 0 0
Piper & Wheeler	.....	5,257 0 0
Axford & Co.	.....	5,000 0 0
Hack & Son	.....	4,747 0 0
Brown & Robinson	.....	4,747 0 0
Henshaw	.....	4,660 0 0
Anley	.....	4,660 0 0
Ennor (accepted)	.....	4,622 0 0

For pair of villa residences, London Road, Enfield, Mr. T. J. Hill, architect. Quantities not supplied.—

Patman	.....	21,760 0 0
Barber	.....	1,763 0 0
Cushing	.....	1,730 0 0
Ashton	.....	1,478 0 0

For new kennels and stables for the Craven Hunt, at Little Waleod, Berks. Messrs. Money & Son, architects, Newbury.—

Brown	.....	21,340 0 0
Martin & Hoakings	.....	1,315 0 0
J. & R. Harrison	.....	1,246 0 0
Woodbridge (accepted)	.....	1,110 0 0

For the erection of warehouse, &c., Gun-alley, Bermondsey, for Mr. Faulstich, Mr. R. Gale, architect.—

Wells	.....	2,273 0 0
Wood & Munn	.....	2,670 0 0
Prince	.....	2,345 0 0
King & Sons	.....	2,268 0 0

For works at the Brunswick Tavern public house, Old Kent-road, for Mr. J. Dickson, Mr. Frederick Holmworth, architect.—

Selleck	.....	2887
Tyson	.....	178
Tracy & Son	.....	174
Lawrence	.....	120

For shop, Eastgate-street, Gloucester. Mr. H. James, architect.—

Sheppard & Meredith (accepted)	2303 0 0
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For a pair of houses at Morley-road, Lewisham. Mr. Banks, jun., architect.—

Hammond (without fencing)	2836 0 0
Mortimer (with fencing)	.....	830 0 0
Gent, Brothers (without fencing)	.....	790 0 0

For the St. Helen's Brewery new tower, Wavertree-road, Liverpool. Mr. Geo. R. Isborn, architect.—

Tyson	.....	21,738 0 0
Pollock	.....	1,600 0 0

For a house at Redhill, Surrey, for Mr. Perrin. Mr. J. F. Matthews, architect. Quantities supplied.—

Cook	.....	2840 0 0
Holdsworth	.....	835 0 0
Thornton	.....	292 0 0
Sheppard (accepted)	.....	633 0 0

For three houses at Peckham Rye, Mr. H. Jarvis, architect.—

Colls & Son	.....	23,173 0 0
Tarrant	.....	3,064 0 0
Marland & Sons	.....	3,015 0 0
Sharpton & Cole	.....	2,997 0 0
Piper & Wheeler	.....	2,925 0 0
Henshaw	.....	2,834 0 0
Kynock	.....	2,825 0 0

For new farm buildings on the estate of the Rt. Hon. Earl Amherst, at Seven Oaks, Kent. Mr. J. F. Matthews, architect.—

Henderson	.....	21,204 0 0
Wood	.....	1,300 0 0

For house for Admiral Sir Baldwin Walker, Bart., T. Jeckvill, architect.—

Gibbons	.....	24,850 0 0
Curdell	.....	4,296 0 0
Balls	.....	3,788 0 0
Goldbold	.....	3,400 0 0
Smith	.....	3,200 0 0

For stabling, &c., Stones End, Borough. Mr. Jarvis, architect. Quantities not supplied.—

Kent	.....	2597 0 0
Henshaw	.....	587 0 0
Marland & Sons	.....	585 0 0
Thompson	.....	580 0 0

For warehouse, Wilson-street, Finsbury. Mr. G. W. architect.—

Conder	.....	23,232 0 0
Hack & Son	.....	2,123 0 0
Asford & Co.	.....	2,085 0 0
Brown & Robinson	.....	2,075 0 0
Henshaw	.....	2,005 0 0

For two houses, Kingsland-road. Mr. Gliddon, architect.—

Room	.....	21,158 0 0
Patman	.....	1,140 0 0
Heywood	.....	1,078 0 0
Flint	.....	1,065 0 0
Maeers	.....	1,030 0 0
Salmon	.....	1,005 0 0
Henshaw	.....	1,020 0 0

For two houses, City-road. Mr. Hammond, architect.—

Sanders	.....	22,158 0 0
Easton & Chapman	.....	2,128 0 0
Henshaw	.....	1,899 0 0
Chesam	.....	1,840 0 0
Turner	.....	1,782 0 0
Bishop	.....	1,733 0 0

For brewer's house, Westgate Brewery, Bury St. Edmunds, for Mr. Edward Greens. Messrs. Bacon & B. architects.—

Jackman (accepted)	2,701 18 9
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For alterations and additions to 21, Gerrard-street, Mr. E. Wood. Mr. F. F. Holmworth, architect.—

Lawrence	.....	2387 0 0
Mauley & Rogers	.....	845 0 0
Selleck	.....	794 0 0
Tracy & Son (accepted)	.....	787 0 0

For erecting portions of the Dominican church priory at Haverstock-hill, London. Mr. Gilbert R. Blount, architect. Quantities supplied by Mr. J. Carew.—

Lucas	.....	21,264 0 0
Trollope	.....	21,233 0 0
Patman & Fotheringham	.....	21,063 0 0
Wood	.....	20,383 0 0
T. Aspin	.....	19,043 0 0
Bird	.....	18,607 0 0

For warehouse, Golden-lane, for Mr. F. G. Debenham, Messrs. Wimbale & Taylor, architects.—

Brass	.....	22,380 0 0
Adamson & Sons	.....	2,273 0 0
Kamey	.....	2,254 0 0
Cole	.....	2,245 0 0
Kilby	.....	2,078 0 0
Hill & Sons	.....	2,028 0 0
Wills	.....	1,987 0 0
Hack & Sons	.....	1,977 0 0
Hardiman & Sandon	.....	1,970 0 0

For new buildings, High-street and Carl-lane, Leicester, for Mr. W. Burley. Mr. T. J. Goodacre, architect.—

Nesle	.....	22,277 0 0
Herbert & Son	.....	2,273 0 0
Porter	.....	2,257 0 0
Osborne, Brothers	.....	2,219 0 0
Dunbury	.....	2,200 0 0
Hutchinson & Son (accepted)	.....	2,159 0 0

For additions to a house, King-street, Borough. S. Dyball, architect.—

Terry	.....	2799 0 0
Hill & Sons	.....	650 0 0
Perry	.....	620 0 0
Drewitt (accepted)	.....	500 0 0

For villa at Upper Norwood, for Rev. E. Birch, S. Dyball, architect.—

Francis	.....	22,202 0 0
Sharpton & Cole	.....	2,187 0 0
G. & R. Buck	.....	2,187 0 0
Sawyer	.....	2,047 0 0
Seymour	.....	1,998 0 0
Perry (accepted)	.....	1,947 0 0

For excavator's, bricklayer's, slater's, plumber's, and smith's work for a residence on Calver estate, Runbridge Wells. Mr. James Budge, architect.—

Pink	.....	2632 0 0
Strange & Sons (accepted)	.....	622 5 6

For Plasterer's Work.

Mason	.....	2170 15 0
Wenban	.....	172 0 0

For enlarging and altering Hawley-road Church, Kentish Town, for the Rev. E. White. Mr. E. C. Kell, architect. Quantities supplied by Mr. H. Sall.

Hale	.....	23,742 0 0
Newmann & Mann	.....	3,244 0 0
Sharpton & Cole	.....	3,178 0 0
Mauley & Rogers	.....	3,183 0 0
Mann	.....	3,145 0 0
Scrivener & White	.....	3,062 0 0

For Fulham and Hammersmith sewers, Fulham district, King-street, Hammersmith, and High-road, Fulham.

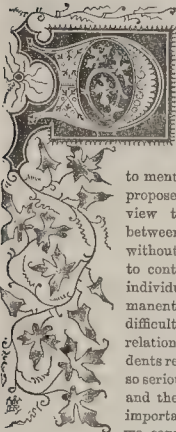
Moxon	.....	23,620 0 0
Thirst	.....	3,548 0 0
Elsley	.....	3,183 0 0
Wignmore & Whittick	.....	3,199 0 0
Reddin	.....	3,100 0 0
Williams & Co.	.....	2,800 0 0
Stansfield	.....	2,703 0 0

1. *As a result of the above, the following is the proposed solution:*

The Builder.

VOL. XXIII.—No. 1164.

The Prevention of Strikes.



URING some considerable time we have been content chiefly to note in our pages the incidents of dispute in the building-trades throughout the country, and

to mention different measures proposed or taken with the view to improved relations between capital and labour, without otherwise attempting to contribute much, or by our individual efforts, to the permanent solution of the still difficult questions which the relations involve. But the incidents referred to are becoming so serious from their frequency, and the measures are so far important in their aims, that we cannot longer refrain from the endeavour to promote at

tainment of a position more healthful and political-economical than that which exists. A list, roughly made out, of some of the strikes and outlooks continuing or commenced this month, in the building trades, gives twenty-six different towns or districts, and a greater number of trades, as suffering through contention such as is perpetually recurrent, as to what is "a fair day's-wages for a fair day's-work," or what are the respective shares of that "common-fund" which neither the employer nor the employed can draw from in excess of what may be his share, unless with injury to the mutual interests. Evidence that particular strikes, or outlooks, have resulted in circumstances worse than those precedent to the dispute, have had no more effect in preventing recurrence of disputes, than evidence of the fact of mutual injury has had in preventing nations from recurring to a state of war. The direct tendency of every war is to produce another war, at some period, between the same combatants; as has been plainly shown of late, by the ablest French advocate of peace, M. Emile de Girardin. No feeling of self-interest will hold passion in check: the only hope of a fresh start, unclogged by animosities, and of lasting peace, lies in mutuality of interest and interchangeability of respect. Let it be once comprehended that war, a thing which is always undertaken with a view to peace, tends to war, and there may be less disposition in nations to go to war, and greater readiness to submit to arbitration, or the control of the comity of nations; which has prevented some wars,—though it may have failed to prevent all.

A dispute between masters and workmen has been likened to a state of war: the means that may be taken towards prevention of one and the other form of strife, are similar; and, similarly in the cases, they will not universally be sufficient till mutuality of interests has been well established. Arbitration cannot altogether prevent strife arising out of the relations of capital and labour: it could prevent that state of war only where the decision was made with perfect knowledge of the circumstances,—knowledge that could seldom be found, excepting with the parties them-

selves,—that is where the decision would have the justice which, rather than any force of law, would make it respected; or it could similarly operate to prevent, only where there might be the disposition on both sides to concessions. It is worth while to have arbitration available: but it will not be all-sufficient; neither will it be of equal service to other means, not of settling disputes, but for avoiding them, that are coming to hand, and which there is promise will be ere long largely developed.

Before proceeding to describe what these proposed means are, we should advert to certain facts that were lately noticed by Mr. Thomas Hughes, in a letter to the *Spectator*, as showing the fresh importance of our subject. Mr. Hughes finds that the principal unions of the men, supposed to have received considerable damage during the last fifteen years, have actually increased greatly in strength; and he believes that the increase has been the result of the outlooks, or acts of the masters. He first mentions the Amalgamated Society of Engineers. At the time of the great outlook, when all the workshops in Manchester and London were closed by the masters, in order to meet the strike against one establishment, the Society had, he says, 11,829 members. At the end of the five months' struggle, the Society had lost upwards of 2,000 members, and almost the whole of the reserve fund, whilst subscriptions were greatly in arrear. It was thought, even by friends, that the Society could not recover. But, within eighteen months, the numbers stood as high as before the outlook. In three years they became 12,553; and from that time to this, they have increased by about 2,000 a year. The report for 1863 gives the numbers as 26,058. At the time of the outlook, the Society had 121 branches, all in the United Kingdom, and all but 13 in England. In the very year, 8 branches were added; and in the following year 12 branches more. In 1863, there were 262 branches, whereof 5 were in the Australias, 1 in New Zealand, 4 in Canada, 1 in Malta, and 5 in the United States. In the same year, notwithstanding an expenditure of 52,000*l.* to members out of work, or in other allowances, and 10,000*l.* for other objects, the reserve fund stood at 67,410*l.*; and in 1864, the progress continued. As another example, there is the case of the Amalgamated Society of Carpenters and Joiners. The following tabular statement is given:—

Dates.	Branches.	Members.	Funds in hand.	Net Increase of Branches, Members, and Funds:—	
				Branches.	Funds.
1860.....	20	618	£321 3 2½	12	32
1861.....	32	650	593 12 0½	12	272 8 10
1862.....	38	949	945 8 10	6	255 16 9½
1863.....	53	1,718	2,042 11 3	15	769
1864.....	81	3,279	4,666 10 0½	28	1,661
					2,623 18 9½

Mr. Hughes believes from such statistics as these, that a great strike or outlook, no matter which side is in the right, or whether the men gain their point or are beaten, only stimulates the growth of the Society. He anticipates that by unions amongst the trades, the masters will be beaten in the long run. The latter, he thinks, cannot remove their capital away from the coal and iron, whilst the men can remove their labour, taking advantage of their branches. It is evident that emigration is now playing an important part, antagonistic to the apparent interests of the masters; and Mr. Hughes looks "with great dread on the turn our civil war without firearms is taking." He says,—“Unless some change comes, there will soon be a constant and ever-increasing drain of the picked men from this country, and we shall be left with the drunkards and the idlers.”

In 1859, during the outlook after the strike

against Messrs. Trollope, we discussed, in a leading article, the question, what means there were open to the workman to better his condition, without recourse to a strike. The present state of the question of capital and labour, and the direction taken alike by the friends of workmen, and by masters, serve to show us that we viewed the question correctly. We referred to three agencies for adjustment of the difficulties between masters and workmen. They were emigration, arbitration or councils of conciliation, and "co-operation." To the last we attached the chief importance. When we wrote, the Society of the Rochdale Pioneers had been scarcely noticed at all by the press; the book of Mr. Holyoake, "Self-help by the People; History of Co-operation in Rochdale," to which we were indebted, was little known; and important papers and articles by Professor Fawcett, and others, had not appeared. The course of the subject will bring us again to co-operation, but to a new form of it which is especially important as tending to diminish strikes.

If we still name emigration as one of the resources for the workman, we do so only that our enumeration may be complete, of those out of which choice can be made, and in order to point to the fact that this resource is being taken advantage of to a considerable extent. We may however remark that the common reasoning touching emigration after a strike, that the fact of the emigration shows there had been a superabundance of labour, and that a strike for higher wages was not calculated to succeed, has been sometimes too prominently advanced; for, it is quite possible that men may emigrate, preferring that course to a return to work with the same masters, and that on termination of the contest a corresponding deficiency of labour may be felt. Emigration, when there is a superabundance of labour, and likely to continue for some time, or when the workman wedded to a single handicraft, has been superseded by a machine, and yet has the energy and strength of arm that are chiefly in demand in a new country, may afford the means of restoring a balance,—moreover, there are men who require the spur of difficulties, or to have "burnt their ships," to have their energies called into action: but it is not altogether desirable for the old country to lose its available hands; and this has been the view taken of late, by true philanthropists, in the cotton-manufacturing districts, where emigration has gone on to the greatest extent, and of course advantageously in many respects. The real object before emigration is largely resorted to, as under the direction of trades-unions, is for the employers and employed to discover means by which the latter may understand whether there is really the surplus of labour after the employer has taken his fair share from the common fund; or whether, in the other case, the need has arisen for the employer to be checked from adding to his profits, because doing so out of what should increase the wages of the workman. Now it is impossible that each party can be satisfied unless the partnership, which there is in theory,—in theory however that has the ultimate basis of fact,—be made an actual partnership in feeling or in fact. The partnership that we have called a feeling, is that which endeavour is made to reach through the agency of arbitration and councils of conciliation: the partnership as fact, exists in those concerns which are based on true "co-operative" principles, or in which the workmen are admitted to share in what are ordinarily called profits; and it is sought to be promoted in the "Bill to amend the Law of Partnership," now in the House of Commons, a measure the importance of which to the future condition of the working classes it is impossible to estimate too highly. That either co-operation of workmen, or that combination of co-operation with

the old relation of master and servant which may be preferable for some time to come, will prevail to the exclusion of establishments on the old relation, is not to be expected immediately; and the exclusion may not ever be to be desired. The remark was we believe made by the Earl of Lichfield, during the period of his recent exertions in Staffordshire, that had there been one establishment in the district, conducted on the principles of partnership between master and workmen, its rate of wages would have been taken as guide, and no strike of the iron-workers would have ensued.

To simulate in other establishments, that community of interests which, as we shall show, is to be calculated upon in those conducted on the united limited liability and co-operative principles, or which even is already found to exist, arbitration in some form may conduce. But, too much has been lately expected of it. Courts of conciliation on a modification of the French system, which might reduce the number of strikes, by settling many of the questions arising, and by preventing others through creation of a good understanding between masters and men, could be easily instituted; but they would not prevent strikes entirely. In Paris, just lately, there have been a great number of strikes. The frequency of them has been explained by the over-eagerness of workmen to exercise the right, newly accorded them, of coalition. It is satisfactory to see that in Staffordshire, the men are alive to the evils of strikes; but it is less satisfactory that they should have calculated upon arbitration as an all-sufficient substitute. It has been remarked in an able article in the *Pall Mall Gazette*,—"Phrases about the 'principles of right and justice' are always suspicious and generally fallacious. Right and justice are excellent things, but they have nothing to do with the rate of wages; they belong to a different order of ideas altogether. They are law phrases, implying the existence of fixed rules, which confer powers and impose commands on those whom they affect. If a man contracts to work for another for a week for a pound's wages, then right and justice have a meaning." The right and justice in contracts are unchanged, whatever the disproportion between the amounts to be paid and the article to be supplied. The rate of wages, the writer shows, is determined exclusively by self-interest, the interest of the master being to give as little, and the interest of the men to get as much as possible. The rule may be departed from through kindness; but if a master keep his works open at a loss, it is an act of charity. Now, who can decide what is the man's interest to take, but the man himself? or who what the master should give, but the master? The slightest thought will suggest many considerations that the master or man will bring into the question, that would occur to no one else, and that could not be decided except by the party himself. If the parties were to be compelled to act upon the opinion of a third person, as to their own affairs, there would be an end of personal liberty on the one side, and of the rights of property on the other. An arbitrator's award, he says, must be either legally enforceable and binding on both parties, or it must be mere advice. In the latter case, the benefit must depend upon what may happen to be the particular qualifications of the adviser, amongst which are the possessing more knowledge, and the taking more pains, than the person whose interest is concerned. Considering the arbitrator as a judge, two difficulties immediately present themselves. First, there are no rules by which the judgment can be guided. There is no such thing as a *fair* rate of wages, or a *just* rate. How is it possible to lay down rules as to the amount which it is the interest of the one party to give, and of the other to take? Then, how is the award to be enforced? "Practically it is impossible to make men work well when they are not satisfied with their wages, or to force masters to pay wages at a higher rate than their interest permits. The man whistles and loiters till he has watered down his labour to what he considers a proper level. The master contracts his preparations or shifts the employment of his capital." The plain truth is that the question is one of individual interest, which the master and man must settle for themselves. Thus far the writer in the *Gazette*, whose views would have deserved to be given even more in detail, with their illustrations. We direct attention to the observation that it is impossible to

make men work who are not satisfied with their wages; because, shortly, we shall speak more precisely of endeavours to which we have already alluded, that would convert the unwilling machine into the active and interested co-partner.

Notwithstanding the limited scope of arbitration,—limited even though Courts of Conciliation were legally constituted,—and that there may be reason in Mr. Hughes's assertion that "in any case it will only be an armed truce," we incline to the opinion that it would be of service; and, judging from the Bill of Lord St. Leonards, the attempt is to be made to introduce it with improvements upon the French system. We have already mentioned the Bill; but a new statement of its main features, in our pages, will assist the object for which it has been printed, namely, to allow masters and operatives to see what sort of court would probably be established in the event of Courts of Conciliation being agreed upon. The Bill is "intituled an Act to establish Equitable Councils of Conciliation to adjust Differences between Masters and Operatives." In the preamble it refers to preceding Acts, of which the existence even may be unknown to many of our readers; albeit we have sometimes had to speak of them. These Acts are the Act of the 5th year of the reign of George IV., intituled "An Act to consolidate and amend the Laws relative to Arbitration of Disputes between Masters and Workmen," and the Acts of her present Majesty's reign, 1st, cap. 67; 8th & 9th, cap. 77, and cap. 128. It is there stated that it is expedient, without repealing the said Acts, to enable masters and workmen, when licensed by her Majesty, to form equitable Councils of Conciliation, and that the powers in the said Acts should be extended for enforcing awards under the new Act. The first clause enacts that if any number of masters or workmen in any particular trade, or trades, householders or part occupiers of any house or premises within a city or district (the masters having resided or traded for six months, and the workmen having resided for the same time, and worked for seven years, in the place) shall jointly petition for a licence to exercise the powers under the previous Acts, and setting forth the names of the petitioners, and certain particulars of the management proposed, it shall be lawful for her Majesty, or the Secretary for the Home Department, to grant such licence, provided notice of the petition has been published. By the second clause, the Council is to consist of not less than two masters and two workmen, and not more than ten masters and ten men, and a chairman; and no member of the Council to adjudicate in a case in which he may be interested. The third clause requires the petitioners to proceed to the appointment of a council from amongst to the appointment of a council from amongst themselves, within thirty days; and the fourth clause gives the power to appoint the chairman, and to adjudicate in cases submitted to them by mutual consent,—this involving the power of enforcing awards by distress, sale, or imprisonment; but nothing in the Act is to authorize the Council to establish a rate of wages. The fifth clause makes the quorum to consist of three, one a master, one a workman, and the other the chairman; and also provides for a Committee of Conciliation, consisting of one master and one workman, who, as in the French system, are to consider cases in the first instance. The next clauses provide that the chairman shall be unconnected with trade; that no counsel or solicitors shall attend any hearing; that the Council and chairman shall be appointed for one year; and that vacancies shall be filled up within fourteen days. The ninth clause refers to the qualifications of the voters and persons to be elected; which are similar to those given, in the first clause, for the petitioners. Other clauses relate to the registration of voters, to the appointment and duties of the clerk, to the sittings of the Council, and to the making of by-laws.

It may be observed that the knowledge of the particular trade connected with the subject in dispute, would be accurate to a degree to which the members of the French "*Conseils*" would often not pretend; since in place of a very small number of councils in the one town, there might be one for each trade. The "*Conseils*" in Paris are extensively resorted to; and the large majority of the cases are disposed of with great ease, or most of them at the preliminary examination by the body, or portion of the "*Conseil*," corresponding to the proposed Committee of Conciliation. But whether the facility with which masters can be brought before the courts by their workmen, leads to

difficulties in the masters' management, we are not quite sure; for, this much we know, there is an ever-recurring trouble in getting work done at the appointed time, and that when the master is reminded of his promise, he instantly adduces the workman's neglect, as though probability of such omission were so commonly understood as to have been of course taken into account by you.

Long and much as these Courts of Conciliation, and other methods of arbitration, have been striven for in this country, and important as is the adhesion to them of Lord St. Leonards, we cannot, as we have said, whilst recognizing their probable advantages, estimate them as likely to contribute more than in the second degree to improved relations of Capital and Labour. In that case what may we chiefly rely upon? The "old relation of master and man," says Mr. Hughes, "is gone hopelessly, whether we like it or not. The men will never be content until they have a share of profits, and some voice in the internal management of the workshops." Unless they can get these two rights, as they hold them to be, they will through much blundering struggle into co-operative societies for production as well as consumption. The masters must, in short, consent to become constitutional instead of absolute sovereigns, or they will have republican institutions rapidly springing up and shouldering them out." Therefore he wishes that masters in general "would follow the example of Messrs. Briggs & Son (Limited)," Messrs. Croasley, and others, and so win the battle by yielding, and lay down sure foundations for confidence and peace in their workshops, which would bring in their train the gratitude of the whole nation, and a trade such as the mind of man has never yet conceived." We quote these words because they represent what is just now the expressed opinion of such persons as those who are taking part in the meetings of working men and others, which are being held every Tuesday evening, at Exeter Hall, under the auspices of the Working Men's Club and Institute Union. At the first meeting, when the Duke of Argyll presided, "the Labour Question in connexion with Strikes and Co-operation" was treated of by the gentleman whose name has been just mentioned; and on last Tuesday evening, when Lord Lyttelton was in the chair, the secretary of the club, the Rev. Henry Solly, to whom all working men owe a debt of gratitude, explained under the title "Co-operation and Partnership between Masters and Men in a Yorkshire Colliery and Factory," the proposed and partly-matured scheme of Messrs. Briggs & Son, and showed lucidly the advantage that might accrue to capital itself through giving a share of profits to workmen, and by the enlistment of their full energies in work, and the advantage to both through that abandonment of strikes which seems consequent upon the new relation. Amongst the subjects for the ensuing meetings, is the question, on the 27th of next month, "Can Arbitration be successfully used in Disputes between Employers and Workmen?" to which Mr. J. M. Ludlow will speak, the Earl of Lichfield being named as chairman.

The importance of the change from absolute to constitutional government of the masters, as to the tending to the cessation of strikes, and to the advantage of employers and employed, has been dwelt upon by no less a person than Mr. John Stuart Mill, a man who, if we for once touch politics, we may say the electors of Westminster ought not to fail to send into Parliament. Mr. Mill in the chapter "On the probable Futurity of the Labouring Classes" in his "Principles of Political Economy" &c., of which work Messrs. Longman have just published a "People's Edition," has many passages, which coming from him, are of the greatest interest for our subject. Many of the facts collected in England and France were previously known to us.

Mr. Mill marks the existence of two conflicting theories respecting the social position desirable for manual labourers. "The one," he says, "may be called the theory of dependence and protection, the other that of self-dependence." The first, he continues, is "the ideal of the future in the minds of those whose dissatisfaction with the Present assumes the form of affection and regret towards the Past." But no times can be pointed out in any country, he says, in which the higher classes have performed a part even distantly resembling that assigned to them in the theory: all privileged classes have used their power in the interest of their own selfishness: the evil cannot be eradicated; and long before the superior classes could be

ufficiently improved, the inferior classes would be too much improved to be so governed. After speaking of the growth of the ruin in the working-classes, he says,—

“It is not to be expected that the division of the human race into two hereditary classes, employers and employed, can be permanently maintained. The relation is nearly as unsatisfactory to the payer of wages as to the receiver. If the rich regard the poor as, by a kind of natural law, their servants and dependents, the rich in their turn are regarded as a mere prey and pasture for the poor; the subject of demands and expectations wholly indefinite, increasing in extent with every concession made to them. The total absence of regard for justice or fairness in the relations between the two, is as marked on the side of the employed as on that of the employers. We look in vain among the working-classes in general for the just pride which will choose to give good work for good wages: for the most part, their sole endeavour is to receive as much, and return as little in the shape of service as possible. It will sooner or later become insupportable to the employing classes to live in close and hourly contact with persons whose interests and feelings are in hostility to them. Capitalists are almost as much interested as labourers, in placing the operations of industry on such a footing, that the labourer who labour for them may feel the same interest in the work, which is felt by those who labour on their own account.”

And he says, that if improvement continue,—

“there can be little doubt that the status of hired labourers will gradually tend to confine itself to the description of workpeople whose low moral qualities render them unfit for anything more independent; and that the relation of masters and workpeople will be gradually superseded by partnership in one of two forms: in some cases, association of the labourers with the capitalist; in others, and perhaps finally in all, association of labourers among themselves.”

He gives instances of the first of these forms of association, including the case of the American ships trading to China, that in the Cornish mines, where the men are remarkable for intelligence, cases mentioned by Mr. Babbage, in his “Economy of Machinery and Manufactures,” when pointing out the principle as capable of being extended to manufacturing interests, and several others.

We will pursue the argument in our next.

EXCAVATIONS AT OSTIA.

The excavations begun more than ten years ago, at Ostia, have been rewarded of late by the most interesting results, and are now being prosecuted by the labours of about sixty convicts, who inhabit the picturesque old castle, built by Sangallo in the latter years of the fifteenth century, within whose half-ruinous walls stands the wild little village that alone gives shelter to modern life, in the place of the antique city, on this desolate fever-stricken seacoast.

After a walk of about a mile along the uncultivated fields around this village, we reach a street of tombs leading to the threshold of a principal gateway, and lined by the substructures of sepulchral chambers, several of which contain the usual rows of niches for cinerary urns, a few having remnants of mosaic pavement (in black and white), with designs, birds, a biga drawn by two horses, &c., or a simple ornamental pattern; and, in one instance, are such architectural details (for the tomb, singular), as a double doorway and large window with jambs, lintels, and framework of travertine. Beyond the ample threshold stone, sole remnant of the gateway, stand the ruins of a large mansion, supposed a military station or guard-house. We have hence in view a long perspective of paved street flanked with houses, now but low and roofless, among which lie strewn fragments of sculpture and of marble architecture; but no conspicuous front rises, no characteristically designed elevation attracts the eye. One more imposing ruin, however, is that of a palace, in whose chambers are pavements of geometric design in mosaic, and others of the richest coloured marbles inlaid in cubes.

A walk across the fields brings us to a more interesting ruin-group (opened shortly before our last visit), presenting several tombs, now roofless interiors and corridors lined with masonry, still firm and solid, partly in brick, partly in reticulated work of tufa,—the plan of this whole structure complicated, several of its interiors containing files of niches in which the terra cotta *olla*, for ashes, still occupy their places; and other large recesses are seen, evidently for sarcophagi,—proof of the contemporaneous practices of interment and cremation; the former further attested, by numerous skulls, found here and elsewhere, among the Ostian sepulchres. Within one of these recesses, under a vaulting, is a painting of a banquet-scene, with large couch, table, garlands suspended above; but no guests introduced. In one chamber are figures

of animals, painted with some skill, on a stucco surface of deep red. These remains are far surpassed in interest by a superbly-decorated tomb, into whose vaulted interior we descend from the level below which it had been buried; measuring 12 ft. 8 in. by 11 ft. 3 in., with walls and vault entirely painted over,—the chief colours red and yellow,—the floor sloping upwards to a level centre occupied by a marble sarcophagus (now in a magazine of such relics at the village); ample niches, with their *olla* along a single file on the lateral walls; at the end wall, a kind of *adnicula*, with painted pilasters and cornices, containing four larger arched recesses, and surmounted by ornamental painting, under the springing of the vault, rich and graceful in style. Upon the ceiling a row of griffins and candelabra form a species of frieze, in white on a yellow ground; animals and a few human figures, much defaced, are here and there recognisable on the warm-tinted walls. A single funeral slab set into the masonry, near the entrance, gives the name of a child,—Sicia Semina, deceased in the second year of her age. Returning within the area of the city, and proceeding in the direction seaward, we reach the last and by far the most important group of buildings, which covers a considerable extent, divided into numerous interiors, now presenting a vast labyrinth, amidst whose complications it is most difficult to form anything like a ground-plan to the mind's eye, or to determine the specific appropriation of every part. One fact, however, is certain, and serves as guide for the apprehension of this great aggregate—that we have here before us three systems, distinct, but in communication: a temple of Mithra's, with forecourt and other sacred purlieus; the residence of the priesthood who here officiated; and *therma*, that may have belonged to the same sacerdotal body, no doubt wealthy and powerful whilst this once fashionable Oriental worship prevailed under the Empire. These ruined structures are all alike roofless, divided either by partition walls at different height, some reduced very low, or by massive brick pilasters, among which lie several shafts of marble, green-veined Carystian (*cipollino*), or other kinds. We first enter a spacious quadrangle, entirely paved with black and white mosaic, designed in a graceful ornamental pattern (without figures), like carpet-work. From this centre opens, to the left, a series of quadrangle chambers, various in size, at once recognisable as baths, all containing mosaic pavement; and two provided with terra cotta flues, for admission of hot air from a hypocaust, into which we can look, stooping low, from a lower area of ruins still encumbered with soil and weeds. The mosaics in these interiors are curious and varied; in one example (where a series of diamonds and borders is adorned with a species of braid, like intertwining ribbons), coloured; the others, in black and white, their designs including several figures of spirited character,—athletes combating with the cestus, or holding the palm of victory; one in the act of crowning himself with a ponderous diadem-like wreath; a little Cupid mounted on a dolphin, which he drives with a long whip; a bull terminating in a monstrous dragon, &c. From these pavements one of the finest specimens in coloured mosaic has been recently transferred to the Vatican; the central of five panels, in its design presenting a beautiful group of birds and flowers, the subordinate detail consisting of foliage, meanders, &c.

Leaving these baths, we enter the principal court, an ample quadrangle surrounded by parallel chambers and the temple buildings; the pavement of this court presenting a very curious design in black and white mosaic, intended for a kind of plan of the city and its port; in the centre a rude representation of a lighthouse with flame at the summit; around this the moles and inclosures of a harbour; beyond, the wider extent of fortifications and gates round the city, whose streets are simply indicated by black and white squares in chess-board style. Off one side of this quadrangle opens a series of halls, oblong and parallel to each other, all in a very ruinous state, with the lower flight of a staircase nearly at the centre; one of these interiors containing mosaic pavement (geometric and two square elevations, that probably (as seems indicated by the pipes carried through one side of each) served for fountains, as perhaps required for instructions in the Mithraic worship. At one extremity of this series, to the right, is the cella of the Mithraic temple, a narrow oblong, terminating on the western side in

a flight of six marble steps, on the lowest of which stands a small plain stone altar, with a cavity at the summit for libations, and the legible epigraph in front, *C. Calpurnius Hermæus antistes hujus loci fecit sua pecunia*. At each side apparently for communicating with the platform above the altar, are narrow corridors, lateral to the staircase, and now more ruinous than the other parts. On the floor are the words, inscribed in mosaic, repeated along two borders,—*Soli Invict. Mît. D.D.F. Agrivis Colendis*. The several other chambers adjacent to this fane, now reduced to a state of scarce-intelligible ruin, are so connected with it that one may fairly suppose them to have served for its priesthood or other purposes pertaining to its rites. At some distance from these excavations stands the most conspicuous of the Ostian antiquities, the cella of a temple supposed (though without reliable evidence) to be that of Jupiter, and, at all events, one whose character must have been imposing, and art decorations splendid; its area ample; its walls of interstitial brickwork, still lofty and well preserved; though of the roof remains nothing, and the front has also vanished. Along the side opposite the entrance is a wide extent of massive stonework, in which we recognise the remnant of a large altar and platforms; the rich marble pavement (mentioned as extant several years ago, in Nibby's “*Contorni di Roma*”), has disappeared, all but an immense threshold-stone of fine African breccia; and in the midst open two yawning cavities, one filled with soil, the other allowing a glimpse into a dark subterranean. The posticum, on its outer side, is perforated with cavities at regular intervals, probably for the pivots by which a marble incrustation was fastened; and on the ground-floor, below that part of the cella where stood the altar, we enter by an arched ingress (lately opened) into the outer compartment of a system of crypts, where, under a high-hung vault, lie a profusion of marble fragments, some pertaining to richly-chiselled architecture, which we can only inspect in dim light admitted from the doorway. From this chamber is communication with the inner *penetralia* not yet cleared out, but soon to be so, from which further continuance of the works in this temple we may expect valuable results. Around the outer walls are portions of pavement, in very ample white marble slabs, numerous fragmentary shafts and cornices in the same material, the latter presenting fine examples of dental and egg-moulding. Seeing the extent of area over which these marble remnants are strewn, we may conclude they belonged to the sacred enclosure (*peribolus*), that must have been ample in plan, and majestic in architectonic character. It is evident from the elevation of ruin-masses, that a flight of steps must have led to the entrance of the cella, whose front was hexastyle, of the Corinthian order, as inferrible from its remains; and the colonnade round the enclosing court seems to have been of smaller shafts in the same order. Gell gives the measurement of the whole area as about 270 Roman palms in length, by 120 in breadth. The wild solitude amidst which it stands enhances the effect of mournful grandeur in a ruin not otherwise of extraordinary character, as to either dimensions or artistic claims. The recent directing of the excavators' labours to this centre has been judicious; but we were sorry to hear of the removal of several great marble shafts from these interesting ruins, to “St. Peter's” as the custode reported, but we conclude, by mistake,—St. Paul's on the Ostian Way being, in all probability, the church for whose restorations they are destined. Besides the above-named, other noticeable discoveries on this site are the substructures of a granary and another public magazine, in whose spacious area are still seen files of enormous terra-cotta amphoræ, embedded in the ground up to their necks, mostly filled with clay, instead of the oil they were probably destined for. The wide-spanning arch of a ruinous gateway, seaward, forms one of the conspicuous features among these relics of a vanished city, once peopled, it is said, by 30,000 souls, but left to decay so early as the sixth century of our era.

As to the style of these Ostian ruins generally, we observe indications of a good, but rarely those of the best, period in Roman masonry; the *opus reticulatum* frequently seen, and quite compact; the brickwork, in some examples, with broad layers of cement, such as characterize the period of decline.

Soon are to be commenced other works on this site among the hitherto-neglected ruins of a

theatre, only a single arcade of which stands in intelligible form beside other vague piles of brickwork. Out of proper regard for the health of the poor *galileotti* (condemned prisoners) the Ostian works are suspended from the 10th of June till a period in the autumn. The deposit of antiquities in the village contains sarcophagi, epitaphs, lamps, terra cotta ornaments of tombs, amphore, &c., the most valuable to be eventually transferred to Rome's Museums; the most remarkable among those objects still left here, is a recumbent female figure, headless, naked down to the waist, but for the rest draped, with a fine character of execution in the nude, and in the drapery retaining the red tint, much faded, in which the whole of that portion has been painted.

Recently have been brought to Rome a fresco of Orpheus and Eurydice from the painted sepulchre above noticed; and a mosaic of a priest offering sacrifice at a flaming altar, now in the Lateran Museum. Another mosaic, covering a very large area, was transferred from Ostia to the Vatican some time ago, and is now laid in the hall where Podesti is painting a great series of frescoes to illustrate the dogmatic proclamation of the Immaculate Conception; this last, from the *therma pavements*, being an example of the geometric and decorative without figures or other design.

Apart from the interest of antiquities severally, there is, in the level uncultured waste, the serpentine windings of the Tiber between low banks and underwood, the frowning old castle, the fortified but desolate village (now three miles from the retreating sea), the aggregate of ruins strewn over the solitary, memory-haunted coast, at Ostia, a solemn mournfulness and strikingly marked character that impress and fascinate—disposing for such musings as would require poetic language for their just expression.

THE DANTE FESTIVAL, FLORENCE.

In the midst of the Piazza Santa Croce, rich with so many historic memories, has been inaugurated with the most brilliant success the statue of the divine poet Dante Alighieri. In 1857, when the Austrians were in Florence, a committee of twelve gentlemen determined on erecting a monument to Dante, and requested Enrico Pazzi, the sculptor, a native of Ravenna, to model a figure of the poet, giving to the features such an expression of indignation as would have been felt by the poet, had he been living, on witnessing a foreign rule in his native country. This committee subscribed a monthly sum towards carrying out their wishes. The model of the present statue was chosen from among many, but the then minister of the Grand Duke imperatively refused the completion of the work. A new order of things,—bringing liberty of action with it,—allowed not only the completion of the statue, but the arrangement for a centenary *fête* in honour of the poet, with the erection of his monumental statue. For this latter, large subscriptions have been raised, in which the king has liberally joined, together with many cities of Italy. The statue is of colossal dimensions, about 18 ft. in height, placed on a handsome pedestal, 20 ft. high; the standing figure, draped in the long cloak worn by the students of the time, the head covered with the well-known long Dantesque drooping cap, the brow wreathed with laurels. The sculptor has idealised the poet, seized with just anger at the unmerited exile to which the accursed factions that were bringing misery to his country had condemned him; and, at the same time, grieved because he saw no powerful hand outstretched to break the foreign yoke that held his country captive: his left hand closed pressed to his side, as if to restrain the rage that agitated his breast. The right hand holds the book—

"That for the universe entire is open'd wide."

An eagle stands at his feet.

Opinions differ as to the merit of the statue. To my eye, there is a stiffness about the pose of the left arm and leg, which detracts from the beauty of the statue, otherwise of fine conception, though somewhat conventional. The pedestal is square, on an octagonal base. At each corner of the pedestal, a lion holding a shield, on which is inscribed one of the principal works of Dante,—that of the "Monarchia," surrounded with oak; that of the "Convito" (treatise on science), with olive; of the "Vulgare Eloquenza" (or the principal dialects of Italy), with various

flowers; the "Vita Nuova," with laurel; the pediment enriched with an ornamental *circelet* of the arms of the cities of Italy, to signify the preconceived notion of a united Italy. These cities have contributed with money towards the erection of the monument. A deed of gift has been signed, by which the statue is presented by the committee to the municipality of Florence. One condition is made, that the former shall finish the statue, hurried to this state of completion for a particular day; the latter complete the pedestal, the reliefs of which, on each side, are not yet begun.

The monument was surrounded for the occasion with an elegant wooden amphitheatre, which, after leaving an open space around the statue of 8,000 feet, for the beautifully arranged dais and seat for the king, and for the group of deputies, &c., to receive the procession, afforded room for 18,000 persons. The whole was painted as stone work, with pilasters at certain distances holding shields emblazoned with the arms of some of the principal Italian cities. To enclose this amphitheatre is raised a handsome screen, enriched with thirty-eight bassi-relievi of subjects from the life of Dante, most admirably executed by Florentine artists, alternated with effigies (in frames of the thirteenth century style) of the most celebrated commentators, translators, and biographers of Dante. Between the bassi-reliefs and portraits are the emblazoned arms of the communities of Tuscany. Above the screen, as ornaments, are the arms of the principal municipalities of all Italy. On high towers wave the pennons of forty-eight of the chief Italian cities. At each corner of the piazza, are the flags of Venice, Rome, Florence, Ravenna.

After the arrival at Sta. Croce of the long procession, which had left the Piazza of San Spirito, on the south side of the Arno, and, crossing the beautiful Ponte di Trinità, had walked round the Duomo, and through the principal streets, and the thousands forming it had been placed in order around the enclosure so that one undivided line of banners edged the open space where stood the veiled statue, the king and his suite having arrived, the picture that was presented to the spectators was one not to be forgotten. Looking east was the beautiful façade of Sta. Croce. This façade, which was finished only as lately as 1863, from designs left by Cronaca, of brilliantly white marble, with its beautiful bas-reliefs, and the arms, in coloured marble and serpentine, of the donors towards its completion, of whom our countryman, Mr. Sloane, was the most liberal,—shone out in relief against the deep blue Italian sky. The wall of banners on each side, of all hues, and adorned with brilliant gilding,—those of Genoa being among the most gorgeous; the mass of military bands accompanying each representative of towns in a group before the façade; the small group, consisting of the king and his attendants, in uniform, opposite; then, when at a signal from the king the veil was withdrawn by the gonfaloniere, disclosing the statue of him whose memory all men present had come to honour, there arose such a burst of spontaneous enthusiasm as affected every one. The houses around the piazza were covered with brilliantly-coloured arras, and the windows filled with gaily dressed spectators. All was bright—all successful. Of course, as might be expected, politics were not forgotten,—the banners of Rome and Venice, borne by emigrants, had large bows of black crape attached, and the long cheerings and aspirations for the liberty of the latter were heard again and again. The sculptor Pazzi received from the hands of the king the decoration of Saints Maurice and Lazarus. The Dante committee were introduced to the king. There was sung a *cantata* composed for the occasion; followed by reiterated cheers for the king; and thus finished the commencement of a *fête* intended to obliterate as much as possible the past unjust treatment of their patriot poet, and to bring together in friendly union those till now only united by annexation.

A tournament, in costumes of the thirteenth century, well arranged for the people, took place in the Casino, in the afternoon. In the evening the whole town was illuminated with white globe oil-lamps, giving a golden effect when, as in the case of the Pitti Palace, the façade of S. Miniato, the Duomo, Giotto's Campanile, the Palazzo Vecchio, the Bargello, the lines of the architecture were all illuminated. It may be remarked here that the erection of seven of the most striking edifices of Florence were undertaken during the life of Dante; namely, the Baptistery (as it now is), the Duomo, the Palazzo

dei Signori, the Bargello, San Spirito, Santa Croce, and Or' San Michele.

On Saturday the king opened the Dante Exhibition, and also a Medieval exhibition of choice objects from the rich collections of Florentine families. The former is rich in rare editions, manuscripts, illuminations, numerous portraits of Dante, modern pictures illustrative of his life. This and the Medieval collection deserve more space than can be now devoted to them. On the occasion of the opening of this exhibition, the king was presented by the Consiglio Provinciale with a sword of very beautiful design and workmanship, in wrought iron, executed by a young artisan,—Guidi, of Pescia. On one side of the blade are the words, "Dante to the first King of Italy;" on the other, the lines from Dante's "Purgatorio," in which Rome appeals for release from her widowhood and misery. On the pommel of the sword are figures allegorical of "L'Inferno" and "Il Purgatorio." At the top of the handle, in allusion to "Il Paradiso," are figures of Dante and Beatrice. The king admired this memorial gift of the Dante Festa greatly—and with justice. It will vie with many of the beautiful productions of the Middle Ages now exhibited in that glorious old Medieval palace, the Bargello.

Florence.

STREET ARCHITECTURE OF THE OLD TOWN OF EDINBURGH.*

THE existence of secret chambers was by no means an unfrequent occurrence in the old houses. The massive thickness of the walls and the great variety of outward form admitted of their existence the more readily, and it is not improbable that there are many such unknown to the present generation. The demolition of an old house in Todd's Close, in 1845, "brought to light a curious small concealed chamber on the first floor, lighted by a very narrow aperture looking into Nairn's Close. The entrance to it had been by a moveable panel, affording access to a narrow flight of steps ingeniously wound round the wall of a turnpike stair, and thereby effectually preventing any suspicion being excited by the appearance it made. The existence of this mysterious chamber was altogether unknown to the inhabitants, and all tradition had been lost as to the ancient occupants, to whom it doubtless afforded refuge."† In taking down the house of John Gourlay, in the Old Bank Close, a secret chamber was discovered placed between the ceiling of the first flat and the floor of the second. In the east wall of the Guise Chapel there is a staircase in the thick wall, which gave access to a secret chamber beneath, in which there was a draw-well, with a surrounding stone parapet.

About thirty years ago, in the course of executing some alterations on that old house at the foot of the Canongate, the abode of the notorious Luckie Spence, celebrated in Allan Ramsay's poems, the workmen came upon a cavity in the solid wall, which contained the skeleton of a child wrapped in the mouldering remains of a linen cloth. A similar discovery was made in 1830 in the course of making some repairs on the royal apartments of the castle. A recess, 2 ft. 6 in. by 1 ft., was discovered in the wall, which is in a line with the crown room. It contained a very ancient oak coffin, within which were the remains of an infant, wrapped in embroidered silk and a woollen cloth. Both mysteries remain unsolved.

There was a curious old tenement, that of Provost Stewart, in the West Bow, so situated on the steep declivity that, while it presented a lofty façade to the south, on the north it was but one story high with attics. This house, according to Chambers, was full of concealed rooms and secret stairs. In one room "there was a little cabinet about 3 ft. high, which a one not acquainted with the mysterious arcanæ of ancient houses, would suppose to be a cupboard. Nevertheless, under this modest, simple, and unassuming disguise, was interest than a trap-stair."‡ This stair communicated with the West Bow, and is said to have afforded to Prince Charles and some of his principal officers the means of escape from a body of soldiers sent to arrest them. In Lockhart's court there was a

* See p. 326, ante.

† "Memorials of Edinburgh," vol. i., p. 149.

‡ "Chambers's Traditions," vol. i., p. 144.

profound underground dungeon, which was only accessible by a secret trap-door, opening through the floor of a small closet, the most remote of a suite of rooms extending along the southern and western sides of the court.

Garderobes are sometimes found in the thickness of the walls, entrance to them being obtained by a short passage from the jamb of the window. At other times the garderobe is boldly thrown out upon corbels from the face of the wall, as may be seen on the south and east sides of the castle and on Nisbet of Dirleton's house, in the Canongate. In the latter instance, indeed, the garderobe forms perhaps the most picturesque feature of the northern façade of that interesting mansion.

In houses erected in the fifteenth and beginning of the sixteenth centuries, the ceilings are frequently found highly decorated. They are commonly of wood, supported by solid beams placed parallel to one another, or divided into panels by moulded ribs, with bosses at the intersections, the bosses being carved with foliage or heraldic shields, and enriched with painting and gilding. Sometimes the panels are ornamented with scrolls bearing inscriptions, sometimes with beautiful arabesque work, and at others, again, with allegorical subjects and designs of flowers, foliage, and fruit; in others, again, there are armorial bearings highly blazoned with various colours. The ceiling of Queen Mary's bed-room, in Holyrood Palace, may be taken as the first example. It is divided by moulded ribs into square and hexagonal compartments, containing a variety of armorial bearings, among which may be mentioned a crown with a crowned lion above, enclosed in an ornamental border or wreath; a thistle and crown above a lion in defence, several crowns with the initials of Queen Mary, and one with those of her grandson. The central panel of the arched ceiling of the hall in General Dalrymple's mansion was occupied by a painting of the sun surrounded by golden rays on an azure ground, while the others were painted so as to represent the sky and clouds, with silver stars standing out in relief. In the small irregularly-shaped room in the castle in which James VI. was born, in the year 1566, the original oak ceiling still exists. The panels are ornamented alternately with the initial letters I.R. and M.R., surmounted by the royal crown.* I have already mentioned the two waggon-shaped ceilings in the Guise Palace; one of these was painted in arabesques and wreaths of foliage and flowers, surrounding panels which contained inscriptions in Gothic letters. One of these inscriptions was this:—

"Gif you wt syn alleitit be,
Och yan say Chryst cum yow to me,
Swyth yo may, walk row thairin
Embrace ye truth, abandon [sin]."

The other ceiling was ornamented with a great variety of emblematic devices and Latin mottoes, enclosed in ornamental borders, while the whole was richly coloured. Among those devices may be specified a hand holding a dagger in the midst of flames, with the motto "*Agere est pati fortia*," that of an ape crushing her offspring in the excessive fervency of her embrace, and the words, "*Cæcus amor prolis*;" also that of a serpent among strawberry plants, and the motto, "*Latet anguis in herba*." Some fragments of this fine ceiling are still preserved in a private museum. In some of the other apartments of the same building the panels of the oak ceilings were found blazoned with the heraldic bearings of the Duke of Châtelleraut, of France, and of Guise, impaled with the Scottish lion. In the old stone land, at the head of Blythe's Close, there was accidentally discovered, more than twenty years ago, a very beautifully decorated, arched wooden ceiling, which is thus described by Mr. Daniel Wilson. A large circular compartment in the centre contains the figure of our Saviour, with a radiance round his head, and his left hand resting on a royal orb. Within the encircling border are these words, in gilded Roman letters, on a rich blue ground, "*Ego sum veritas et vita. 14 John.*" The paintings in the larger compartment represent Jacob's dream; Christ asleep in the storm; the Baptism of Christ; and the Vision of Death from the Apocalypse, surmounted by the symbols of the

Evangelists. The distant landscape of the Lake of Galilee in the second picture presents an amusing, though by no means unusual liberty, taken by the artist with his subject. It consists of a view of Edinburgh from the north, terminating with Salisbury Craigs on the left, and the old Castle on the right! This pictorial licence affords a clue as to the probable period of the work, which, as far as it can be trusted, indicates a later period than the Regency of Mary of Guise. The steeples of the Netherbow Port and the Old Weighhouse are introduced—the first of which was erected in the year 1606, and the latter taken down in 1680. The fifth picture, and the most curious of all, exhibits an allegorical representation, as we conceive, of the Christian life. A ship, of antique form, is seen in full sail, and bearing on its pennon and stern the common symbol, I.H.S. A crowned figure stands on the deck, looking towards a burning city in the distance, and above him the word V.E. On the mainmast is inscribed *Curvus*; and over the stern, which is in the fashion of an ancient galley, [Sa] *plencia*. Death appears as a skeleton riding on a dark horse, amid the waves immediately in front of the vessel, armed with a bow and arrow, which he is pointing at the figure in the ship; while a figure, similarly armed and mounted on a huge dragon, follows in its wake, entitled *Persecutio*; and above it a winged demon, over whom is the word *Diabolus*. In the midst of these perils, there is seen in the sky the Hebrew word *חַי*; and from this symbol of the Deity a hand issues, taking hold of a line attached to the stern of the vessel. The whole series is executed with great spirit, though now much injured by damp and decay. The broad borders between them are richly decorated with every variety of flowers, fruit, harpies, birds, and fancy devices, and divide the ceiling into irregular square and round compartments, with raised and gilded stars at their intersections. The fifth painting, of which we have endeavoured to convey some idea to the reader, possesses peculiar interest, as a specimen of early Scottish art. It embodies, though under different forms, the leading features of the immortal allegory, constructed by John Bunyan for the instruction of a later age. The Christian appears fleeing from the city of destruction; environed still by the perils of life; yet guided, through all the malignant opposition of the powers of darkness, by the unerring hand of an overruling Providence. These paintings were concealed, as in similar examples, by a modern flat ceiling, the greater portion of which still remains, rendering it difficult to obtain a near view of them.*

The council-room of the Canizie House still retains portions of a fine oak panelled ceiling, ornamented with heraldic bearings. The hall of John Knox's house is covered in with an oak roof, which is now partially concealed by a plaster one, probably of Charles II.'s time. The beams, which are of solid oak, and the planking of the floor above, are painted with ornamental devices, divided by fillets or bands. Portions are still preserved of a timber ceiling removed from one of the old Templar lands in the West Bow. In one of the panels is the motto,—"He yit Tholis [undergoes or suffers] overcummis."

A word *en passant* on the subject of the Templar lands. Passing through the Grassmarket one may observe a stone or iron cross, planted like a dagger, here upon this gable, and there upon that bartizan. This notified that the houses lay within the jurisdiction of the Knights Templar, an order possessed at one time of much landed property in Scotland. The tenants of these lands retained some peculiar and interesting privileges, as well as burdens, which were only abolished by the Act of 1746.

In the great hall of that lawyers' "receipt of custom," the Parliament House, the fine old open-timber oak roof still remains. It rests upon ornamented brackets, consisting chiefly of grotesquely sculptured heads, and is formed of dark oaken tie and hammer beams, with cross-braces. Small gilt ball pendants hang from the hammer-beams. The whole is so arranged as to give the outline of a circular arch. It was erected in the early part of the seventeenth century. The chapel in Heriot's Hospital has a beautifully embossed and painted arched ceiling. It is a recent restoration of the original ceiling, and is divided into compartments. The ribs are finely moulded, and spring from corbels, which represent angels holding scrolls.

It may be convenient, before passing to the

consideration of the stucco ceilings, which superseded those of wood, to glance at the style of ornamentation employed on the inner walls of houses of the sixteenth century. Towards the close of the previous century tapestry began to be disused, and its place to be supplied by wainscoting and stamped or gilded leather, which was imported chiefly from Spain. The wooden panels which formed the usual decoration of the lower part of the walls more commonly remain, and are usually richly carved. Like those of the ceilings, too, they are generally enriched by polychromatic ornamentation and gilding, although time's effacing fingers have done much to diminish the brilliancy of the original colouring. A common kind of ornament, although not so much so in Scotland as in the sister country, was that known by the name of the "linen pattern," from its being an imitation of the folds of a linen napkin. Sometimes the panels were filled with Arabesque designs, sometimes with scrolls, with or without inscriptions, sometimes with landscapes or portraits, and at others with armorial bearings. At the demolition of the new Council House it was found that the walls had originally been panelled in oak, the compartments containing a series of portraits. One only, unfortunately, of those panels has been preserved. It contains a representation of James V.'s widow, Mary of Guise, in a high-bordered lace cap and ruff, with a monogram, composing the word *Maria*, burned into the back of the panel. There is still preserved some oak panelling, about 8 ft. in height, which was removed from the Guise Palace before its demolition in 1845. It is divided into four compartments by boldly-carved terminal figures, fine Arabesque carving occupying the compartments. In Sir John Smith's mansion, in Riddle's Close, Lawnmarket, there is some beautiful wood panelling in the principal apartment. The walls, doors, and shutters are all panelled in wood, each panel containing a different landscape. The painting is supposed to be the work of James Norrie, the celebrated house-decorator. In Trunk's Close there is part of an old house with a large hall, which contains some finely-carved oak panelling; and in a house built in Queen Mary's reign, which stands at the head of Panmure Close, there is a fine specimen of a carved panel, containing the Scottish lion, surrounded by a wreath of foliage.

The wooden ceilings, and the wainscoting on the walls, came in time to be superseded by plaster or stucco work, commonly called "pargeting," on which was stamped a great variety of patterns. Pendants not unfrequently took the place of bosses; and, as Gothic art gave place to the Roman or Italian, figures of Cupids and other Classical ornaments began to be introduced. A common ornament on the cornices of chambers, or immediately beneath them, was the heads of the Cæsars. This style prevailed most, perhaps, during the reign of Charles II., and there are many fine examples of pargeted ceilings and walls dating from that time in the Old Town of Edinburgh.

That fine French mansion of the Earls of Moray, which is one of the most remarkable objects of interest in the Canongate, and which was built a few years before the visit of Charles I. to Scotland in 1633, possesses some fine examples of pargeting. It was shamed, however, to pass by this fine old *maison de plaisance* with a mere notice of its walls and ceilings. The successive residence of the Countess of Home, who built it, of Oliver Cromwell, of the Marquis of Argyll, son of the great Marquis; again, of Cromwell, and of Lord Chancellor Seafield, it is rich in historic associations. Its northern façade forms part of the street of the Canongate; but to the south, and commanding a beautiful view of Arthur's Seat, and the mural ridge of Salisbury Craigs, is a large garden, with stately terraces of hewn stone, a fine fountain, interlacing trees, and that quaint old summer-house, surmounted by two greyhounds, the supporters of the arms of the House of Moray,* in which the Parliamentary commissioners assembled to affix their signatures to the Treaty of Union between England and Scotland, but whence they were expelled or scared by the exasperated mob to do so in an obscure cellar, or *laigh house*, in the High-street. David Buchanan, writing some time between 1642 and 1651, says,—“On the south side of the Canongate, not far from the public cross are the gardens (with the mansion), of the Earl of Moray, which

* On the wall of this apartment are the Scottish arms, and beneath them this inscription in black letter:—

"Lord Jesu Chryst, that crownit was with Thorne,
Preserve the Birth, quibus Radgie heir is borne,
And send Hir Riosse successione, to Reigne still,
Lang in this Realme, if that it be Thy will.
Ais prayit, O Lord, quhat ever of Hir proceed,
Be to Thy Honer and Frair, sobeid,
19th Junii, 1586."

* "Memorials of Edinburgh," vol. i., p. 156.

* Though now converted in part into a greenhouse, this summer-house still retains much of its picturesque.

are of such elegance, and cultivated with so much care, as to vie with those of warmer countries, and even, perhaps, of England itself. And here you may see how much the art and industry of man may avail in supplying the defects of nature. Scarcely any one would believe it possible to give so much beauty to a garden in this frigid climate." To return to the house itself. The street front, though solid-looking and picturesque, is not very highly ornamented. It has, however, good string-courses, and the windows are surmounted by various carved ornaments of Elizabethan character, while over the large centre window, impaled on a lozenge shield, are the lions rampant of Home and Dudley. The principal features of this façade are two substantial pillars, with very high pyramidal pinnacles flanking the gateway, which gives admission to the courtyard, and a massive stone balcony, carried on a uniform series of highly ornamented corbels. Upon the original balcony, of which this is a restoration, on the afternoon of Saturday, the 18th of May, 1650, a noble marriage party, consisting of Lord Low, afterwards Marquis of Argyle, his bride, Lady Mary Stuart (the Earl of Moray's eldest daughter), Lord Chancellor London, Lord Warriston, and the Countess of Haddington, was assembled. Assembled, and for what? To "feed their eyes,"—to see Lord Fountainhall's expression—upon the ignominy of their fallen enemy, the gallant Marquis of Montrose, who had been brought captive to Edinburgh that day. He had been received by the magistrates at the Watergate, where the sentence, which condemned him to die, was read over to him. He was then bound to a low cart, and preceded by the common doomsman, who was mounted on horseback, and by a number of other prisoners of less rank, bound two and two, and bareheaded, he took his way up the Canongate. As the sad procession passed up the steep street, it passed beneath this balcony, crowded with the illustrious wedding party. And then Argyle's niece, the Countess of Haddington, with incredible meanness, forgetful alike of her sex and of her high birth, actually spat at the bound captive. But he bore the cowardly insult "with smile serene and high," and his ignoble though high-born enemies, shrank back abashed by the dignity of his demeanour. We read in "Nicholl's Diary" (p. 18), that his manner was "more becoming a bridegroom, nor a criminal going to the gallows."

The principal entrance to the mansion is by an arched passage, through the centre of the house. It contains two very handsome state apartments, one of which opens upon the stone balcony. The ceilings of these two apartments are wagon-shaped, and formed of elaborate stucco work, consisting of panelling, pendants, and a great variety of ornamental devices. That of the room, which looks into the Canongate, is especially worthy of attention. It is profusely pargeted, and ornamented with winged cherubs; lions with crowns on their heads, dragons, salamanders, *fleurs-de-lis*, and thistles.

The drawing-room of the neighbouring mansion, Milton Lodge, built in the beginning of the 18th century by Fletcher of Milton, Lord Justice Clerk of Scotland, has its walls and ceiling beautifully decorated. The latter is richly pargeted with a cornice, finished with painting and gilding. On the walls is a series of landscapes and allegorical figures, divided by rich borders representing fruit and flowers. Among the borders are various figures, such as those of a cardinal, a monk, a priest, &c., in grotesque attitudes. It has been plausibly suggested that these curious figures, which seem as if they had been copied from some illuminated missal of the fourteenth century, were introduced to pleasure some whim of the Lord Justice Clerk. The decoration of this apartment, which commands an agreeable view of Arthur's Seat and the Royal Park, is generally ascribed to Francesco Zuccherelli, an eminent artist who flourished in the early part of the eighteenth century. In evident imitation of this beautiful room is the drawing-room of the middle house on the north side of Brown-square, the residence of Sir Thomas Miller, Lord Glenlee, and the Lord President of the Court of Session, who died there in 1789. Another beautifully pargeted ceiling is that of one of the apartments of Sir John Smith, of Grotham's-house, in Riddle's-close. In the centre of a wreath, composed of roses and thistles, are the royal crown, and the date 1678. The other compartments of the ceiling, circular, and polygonal, contain alternately the Scottish lion rampant, and the English lion statant guardant.

In the course of erecting George IV.'s Bridge, across the Cowgate, in 1829, Merchants' Court, built in a plain but massive style of architecture, was swept away. This was the residence of the celebrated Thomas Hamilton, first Earl of Haddington, and lord president of the Court of Session, or *Tam o' the Cowgate*, as James VI. facetiously denominated his favourite. It contained some finely pargeted ceilings and handsome oak panelling. The principal apartment on the second floor, which gave upon the Cowgate, was a magnificent room, with a stucco ceiling, which was divided into square compartments, each of which contained a separate and distinct device. Pinkie House, which has already been incidentally mentioned, contains some very richly pargeted roofs. One room, in particular, a very lofty one, which is said to have been occupied by Prince Charles Edward, after his victory over Sir John Cope at Preston Pans, has been beautifully decorated pendants. But the Painted Gallery, a fine hall, 120 ft. long, arched, and lighted by a fine oriel window, is the one most remarkable for its interior decorations, which are, however, of earlier date than the room just mentioned. On the panelling on the walls there is a number of groups and landscapes, round which frames are painted, with cords and nails, so as to represent hanging pictures. The roof is of wood, and is entirely covered with paintings and inscriptions. The subjects of the former are chiefly classical, and the latter are principally philosophical apothegms, intended apparently to play the part of the human skull at the ancient Egyptian banquets.

"THE TABARD," SOUTHWARK."

EVERY ONE has heard of "The Tabard." Such is the power of the poet! Five hundred years ago Geoffrey Chaucer put it in amber for posterity when he wrote,—

"Befell that in that season, on a day,
In Southwark at the Tabard, as I lay,
Ready to wander on my pilgrimages
To Canterbury with devout courage,
At night was come into that hosterie,
Well nine and twenty in a compaigne;"

and there it still remains, bright for the world. The thing has been protected by the word. It has had its changes; and on the 9th next it will be "Going! going!! gone!!!" under the hammer of Rushworth & Jarvis. The inn itself is now known as "The Talbot," some stupid landlord, about the year 1676, having put up a dog as a sign instead of the herald's sleeveless coat; so that it afterwards became necessary to write up on the bressumer above the gateway leading down to it, out of High-street, "This is the inn where Sir Jeffery Chaucer and the nine-and-twenty pilgrims lay in their journey to Canterbury, anno 1383." The buildings of Chaucer's date have disappeared; but there is an old galleried structure, of the time of Elizabeth, at the bottom of the yard, used as offices by the Midland Railway Company, which bears on its face what was once a picture, and is marked out by an inscription as "the old Tabard." Change is everywhere around it. The town-hall formerly opposite the gateway has given place to a modern bank; new streets have been opened, new houses built; and so greatly has the value of land increased here, as elsewhere about London, that we may expect that, when the well-known old "hosterie" gets into other hands, it will disappear, and afford a site for some modern structure. Such is the natural course of events, and so it will be; and, however much we may desire for the sake of sentiment,—not a worthless thing,—to retain here and there remnants that tie us to the past, no valid word can be said against the removal in this case. We do hope, however, that, when this time comes, an inscription, properly shrouded, will be made, to tell all comers that here stood "The Tabard," immortalized by Chaucer.

NEW WING, ST. MARY'S HOSPITAL, PADDINGTON.

The ceremony of laying the first stone of the new wing was carried through very successfully on Tuesday last. The Prince of Wales, acting up to the traditions of the Family, was punctual; was received by a considerable assemblage in a fine marquee, tastefully decorated; and was attended by a number of distinguished persons. In the course of a reply to an address from the governors, His Royal Highness said,—"It must hereafter

be one of my most pleasing associations, as connected with the proceedings of this day, to have, as your governors propose, the new wing called after myself, and that two of the wards should receive the names of the Princess of Wales, and of my son. I trust, gentlemen, that neither they nor I will ever neglect the cause of the sick and the poor, and I join my prayers to yours in now invoking the blessing of the Almighty to prosper the undertaking."

It is unnecessary to speak of the cheers that followed this, and that were renewed when the Prince spread the mortar and struck the stone, the trowel and mallet being handed to him by the architect, Mr. W. Young, and the builder, Mr. Trollope, as representative of his firm.

The stone so laid is a fine block of Cheesewring granite, weighing about two tons, and was given by Mr. Freeman. The silver trowel and mallet, made by Emmanuel, were the gift of Mr. Ernest Hart.

Afterwards some of the prettiest children of Tyburnia, mostly dressed alike, and who must have been under training with Mrs. Hope d'Egville or some other equally good mistress of "deportment," so well did they conduct themselves, filed by and handed each a purse to the Prince; and then mamams followed with heavier gifts, and showed that they, too, were well up in the "presentation curtsy." Besides these, we heard of several considerable donations, including a large sum from the Foresters, so that it may be hoped the governors will not be disappointed in the matter of funds. Some hearty cheers were given at the close for the committee of ladies, who had laboured most sedulously to cover everything with inscriptions and wreaths of evergreens and flowers, and well deserved the same. The inscriptions, mostly apostrophic, were remarkably well formed, and the effect of the whole was very agreeable. Amongst the decorations, but less observed than it should have been, because of the position to which it was necessarily confined, was a graceful tribute, by one of the ladies of the committee, to the memory of the late Prince Consort, Albert the Good, by whom the first stone of the original building was laid. This stone, showing in the external wall of the building within the marquee, was framed with leaves, and pointed out by an inscription; while above it was hung a portrait of the Prince, surmounted by a pyramidal form bearing his motto,—

"Treu und Erst."

Amidst the garlands and "wreathed smiles," and complimentary cheers, it may seem ungracious to talk of defects. The truth, however, ought not to be hidden even by flowers; and, truth to tell, we cannot avoid deploring that the new wards are to repeat the error of the existing wards of the hospital. They will be modified to a certain extent, inasmuch as there will be two partitions down the centre of each, with a passage-way between; but they are to all intents and purposes double wards, that is, with four ranges of beds between the two external walls, an arrangement simply abominable. If we noticed rightly, too, these new wards are intended for "accidents." Is it too late for re-consideration? The surgeons attached to the hospital will be guilty of little less than a crime if they permit, without a protest, this evil arrangement to be carried out,—an arrangement that will inevitably increase their difficulties and cares, and lessen the chances of recovery. Such an arrangement is pointed to now by those who have fully studied the subject only as amongst the examples of what to avoid "in hospital planning."

PLAGUE IN A PIT VILLAGE.

We are happy to be able to add, as a sequel to our account of the unsanitary condition of Ratcliffe Terrace, a colliery village, on the north-east coast of Northumberland, that remedial works are now in progress. The lessee has built two new conveniences for the school, and one to the public-house, and has consented to build conveniences and ashpits about forty yards from the dwellings, in a line with the pigsties, at the rate of one of these twin necessities to every four houses. The drainage outfall, too, is to be carried a greater distance from the dwellings, and to be flushed at intervals. Unfortunately, however, our suggestion for an ample water supply is not to be carried into effect, the lessee preferring to organise a supply of water per cart from a spring at Ambio. This is to be sold to

the inhabitants of the pit village at a halfpenny a *sheelful* (about four gallons), an arrangement which, while it reduces the cost to the provider, increases it to the consumer at a rate that threatens to prevent a sufficiently profuse use of this highly important sanitary agent. Neither have we gained all that we could wish in the matter of flagging and paving. A cartway is to be made behind the privies and ashpits, which will have the effect of reducing the traffic in front to some extent. We have, moreover, a new circumstance to deplore. The doctor who has ministered to the fever-stricken pitmen and their families has been dismissed, it is to be feared from a feeling that the information of the unsanitary state of the village was disseminated by him or his deputy; and that thus, as the lessee stated before the Board of Guardians, it got into the *Builder*. If lessees are to enforce secrecy upon the medical men they employ, there will be a new difficulty in the path of sanitary reformers. But in this case the medical officer is neither to praise nor to blame for the publicity the matter has attained. The Alnwick Board of Guardians, the police inspector of nuisances, the relieving officer of the Board of Guardians, the surveyor to the Alnwick Local Board of Health, and ourselves, share the honours of the agitation that has brought forth the partial amelioration quoted.

The Poor Law Board, whose attention has been drawn to the unsanitary state of things, consider it a case for the establishment of the Local Government Act.

BUILDINGS AND THEIR VEGETABLE PARASITES.

ALTHOUGH man calls into play all the known resources of science and art, to make his house as durable, perfect, and beautiful as possible; the present state of knowledge is wholly inadequate to preserve either the house or its inmates from the numberless insidious foes that begin the work of destruction the day the first stones and timbers of the house are laid. As soon as any building is erected, it seems as if all the powers of nature immediately set about its subversion; neither is the building alone in this, but its whole furniture and contents become the prey of various vegetable parasites, including among the victims even the master of the house himself. These parasites eventually succumb to others of the second degree, so that in the course of time little or no trace is left of human habitations. Larger buildings and works of art of unusual size contrive to exist a little longer, partly owing to the difference of materials and construction, and often to accidental circumstances. It is the purpose of the present notice to consider only the vegetable parasites of houses, omitting altogether accidental causes of destruction, such as storms, earthquakes, floods, the chemical action of the atmosphere on wood, iron, and stone, and the members of the animal kingdom that delight to commit their ravages in our dwellings, such as rats and mice, and other animals,—birds, reptiles, and destructive insects.

The principal vegetable parasites of dwellings belong to the cryptogamic class, such as mosses, lichens, and fungi; principally the latter; although many flowering plants undoubtedly play their part, but generally after the way has been prepared for them by the lower members of the vegetable kingdom; for although such a plant as a wall-flower, stone-crop, or snap-dragon, could not grow on a newly-built stone wall, a lichen would soon be able to find a subsistence there, the moisture of the atmosphere being sufficient to cause the seeds to germinate, and keep the plants alive, and once there the extremes of heat and cold would have little or no effect, as lichens will survive the hottest summer and coldest winter. When secure on the stone, the work of disintegration begins; the tiny plant is sufficient to arrest small atoms of dust, &c., in the air, and by its own decay and renewal of its species, prepares a fitting *habitat* for a class of plant one stage higher, simply by partly crumbling away and loosening the cement, and allowing the tender root-fibres of other plants to penetrate the interstices of the stones, slates, tiles, or bricks, in search of nutriment and moisture: therefore every moss, lichen, or flowering plant that adds to the picturesque beauty of an ancient building is a parasite slowly but surely (with many allies) working the utter destruction of the building.

Perhaps the most dreaded parasite of the

wood-work (although by no means confined to the wood) is the dry-rot. Descriptions of the ravages of this fungus have frequently been published in the *Builder*, and therefore little need be said of it here (various specifics for its prevention were given in a recent number). Mention may, however, be made of the immense development of dry-rot in a railway tunnel in the North of England a few years ago, when it caused considerable discussion, and was considered of sufficient public interest to have its portrait published in one of the illustrated London papers. Professor Burnett, speaking of a house he rented, says, in four years, the parlours had to be twice re-wainscoted, and new stairs put in; but, after every precaution, the dry-rot ultimately became so developed that the house had to be pulled down. These instances might be multiplied *ad infinitum*; but we will pass to another plant of a higher order, viz., the mushroom-like fungus that so often grows under paving-stones, lifting them out of their beds and displacing them in various ways. There are few persons connected with building in any way but have seen the work of this fungus. It commonly occurs in damp kitchens and under the street pavements,—once to such an extent as to cause nearly the entire repaving of a town. But this, like the last species, has frequently been noticed in these columns, so that it is sufficient to mention it. There are many other species of destructive fungi, well known to botanists, that attack wood alone,—some that restrict themselves entirely to a particular sort of wood, as pine, oak, elm, maple, poplar, &c., and are never found away from their especial host. Other species confine themselves exclusively to plaster of walls and ceilings, and may be searched for in vain elsewhere; whilst a third is only found on the paper of walls, and extending to the books or any objects of paper in the house. Every portion of the building, outside and inside, is attacked by these plants, till at last its downfall is insured; and, after the house itself, it would be difficult to name a single article that is not open to an attack; for on such objects as iron, lead, and glass, they have been known to grow, instances of which are on record, and on the various poisonous metallic solutions. Another takes the carpets in hand, and a third the mats. Every article of food has its attendant plant,—all drinks, wine, beer, syrups, and even oil and vinegar, the clothing of man not being exempt. Various plants of this nature delight in the cellar as a *habitat*; and an instance is well known where a cask of wine was lifted by one species from the floor to the ceiling of the cellar, blocking up the entrance-door, the wine having leaked from the cask and developed itself into a monstrous fungus. Neither is wine in casks alone unfortunate, for wine in bottles has its parasite, that penetrates the cork and destroys the wine. Of the rapidity of their growth and development no one requires telling. One small plant that rapidly grows on bread possesses an historical interest. In a few hours it forms a brilliant blood-red stain; and various cases of its occurrence in Medieval times on the sacramental wafer are on record, causing astonishment and dismay among the clergy and worshippers. Its appearance is not rare on stale bread, and may soon be found if searched for.

That the master of the house himself, and his wife and children, and domestic animals, are afflicted with similar parasites to the ones that prey on his house and furniture, and food, is well known.

As a grim sequel to the dry-rot in the roof, the human subject is liable to a painful fungus on the head and beard, that mats the hairs together, causing exquisite pain. Even the disease known as scald head is shown to be of fungoid origin; or, to sum up, every part of the inside or outside of a man is as liable to an attack of these parasites as the house he lives in: bandages taken from wounds have been observed with the spawn of fungi attached; and, after being laid aside, instances are known where even the higher forms of mushroom-like fungi have rapidly developed themselves in a few hours. Scientific men have recently had under discussion the deadly "fungus foot" of India. This fungus attacks the heels of the natives, soon destroying the bones of the foot and part of the leg, the only cure, after the fungus has once appeared, being immediate amputation: its proper *habitat* is said to be probably damp earth; and it is suggested that the spores or seeds are absorbed by the skin, or introduced by a prick from a thorn or similar object, one spore (infinitely smaller than a grain of dust) being sufficient to introduce

the disease. Specimens have been forwarded to this country for examination, and attempts have been made to make the spores grow, but (at present), without success,—a result hardly to be regretted, when it is considered how large is the number of vegetable parasites we have already in this country peculiar to man and his house.

W. G. S.

THE HOLBORN VALLEY IMPROVEMENT.

At the last meeting of the Court of Common Council, a number of the inhabitants of the ward of Farringdon Without attended at the bar with a petition, which had been adopted at a public meeting, protesting against the plan in contemplation by the Corporation for raising Holborn-valley. The petitioners stated that they viewed with great dissatisfaction and alarm the rejection of a plan (by Mr. Abrahams) which had been submitted by their ward to the Improvement Committee of the Corporation, and the intention of the Corporation to execute the viaduct from Skinner-street to Ely-court, Holborn, which, they said, did not provide for a direct communication, between the high level and Farringdon-street (except for foot-passengers by means of staircases of 27 ft. high), thereby severing the two main arteries of traffic, and which, if so carried into effect, must occasion great loss and injury to the trade and property of Farringdon Ward. The plan submitted by the ward provided for direct communication between the high and low levels, and was one which should be adopted, inasmuch as it not only remedied all evils which the bridging over the Holborn-valley was intended to obviate, but, in addition, greatly improved Farringdon Market, making it easily accessible for traffic, and also the various streets and thoroughfares adjoining.

It was pointed out by Mr. Deputy Fry that the Corporation plan was adopted after anxious consultation with eminent engineers, and afterwards received the sanction of Parliament in all its great leading features; and the Court, by a large majority, declined, and we think wisely, to re-open the question. The plan recommended by the petitioners was considered by the committee, assisted by the City architect; and they rejected it on the grounds chiefly that it divided and narrowed Farringdon-street and Farringdon-road, and concentrated and crossed the traffic (which it has been a great object with the Corporation of late years to distribute) on the very centre of the proposed viaduct. Another objection to the plan of Mr. Abrahams is that it contemplates taking down the whole of the western side of Farringdon-street.

ARCHITECTURE AND ENGINEERING.

I HAD the pleasure of hearing an eloquent essay read by Mr. Ruskin recently, at a public meeting. The point which more particularly struck me as interesting to real builders, was the mode in which one out of many of our growing railway structures in the metropolis was gibbeted, so to speak, *in terrorem* by the lecturer.

Much was said, both in the essay and in the discussion that followed, as to the relation between architecture and engineering, and the line that should be drawn between the functions of the respective professions; and the general impression communicated was, that beauty fell within the province of the architect, while strength alone was the proper object of the engineer.

It did not seem to occur to any one present to suggest a very obvious distinction. The homes of mankind, the edifices needed by social life, whether for abode, for worship, for Government, or for amusement, are properly entrusted to the architect. To the engineer—military and civil, are committed, on the other hand, the defences and the communications of the country, that is to say, the fixed and permanent provisions for such communication, the actual material of transport forming a distinct charge, under its two principal branches of land and water communication.

If this be the true principle that divides engineering from architecture, it is clear that the rules of construction must materially differ for the two professions. In our habitations and in our public buildings, in which so much of human life is now necessarily spent, we require not merely shelter, but a sense of comfort, and

so far as is practicable, of pleasure. Adornment, therefore, has always been a very prominent part of architecture; and whether adornment take the form of the luxury of a modern clubhouse, or of the mystic teaching of a Gothic cathedral, it may and should be a genuine part of the structure created by the architect.

But the true beauty of the other class of structures consists in their scientific truth, in the best disposal of material—and of the best available material—to accomplish a given end. And it is where this is most distinctly the case that the taste, as well as the judgment, of the engineer is best displayed. The living tracery or rich emblazonment that has its fitting display in a palace or a cathedral, that is intended to last for centuries, would lose its significance if placed on the parapet of a bridge over which the passengers were whirled at the rate of forty miles an hour; and not only so, but as it would in this case be merely surplus weight, it would become positively offensive to the taste of the really scientific engineer.

If this be so, Mr. Ruskin will surely reconsider his eloquent remarks on one of the Thames railway bridges. The idea of such a bridge, as conceived by an engineer, is not, as stated by the lecturer, that of a bundle of iron bars seized and held together by a mighty grasp. The idea is that of a roadway, fitted to sustain great weights, propelled at great velocities, suspended over a navigable river, so as not to impede the navigation.

Now, such an idea may be well or ill carried out: we have examples of both. But it is not by the support of bronze angels with brazen wings, or of the claws of monstrous dragons, or the coils of a gigantic snake that this could be truly done. Such emblems, admirably adapted to architecture, would be here out of place; and if such a bridge could be constructed of a bundle of bars, as suggested by Mr. Ruskin, the very word eloquently used by him in its dispraise, a gigantic *nut* would be the truest and therefore the most appropriate means of securing such a bundle.

The true defect, apart from any question of scientific construction, of the bridge in question is, that ornament has been attempted which is not structural. Not only in this, but in very many iron bridges on the railway in question, a large quantity of iron work has been introduced which forms no part of the true mechanical structure, and which is offensive to the educated eye, as representing so much money absolutely wasted. It is by the very attempt to produce an architectural effect by an engineering structure, and to do this, not by elegance of construction, as in the roof at Charing-cross, but by overzeal, and therefore false and incongruous ornamentation, that the Blackfriars Bridge really merits the reprobation bestowed upon it by the sure instinct of Mr. Ruskin.

T. TON.

THE BUILDING TRADES.

Wolverhampton.—Some of the bricklayers have left the town for work elsewhere. Delegates from the masters and operative plasterers (who have hitherto worked under the same rules as the bricklayers) met at the Swan Hotel for the purpose of framing rules for the future regulation of that branch of the trade. Much to the credit of both sides, a mutual agreement was come to in a short space of time, the men accepting the rules which their fellow working men, the bricklayers, had refused. The operative painters have obtained two-thirds of what they asked for, and have resumed work at the increased wages of 26s. a week.

Stafford.—Differences which existed between the master builders, and the bricklayers and labourers of this town, have been amicably arranged, and the men have resumed work. It was arranged, after several interviews, that work should cease at six every day except Saturday, when it should terminate at one o'clock. The rate of wages was also fixed at 4s. 7d. a day for the first five days, and 3s. 1d. for Saturday, for bricklayers, during the summer season; and 2s. 2d. on Saturdays, and 3s. 2d. for other days for labourers. Work was resumed by the men, by-laws and regulations for the rate of wages in the winter season, &c. having been in the meantime drawn up and signed by both masters and workmen.—We may here remark that the iron trade strike in North Staffordshire has at length come to an end; the men having decided to yield.

Plymouth.—The *Western Morning News* fears

that the worst must be anticipated as the result of the dispute between the masters and men in the building trades of Plymouth and its neighbourhood. The large contractors for fortifications, who had previously declared their intention to suspend their works, have been joined by almost the whole of the local builders, and will be similarly supported by the purveyors of building materials. There appears, so far as can be learned, to be no disposition on the part of any of the various bodies of men—masons, bricklayers, carpenters, stonecutters, or excavators—to accept the proposition of the employers. They rely on the central organizations to supply funds for carrying on the struggle.

Warrington.—The operative bricklayers of Warrington made a demand for an advance of 3s., and the joiners for one of 2s. per day, which the masters have been obliged to concede. There is a large amount of building now going on in the town.

Stockport.—The operative painters have struck for an advance of wages, the masters having refused to yield to the terms dictated. The men demand that in future the hours of work shall be 5½ hours per week, receiving the same rate of wages now paid, being equivalent to an advance of 3s. 6d. per week, or 2d. per hour.

Bradford.—The journeymen plasterers and plasterers' labourers at Bradford are on strike. Last year the men got an advance of 2s. per week all round; and, in addition, half a day holiday on Saturday. They now ask for another 2s. advance, and the labourers for 1s. The masters demur to this demand, chiefly because the notice of three months is not sufficient to enable them to provide in their contracts for such an advance, and also because the present rate is beyond the average of the whole country, and sensibly higher than in many places in the neighbourhood.

Leeds.—While the masons and plasterers of Leeds have settled their differences with the masters and returned to work, the carpenters, bricklayers, and labourers still remain out. The carpenters are now paid at the rate of 5½d. per hour, and they want 6d. per hour; the bricklayers now receive about 29s. a week, and they have asked for an increase to 32s.; and the labourers, who have now 4d. per hour, or about 1l. a week, desire an increase of 1d. an hour, making their wages 23s. 4d. per week.

Huddersfield.—The masons' strike at Huddersfield still continues, the point in dispute being how many apprentices must be employed in proportion to the number of journeymen.

Paris.—The working carpenters of Paris, who have been for some time on strike, now propose to refer their differences with their employers to nine arbitrators, of whom the masters may choose five; and in order to show their "esteem for the press," they earnestly desire that all the arbitrators may be selected from among writers in the leading Paris journals.

THE O'CONNELL MONUMENT COMPETITION.

The committee to whom the sixty designs sent in were submitted, have reported against all of them, and award no premiums. They recommend the general committee "to invite the competing artists either to modify their designs, or prepare new designs altogether, subject to the following conditions:—1st. If architectural features be introduced, then all architecture to be purely Classic, to be entirely subordinate to the statue, and no varieties of coloured stone to be introduced; and the whole erection (inclusive of statue, if crowned by any statue) not to exceed 40 ft. in height. 2nd. If the principal statue be in bronze, then the erection to be designed as an architectural pedestal, whatever its richness or extent. If marble, then a Classic covering canopy or cupola, to protect it from above. 3rd. If subordinate figures be introduced, then these figures to be grouped, so as not to interfere with the unity of the whole, and all such figures to be wholly subordinate, and as few as possible in number."

VERIFIED PHOTOGRAPHS.—Mr. F. Joubert, Porchester-terrace, W., has perfected a process of fixing by fire, in colours or otherwise, photographs on glass, of which he has had on private view several fine examples, having the quality of being equally perfect seen as transparencies or by reflected light.

THE MODEL HOUSES INDUSTRIAL EXHIBITION.

The prizes were delivered to successful exhibitors on the 19th instant, when Mr. Chas. Payne, the secretary, read a report, from which we obtain some facts.

The actual number of exhibitors was fifty-one: the number of articles exhibited was 142. During the time it remained open 930 persons paid for admission, whilst about 100 more were admitted without payment.

It is still, of course, too early to estimate the entire result of the exhibition: time is wanted for this purpose. The amount of good done is not to be measured only by the number of visitors, or by the number of articles exhibited, creditable as they were. The leisure hours of many have been called out; the healthy ambition of many has been stirred; and the president and the committee are encouraged to believe that the tenants of the society's houses have seen in this exhibition fresh proof of the interest taken in the well-doing and happiness of the labouring classes.

The prizes were awarded by Professor and Mrs. Donaldson, Mr. John Hampden Fordham, and Miss Twining, to the amount of 70l., amongst forty-one exhibitors.

THE CHAIRMAN OF THE METROPOLITAN BOARD OF WORKS.

At the meeting of the Board held on the 19th inst., Mr. Dalton called the attention of the Board to the fact that Mr. John Thwaites, their chairman, had received the honour of knighthood from her Majesty, and in doing so said,—“As her Majesty has done our chairman the honour of conferring on him the degree of knighthood, which we all rejoice to see, I think it is a compliment conferred on the whole Board; and I trust that he may be blessed with health and strength to perform the duties of his office for many years to come.” Mr. Bidgood said this was doing honour to the right person at the right time. Mr. Savage proposed that Mr. Dalton's words be entered on the Minutes. Mr. Nicholas seconded the proposition, and the Board were unanimous to the same effect.

We cordially agree in the kindly feeling that was manifested on the occasion. Sir John Thwaites has performed, and is performing, the duties of his office in a manner that leaves no room for two opinions. His clear-headedness, his attention to the business of the Commission, his impartiality, and his ability, have been alike made evident; and, while we congratulate him on the proper recognition of his services that has been made, we express a very sincere hope, not alone for his own sake but for that of the Board, that he may long continue to preside as heretofore over its deliberations.

THE DUKE OF PORTLAND'S ESTATE, MARYLEBONE.

The surveyors of this important estate, which has been filled for nearly half a century by the late Mr. Samuel Ware and his nephew, Mr. Charles N. Ware, last year became vacant by the retirement of the latter in consequence of a large accession of fortune by the death of his uncle, and the appointment has been conferred on Mr. Henry Baker, the district surveyor of St. Pancras, who was attached to the late Mr. Ware on entering his professional career. Our readers will observe, by Mr. Baker's advertisement, that the office for the estate business, which has been so long but so inconveniently located in the Adelphi, is now removed to his residence, No. 108, Gower-street.

Whilst on this subject we may add that it gives us much pleasure to witness, as we are "going along," the improvements that are in progress in Portland-place, Harley-street, and other parts of the estate: everywhere the buildings are being modernised as the leases fall in; a large expenditure is evidently invited rather than a high rent; and so, by judicious management and liberality to the lessees, the locality is able to hold its own, notwithstanding the attractions of its youthful rivals, Kensington and Tyburnia. The same may be said of the Marquis of Westminster's property, and it is but fair to acknowledge the merits of a system which alike contributes to the public and to private advantage.

CONCERNING STAINED GLASS.

In your impression of the 13th instant you insert a few "Queries concerning Stained Glass," and appear desirous that they should lead to "some useful expression of views." I have given the subject of stained glass some serious attention, and therefore trust my following remarks may be found worthy of insertion in your pages; and although they may not be considered useful in themselves, yet they may prove so by leading to the expression of others more valuable. Bearing in mind the great demand upon your space, I shall endeavour to condense my remarks as much as possible. I shall take the queries seriatim.

1. "What is the object of stained glass: is it an effect of colour?"

Stained glass is obviously a decorative medium, and it is unquestionably the most splendid ornamental adjunct ever dedicated to the service of architecture. As a decorative medium it depends upon two things, *i.e.*, colour and form; and in a truly good work both must be present in equal degrees. Stained glass cannot be said to be an effect of colour only, or to depend for its beauty or value on colour alone. It is capable of displaying the greatest efforts of the artist, and of being made a genuine and perfect work of art. If it depended upon colour only, we should find perfection in a properly arranged mosaic window, for in it effect of colour can be developed to any extent; but we do not consider mosaic glass, however good, highly artistic, because it is mechanical in design and systematic in colour.

2. "What is good colour in stained glass: loud and glaring or quiet and cool?"

This query is not one which admits of a very definite answer, owing to the diversity of tastes and opinions regarding colour, and because in all cases the same class of colouring will not apply. The saying "circumstances alter cases," applies to stained glass as forcibly as to other things. I think, however, that we may safely say that good stained glass work should never be "loud and glaring," for those words imply the very richest colours associated inharmoniously. A rich effect, full of beauty and repose, may be obtained by the proper use of the most brilliant colours, at the disposal of the artist. That it requires much greater knowledge and taste to treat these rich colours than the low-toned tints and dingy neutrals now so much used, no one, I believe, will deny; but until they are adopted, and the requisite skill in their grouping acquired, we need not hope to rival the effect of ancient glass, or to do anything that cannot be pronounced "loud and glaring." At the present day there are too many colours and tints used, and some of these are very objectionable, such as bottle-green, brown-purple, claret, brown, neutral tint, &c. How can these dingy tints, which absorb all the light that attempts to pass through them hold their own when associated with such colours as ruby, blue, yellow, and green? or how can these last escape being pronounced loud and glaring when surrounded by tints which are positively discordant and dead? I believe if our artists would take one or two hints from ancient glass, and use fewer colours, and those well balanced and of similar intensity, we should soon have a marked improvement in stained glass—at least, as far as colouring is concerned. In stained glass, as in all branches of decorative art, a perfect uniformity of effect is required; this can only be obtained by the use of properly balanced colours properly distributed and arranged. I hold that a window may be composed of ruby, blue, yellow, green, purple, and grey glass (or white very sparingly used), and yet present a beautiful quiet bloom to the eye. The three windows of the twelfth century in Chartres Cathedral are constructed of these colours, and their effect is superb.

3. Is it advisable to place figures coloured on broad spaces of white glass, as in perpendicular glass? Does not this get a quiet, cool effect?

To the first question I unhesitatingly reply that it is not advisable to work figures in colour upon spaces of white glass; and to the latter question I must reply that I am convinced that such a practice is not well calculated to produce a cool, much less a quiet effect.

White glass should be used very sparingly in windows where positive or deep-toned colours are introduced, for the simple reason that, by admitting a direct and powerful light, it destroys the brilliancy and effect of all colours placed near it.

As an illustration of this, take two strips of rich blue glass of similar tint: place one across a pane of white glass in a common window, and place the other edge to edge between two pieces of rich ruby over another pane, so as to cover it. When this is done, it will be observed that the strips of blue glass appear quite different in tint, that over the white glass being dark and dead, while that which is in contact with the ruby appears in its proper tint, and full of brilliancy. Modern windows are more frequently destroyed by the practice of using large quantities of white glass along with rich-coloured glass than by any other means. In the fine twelfth and thirteenth century windows in Chartres, and in the superb glass of Bourges Cathedral, we find white glass used more sparingly than any colour.

4. "Ought canopies to be much coloured, or in simple white and black, to get quiet effect; and how drawn, with reference to next paragraph?"

5. "Ought geometrical diagrams to be drawn with absolute mechanical accuracy, or to be freely drawn?"

As the last query in your list alludes to the question of canopies, I shall add it to the above, and treat the three together.

7. "What is the difference between a thinly-designed and richly-designed canopy?"

I am decidedly of the opinion that canopy work in glass is a great mistake, and that it is an artistic and clumsy way of filling up spaces over the heads of figures. Canopies are purely architectural features peculiar to stone and wood construction, and are, therefore, out of place in stained glass. If anything in the shape of canopy-work is used, it should be introduced in great moderation, and in colours to harmonise with the rest of the window. Some of the windows in the choir of Reims Cathedral present valuable studies in this respect.

The query No. 7 is somewhat difficult to answer in a few words; but I believe that a thinly designed canopy may be understood to signify that which is composed of representations of meagre tracery, wire-drawn pinnacles, impossible flying buttresses, &c.; while a richly-designed canopy may be understood to be one in which a proper conventional treatment, suitable to the material in which it is wrought, is more observed in the attempt to represent cast-iron Gothic, and in which the colouring is in perfect harmony with the rest of the composition. With regard to query No. 5, I am of opinion that canopies and all geometrical patterns should be drawn correctly, and at the same time the freedom of curves and other lines of beauty, which cannot be truly drawn by mere mechanical means, should be carefully studied and sought after. We are not called upon in any way to forego our skill in drawing, much less, at the present day, to copy the imperfections of old work. We have ample proof that the ancient artists did not draw badly on purpose, or make crooked curves because they considered them more beautiful than true ones.

6. How ought draperies to be drawn—thinly, or richly & à la Durer?

In the treatment of draperies in stained glass, I am of opinion that severity and simplicity should in all cases be observed. Rich drapery demands a great amount of shading, and that is certain destruction to the brilliancy which is the greatest charm of stained glass.

The question of shading, as applied to glass, is one which demands careful consideration at the present time; for much modern work is rendered imperfect by the objectionable mode in which it is shaded.

The usual style of shading (called smudge shading) which is produced by covering the surface of the glass with a thin graduated coating of brown enamel, resembling the soft chalk shading of lithography, is obviously a most dangerous mode, from the simple fact that it destroys the natural brilliancy of the glass. Smudge shading is excessively tame and ineffective, and should not be used either for drapery or foliage. It is more suitable for the treatment of flesh because it takes away the overpowering glare of the white or flesh-tinted glass, and tends to unite it with the coloured glass around it. For drapery and foliage, or other ornamental features, line or hatched shading alone should be used. I allude to the style of shading found in fine old engravings, and to which they owe their great effect and brilliancy; it is composed of lines drawn in one direction, or crosshatched at an acute angle. If an old engraving be examined, it will be found that between the lines of the shading small spaces of the paper are left untouched; these

give the transparent and bright effect to the shadows. In stained glass a precisely similar result would be obtained by the adoption of line shading: the untouched portions of the glass between the lines, retaining their original transparency, would impart the brilliant scintillating effect required, and which cannot be secured by the use of smudge-shading. There exists the same difference between glass line and smudge-shaded as between line and mezzotint engraving.

G. A. AUDSLEY.

SOUTH KENSINGTON NEW ROAD.

We see with surprise and regret that the Bill for the proposed new road has been rejected by the committee of the House of Commons to whom it was referred. It was proposed by the powers sought in the Bill to make a wide street, as we have mentioned, in the nature of a boulevard, from Sloane-street to South Kensington Museum, a distance of about five furlongs, and on either side to erect first-class mansions, the road itself being 150 ft. wide, with rows of trees planted on either side. There was no opposition from any landholder from one end of the contemplated road to the other. The vestries of Chelsea and Kensington, through whose parishes the road was to have been made, were in favour of the scheme; and it was stated in the committee that, of 800,000*l.* of property affected by the Bill, only 27,000*l.* were represented by the opponents to the measure. Nevertheless, on the opposition of a few leasees and occupiers of comparatively small houses about Brompton, and a few owners or occupiers of shops in the Brompton-road, the Act has been refused. The statements made were of such a character as never before weighed against a public advantage. In the event of any effort being made to get the Bill re-committed, it is to be hoped that the House of Commons will bear this fact in mind.

PROVINCIAL NEWS.

Worcester.—The construction of the engine works at Shrubhill is progressing rapidly, and will be completed by the fall of the year, according to the local *Herald*. Some hundreds of men are engaged upon the works. The principal façade is in the Italian style, and of red brick with white dressings. In the centre are two ornamental towers, and on either side in two rows will be ten windows, the top ones being segmental, and the lower semicircular-headed. Between the towers will be three large windows to correspond. The works are being carried out under the engineer of the company, Mr. E. Wilson, the superintendence of them being entrusted to Mr. Dixon.

Ipswich.—A new Gothic street pump and drinking-fountain combined has been erected by Mr. West, on the site of the old parish pump, at the entrance of St. Matthew's Church-lane. The cost, 45*l.*, has been defrayed by subscription.

Birmingham.—The directors of the Masonic Hall and Club Company (Limited) hope to be able to have the first stone of the Masonic Hall laid about the month of July. Working drawings and specifications are now in course of preparation by Messrs. Naden & Holmes, the joint architects, under the supervision of a building sub-committee.

Leeds.—The White Cloth Hall will be demolished for the carrying out of the new branch and central station of the North-Eastern Railway Company, but a new hall will be erected on a portion of the site of the present General Infirmary, and the adjacent gardens. Other new buildings are contemplated upon the same site, including suites of offices and a large inn. Some improvements will also be made, including a new street between the present Coloured Cloth Hall and the New White Cloth Hall, with a ready means of access from one building to the other.

HYDRO-CARBON GAS.—Mr. W. Henderson, of Valparaiso, introduces dry steam to the retorts containing the coal or other substances, heated to their own intensity, preventing any reduction of the temperature during the process of making the gas: by this means he obtains an illuminating gas, consisting of a combination of the hydrogen of water with the volatile carbon of coals, cannel, and oleaginous substances. The chief feature is the use of retorts with false bottoms, beneath which the steam is admitted.

JOSIAH WEDGWOOD.*

HITHERTO it has been believed by some that Wedgwood was born in a mean hovel, surrounded by the rudest associations, and whilst yet a child consigned to the coarsest drudgery. The facts, as his new biographer, Miss Metcalf, finds, were essentially different. His father was a man in easy, if not in affluent, circumstances. His relatives Aaron Wedgwood and Dr. Thomas Wedgwood, junior, were persons of position in Burslem,



their native place. John and Thomas Wedgwood, the sons of Aaron, who commenced business in 1740, and in eighteen to twenty years from that date had acquired a fortune and built the handsomest house in Burslem, were, when Josiah Wedgwood was a child, active and intelligent young men, busy in improving their staple. A few years later, when they had erected their conspicuous dwelling, and earned comparative leisure, their hospitable hearth became a gathering-place for men of keen and active intelligence. Here Brindley, Thomas Gilbert, the Duke of Bridgewater's agent, John and Hugh Henshall, father and son, met to discuss the various plans, then afloat, for constructing and improving roads and flint mills, and the first surveys for canal navigation. Other of Josiah Wedgwood's relations held equally influential positions in their native place. Thomas and John Wedgwood were masters of their art. Prior to the advent of their young kinsman, they had done much to improve various descriptions of ware; especially white stone ware, in which they led the export trade of the district. Their unglazed specimens were excellent; and they were the first who by experiment ascertained the various qualities of the clays found in their neighbourhood. To them is due the introduction of pyrometrical beads, as tests in firing; and they had gradually learnt, by mischances in their own pot-work, the necessity of using only



Vase from Work by Count de Caylus.

water which was free from the soluble bicarbonate of lime.

Josiah Wedgwood was born in Churchyard House, Burslem, the residence and property of his parents, Thomas and Mary Wedgwood, in July, 1730. He was the last of a family of five or six children then under ten years of age, besides several older. There was nothing eventful in the childhood of Josiah,—scarcely

* "The Life of Josiah Wedgwood." By Eliza Metcalf. Vol. I. London: Hurst & Blackett, 1865.



Ancient Tile Pavement from Prior Cruden's Chapel, Ely Cathedral.

even throughout his life indeed, if we except its one great feature, his skill and celebrity as a potter, and the conversion of it into a branch of the fine arts. Sprightly and yet grave, Josiah was a general favourite. Among his companions, he was distinguished for uncommon vivacity and humour. They were attached to him by his warm and generous temper; and his reputed sagacity marked him out as a leader in their boyish sports. It is handed down that he thus early betrayed his extraordinary eye for construction by his use of the scissors. Borrowing a pair, and with paper torn from a copy-book, he would cut out the most surprising things; as an army at combat, a fleet at sea, a house and garden, or a whole pot-work, and the shapes of the ware made in it. These cuttings when wetted were stuck the whole length of the aloping desks, to the exquisite delight of the scholars, but often to the real or affected wrath of the master. Josiah was apprenticed in 1744 to his oldest brother Thomas. It was then customary to place boys apprentice at an early age to almost every trade, more especially to that of a potter; because, if throwing were to be one of the branches taught, it necessitated that the learner should be very young, in order that the touch should be trained to an exquisite delicacy, and the muscles of the wrists so formed and strengthened as to insure altogether the utmost manipulative skill. This was beginning, in his own strong phrase, "at the lowest round of the ladder." With such an exquisite eye for proportion as he possessed, his skill in throwing or forming the vessel upon the potter's wheel soon became extraordinary, and rivalled that of the best workmen in the neighbourhood. Though subsequently diseased, he always maintained his marvellous skill in this direction; so that at the distance of forty years he could still give a practical example to his throwers; and, by merely pointing a newly-thrown vessel in his left hand, he would tell at a glance its defects or beauties. If it failed even minutely in its geometrical proportions, he would, before his leg was taken off, break it up with the stick which he then always carried, remarking as he did so, "This won't do for Josiah Wedgwood."

It was not until he had been some time an apprentice that his leg began to show symptoms of that disease which put an end to his practice as a thrower, and finally deprived him of the limb altogether. The disease in his leg, however, during his apprenticeship, appears to have been an advantage to him, as it led to his attention being turned to other branches of his trade, and also, no doubt, to a sedentary and studious habit of life. From the thrower's bench he was taken to the moulder's board, and to this period

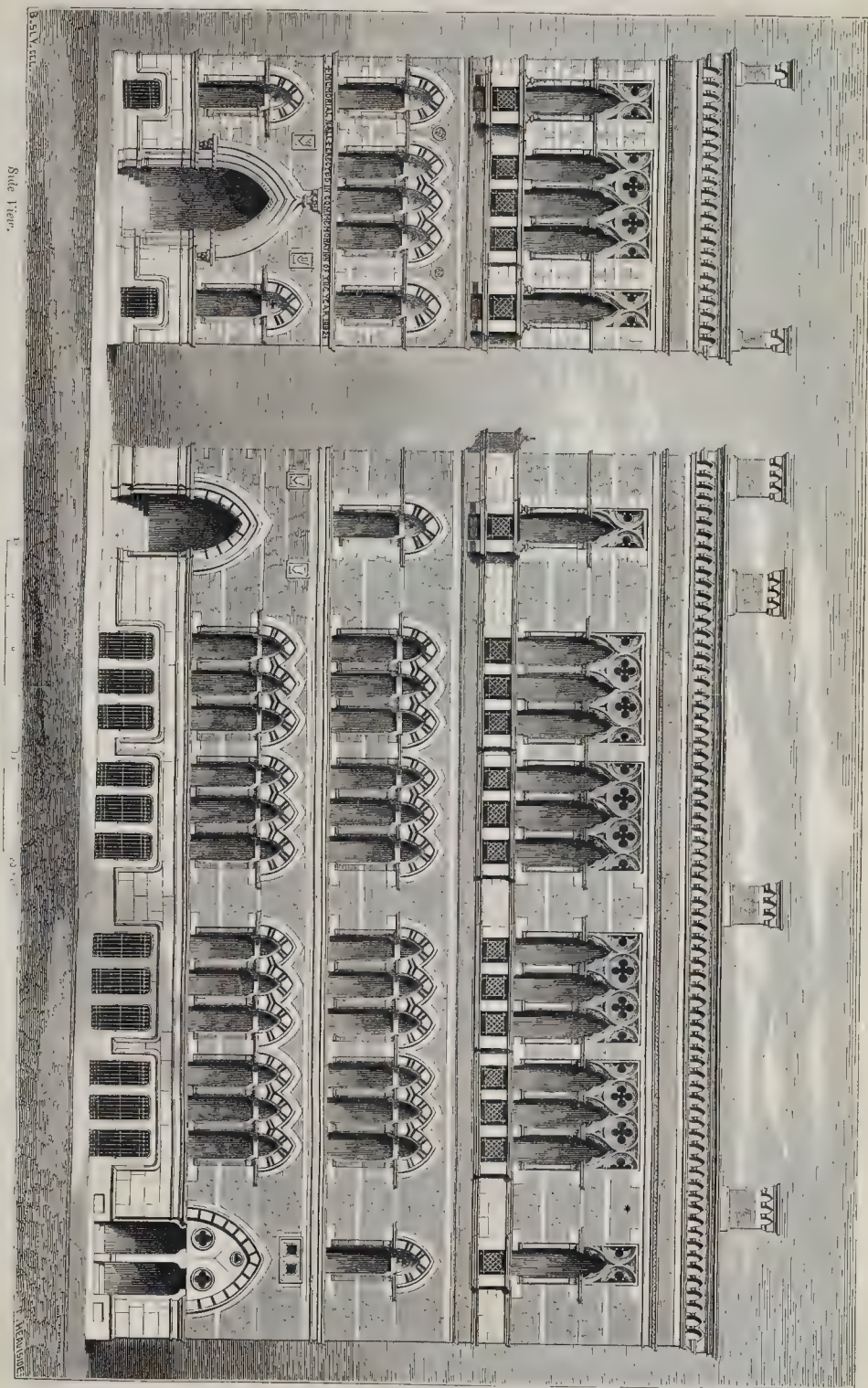
probably belongs the specimen known as "Josiah Wedgwood's first teapot," still reverently preserved at Etruria. It is in the form of a tree-stump, with branched handle, spreading into leaves on the sides, and a rustic lid. Towards the close of his apprenticeship, young Wedgwood seems to have turned his attention to the improvement of the ordinary cream-ware, then manufactured in considerable quantities in Staffordshire. His master-brother, however, continually reproved him for his idle and unprofitable curiosity in trying new processes, and earnestly exhorted him to stick to the instructions of those



Vase in black Basaltes, by Wedgwood.

who knew, better than he did, what it was best to do. At the close of his apprenticeship, Josiah expressed a desire to become a partner with his brother; but that wise gentleman seems to have flattered himself that he knew better than to link his fortunes with those of such a young schemer as Josiah had already proved himself to be, and he therefore declined the proposal.

In 1751 or 1752, the young man took upon himself the management of Alder's pot-work, as



a sort of partner, at probably a very low salary. But it was soon seen that a master-hand had come amongst them. Even the blue scratched and common wares began to show a density of body, a clearness of glaze, and an improvement in form. The barbarous art which adorned them also betokened a change for the better. Sales increased; and as to productions of a higher class of ware, such as small articles for ornamental and useful purposes, they were something new to the works, and found ready purchasers in Birmingham, Manchester, and elsewhere. The cupidity of his employers was excited. They urged the young man to fresh exertions in this direction, without increasing his share in the profits; whilst personally he was hindered in many ways by their ignorance, interference, and by the absence of those necessities without which no improvement in an art or science can be carried onwards. As commonly the case with knaves, however, they mistook the character of the man they sought to overreach. Incapable himself of meanness, trickery, or profiting by others' loss, and already well aware that his art, like land in the care of the agriculturist, must have capital as well as labour bestowed upon it, if generous produce was to be expected, he revolted at length against their cupidity. The partnership was brought to an end, much more speedily than is generally supposed: it probably did not last more than a year.

A new partnership followed close upon the old one, and he who offered it was, this time, a very worthy man, named Thomas Wheildon, who made snuff-boxes for Birmingham hardwaremen, and knife-handles for Sheffield cutlers. Toys and chimney-piece ornaments, candlesticks, tea and coffee pots, table-plates, and various other articles, were also manufactured by Wheildon. Amongst his apprentices were Josiah Spode, in after years the famous potter, and William Greatbach, whose name personally, as well as by his descendants, was destined to be connected with Wedgwood's Staffordshire Etruria by a century's valuable services. Young Wedgwood's local fame, at the time of entering into partnership with Wheildon, must have been even then considerable; for one of the partnership agreements was, that he should practise, for the joint behoof, such secret processes as genius and experimental industry had made his, but this without the necessity of revealing to others what they were. The first result was a new kind of green ware, exquisitely modelled in perfect imitation of such natural objects as leaves and fruit. But its rarest speciality was its glazing. For glossiness and brilliancy of colour, nothing like it had as yet been seen. Everything made by the partners partook of Wedgwood's improvements. His personal intercourse with Birmingham, afterwards of great value to him, was then established. In the midst of enthusiastic and incessant labours, Mr. Wedgwood unfortunately injured his weak limb, and was laid up for months, a period which he devoted, however, to self-culture. During this interval many of his secret processes and mixtures were of necessity revealed to workmen, who soon spread them into use amongst the potteries, to the great improvement of the manufacture generally. The partnership with Wheildon expired in 1769, and was not renewed. Wheildon, an unambitious man, had already amassed money and was averse to further speculations of an uncertain nature. On the other hand, his young and ingenious partner saw, with prescient eye, the capabilities of his art, could capital as well as taste be only brought to its aid. He had come forth from his sick chamber a stronger man intellectually, and meditation had given him a firmer hold as it were upon the laws and secrets of his art, and even before the expiry of his partnership he had begun to produce higher and more ornamental art works than heretofore.

In 1769, Wedgwood may be said to have commenced his independent career as a potter, having then begun business by himself in the Ivy House Works previously belonging to cousins of his own name.

The manufacture of white ware, relief tiles, and small ornamental articles, was carried on at the new works. But Wedgwood saw clearly that it was not these classes of ware which would either open or secure a new and great market. What was wanting was a ware of a superior description, so excellent in all respects as to be suited to the tables of the upper classes; and which, when improvements and facility in production should enable the manufacturer to sell it at a cheaper rate, might reach those of the

middle classes. He had for a considerable period, as we have seen, turned his attention towards the improvement of the ordinary cream-coloured ware, manufactured at various pot-works in Burslem and its neighbourhood; but his experiments had been desultory, rather directed to future purposes than immediate results. He now, however, concentrated all his energies for a period in this one direction. Every essential of body, glaze, form, and ornament was alike the object of his care; but through the various necessary processes his patience was often sorely tried, his repeated failures most disheartening. One kiln after another was pulled down in order to correct some defect, or effect some necessary improvement. His losses from this source alone were at this period very heavy, and the ware itself was often destroyed before he could bring his firing processes to the requisite degree of perfection. His chemical combinations often baffled him, and his experiments, both in body and glaze, would, after the greatest pains, turn out entire failures. Yet, unwearied and indomitable in spirit, he persevered, and success came. He had to invent, and, if not that, to improve, almost every tool, instrument, and apparatus, and to seek for smiths and machinists to work under his guidance. Lathes, whirlers, punchers, gravers, models, moulds, drying-presses, and many other things were all variously improved. He often passed the whole day at the bench beside his men, and in many cases instructed them individually. The first pattern of each original piece he almost always made himself; and, though no great draughtsman, the enamellers could work from his designs.

By the close of 1761, Mr. Wedgwood had brought his cream ware to a considerable degree of perfection. The body had a lightness hitherto unknown, the glaze an exquisite brilliancy, and its forms were entirely new. The proportion of native clay introduced into the body was probably but fractional. Dorset and Devon clays, with a due proportion of flint, were its chief components, and the glaze used was what was known as "Greatbach's china glaze," but which Mr. Wedgwood subsequently greatly improved. Amongst its ingredients were red or white lead,—lead entering into all the glazes of the period under one form or another,—flint-glass, tin, and lime of Wight sand.

The forms of the chief pieces, such as compotiers, tureens, sauce-boats, and salt-cellars, were principally modelled from natural objects, as shells, leaves, and the husks and seed-valves of plants. In his occasional journeys from home, Mr. Wedgwood lost no opportunity of seeking out, in shops and noted collections, for such specimens of Oriental and Dresden ware as might furnish him with new ideas as to form, colour, and manipulative skill, even if he could not obtain the privilege of modelling therefrom. And so far as he yet resorted to enamelling, the softest and most subdued colours were employed.

He opened an export and retail business in London by help of his brother, John Wedgwood; and at Liverpool by help of Thomas Bentley, who afterwards became his partner at Etruria.

An art was making its way in Liverpool, of which, as applied to the decoration of his improved cream-ware, Mr. Wedgwood soon found the great utility. This was the application to glazed earthenware of impressions taken upon paper from engraved copper plates; the ware, after printing, being passed through the muffle or enamelling oven to fix the colours. The discovery of this art had been made in 1762, or indeed previously, by Mr. John Sadler, a master printer of Liverpool, who, from observing some children stick waste prints, which he had given to them, upon broken pieces of earthenware they had brought from the pot-works near at hand, had conceived the idea of this new application of the printer's art. For a time he occupied himself with experiments, in which, after many fruitless trials, he succeeded. Taking heartily to their new trade, he and a partner, also a printer, prosecuted it with the utmost zeal. They printed plaques, tiles, mugs, teapots, and other earthenware for ordinary domestic use; and used various colours, but more generally cobalt blue, in imitation of Delft ware; the great object being to undersell the Dutch, who at this date imported tiles in vast quantities into the country for the purpose of ornamenting fire-places. That this admirable discovery was likely to effect a perfect revolution in cheapening articles of ordinary earthenware was proved by the fact that the partners, "within the space of

six hours, printed upwards of 1,200 earthenware tiles of different colours and patterns, which, upon a moderate computation, was more than 100 good workmen could have done of the same patterns in the same space of time by the usual way of painting with the pencil."

The Brick-house, or Bell-house, works, once in the possession of a namesake of Wedgwood's, were leased by him about the year 1762, and there he carried on his business till his final removal from Burslem in 1773. In 1764 Wedgwood married, a step which, it seems, he never had cause to repent; and he afterwards purchased the estate of Ridge House, near Burslem, for 3,000*l.*, and thereon erected his celebrated works, which he named Etruria. He had previously taken an active lead with Brindley, the engineer, and Bentley, in carrying out the project of the Duke of Bridgewater's canal, which runs through Etruria. Before the erection of his works on this site, Wedgwood's fame was so fully established that he was taken in hand, not only by the nobility but by the royal family, for whom he made various choice specimens of his art.

While trying to induce Mr. Bentley to leave his business as a merchant—mainly in the pottery ware—at Liverpool, in 1766-7, and become a partner with him when the works at Etruria should be set a-going, he thus sketched out the precise objects which they should have in view as manufacturers:—

"The articles to begin the work will be—Root flowers, pots of various sorts ornamental and plain. Essence pots, Bough pots, flowerpots, and Cornucopie.

Vases and ornaments of various sizes, colours, mixtures and forms, ad infinitum.

Then proceed to Toilet furniture, and enrich these & other ornaments with gold burn in.

Elegant Teapots may be made.

Snuff and other boxes.

Fish, Fowl, and Beasts, with two legged Animals in various attitudes.

Ten thousand other substantial forms, that neither you nor I, nor anybody else, know anything of at present.

If all these things shall fail us, I hope our good genius will direct us in the choice of others."

Thus far Miss Meteyard, in her first volume, has carried the biography of her hero; and thus far only shall we go at present with it, since our sketch is a mere abstract transcript from her able and interesting, though somewhat diffuse volume. That she is a very fitting and capable biographer of the great potter is evident. She has a practical knowledge of pottery, and for fifteen years has had the work in view. She has had abundance of materials, in the shape of family papers and private correspondence, placed at her disposal by members of the Wedgwood family, by Mr. C. Darwin, F.R.S., Mr. Joseph Mayer, and others; and the volume, which is first-rate as to paper and print, is full of engravings illustrative of the text. We print four of them as examples, representing a picture cameo; the ancient pavement in Cruden's Chapel, Ely Cathedral; and two vases, one of the latter being from an early Wedgwood in Mr. Roger Smith's collection, and the other from Count de Caylus's work, and which is given by Miss Meteyard as having influenced the one produced by Wedgwood. The biography is preceded by an introductory sketch of the art of pottery in England; and the second and concluding volume, the author tells us, in her preface, "will be a perfect shrine of the masterpieces of Wedgwood's art." From this preface we may take, as a conclusion, a quotation in reference to the use of terra cotta by architects:—

"He wished to induce the architects of his day, amongst them the brothers Adams, who built the Adelphi, and Sir William Chambers, to introduce terra-cotta ornaments and bas-reliefs into the exterior and other parts of houses and buildings. But, like his friend Erasmus Darwin, he was greater than his time, and the architects would not listen. Let us, therefore, in this day realise the dreams of the great master, and at the point take up his art. Whilst nature is eternal and ever prolific, imitation is unworthy of the artist. As the men of science purify the atmosphere of our cities and towns, as assuredly they will, let our public buildings become in the best sense, palaces of art, and the interior of our houses shrines of simple taste in ornament and colour. Wall-linings of terra-cotta would do away with the barbarous taste of the paperhanger and upholsterer, and floors of exquisite tile-work would serve to border the warm embracing carpet. Here would be work enough for the potter and the artist; and in the chastity of colour and the purity of design we might rival antiquity, whilst true to the spirit of our generation."

MEMORIAL HALL, MANCHESTER.

THIS building, now approaching completion, occupies the angle of the new Albert-square, a new open "place" of considerable size, in course of formation in Manchester, and in the centre of which the Prince Consort Memorial is being erected by the same architect.

The hall is a building chiefly appropriated to

collegiate purposes, and has been erected by subscription, by the Unitarians, in commemoration of the ejected clergy of 1682.

The basement and ground-stories are to be let as offices, or warehouse, having separate entrances from the side street. The first-floor contains a large lecture-hall, a library, rooms for professors and students, porter's house, and sundry minor rooms. The top floor is entirely occupied by a lofty lecture-hall, capable of accommodating from 700 to 800 persons.

The hall has been erected from the designs of Mr. Thos. Worthington, architect, by Messrs. Bowden, Edwards, & Forster, contractors.

PAPER-STAINING.

The reports for 1864 of the inspectors of factories contain many interesting particulars respecting factory labour. Of paper staining it is said—

The operations in a paper-staining establishment are very similar to those carried on in a calico printwork. The printing is either by block, when it is done by manual labour, or by the cylinder, which is moved by power. At Over Darwen (near Manchester), at Manchester, and at Leeds, a large number of children are employed, and steam power is used in connexion with machinery.

In paper-staining works the block printers, always men, are paid by the piece, and the men pay the boys they require to assist them; but the boys employed in connexion with the printing by cylinders, which are moved by steam power, are engaged and paid by the principal; and Mr. Potter, of Over Darwen, having full control over the latter class of boys, applied to them as strictly as if they had been under the Factory Act the half-time system, by which each child under thirteen years of age attended school daily for three hours.

In the metropolis there are important paper-staining works, but conducted upon an entirely different system from those in the north. At some it has been the custom for work to begin at 7 a.m., and others not till 8 a.m.: the boys are generally required to go earlier to light the fires and sweep the shops, &c., and they are an older class of boys than those employed in the north. The chief objection in London to the Act is the necessity to commence at 6 a.m.: the men have been so long accustomed to begin late and to continue to work late, and to make overtime, that they do not readily fall into a more regular system; but the masters all acknowledge that the regularity which must be observed under the factory regulations would be of immense advantage to them, with this proviso, if the same amount of work can be produced. This (says one inspector) I do not doubt. Where men are employed at piece work, and can work pretty well as they like, either diligently or lazily, a portion of a protracted day's work is passed in unnecessary idleness. But when work must cease at 6 p.m., I know from experience that the working hours are hours of work, and that the time formerly passed in procrastinating and idling, is occupied with vigour and intelligence and with equal results at the end of the week.

VALUE OF LAND ABOUT LIVERPOOL.

LAST week an inquest commenced at St. George's Hall, Liverpool, before Mr. W. Aston, the sheriff's assessor, and a jury of merchants and others, to assess the value of a quantity of land, as well as the amount of depreciation, belonging to Mr. Edward Griffin, near Mossley-hill, Allerton, through whose estate the Edge-hill and Garston branch of the London and North-Western Company passes. Mr. Griffin's claim upon the company for the land actually taken, as well as compulsory sale, depreciation, and severance, was between 14,000*l.* and 15,000*l.* Messrs. John Cunningham, Young, Scourfield, Leyland, & Williams, had been summoned on behalf of the claimant; and Messrs. S. Holme, Picton, Bulshaw, Sheldermine, and other gentlemen, on behalf of the railway company. Mr. Leofric Temple stated the case for the claimant, and called witnesses who stated that the approach to a very large portion of the estate had been almost cut off, 70 acres being severed on one side of the line, and 80 acres on the other. Mr. John Cunningham thought Mr. Griffin was entitled to 11,750*l.*; Mr. Owen Williams, 3,682*l.*; Mr. John Scourfield, builder and valuer,

13,911*l.* In cross-examination by Mr. Lloyd, this witness said the entire estate was worth from 750*l.* to 800*l.* an acre, which would be from 130,000*l.* to 140,000*l.* He believed a person could not do better just now than buy land five or six miles from Liverpool and hold it for some time. It must increase in value. He had had 3*s.* per yard offered for land further from Liverpool than this, and he had refused it. The company called rebutting testimony, and the jury awarded 6,750*l.*, being 3,742*l.* 1*s.* for the land actually taken, and the balance for depreciation in value through severance of the remainder.

THE PREMIUMS OF THE ARCHITECTURAL INSTITUTE OF SCOTLAND.

THE Institute, last year, offered prizes under the four heads after mentioned; and the council, on the 6th of March last, appointed Messrs. Cousin, Paterson, Dick Peddie, MacGibbon, and Maclean (Mr. Cousin, convener), a committee to judge in the competition, and to determine the subjects of competition for the following year. The subjects of competition and the awards were the following:—

"1. For the best Geometrical Drawing, by apprentices of not more than three years' standing.

Three sets of drawings were submitted for examination. The committee considered that the drawings of Daniel Macrae, apprentice to Mr. John Lessele, architect, Edinburgh, and William Addis, apprentice to Mr. D. Bryce, architect, George-street, Edinburgh, were equal in point of merit, and awarded a book to each.

"2. For the best Perspective Lane Drawing raised from the Plan.

Six drawings were submitted, and the committee considered the drawings of Andrew Dewar, apprentice to Mr. Robert Paterson, architect, Edinburgh, and Alexander Sutherland, apprentice to Mr. D. MacGibbon, architect, Edinburgh, equal in merit, and awarded a book to each.

"3. For the best Drawings of a small portion of any Ecclesiastical Building, measured and drawn from the originals.

Three sets of drawings were submitted. The committee awarded a book to David Home, apprentice to Messrs. Lightbody & Gorrie, architects, Edinburgh; but they think it right to observe that the drawings of Elgin Cathedral, by Robert Wishart, South Gully-street, Elgin, deserved favourable mention for the great pains and labour which have been bestowed upon them.

"4. For the best Original Design,—Subject, a Presbyterian church.

Six sets of drawings were submitted. The committee had considerable difficulty in making a selection, as none of the competitors had strictly complied with the conditions as to style and otherwise. The committee considered that on the whole the drawings of William Urquhart, in the office of Messrs. Paterson & Shields, architects, Edinburgh, were the most meritorious, and awarded him a book.

As an encouragement to the young men, the council have resolved to present each of the competitors under the several above heads, with a copy of last year's 'Illustrations of Scottish Buildings.'

"SPECIFICATIONS AND MYSTIFICATIONS."

UNDER this title we have received a long letter signed "A Builder," asking, chiefly, "whether an architect when he hands to a builder a specification and drawings does not pledge himself that the specification is a clear description, and that the drawings are such as can be worked to; and whether he, and not the builder, be responsible for their correctness;" also complaining of treatment received in working under such instructions. Builders should see that the specifications and drawings are clear before they sign contracts. In the present case, if "A Builder's" statements are correct, the law will protect him.

LLOYD'S PROVING HOUSE.

As will be remembered by readers of the parliamentary debates, about a fortnight ago the President of the Board of Trade stated that, unless the testing machine of Lloyd's Register were altered, it would not be licensed. But out of regard for such a considerable body as Lloyd's, the Board of Trade have determined to obtain the best opinions on the matter. We understand that the Board have thus requested Sir William Armstrong, Mr. W. Fairbairn, Mr. Hick, of Bolton, as also Mr. Hawkshaw, Mr. Penn, and Mr. F. A. Paget, of London, to examine the machine in order to fully report on its presumed deficiencies.

INSTITUTION OF CIVIL ENGINEERS.—The President's annual *conversazione* is fixed to be held at the House of the Institution on Tuesday evening next.

STAINED GLASS.

Gloucester Cathedral.—The memorial window to Dean Plumtree has been placed in the east cloister of this cathedral. The artist is Mr. Hardman, of Birmingham, who, we believe, has furnished the whole of the windows in this part of the cathedral, with one exception. In each of the eight principal lights of the new window is a figure, bearing a scroll. The first four are prophets, the others are female figures. The text is—"For unto us a child is born," &c. The windows in this cloister form a connected series. The second (to Dean Plumtree) contains the prophecy referring to the birth of the Saviour, just quoted; the fourth (to Dean Rice), the Nativity; the fifth (to the Rev. T. Evans), the Saviour taken by his Parents to the Temple, and discoursing with the Doctors; the seventh (to the Rev. Dr. Claxson), the Baptism of the Saviour and his Preaching; the eighth (to Dean Luxmore), the Saviour's admonition to the disciples to become as little children, and his exhortation, "Suffer little children to come unto me;" and the ninth (to Archdeacon Wetherell), the Temptation.

Glanmire (R.C.) Church, County Cork.—The Roman Catholic Church at Glanmire has lately been enriched by the addition of two stained windows of unusually large dimensions. The windows are semicircular at the top, and contain, in one the "Transfiguration," and in the other, "The Agony in the Garden." The figures are nearly life-size, and that of our Saviour, in the "Transfiguration," is placed within an aureole, radiated, and surrounded with stars and conventional clouds. A broad worked border forms a framing to the picture, intended to harmonize with the massive simplicity of the style of the building, which is Norman. The executants were Messrs. Edmundson & Son, of Manchester.

Mullingar Church (county Westmeath, Ireland). The Hopkins memorial window consists of a series of foliation which is thus explained:—The oak, denoting strength; the lily, purity; the passion-flower, endurance; and the vine, faith. The artists were Messrs. O'Connor, of London.

FROM SCOTLAND.

Kelso.—The foundation stone of a new Free Church at Kelso has been laid by the Hon. Lord Ardmillan. The site of the new building is in Roxburgh-street. The erection is in progress. The design is by Mr. Pilkington, of Edinburgh, and is one of those fan-shaped designs which that architect has recently introduced in Scotland. It somewhat resembles in its general features the Barclay Free Church, Edinburgh. The church will be seated to accommodate 750 persons. Two kinds of stone are to be used in the construction of the building,—a yellow, from Fairloans Quarries, and a grey stone from a quarry near Coldstream. Red stone will also be used, to a limited extent, to render the contrast of colour more effective. The cost of the building is estimated at between 4,000*l.* and 5,000*l.* The main building, it is expected, will be so far completed in August next as to permit of the entry of the congregation; but the tower and spire will probably not be finished till a year later.

NEW UNION WORKHOUSE, MORPETH.

FOR the last twenty years the guardians of the Morpeth Union have had it in contemplation to build a new workhouse. From motives of economy, possibly, in the first instance, when unions were established, a house was purchased, which, with additions and alterations, has hitherto served the purpose; but owing to the increase in the union and the utter impossibility of proper classification being kept up in so irregular a structure, this has been condemned by the Poor Law Board. Several sets of designs have been procured, from time to time, within these twenty years; none of which, however, have fulfilled the required conditions. Meanwhile, the want of accommodation in the house led to the giving of out-door relief on a large scale. Last autumn the guardians consulted Mr. F. R. Wilson, Alnwick, whose designs for a new classified workhouse were approved by the Poor Law Board. The purchase of an adjoining site, to admit of extension, having taken place, and the necessary formalities having been ob-

served, the building of the new house is to be proceeded with immediately. The design comprises accommodation for 150 inmates, besides vagrants; and provides inspection wards, male and female vagrant wards, a hospital, &c.

THE AGE OF ROLLING STOCK.

At the meeting of the Institution of Civil Engineers, on the 18th inst., in a paper "On the Maintenance of Railway Rolling Stock," by Mr. Edward Fletcher, the author, said he, was of opinion that with regard to the ultimate age, or life, of rolling stock, the improved rolling stock of the present day, built of carefully-selected and well-seasoned timber, and materials of the best quality—superior as it was in all respects to that built twenty years ago—might be fully calculated to have a life of from twenty-five to thirty years; assuming always that the stock was of such a character that it would not be necessary to break it up on any other ground than that of decay. It was also to be remarked that, on all large railways, the quantity of rolling stock was always increasing, the result of which was to keep down the average age of the stock; and having a large amount of new stock, on which there was little expenditure for some years, the per centage of outlay was proportionately diminished. Making allowances on these points, the conclusion was arrived at, that carriage stock might be fully maintained by an outlay of about 12 per cent. on its cost, wagon stock by an outlay of 6½ per cent., and locomotive stock by an outlay of 12½ per cent. The chaldron wagon stock, which was peculiar to the north of England, generally had cast-iron wheels, was without springs, and was subject to great breakage by inclined planes and other hard usage; so that, whereas the general wagon stock only cost 6½ per cent. on its first cost for maintenance, the chaldron wagon stock cost 17½ per cent. This stock was by degrees being replaced by 8-ton wagons of superior construction. An 8-ton coal wagon would cost 90*l.*, and three chaldron wagons, to carry the same quantity of coals, 75*l.*; but the cost of maintenance in the first case would be only 5*l.* 10*s.*, whilst in the second it would amount to 13*l.*, showing that the superior wagon was the cheaper one of the two. The number of locomotive engines belonging to the North Eastern Railway Company at the end of 1864 was 504, and their average age was 12·48 years. Assuming that the duration, or life, of an engine was twenty-five years, then the company should have been rebuilding at the rate of twenty engines annually, to be paid for out of revenue, in order to keep the stock up to its original value; but the table showed that for the last five years an average of only eleven engines had been rebuilt, including under this head only those which were entirely new, and of a different class when rebuilt. But taking into account the engines of the same class which had been so treated, the total number reconstructed had been twenty per annum. The principal part of the engines so altered during the thirteen years from 1852 to 1864 were those which were old when they came into the possession of the company.

ACCIDENTS.

FROM the end of the South Wharf-road to Bishop's-road Bridge, Paddington, a road which is unnamed has been made by the Great Western Railway Company, and it is about 6 ft. below the level of the ground on the right hand side. There is of course a retaining wall alongside the pavement. Above the level of the ground so retained rises a parapet 3 ft. in height, and composed of 9-in. brickwork. About 140 ft. of this wall have been built for ten years. The ground which it bounds is in the occupation of the Lillieshall Company, and they had a quantity of coals contiguous to the wall for the extent of more than 100 ft. Captain Newberry, of the Madras Infantry, and others, were walking along the pavement when 25 ft. of the parapet, and 40 or 50 tons of the coal fell out and buried him and another man. The retaining wall did not fall out. At the inquest on the body of Captain Newberry, who died from his injuries, the jury expressed a very strong opinion that the parapet was of a construction entirely too slight to support anything like the weight of coals stacked against it. The evidence showed clearly that the deceased had died in consequence of the

parapet and coals having fallen upon him. Several witnesses were examined as to whether the street was used as a public thoroughfare. They agreed that it was, but it was stated that the railway company had on some occasions blocked it up. The inquest was adjourned.—An accident lately occurred at Chatham dock-yard while the workmen in the metal mills were engaged in casting a large metal cleaver, or wedge-shaped prow, for the *Lord Warden*, weighing several tons. The molten metal had been run into the mould, when, in consequence of the air not having been properly exhausted, the whole exploded, scattering the heated metal about in various directions. One of the workmen was seriously injured, the red hot metal falling completely over him, and inflicting horrible injuries.

BUILDERS' CHARGE FOR TENDERS.

At the Shoreditch County Court, before Mr. Charles Coleman, the deputy-judge, on Tuesday, was tried the case of *Parsons, a builder, of Acton, v. Hawkes, a publican, of Bethnal-green*, the action being brought to recover 15*l.* 14*s.*, expenses incurred in tendering for certain work required by the defendant.

Mr. Horace Earle, for the plaintiff, in opening the case, said it was a very important one as regarded the building trade, where surveyors called upon builders to send in tenders for contracts, and the Court would be asked by plaintiff to award him the sum claimed on rather peculiar circumstances. A surveyor, named Harris, employed by the defendant, sent out invitations to a number of builders, and amongst them plaintiff, to tender for the erection of a certain building required by Mr. Hawkes. Defendant's was the lowest tender; but it was not accepted; and he was therefore, in accordance with a custom of the trade, entitled to charge for the expenses he had incurred in taking out quantities and pricing the various items.

The judge asked if this custom would be proved. Mr. Thos. Angell, for the defendant, submitted that a custom must be proved to be universal before it could be set up in a court of law.

The judge entirely disagreed with this view, and put it to Mr. Angell whether he was in a position to call witnesses to prove that no such custom existed.

Mr. Angell submitted that it was rather for plaintiff to prove that it did not exist. Mr. Earle would prove by witnesses that the custom was acknowledged and acted upon in the trade, and would, in addition, hand in a letter which plaintiff had received from defendant's surveyor, offering to pay 4*l.* 4*s.* Mr. Angell did not dispute that letter, and was willing to pay the 4*l.* 4*s.* at once.

Mr. Earle could not accept it, because he should show that 2 per cent. was the regular charge, and that the judge thought 2 per cent. prodigious, and said that it had been proved before him that a general charge for taking out quantities was 4*l.* to 4 per cent. However, perhaps plaintiff had better call his witnesses.

Plaintiff's son deposed that the amount of plaintiff's tender was 770*l.*, and it was not accepted, though the lowest. He was in consequence entitled to charge 2 per cent. By his Honor—Plaintiff, as a builder, was entitled to charge this, although he did not do the work tendered for. Never knew so low a percentage as a quarter charged for taking out quantities. The surveyor employed charged for taking out quantities 1½ per cent. Plaintiff stated, that when he received the invitation to tender he employed a surveyor to take out the quantities, and it was the custom in the trade to charge the person doing this to the person requiring the work in the event of the lowest tender not being accepted.

Mr. Henry Parsons, son of the plaintiff, said he was a surveyor, and had taken out the quantities in this matter. Witness charged 1½ per cent., or 11*l.* 12*s.* 6*d.* Cross-examined—Had received 6*l.* on account.

Mr. Green, a builder, of twenty-five years' standing, said the custom of paying the lowest tender expenses, when not accepted, was acted upon in the trade. Cross-examined—In a case which occurred to witness, he tendered 897*l.* for some work at Paddington. He was the lowest, but his tender was not accepted, upon which he claimed 35*l.* from the person who had his tender accepted. That builder declined to pay the money, and then witness demanded that he should be allowed to take the work. His request was complied with, and he was now doing it.

Mr. Winter, a builder, of Croydon, corroborated the last witness as to the custom.

Mr. Smith, a surveyor, of thirty-four years' standing, stated that it was the custom to pay the builder his expenses for taking out the quantities and pricing the items, when he, as the lowest tenderer, was not accepted.

Mr. Angell (this being the plaintiff's case) submitted that this was either a question of custom or contract. If it was a custom, then there was nothing to prevent a man sending in a ridiculously low tender, which he knew could not be accepted, for the mere purpose of claiming the expenses.

The judge said that, in that event, the person requiring the work would have his action against the contractor, if upon an acceptance of the tender it should not be carried out.

Mr. Harris, defendant's surveyor, said that when he sent out the tenders he stated upon them, "the parties did not bind themselves to accept the lowest tender." This was done by the War Office, and other places. Cross-examined—Witness wrote the letter offering to pay the 4*l.* 4*s.* on behalf of the builder whose tender was accepted. When the party requiring the work stated that he would not be bound to accept the lowest tender, it was not the custom to pay the lowest tenderer for taking out the quantities and pricing the items.

The judge ruled that a custom to pay something was not only proved by the evidence of the plaintiff's witnesses, but actually borne out by the letter from Mr. Harris, offering the 4*l.* 4*s.* He considered 2 per cent. prodigious, but would find a verdict for 11*l.* Verdict for plaintiff for 11*l.*, with costs.

AN IRON CHURCH, MILE-END.

ST. AUGUSTINE'S Mission Church and Schools, in Greenfield-street, one of the most densely-populated and poorest parts of Mile-end, was opened, on Thursday, the 18th. It is an iron building, containing two floors, and is believed to be the first two-story iron building of the kind erected in the metropolis. The upper floor consists of the chapel portion of the building. It has a vestry, chancel (with chancel screen), &c., and will accommodate about 200 persons. The lower floor (which is quite separate and distinct from the upper part of the building) is used for the purpose of a school, and will accommodate upwards of 200 children, exclusive of the necessary space required for the usual desk and class accommodation. The total cost of the building, including the gasfittings, bell, fixtures, &c., will be from 650*l.* to 700*l.* The works have been carried out under the direction of Mr. S. W. Iron, architect.

"A NEW STYLE."

MANCHESTER ARCHITECTURAL ASSOCIATION.

An ordinary meeting of this Association was held, on Friday evening, May 19th, Mr. W. H. Fisher in the chair. After the transaction of business, the chairman called upon Mr. G. S. Aitkin to read his paper, entitled, "The Creation of a New Style."

The essayist, following in the first place the course of analogy, endeavoured to show, from the history of past styles, the certainty of the future creation of a British style of architecture.

Having next considered the current objections to such a probability, the writer went on to show from the present system of practice in architectural styles that the natural issue could be none other than a distinctive national architecture.

To strengthen this inference the principles of Gothic and Classic construction and decoration were considered in the following words:—"In Classic there existed command over height; in Gothic, over width: reverse the process and the result is in favour of Gothic: in the first, the width must be a fixed quantity, the height made proportional to it; in the second the height must be the determined dimension, and the width accommodated to it. To further demonstrate this, let us assume in the Classic height to be the normal dimension; then as the beam—the principle of construction—is only of limited capacity, it is possible that this height may be so great as to render its use, with any regard to proportion, impossible. In the Gothic, on the other hand, if width be taken as the unalterable dimension, then a width may be assumed so great that, to secure a well-proportioned section, the piers and abutments may require to be of colossal and, therefore, of inartistic dimensions. In Classic the beam is at fault; in Gothic the pier; or rather, it should be said, in the one the pier is too perfect; in the other, the arch: they do not perfectly balance themselves with their respective complements. Classic has, therefore, command over height in its perfect pier; Gothic over width in its perfect arch.

What, then, is the inference? Naturally this: conjoin these two properties and they will form a new and perfect basis of construction.

§ This much for construction: our next stage is decoration and its character. Our two standards of style are the offspring of mind in different phases of development, affected by religion, circumstances, and climate; the earliest subtle and refined; the later, bold and rich.

In the one the multiplicity of the straight line necessitated delicacy of moulding and severity of enrichment; in the other, the frequency of the curve demanded boldness, roundness, and depth.

Moreover, as climate and temperament had much to do in forming these architectures, so did they affect their ornamentation, reducing it to harmony with the construction it decorated. As we have in the two the extremes of decoration, the natural and the artificial, our ornament of the future must lie somewhere between them.

... We neither want the naturalism of the one nor the idealism of the other. As it is not right, in the one case, for the designer to practically assert the absence of mind in an exact and unassimilated copyism, so neither is it lawful, on the other hand, for nature to be sacrificed on the altar of idealism."

The essayist proceeded to show the practical advantage a British style would have in a perfect adaptation to modern requirements, and concluded by deprecating any search for a new style from the mere sensational desire for change.

A discussion ensued, but, owing to the length of the paper, had to be curtailed, and adjourned till the next ordinary meeting, when the business of the session will be closed.

GATES AND BARS IN BELGRAVIA.

WE find, with great satisfaction, that the Marquis of Westminster has withdrawn his authority for keeping up gates and bars on his estate, including Wilton-place, Upper Belgrave-street, Eaton-square, &c., and opens them for every description of traffic. It is to be hoped the example will speedily be followed by other landowners in London.

INDOOR ARCHITECTURE.

GRATEFULLY it is to be hoped that Professor Kerr will some day supplement his book by saying something on the not quite exhausted and worn-out subject of *internal fenestration*; that is, fenestration studied with regard to effect within, which, strange to say, has been all along ignored and overlooked. In like manner as a person who could tell us all about prehistoric men could not, perhaps, tell us anything whatever about his own grandfather, so those who are seemingly quite familiar with the history of the rude domestic architecture of those beatified if not exactly blissful Mediæval times,—from which, by the bye, we keep drifting away further and further every day,—are ignorant of modern arrangements, or else look at them through a very delusive medium.

Except by one writer, it has not been remarked that the application of what was originally a Pointed style to domestic and other secular buildings, led, almost of sheer necessity, to the gradual lowering of the arched head of windows until it became lower and lower, and ultimately degenerated—as some, perhaps, would call it—into an insipid straight line. Yet that same adoption of the square-headed windows of the latest Tudor or Elizabethan style may be said to form the turning-point between expiring Mediævalism and nascent modernism in architecture. Therefore, I think it would have been as well, or even better, had Mr. Kerr made that same "turning-point" his own starting-point. At this time of day we do not so much need to be lectured about bygone my-grandmother's matters as, if it be possible, to be plainly instructed in the art of planning or laying out "a gentleman's house" with regard to much more than the convenience of portly butlers and pampered flunkies.

Nothing is said, for instance, of the changes—and they may mostly be called improvements—which have taken place in the fittings-up of rooms as compared with those of the same class in the olden Elizabethan time; for we need go no further back than that, or to when

"Fair tapestried walls and filthy rush-strewn floors"

showed the unsaintly cardinal's love of tasteless pomp. By way of an *instaur æmulum* as to omissions in the history of domestic architecture, it strikes me as somewhat remarkable, that no one should have thought it worth while to inform us when looking-glasses, since grown to colossal dimensions, first began to be applied as decorative furniture. It may, perhaps, be objected that all matters of that kind are out of the architect's province; and so, indeed, they seem to be: he is looked upon as the mere planner—the provider of mere rectangular rooms and their bare walls, and to leave all the rest to the undisciplined decorator and the tradesman upholsterer, surrendering up to them the putting in of those finishing touches which are not to be safely confided to any one but the architect himself,—that is, supposing him to be an artist also. Judging by appearances, little more seems to be now thought of or expected, from the architect, than regard to external masquerading as to style. By no means few are the publications which profess to show designs, or, more properly speaking, patterns, for villas; but among them all there is not a single one that takes any account of interior fitting-up and furnishing, although some judicious advice and instruction on such points might tend to promote the cause

of good taste; nor would it be at all out of place in anything on the subject of a gentleman's house. Well, if a promising theme has hitherto been left untouched, so much the better for him who shall now for the first time take it up; that is, if also capable of treating it worthily, and with *con amore* relish.

Properly executed, the history of furniture, &c., would form not the least interesting chapter in the history of civilization. With this remark I throw down my pen; for were I to proceed I should be much nearer the beginning than the end of what, for my own convenience sake, I make the end of this say.

ART-LOVER.

BRITISH MISTAKES RESPECTING THE STAR-SPANGLED BANNER OF THE GREAT REPUBLIC.

THERE is a locality in "York," not far from that dreary-looking building "The Tombs," which is called "The Five Points," indicating, no doubt, the exact number of the spurs upon each of the stars which so fluently dot the national flag of the United States. No one is keenly alive to the fact as your "cute Yankee" that we are not so knowing in this "wrinkle" as we ought to be; and I have heard the very urchins before the picture-shops in the Broadway criticise our artists wildly for their ignorance in giving the stars more or less points than they should have. *Punch*, our notorious court-jester, is very true in this respect, and therefore cannot be ridiculed; but his clever contemporary, *Fun*, has only recently made one of his "leaders" the subject of another mistake of this kind, in giving the national stars only four points; whilst the *Illustrated News*, a most intellectual authority, goes beyond that; for, on one of the banners intended to illustrate the funeral paraphernalia of President Lincoln, it gives as many as six points to a star. A blunder of this kind actually occurred in the fabrication of the silk handkerchiefs which were adopted as the national colours of the combatants on the encounter between Sayers and Heenan, indicating how little we know of the fact.

Henceforth, then, it is wise to know that such is the case,—that no star intended to convey to us the nationality of the States can be legitimate without the five points; and that *ought* to be a consideration to the satirist who has most of the starrng business on his hands.

ALEXANDER HAY.

"CHURCHES FROM A MOULD."

SIR,—In your journal of April 22, "Cast Work" complains that five churches have been built from a model plan; if so, is it not a proof of its superior merit, and is it not far better to multiply buildings intended for a similar use on the basis of a good design, than, for the sake of variety, to erect such ugly, dismal, cold, monastic-looking structures as one is doomed so often to meet with?

As "Cast Work's" critique may possibly be designed to have a two-fold meaning, allow me to state that the Crediton committee did not apply to the English Chapel Building Society for plans, but to Mr. Thomas Oliver, who had built a church at Middlesboro', of which an illustrated description had been published in the "Year Book," and which was thought very suitable for the site, &c. A correspondence was entered into with Mr. Oliver, and the result was that he prepared the plans. The building has been carried out under the inspection of Mr. E. Cross, of Exeter, and has elicited the approval of all who have seen it.

I may as well add that while the English Chapel Building Society are ever ready to assist those about to build, by the loan of plans, they also state, "In the event of any one of them being selected, the architect who prepared such design will prepare the working drawings," whence it is clear no capital is made out of a premiated design.

T. H.

RATS, MICE, FLIES, WASPS, AND OTHER SIMILAR ANNOYANCES.

SOME years ago I read, in a French scientific periodical, that chloride of lime would rid a house of all these nuisances. I treasured up the information until opportunity offered for testing its value, and this occurred some four years since. I took an old country house infested with rats, mice, and flies (no Norfolk Howards, though). I stuffed every rat and mouse hole with the chloride. I threw it on the quarry floors of the dairy and cellars. I kept saucers of it under the chests of drawers, or some other convenient piece of furniture; in every nursery, bed, or dressing room. An ornamental glass vase held a quantity at the foot of each stair-case.

Stables, cowsheds, pigsties, all had their dose, and the result was glorious. I thoroughly routed my enemies, and if the rats, more impudent than all the rest, did make renewed attacks upon the dairy, in about twelve months, when probably from repeated cleansing and flushing all traces of the chloride had vanished, a handful of fresh again routed them and left me master of my own premises.

Last year was a great one for wasps: they wouldn't face the chloride; though, in the dining-room, in which we had none,—as its smell, to me most refreshing and wholesome, is not approved by all persons,—we had perpetual warfare. Upon N. H.s, as before stated, I am happy in not having required to experiment, but I have no doubt what the result would be, judging from the effect upon most other insect life.

And all this comfort for eightpence. Only let housewives beware that they place not the chloride in their china pantries, or in too close proximity to bright steel wares, or the result will be that their gilded china will be reduced to plain, and their bright steel fenders to rusty iron in no time.

EDWARD PAYNE.
Aylesbury House, Warwickshire.

REMEDY FOR DOMESTIC INSECTS.

In the *Builder* of the 13th instant I noticed your article upon one of the "plagues of housewives," viz., the insect known by the not over-pleasant name of the "bug," which infests homes and dwellings, especially those of the poorer classes. The nuisance is often tolerated so long as personal comfort is not interfered with.

The remedy you propose may be, and doubtless is, a good one; but I can mention one which is readily applied, is cleaner than some of the greasy substances usually employed, and about the efficacy of which there can be no doubt. Purchase, at any oil or colour warehouse, a pennyworth or two pennyworth of the liquid known as "oil of tar," and with a small brush or strong feather, apply it to the parts where the insects are known to be or likely to secrete themselves, and it will immediately destroy them, and effectually prevent their location in that place. If housewives would brush the joints and holes of their bedsteads, &c., once a year with the liquid, no insects will approach those parts, and as it is absorbed readily by the wood, the bedsteads could be put up again the same day.

A capital opportunity occurs when a house is being renovated of applying the tar to all the crevices, and around doors, windows, skirting, &c., before any paint is put on.

Too much of the tar should not be applied at one time if the room is daily occupied, as the tar has decidedly an odoriferous nature: the smell, however, is far from being injurious, but is of a healthy, purifying nature; and no inconvenience will arise if used in small quantities.

I am told, if a ring be drawn with a brush dipped in the tar, and some insects placed within the circle, they will never approach it, but perish rather than attempt to cross the barrier.

GATA.

SCHOOL-BUILDING NEWS.

Bristol.—The foundation stone of the proposed new school-rooms in connexion with Old Market-street Wesleyan Chapel has been laid. The school will be 100 ft. long and 25 ft. wide, and two stories high, comprising three rooms. It is expected it will be ready for use in August next. It is intended at the same time to renovate and beautify the chapel; and the cost of both will be about 1,800*l.*, of which 1,500*l.* have been obtained.

Haughley.—New parochial schools have been erected and opened at the east end of the churchyard for boys and girls, at the sole expense of the Rev. W. H. Crawford, of Haughley Park. The buildings have been erected by Mr. Betts.

Salford.—New Wesleyan schools have been erected and opened in Regent-road. The schools are intended also to be used as a chapel. The site cost 500*l.*; the shell of the building, 1,200*l.*; the gas, heating, and other extras, 400*l.* The schools consist of two large school-rooms and six class-rooms. The larger school-room on the upper floor is capable of accommodating 400 pupils; and the smaller, on the ground floor, 100. Towards the cost of the building, about 850*l.* are in the treasurer's hands.

CHURCH-BUILDING NEWS.

Hampstead.—All Souls' Church, Hampstead, has been consecrated by the Bishop of London. It has been constructed, and endowed, with but some slight assistance in the purchase of the site, at the sole expense of the Rev. H. R. Wadmore, the present incumbent. The church is built with brick, with coloured bands and arches, the aisle and chancel arches being relieved with bands of red brick, while serpentine shafts are used in the latter. The total length, including a semi-circular apse, is 104 ft. and the width 42 ft. inside dimensions. At present one aisle only is erected. There is a gallery over the west and lobby entrance, and a vestry and chantry over at the north-east end of the aisle. The church will accommodate 596 persons. Some of the carving and other decorations to the walls require to be completed, and some colour and stained-glass windows added. Messrs. Scriveners & White were the contractors. Provision for warming by hot water has been made by Mr. Dove, of Tunbridge. The gas-fittings were supplied by Mr. Hewitt. The total cost of the church will be about 3,900l. Messrs. Wadmore & Baker were the architects.

Kempsey (Worcester).—Kempsey Church, which has been under the hands of the restorer during the last twelve months, has been re-opened. The fabric has been restored: Mr. Christian, the architect to the Ecclesiastical Commissioners, being employed in the work. The builder was Mr. Griffiths, of Eldersfield, near Tewkesbury. The cost of the work was 4,000l., towards which the principal contributor was Mrs. Royds, of Brighton, who gave 1,000l.

Upton-on-Severn.—It has been decided as to what kind of chapel should be erected on the ground chosen for the new cemetery in Buryfield, near the railway station, and that the design sent in by Mr. G. R. Clarke, of London, should be accepted. The building will be commenced as soon as a satisfactory tender has been received.

Bebington (Cheshire).—The foundation-stone of a church at New Ferry, Bebington, has been laid. Nearly 2,000l. have been subscribed. The cost of erecting the church is estimated at 2,500l. The building is designed to accommodate 550 persons, and will be fitted with open seats. The interior will be divided into a nave, north and south aisles, chancel and chancel aisle. The principal entrance will be through a porch at the south end, and there is to be a bell-turret at the west end. Tramere stone will be the material principally used, with Stourton dressings. The Gothic style has been adopted by the architect, Mr. E. Haycock, of Shrewsbury, and provision is made for the extension of the building. Mr. Richard Lloyd, of Shrewsbury, is the contractor, and it is expected that the church will be completed about the end of the present year.

Nottingham.—A new peal of bells has just been fitted up by Messrs. Taylor, of Loughborough, in the tower of All Saints' Church, and forms a portion of Mr. Windley's gift to the town. The peal is of eight, the largest, or tenor bell, weighing 17 cwt. 11 lb. They are in the key of E natural. The chamber for the ringers is large and lofty, and is placed at a considerable elevation above the roof of the church. It is reached by a long and narrow flight of stairs at the south end of the tower. The windows in the bell tower are fitted with louvres of slate, which give free passage to the sound; while above, there is no impediment to free resonance—the hollow spire acting much the same part as the sound-board in an organ or pianoforte, though, of course, on a much larger scale.

Norwich.—The plans for the restoration of St. Giles's Church having been submitted to the Bishop of Norwich and Archdeacon Hankinson, and received their cordial approval, the contract has been taken by Messrs. Lacey & Atkins, at the sum of 2,900l. The architect's estimate somewhat exceeded this sum. About 2,400l. have been already collected. The architect, who has prepared the design and under whose superintendence it is to be carried out, is Mr. E. M. Thipson, who has at this time, it is said, between twenty and thirty churches in Norfolk and Suffolk alone now under his charge. There appears to be reason to think that the foundations of the east wall have been come upon when sinking graves, and that they were about 35 ft. from the nave. It has, therefore, been settled to make the new chancel this length between the clear inside walls. The style of the nave and aisles is Perpendicular. The new chancel, however, will be Decorated.

On the south side will be three bays, each containing a three-light window, and below the centre one a chancel door. On the north there will be no windows, as it will be occupied by an organ-chamber and vestry, the former opening with arches into the church, and the latter having an outside door, to enable the clergyman to enter without passing across the chancel. The east window will be a large four-light one. The roof will be open, of oak, and covered with lead. Internally it will be divided into six bays, with arched braces springing from carved stone corbels. There will be two steps at the altar, and one into the chancel from the nave. At the wish of the incumbent, who has given 1,000l. towards the work, the children will occupy all the seats in the chancel, and these seats will be made moveable. The present pews, pulpit, desk, and gallery, will be swept away, and the whole church thrown open, and benched with open oak benches. The west arch will then be seen to full advantage, and the large west window opening will have its present wood mullions removed and filled in with new stone tracery mullions. All the north and south windows will also be served in a similar manner, and the whole, together with those in the chancel, glazed with cathedral glass. The west tower doorway will be restored and made one of the principal entrances to the church, the comparatively modern north doorway being done away with. The belfry windows of the lower, now blocked up, are to be opened and glazed, and the upper ones restored. Five of the tower buttresses, now unsound, as well as the parapet, are to be rebuilt. The roofs of the nave and aisle are to be restored and reroled, and the internal arches and other stonework cleaned of all whitewash and paint. The porch and west doors are to be of oak, ornamented with tracery and carving. The chancel will be paved with Minton's encaustic tiles, and the passages in the nave and aisles will be laid with the same material.

Staveley (near Kendal, Westmoreland).—The parish church has been rebuilt at a cost of 1,500l. The accommodation is for 300. The church is in the simple Early English style of the thirteenth century, and was designed by Mr. J. S. Crowther (of Manchester), and consists of nave, chancel, organ chamber, and vestry. The chancel is lighted on the north side by three simple lancet windows. The east window is a triplet, the centre light of which is trefoiled. The walls are 3 ft. 3 in. thickness, the angles formed of freestone quoins. The vestry, with a low lean-to roof, and the organ-chamber, are placed on the south side of the chancel from the ground sloping to the south. The chancel is separated from the nave by an arch, the span of which is the full width of the church. The nave is lighted by complets of lancets in the north and south side walls, one of which is filled by a stained-glass window, put in by Miss Taylor to the memory of her father and mother. The west end is lighted by two lancets, having trefoiled cusped heads. The nave roof consists of framing, and is divided, like the walls, into five bays by principals. The nave is seated with plain open benches, stained and varnished. Mr. Harrison, of Windermere, did the woodwork; and the wallers were Messrs. Bowness & Davis, of Staveley.

Books Received.

The "Flint Implements" from Drift not Authentic; being a Reply to the Geological Evidence of the Antiquity of Man. By N. WHITLEY. London: Longman & Co.

THE assertion that the flint implements from the glacial drift are not authentic is not new, it may be recollected; for even some of those gentlemen who now fully believe in their authenticity were at first strong deniers of it. Mr. Whitley, however, believes that he has discovered that flint has a natural tendency to split up not only into oblong and sharp-edged pieces, but actually into arrow-headed or almond-shaped forms. The multitude of more or less complete forms of this kind which occur in so many places, he thinks, cannot be explained on the idea of human design; and he cannot imagine what use naked savages, living in an ice-bound and eternal arctic winter, where there could be no trees for canoes, would have for such "tools" as the axe-headed forms are supposed to have been. It is not for us, but for such advocates of the opposite view as Sir Charles Lyell and others, to controvert Mr. Whitley's ingenious

arguments and assertions; but, in a critical light, we may remark that there appear to us to be some untenable hypotheses, and various errors and fallacies, in them which will no doubt be dealt with by his opponents. How does he know that the people of the glacial era were naked savages? Is it likely? Why does he take for granted that the glacial era had no summers, or that these summers were not as intense, on the one hand, as the winters were on the other? The present arctic region is evidently the remnant of that vastly extended envelope of ice which covered great part of the northern hemisphere of the globe, in what is called the glacial era; and we know that the great cause still in operation to the production of the present arctic and juxta-arctic winters is the turning of the hemisphere away from the sun, or, in popular parlance, the departure of the sun out of the hemisphere, while his return into the hemisphere is the great cause of the conversion of that winter into a summer. Since the winters of the glacial era were so intense and extended, it is reasonable to conclude that the cause still in operation must have then been more potent and extensive in its kind, or, in other words, that the sun must have departed farther out of the hemisphere in the winters; and if so, he must have returned farther into the hemisphere in the summers; so that the arctic winters must have alternated with tropical summers in what we now call the temperate regions; and accordingly, from time immemorial, the obliquity of the ecliptic has been steadily and continually diminishing; or, in ancient times, it was greater than it now is; and although astronomers, admittedly without sufficient data, have concluded that this variation must be very limited, they will no doubt be better instructed, shortly, by evidences of an astro-geological nature which are accumulating against them in this respect. We do not see, then, why the inhabitants of the glacial era in now temperate latitudes could not have quite sufficient use for hatchets even in the vegetative kingdom; but might not even the cutting up of such "monsters of the deep" as whales, and the fashioning of bone, walrusbone, and such like substances, have afforded quite enough use for hatchets, independent altogether of the cutting of trees or brushwood? As to the natural tendency of flint to split up into oblong and sharp-edged fragments, this might have been the very reason why such a substance was chosen or preferred for the fashioning of arrow-heads out of it; and as to the multitude of such forms, of more or less perfect and imperfect finish, that have been already found, we must consider that arrow-heads, at such a period, were probably the shot which men fired with, both in their wars and in the chase. Suppose that, some thousands of years hence, many stores of shot were to turn up, especially in the lead-bearing districts, what sort of argument would it be to maintain that their multitude, and the fact that lead, when melted and suddenly thrown from a height, into water, naturally assumed a spherical form, proved that these stores of shot were not of human formation? The fact that Mr. Whitley himself admits that "the most perfect of the almond-shaped flints of St. Acheul, from their regularity of outline and marks of fine chipping on the surface, if viewed apart from others, appear to evince design," vitally damages his own argument; for if even one such shape be of human design his argument is worthless. The multitude of imperfect shapes would only then go to show that the difficulties contended with were great by comparison with the success. Of course, to complete his case, Mr. Whitley contends that these more perfect arrow-head forms were probably also natural productions. This we must say, that some at least of those stone implements of the drift which we have seen were undoubtedly of human formation; and we cannot see any rational force in Mr. Whitley's singular remark that the "roughly-fractured flints could have been applied to no use whatever, and if they were of no use to man, he could have no object in designing them!" We fear this question is not to be decided by arguments such as this.

VARIORUM.

"Suggestions on Town Sewage and its Application to Land by Gravitation." By L. H. Spooner. London: Hardwicke. 1865. This pamphlet gives the results of an experiment of long standing at Mansfield, in the utilization of sewage. So long ago as 1816 the late Duke of Portland put the sewage of Mansfield with that of Sutton-in-Ashfield to use by means of an

intercepting apparatus about a mile below Mansfield, and ever since this sewage has been yielding highly profitable results, which long ago repaid all outlay and converted a very poor and sterile tract of land and peat, of literally no value, into land worth 11l. to 12l. per annum an acre, and yielding a return of 8l. per cent. upon the capital invested, which it repaid years ago, leaving nothing but profit for the past, the present, and the future, so far as regards capital expended. "One of the most valuable features of this example," remarks Mr. Spooner, "is the evidence it affords, at the present day, that the process is not an exhausting one. There is no digression in produce value: the 300 acres of the Duke of Portland's water meadows, and 103 acres subsequently irrigated from the same stream by the late Earl Manvers, have gone on from their formation to the present time, yielding every year a large amount of grass for mowing green, of hay, of beef, mutton, and wool, upon land which, if left to itself, would be all but sterile. This irrigation commences at a distance of 2½ miles from Mansfield, and extends for 5½ miles along the course of a narrow valley; and in this distance all the sewage water that the town yields has flown upon, and been drained through, some one or more of these meadows, has parted with its impurities, has returned to the river as pure as all ordinary streams are which flow from land only. Such is the use that one small stream, aided by the sewage of a comparatively speaking small country town, can be made to produce by judicious employment of gravitation."—"Remarks and Suggestions on Cotton Packing in Egypt." By E. T. Bellhouse, Mem. Inst. M.E. Printed for private presentation. Mr. Bellhouse, of the Eagle Foundry and Iron Works at Manchester, gives here some useful suggestions on a subject of great importance to us as a cotton manufacturing people; for it is to be hoped that everything will be done to foster and improve the production and the preparation of cotton in Egypt for our market, so that we shall never again risk the possibility of cotton famines while our American cousins are fighting like Kilkenny cats, to their mutual destruction.—Given 128 pages, filled by Mr. G. H. Lewes, "George Eliot," Mr. A. Trollope, Sir John Herschel, and others, and the result, it may be predicted, whether called the *Fortnightly Review*, or anything else, will be well worth 2s. This is certainly so in the case of the *Review* in question, which takes for model the *Revue des Deux Mondes*, and gives all signed articles; admitting diversity of views. The paper on the "Ironmasters' Trade-Union," by the way, is a very one-sided view of the late outlook, in condemnation of the masters.

Miscellaneous.

THE HIGH-LEVEL RAILWAY BRIDGE ACROSS THE SEVERN.—The report of the referees upon this undertaking has been issued. The engineers, Messrs. Fowler & Fulton, propose that the railway shall be increased to 120 ft. above mean-tide level, instead of 115 ft., and that the span of the main opening of the bridge shall be 600 ft., which is as wide as the Thames at Southwark.

THE DISTRICT SURVEYOR OF PADDINGTON.—Our friend, Mr. George Gutch, completed, on the 15th inst., his fortieth year of office as district surveyor of Paddington, and we hope that, like his predecessor, he may live to see his half-century out, should he care to work so long. Ever since the passing of the old Building Act, now ninety-one years ago, this important district has been held only by old Crunden (who lived to the age of ninety-four), and by Mr. Gutch. Great are the changes in Paddington which Mr. Gutch has witnessed if not created.

BOOTLACES.—Sir: Being able from experience to testify to the truth of your correspondent's remarks upon the inconvenience of bootlaces, &c., permit me to offer a suggestion of what I have tried and found to answer. For a fastening I use the ordinary metal loop and stud, applied in the same manner as buttons to boots are, only to keep the loop in its place I use a lapnet with a spring such as is used to spring-side boots. Thus a neat, supporting, and ventilating boot is provided that can be easily and quickly fastened, without the trouble of buttons, and the danger of laces.—W. E. B.

FALLING-OFF IN THE RAINFALL OF ENGLAND.—It would appear that, notwithstanding the counteraction of very dry summers by very wet ones, of late years, Mr. G. J. Symons considers that he has made a discovery which is enough to cause us all disquietude. By collating records of the rainfall in England during the last fifty years, he has ascertained that the fall has, on the whole, decreased throughout the country, in some parts by a tenth of the average annual amount, and in others by a twentieth. Year by year this decrease goes on, and, as Mr. Symons says, it has become a matter of national importance. In some counties it amounts to thirteen per cent. Ireland, which might well spare a little of its rain, has been least affected by the change. It is a question for meteorologists to discuss whether, in the words of Mr. Symons, we are experiencing "a temporary fluctuation, and not the inauguration of a regularly decreasing supply." The *Builder* drew attention to the diminution of rainfall some years ago.

DISCOVERIES AT CLONMACNOISE.—In the course of some repairs at the Seven Churches of Clonmacnoise, by the Kilkenny Archaeological Society, under the direction of the Rev. Charles Vignoles and the Rev. James Graves, excavations were made at the west end of the Church of the Nuns, a remarkable building erected by the celebrated Queen Devorgoil, in 1180. Traces of a western entrance to this church have been always apparent, but now, according to the *Carlton Sentinel*, there have been found the jambs and side moldings of a magnificent doorway of four orders, with almost, if not all, the carved vousoirs of the arch. It is confidently hoped that every stone may be recovered, and that this fine specimen of ancient Irish art will rise from its place of burial nearly as perfect as when it came from the cunning hands of Queen Devorgoil's master masons. It is proposed to rebuild the grand choir arch of this church, the carved stones having nearly all been preserved. This is being effected by a special subscription.

THE SAILORS' HOME AT LONDON DOCKS.—The new building just completed to increase the efficiency of this valuable institution has been opened by the Prince of Wales. The chief stone of the seamen's church adjoining was laid by the Prince Consort. Previously to the inauguration of the new Home, an address was read by Admiral Sir W. Bowles, in which he quoted statistics to show the need for the present increase in the accommodation. Since 1835 the Home had accommodated 158,525 sailors, including many of her Majesty's navy, 134,885 belonging to the United Kingdom and to her Majesty's possessions abroad, and 23,640 to the various foreign countries with which England had maritime and commercial intercourse. Out of an aggregate sum of 1,263,893l. lodged by the sailors in the bank of the Home, 711,560l. had been drawn out; 459,610l. had been re-mitted to friends and relations; and 46,400l. invested in the Home and Board of Trade Savings Banks. The original buildings contained 328 sleeping-berths, and this addition would afford 174, so that they could now accommodate 502 persons.

A NEW HOTEL FOR SOUTHEAST.—The foundation stone of "the Southsea Beach Mansion," situated at St. Helen's, has been laid. The "Mansion" will be erected from the designs and under the superintendence of Mr. Whitchard, of London, the architect of the Grand Hotel at Brighton, Clarence Hotel at Dover, and other establishments of a like character, and will be completed in time for the summer season of 1866. It will be arranged as a hotel and boarding-house, and will comprise, on the ground-floor, a gentlemen's coffee-room and ladies' coffee-room; on the first and second floors, reading-room, saloons and bed-rooms for invalids; saloons, sitting-rooms, and bed-rooms which are so planned that families may occupy them *en suite*. The third and fourth floors will be for bed-rooms. The "Mansion" will be so constructed that it may, if desired, be subdivided into three distinct buildings, and occupied as several superior boarding-houses or mansions, as at Brighton. The structure will contain 140 rooms, including eighty-five bed-rooms. The design is of a plain Italian character, with bay windows and balconies, with the sea view. The contract has been taken by Messrs. Simms & Marten, of London. This building is being erected by a limited company, called the Southsea Beach Mansion Company.

EXETER DIOCESAN ARCHITECTURAL SOCIETY. At the meeting, on the 18th inst., Mr. H. S. Ellis read a paper as to a figure of St. Peter, at the corner of North-street, which figure he thinks may formerly have occupied the principal canopy of the bishop's throne in the cathedral.

THE SANITARY PROGRESS AT LIVERPOOL.—The state of the health of this town has given the health committee much anxiety for some time past, and the council, amongst other measures, have just authorised the purchase of the plant requisite for performing scavenging and night-soil work within the borough, at an estimated cost of 6,300l.; and have empowered the borough engineer to employ men at scavenging, at wages varying from 13s. 6d. to 15s. per week.

A WORKMEN'S HALL IN DUBLIN.—The foundation stone of a Workmen's Hall has been laid in Dublin, by the Lord Mayor, in presence of a vast assemblage. The object of the movement, which originated some years since amongst a number of ladies, is to erect a place in Lower Kevin-street, in which the working classes will be provided with good and wholesome food at a moderate charge, and afforded, at the same time, such opportunities after their day's toil, for mental improvement as will induce them to cease frequenting public-houses.

COST OF A SURVEY.—At a meeting of the Whitehaven Trustees last week, it was stated that Mr. Rendel claims, on account of his wet-dock plans, &c., 1,916l. A previous payment of 500l. added to this, runs up his bill to 2,416l. The *Whitehaven Herald* says:—"The set-off is 0, and less than nothing, when we consider what has been lost by all the bungling and delay in the matter. But to these 2,416l. there fall to be added the amounts paid to the late Mr. Rendel. The credit of the harbour is gone. Not a meeting is held but money lent is called in, and new loans to meet the demand cannot be raised. Trustees themselves evidently have as little faith as the public in these dock schemes, for we do not hear of any of them hastening to the rescue."

PARLIAMENTARY ITEMS.—In reference to the breakwater at Alderney, Mr. Peel stated, in reply to a question in the Commons, that during recent storms, the masonry walls of the breakwater had breached in two places, of considerable length, 2 ft. below the level of the sea at low-water. The cost of the repairs had been estimated at 15,000l., but the cost to the public would not be so much, as the contractor was liable for any damage till the breakwater was completed, except in the case of damage arising from great storms, in which case he was liable to pay one half.—The Public Offices (Site and Approaches) Bill has been read a second time in the House of Commons. Lord Stanley of Alderley said, that most of the land required was now in the hands of the Government.—The India Office (Site and Approaches) Bill has also been read a second time in the Commons.

HAYMARKET THEATRE.—As only two scenes are needed for the three acts which compose "Brother Sam," the new piece provided to display the capabilities of Mr. Sothorn, Mr. Compton, and Mr. Buckstone, extra care has been bestowed on them, and we have a very perfectly fitted interior, showing the drawing-room and boudoir, opening one into the other, of Mr. Trimhush's house at Scarborough, and an equally good exterior of the same house in its garden, with sea and cliff in the distance. The practised author of the piece, Mr. John Oxenford, has wisely avoided making it a sequel, or in any way a part of the "American Cousin," beyond developing the character of *Brother Sam* as conveyed to the British public in that wonderfully successful piece. *Sam* is a much "cuter fellow than his brother,—a cool, off-hand, sponging, but not bad-hearted sort of fop, sustained from beginning to end in the most perfect and finished manner by Mr. Sothorn. The entire difference in the conception and mode of displaying the two characters was forcibly shown, and was recognized by the house with loud applause, when *Sam*, at the close, receives a telegram from Dundreary, and reads it in imitation of him. Mr. Buckstone and Mr. Compton are both very funny. The plot is simple, and not wholly new; but the piece is exceedingly well written, with much epigrammatic point and sharpness, and proved completely successful.

WORCESTER CATHEDRAL TOWER.—The steps necessary to be taken for the repair and strengthening of Worcester Cathedral tower, in order to render it suitable and safe for the reception of the proposed clock and bells, will shortly be commenced. A scaffold is in course of erection. This is in itself an undertaking of considerable magnitude, as the tower is 44 ft. square and 196 ft. in height.

A NEW FACT IN THE LIFE OF GAINSBOROUGH, THE PAINTER.—So little is known of Gainsborough, that the discovery of a new fact in his life is always an agreeable addition to our knowledge of his doings. This new fact Mr. Tom Taylor supplies in his recent "Life of Sir Joshua Reynolds." We shall give it in Mr. Taylor's own words:—"Among the Royal Academy Records for this year [1775], I find a motion carried in the council for omitting from its lists the name of Mr. Gainsborough, he having declined to accept any office in the Academy, and never attending. His name was, however, restored to the council by the general meeting." Let us observe on this, that as one of the twelve "apostles in art" whom the Academy has had among its many members, the name of Gainsborough stands preeminently high. Was the reason for Gainsborough's "never attending" a growing jealousy of Sir Joshua? Perhaps Mr. Fulcher, Gainsborough's latest biographer, can tell us.

MR. HOWISON AND THE NORTHERN ARCHITECTURAL ASSOCIATION.—The position of Mr. Howison, the surveyor of the county of Northumberland, in reference to the Walbottle Dean Bridge, came up for discussion at a meeting of the Northern Architectural Association, held in the Old Castle, last week. The committee of the Association had visited the bridge, and in accordance with the verbal reports given in by some of the members, a resolution was drawn up for presentation to Mr. Howison, stating that the Association were of opinion that the want of stability in the bridge has been caused as much by the defective execution of the work by the builder, as by any fault of the plan itself. The resolution recommended that, with a view of preventing further failures of this kind, the county surveyor have the assistance of a clerk of works, and expressed the hope that the magistrates would not accept Mr. Howison's resignation.

THE IMPROVEMENTS IN NEWGATE-STREET AND THE PROPOSED NEW POST-OFFICE SITE.—Notwithstanding that some little difficulty has occurred between the Corporation and the authorities of the Post-office as to the purchase of certain ground in Newgate-street, for which the Commissioners of Sewers had agreed to pay 3,000l. (the houses being numbered 71 and 72, Newgate-street), we are in a position to state, says the *Morning Advertiser*, that the Post-office authorities have agreed to confine themselves in the erection of the official buildings on the western side of St. Martin's-le-Grand to the line agreed upon by the Corporation, so that a most commodious approach from Cheapside and Aldersgate will be secured to the public, the Post-office purchasing the freehold acquired upon certain equitable conditions provided for under the provisions of the 13th section of the "Post-office Additional Site Act, 1865," to which the opposition of the court will be at once withdrawn.

FEARFUL DEATH OF A "STEEPLE JACK."—For some time past a man named John McCann has been employed to repair chimneys, &c., in the black country. A stack at the iron-works of Messrs. Williams, Wednesbury Oak, required repairing, and McCann was employed to do the work. He had affixed his apparatus, and, after a visit to a public-house, he ascended and went through certain foolhardy antics on the top of the chimney. Again descending, he again repaired to the public-house, and, after staying there an hour, resubscribed unobserved, it is said, and was soon afterwards seen lying asleep across the apex of the stack. In another hour he was seen to roll from his perilous bed. He fell upon the roof of the building below, and was picked up in a mutilated condition on the floor of the works, having broken through the roof and some rafters beneath it. He was conveyed to the South Staffordshire Hospital, where he died. Deceased's father earned his bread in a manner equally hazardous with that of his son; and it is stated that the father's death was similar to the son's.

BURSTING OF A SEWER ON THE NORTH LONDON RAILWAY.—On Tuesday afternoon, during the heavy thunder and lightning storm, an old sewer which passed under the North London Railway, between the Kingland and Stoke Newington stations, burst in consequence of the great rush of water, and flooded the line for a considerable distance. It appeared that the crown of the arch of the sewer under about the centre of the permanent way yielded, and, so great was the pressure, that the water shot up in a body as if out of the main, and rushed along the line.

ACCIDENT AT THE NEW STATION OF THE NORTH LONDON RAILWAY.—On Wednesday night considerable alarm was caused in the neighbourhood of Bishopsgate-street, London-wall, and Finsbury-circus, by a crash which shook the entire locality adjacent to the spot where it occurred. Very shortly afterwards it was discovered that the noise was caused by the falling of a considerable portion of the ironwork forming the semicircular arches and girder supports of the double roofing in course of erection at the new station for the North London Railway terminus at Liverpool-street. It appears that several portions of the ironwork had been placed *in situ* safely, but whilst the workmen were engaged in raising other portions of the work, through some cause the derrick used for hoisting the iron arches slipped.

CLEAN AND TIDY HOUSES.—An effort to promote cleanliness amongst the poorer inhabitants of the city, has been made in the parish of St. James, Bristol. About six weeks ago, four prizes were offered to the residents of Eugene-street and courts, and four to those of Black-friars and courts, for the cleanest and tidiest of rooms. The first prize in each street was 10s.; second, 5s.; third, 3s.; fourth, 2s. There were 22 competitors, and during the six weeks of inspection, 132 visits were paid to the houses of these people. Of the 132 calls made, 55 were marked clean and tidy; 31 were marked tidy, but not clean; 18 clean, but not tidy; 8 dirty. No one was reported dirty after the second visit. The prizes were distributed at the house of Mr. Nunn, King-square (who originated the movement, and gave all the prizes); and, through the kindness of the Rev. W. Bruce, the unsuccessful candidates were presented with a quarter of a pound of tea each.

TENDERS

For house, &c., at Teddington. Mr. J. T. Jackman, architect. Quantities by Mr. W. R. Ingleton and Mr. J. G. Smither:—

Jackman	£2,000 0 0
Willes	1,783 0 0
Sharpling & Cole	1,797 0 0
Adams & Sons	1,945 0 0
Bransden	1,191 10 0

For the erection of the Dominican Priory, at Carisbrook, Isle of Wight. Mr. Gilbert Blount, architect:—

Bird	£11,718 0 0
Wheeler	12,354 10 0
Stevens	10,993 0 0
Sibley	10,545 0 0
Mender	10,000 0 0

For alterations and additions to the King's Arms Tavern, Kensington-lane, for Mr. Hancock:—

Simpson	£2,204 0 0
White	2,269 0 0
Jeffs, Brothers	2,324 0 0
Killy	2,137 0 0

For the erection of auction-rooms, &c., Park-lane, Piccadilly, for the Park-lane Company (limited). Mr. Garling, architect:—

Piper & Wheeler	£2,232 0 0
King & Sons	2,198 0 0
Nixon	2,077 0 0
Jackson	2,038 0 0

For proposed alterations, at the King's Head Tavern, Margaret-street, Cavendish-square. Mr. J. Bird, architect:—

Tracey & Son	£815 0 0
Brown	595 0 0
Royce	539 0 0
Williams	487 0 0
Heuslaw	463 0 0

For dwelling-house and offices, to be erected at Bramley Hill, near Croydon, for Mr. A. B. Cowdell. Mr. R. Cordy Baxter, architect. Quantities supplied by Mr. F. Warburton Street:—

Rawlings	£2,987 0 0
Farson	2,745 0 0
Colls & Co.	2,732 0 0
Keddel (accepted) ..	2,647 0 0

For St. Clement's Schools, Barnsbury. Mr. Ridge, architect:—

Phillips	£2,926 0 0
Carter & Sons	2,885 0 0
Foster	2,630 0 0
Dove, Brothers	2,595 0 0
Scryes & Head	2,589 0 0
Glenn, Brothers	2,560 0 0
Williams	2,625 0 0
Brown & Robinson ..	2,480 0 0
Scrivenner & White ..	2,437 0 0

For stabling, near Trinity Church, Ryde, for the Rev. A. J. Wade. Mr. F. Newman, architect. Quantities supplied:—

Sibley	£290 0 0
Denham (accepted) ..	287 0 0
Saunders & Parson	287 0 0

For house, and china and glass warehouse, Union-street, Ryde, for Mr. W. Henshall. Mr. F. Newman, architect. Quantities supplied:—

Langdon	£1,866 0 0
Denham & Saunders ..	1,810 0 0
Parsons	1,487 0 0
Colenut	1,385 0 0
Denham	1,380 0 0
Sibley (not in form) ..	1,259 0 0
Jackman (accepted) ..	1,176 0 0

For buildings, at the Ryde Gasworks, for the Ryde Gas and Coke Company. Mr. G. Garnett, Superintending Engineer. Quantities supplied by Mr. F. Newman:—

Gas-holder Tank.

Sibley	£296 0 0
Jackman	279 0 0
Parsons & Saunders ..	267 0 0
Meador	240 0 0
Byng & Bone	723 18 6
Langdon & Mills	743 0 0
Denham	709 0 0
Pritchard	648 0 0
Messrs. Langdon (accepted) ..	637 0 0
Colenut (not in form) ..	635 0 0
Jolliffe (not in form) ..	590 0 0

New Retort House and Chimney Shaft.

Messrs. Langdon	£480 10 0
Denham	442 0 0
Sibley	390 0 0
Colenut (accepted) ..	378 0 0

For three shops, for Mr. Wenders, Mitcham, Surrey. Mr. E. Chant, architect:—

Pain	£1,950 0 0
Bad & Pierce	1,850 0 0
MacLeckian	1,410 0 0
Ward	1,394 0 0
Glover & Thompson ..	1,277 0 0
Gullen & Thompson ..	1,223 0 0
Garland & Soper	1,120 0 0

For new Congregational church, Bayswater. Mr. W. Mumford, architect:—

Hydant	£2,220 0 0
Keys	2,144 0 0
Cowland	2,040 0 0
Rankin	1,997 10 0

For house, at Kingston-upon-Thames, for Mr. Youde-Wimble & Taylor, architects:—

Boxall (accepted)	£700 0 0
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For alterations to Congregational Chapel, Blackheath. Mr. J. E. Saunders, architect:—

Hydant	£260 0 0
Dove, Brothers	285 0 0
Little	219 0 0

For house and stables, at Ascot. Mr. Ewan Christian, architect:—

	House.	Stables.	Total.
Myers & Son	£5,190	4,947	£10,137
Matthews	5,124	825	6,049
Brass	5,119	800	5,989
Rigby	4,980	916	5,896
Jackson & Shaw	4,733	890	5,623
Dove, Brothers	4,635	885	5,520
Morris	4,430	820	5,250
Norris	4,387	714	5,111

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We are compelled to decline pointing out books and giving addresses.

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VOL. XXIII.—No. 1165.

Literature illustrative of the Catacombs of Rome.



BELow the surface of the Campagna around Rome, it is ascertained that from 800 to 900 miles of subterranean corridors, interspersed with chambers excavated in other forms, extend their marvellous ramifications; and between six and seven millions are the number assumed for the Christian dead here deposited by those sharing their faith during primitive ages.* In much the greater part it may be deemed certain that these hypogæes were formed for Christian uses, worship, instruction, and interment, before the period of the first converted emperor; but it is also indisputably proved that they continued in use for devotional purposes, and received many of their pictorial decorations long afterwards; likewise that the work of excavating was still in progress till the beginning of the fifth century. The idea that they ever served for the habitation of numbers, during Pagan persecution, is shown to be erroneous, as, in fact, materially impossible, owing to the very formation of their far-stretching labyrinths, small low chapels, and story above story of narrow passages. We read, indeed, of the martyrdom of saintly bishops, while in the very act of officiating at their humble altars; of several among the earliest Roman pontiffs who, during extreme peril, took refuge in these abysses. Alexander I. (A.D. 109–119), Stephen I. (253–57), Sixtus II., Cæsar (of the two latter one at least put to death in these subterranean sanctuaries, A.D. 258), Tiberinus, and Boniface I. Pope Cæsar is said to have actually lived for eight years in catacombs, from which he only came out to suffer martyrdom. With Mr. Northcote (whose admirable work is a *vade mecum* for this range of antiquities) we may conclude that not the multitude of the faithful, but the Roman pontiffs, or others especially sought after by persecuting officials, were at any time resident for long periods in these retreats (*Vide* "The Roman Catacombs," ch. ii.) In no part do we see anything like the preparation for dwelling-places, or for any other purposes save worship and interment; yet an epitaph, by St. Damasus, in the Callixtan Catacombs, implies the fact that at some period these cemeteries were indeed inhabited:—

"*Hic habitasse prius sanctos cognoscere debet.*"

Damasus, however (elected to the Papacy 366), cannot be cited as a contemporary witness to the periods of persecution. Turning to dates much later than these periods, we read of Pope Tiberius taking refuge, A.D. 352, in the cemetery called after St. Agnes, from the outrages and insolence of the then ascendant Arian sect; of Pope Boniface I., so late as between the years 418–422, passing some time in a similar retreat, in order to withdraw from the faction bent on supporting his rival Eulalius. True it

* Father Marchi, who makes this conjecture, adds that he considers it to fall short of, rather than exceed, the truth.

is, however, that the evidence as to the occasional habitation of these subterranean is too conclusive to be set aside without rejecting much that is contemporaneous, or nearly such, in "Acts of Martyrs," and other received authorities. Of Pope St. Urban we read (in the "Acts of St. Cecilia"), *latebat in sacrorum martyrum monimentis*; of St. Hippolytus ("Acts of St. Stephen," A.D. 259), "*vitam solitariam agebat in cryptis*." Baronius states that the same pope "used to celebrate masses and hold councils in the crypts of the martyrs;" and an epitaph to St. Alexander, found in the Callixtan catacombs, contains the line,—"O tempora infausta quibus inter sacra et vota ne in cavernis quidam salvati possumus!" In one terrific persecution, a multitude of Christians were put to death in some catacombs on the Salarian Way, by order of the Emperor Numerianus, a vast mound of sand and stones being heaped up against the entrance, leaving all those victims buried alive, of which martyrdom was found affecting proof ages afterwards, not only in the bones of the dead, but in several silver crucifixes they had taken into these subterranean for the Eucharistic celebrations. An impressive circumstance accompanied the martyrdom of Pope Stephen. The ministers of death rushed into the subterranean chapel, found him officiating at its altar, and, as if struck with sudden awe, waited till the rite was over before they slew him in his episcopal chair! It is ascertained that many catacombs were not left open, even in the actual extent to which they had been excavated, during the entire period of their most frequent use; for, as their sepulchres became gradually filled by the dead, corridors, thus rendered no longer serviceable, used to be blocked up with soil brought back to its original place, in order thus both to separate the living from the dead, and to avoid the necessity of leaving material accumulated outside, whilst concealment of all such underground retreats was an object necessarily in view. Granular tufa, which, with lithoid tufa and pozzolana, forms the material of the volcanic strata throughout the region around Rome, is the sole substance (easily worked, but quite unsuitable for building), in which the catacombs are excavated, except only those of St. Pontianus, outside the Porta Portese, and of St. Valentine, on the Flaminian Way, which are opened in a soil entirely of marine and fluvial deposits, shells, fossils, &c. Exaggerations must also be rejected in many cases respecting the immense number of martyrs here entombed,—the 174,000 still boasted of, and revered in relics kept at the St. Sebastian Basilica, as all reposing in the catacombs entered below that church,—one of those misrepresentations of history, or rather legend, too often provoking scepticism, or sarcasm, in popular report at Rome. From the ninth century till a comparatively advanced period in modern ages, these hypogæes were left unexplored, perhaps almost entirely inaccessible, and for the most part forgotten. Medieval writers usually ignored their existence. That strange compilation, so curious in its fantastic suggestions and blindness to historic fact, the "Mirabilia Urbis Romæ" (written probably in the twelfth century, first published in Rome about 1471), enumerates, indeed, twenty-one catacombs; Flavio Biondo, writing in the fifteenth century, under Eugenius IV., mentions those of St. Callixtus alone; Onofrio Panimio, in the sixteenth century, reckons thirty-nine; Baronius, at date not much later than the former writer, raises the number to forty-three; but recent illustrators of the subject have shown the existence of no fewer than sixty distinct systems among these hypogæes, not hitherto made permeable in more than about one-third their extent to modern explorers. Those of St. Priscilla, opened in an estate on the Salarian Way, belonging to that matron, mother of the Christian Senator Pudens (who received St. Peter at his house in Rome);

also those of SS. Nereus and Achilleus near the Appian Way, have been referred to an antiquity correspondent with the apostolic age; and, if those called after St. Callixtus had really been formed long anterior to that Pope's election, A.D. 210 (*vide* Northcote), we may place those only second in chronologic order. That several catacombs continued in use as cemeteries long after the first imperial conversion, is evident from the fact that Constantine's daughter ordered the embellishment and enlargement of those called after St. Agnes (on the Nomentan Way), which became in consequence more than ever frequented,—so to say, fashionable,—as a place of interment during the fourth century. And this circumstance of their history is manifest in the characteristics of the same catacombs; the superior regularity and spaciousness of their corridors; the more laboured execution, but inferior style of several among their paintings. Other facts relevant to the story of later vicissitudes may be cited: Pope Damasus (*vide* Baronius, anno 384) ordered a *platonica* (pavement of inlaid marbles) for that part of the Callixtan catacombs in which, for a certain time, had lain the bodies of St. Peter and St. Paul after the attempt to remove them furtively to Constantinople. Pope John III. (560–73), who abode for a time, according to Anastasius, in the catacombs of SS. Tiburtius and Valerian, ordered all such of these hypogæes as had suffered from barbarian spoliation to be repaired; also provided that a regular supply of bread, wine, and lights should be furnished from the Lateran Basilica for the celebrations still kept up on Sundays at the altars of these underground sanctuaries. Towards the end of the sixth century, St. Gregory "the Great" indicated several catacombs among places of assemblage for the faithful on the days of the Lenten "Stations," organized by him with much solemnity and great concourse of worshippers, at the several parish churches and basilicas. The evidences of art may be cited also, to prove comparative modernness of origin in decorative details; at least the *nimbus* around the heads of many figures indicates a date subsequent to the fourth century; and in the Callixtan catacombs the figures of St. Cecilia (strangely attired in cambrus finery, jewelled head-dress, and necklaces), of the sainted popes Urban and Cornelius, besides a large and sternly-expressive head of the Saviour, presenting marked characteristics of the Byzantine school, suggest origin certainly not earlier than the sixth or seventh century, if not so late as the eighth century.

The practice of frequenting these cemeteries, for prayer or for visiting the tombs of martyrs, continued in prevalence till the ninth century, nor had entirely ceased even in the thirteenth century, as we may conclude, if admitting the testimony adduced by Agincourt, who finds proof of its continuance under Honorius III. (1217–27). Yet the process of transporting the bodies and epitaphs of martyrs from these resting-places to the city, for safer and more honoured interment, had begun under Pope Paul I. (757–67), who took such precaution against the pious frauds of the Longobards, whilst their forces were investing Rome, led by Astolphus,—a king who seems to have been particularly bent upon relic-stealing, so devout in this respect were the armed invaders of the Papal territory. At later Medieval periods the catacombs fell into oblivion, till their ingresses became, for the most part, unknown even to the clergy of Rome; and one of the earliest records of their being visited before the sixteenth century is in the names still seen scratched beside the date 1490, of Raynuzio Farnese (father of Paul III.) and the companions who descended with him, in the Callixtan catacombs. Not till late in the next century, in the time of Sixtus V., was the attention of savans directed to new lights from science and the study of antiquity towards this

field of research, subsequently to which revival, excavations were carried on at intervals from 1592 to 1623. Most important and fruitful in results were the labours of the indefatigable Bosio, who found access to and explored the labyrinthine recesses of many long-forgotten catacombs, and used, in those on the Appian Way, to spend whole days and nights, provided with provisions, tapers, and twine, for laying clues. After such patient toils, pursued incessantly for thirty-three years, he died (1600) without completing the work projected for transmitting their fruit to posterity. Its first publication was in 1632, under the title, "Roma Sotterranea," compiled from Bosio's MSS. by Severano (an Oratorian priest); and a few years subsequently another Oratorian, Arringhi, brought out, with additions, a translation of the same into Latin. Next followed (1702) the "Inscriptiones Antiquæ" of Fabretti, official custode to the catacombs. Another contribution, "Cimiteri dei Santi Martiri," by Boldetti, the fruit of thirty years' labours (1720) surpassed all hitherto produced on this subject alike in vivacity of description, extensive knowledge, and well-sustained argument. Only next in merit and authority is the "Sculture e Pitture Sacre" ("Sacred Sculptures and Paintings taken from the Cemeteries of Rome"), by Bottari, 1737-54, an illustrated work evincing thorough acquaintance with its theme. The "Manners of the Primitive Christians" by the Dominican Machachi, certainly one of the most valuable archaeological works ever printed in Rome (1752), though not dedicated to this particular range, comprises a general review of catacomb monuments, together with all others of sacred character that throw light on the usages or ideas of the early Church. Most interesting, though incomplete, is the contribution of the Jesuit father, Marchi, "Architettura della Roma Sotterranea Cristiana" (1844), or "Monuments of Primitive Christian Art in the Metropolis of Christianity," which the writer only lived to carry to the close of one volume, comprising several sections, dedicated to the constructive and topographic part,—this serial publication having been suspended long before his death, owing to the general defection of subscribers, by whose assistance he had been enabled to continue it, after that year '48, so fatal to the interests of his religious order. The great merit of his argument, in throwing light on its theme, is, that it entirely sets at rest the question of a supposed connexion between the Christian catacombs and Pagan *arenaria*; and establishes that in no one instance were the former a mere continuance or enlargement of the latter, as neither could the quality of soil in which they are excavated have served for any purposes of building, nor their plan and dimensions have permitted the extracting of material for such object.

The lithoid tufa so much used for antique Roman structures, and so enduring, is not found in any of these cemeteries; and the *pozzolana* for which the Romans worked those caverns, still numerous in this neighbourhood, called *arenaria*, is far too soft and friable for that regular distribution of corridors lined with tiers of sepulchral deposits, of altars and chapels with their sacred ornaments, which form the distinctive features in all catacombs. One could not, indeed, desire clearer refutation of the theory respecting the identity of the two formations than that which meets the eye in the St. Agnes's catacombs,—ascending from the lower, the story originally formed for Christian purposes, in which we enter the Pagan *arenaria* above those corridors for sacred uses, the former totally distinct in plan and different in the dimensions of their winding passages, as requisite for extracting the fine pozzolana sand. Marchi handed over all the drawings prepared for two volumes on the paintings and sculptures in these hypogæe to Padre Garucci, the well-known and learned archaeologist of the same religious order. And, *en passant*, we cannot help noticing, as another valuable illustration to the same range of sacred antiquities, the work by the latter, "Vetri ornati" (glasses adorned with figures in gold, from the cemeteries of the primitive Christians), with engravings of 318 tazze, on all which are groups or heads, designed and gilt by a peculiar process on glass. As to the use of these, Garucci differs from Buonarrotti and other authorities, who assume all such vessels to have served for sacramental purposes, the Jesuit father referring many of them to a remoter period than formerly assumed—to the second and third, instead of exclusively to the fourth century, as was the conclusion of previous

writers. Among the figured designs on these glasses are several of great interest and significance, St. Peter and Paul frequently appearing side by side, usually as busts, and with not the slightest indication of superiority in one over the other apostle,—rather, indeed, a perfect parity in honours and deserts, as implied in the single crown suspended, in some instances, over the heads of both, or in the simultaneous crowning of both by the hand of the Saviour, whose figure is seen hovering above. Between these two apostles is often placed the Virgin, or some other female saint, especially Agnes, admitted to like honour; and in certain examples, either Mary or another female, in attitude of prayer, appears on larger scale than the apostles at each side, such naive treatment being intended to convey idea of relative, not, of course, absolute honour; and very probably (as, indeed, is Garucci's inference) expressing the still loftier ideal of the Church, personified in the prayerful Mother, as the great earthly Intercessor, supported by the chief witnesses to Divine doctrine. It may be assumed that the origin in art of that supreme dignity assigned to the Virgin Mother (a source of so many and such anti-evangelic superstitions in practice) may be referred simply to this tendency of idealizing, not so much her person as her position, amidst hierarchic grouping,—thus to personify the intercessory office, the link formed by prayer between simple-minded faith and theologic infallibility. Mary also appears on others of these tazze, standing between two trees, or between two columns, on which are perching birds, the symbols of the beatified spirit, or of the resurrection; and in one instance only do we see the nimbus round her head—proof that this representation at least must be of comparatively late origin. Among other noticeable and uncommon subjects are, "Daniel giving a cake to the Dragon," from the book, "Bel and the Dragon," considered by Protestants apocryphal; and also among the reliefs on Christian sarcophagi; and, striking evidence to the strength of the influence from that Pagan art still overshadowing the new faith in its attempts at similar modes of expression! Dædalus and Minerva superintending groups of labourers at different tasks; Cupid and Psyche (no doubt admitted in appreciation of the profound meanings that illumine that beautiful fable); Achilles, the three Graces, here introduced with some intended mystic sense not so intelligible. This comparatively gay and mundane class of subjects seems to accord with the appropriation conjectured by Garucci, as to certain among these tazze, not to the sacramental solemnity, but to various festive and grave occasions in domestic life,—the nuptials, the names-giving, the baptism, and funeral, besides the relatively sacred banquet of the *Agape*, that primitive blending of the fraternal feast with the Eucharistic rite and communion, later suppressed by councils because of the grievous abuses supervening, which we see frequently represented in catacomb paintings, and always with the symbolic viands,—the lamb, the fish, and leaves marked with a cross, spread before the small companies of the faithful, who are generally seated round a *sigma* (semi-circular table) at that solemn entertainment.

Resuming our cursory notice of the literature illustrative of Rome's catacombs, we have now to consider the last and most precious addition,—a yet incipient work, which may be expected, in its completeness, to supply the fullest and profoundest investigation of its subject,—De Rossi's "Subterranean and Christian Rome," published by order of the Pope, the first volume of an extensive undertaking hitherto executed with all the ability and erudition to be looked for in a writer of such eminence. A voluminous introduction is dedicated to the history of researches carried out in the catacombs from the fourteenth to the nineteenth century, and an analysis of the *Roma Sotterranea* of Bosio. To this follow three sections, forming the remainder of an ample volume in folio: 1st. Christian cemeteries in general, considered as to their antiquity and the legalized proprietorship of them under Pagan emperors. 2nd. Documents and evidence for which the writer has ransacked all the principal libraries in Europe, affording proof as to the genuine basis on which the student may rely in respect to the history and topography of these Roman hypogæe. 3rd. An analytic description of this vast Christian necropolis, especially dwelling upon their most artistically characterised and celebrated type in the catacombs called after St. Callixtus. At a general

view De Rossi assigns four epochs to the story of these cemeteries, commencing from apostolic times, and successively extending over the third century, the period of the newly-attained freedom and peace officially granted to the church through Constantine (A.D. 312), and the fifth century, with which begins the abandonment and decay of all such ancient sanctuaries, impaired by the rude shocks of barbarian invasion, devastated by Goths and Lombards, till at last, towards the close of the ninth century they fell into neglect or oblivion. Another section, compiled with much knowledge and carefulness, at the end of this volume, is a "geologic and architectonic analysis," by Ernesto de Rossi, the author's brother, who has pursued most patient studies on the interior disposal and the soil in which these subterranean are laid out and excavated; this part being provided with plans, that further enrich a work illustrated, moreover, by forty chromolithographic engravings from the principal paintings, sculptures, and epigraphs referable to earliest antiquity among such objects in these Cities of the Dead.

We may probably carry on the subject a little further.

THE PREVENTION OF STRIKES.*

The chief instances of application of the principle of co-operation in the building trades, are to be found in France. Somewhere about three-and-twenty years ago, M. Leclaire, the house-painter, whose experiments in connexion with painters' work have been often mentioned by us, described in a pamphlet the system adopted in his establishment, and gave the reasons that led him to establish it. At present, the concern is a partnership, consisting of M. Leclaire himself, M. Defournaux, and the *Société de Secours Mutuels*, of which all persons in the establishment are members. Each of these three partners has 100,000 francs in the concern, M. Leclaire having advanced to the Society as much as was necessary to make up for an original insufficiency in its funds. On the part of the Society, the partnership is limited; on the part of M. Leclaire and M. Defournaux it is unlimited. The profits are divided. The Society has an excellent library; and lectures are delivered. M. Leclaire and M. Defournaux receive each 6,000 francs (240*l.*) as wages of superintendence. Of the annual profits they receive half, though owning two-thirds of the capital. The remaining half belongs to the *employés* and work-people; two-fifths of it are paid to the Society; and the other three-fifths are divided amongst the general body. M. Leclaire, however, now reserves to himself the right of deciding who shall share in the distribution, and to what amount, only binding himself never to retain any part, and to bestow on the Provident Society whatever has not been awarded to individuals. It is further provided that in case of the retirement of both the private partners, the goodwill and plant shall become, without payment, the property of the Society. The reasons that led M. Leclaire to adopt his original system, which was the same in principle as his pamphlet to be reproduced here. They may be found in a number of *Chambers's Journal* of the year 1845. Amongst them he mentions the incessant vexation in the losses arising from the misconduct of workmen.

In his first year, the men who worked 300 days made each 300 francs (12*l.*) as the profit, or beyond the wages, which were four francs a day. Improvement in the habits and demeanour of the workmen was immediately manifest. M. Chevalier, in 1848, stated, on the authority of M. Leclaire, "that the increased zeal of the workpeople continued to be a full compensation to him, even in a pecuniary sense, for the share of profit which he renounced in their favour; and in 1857, M. Villiaumeau gave similar testimony. The passing of the Limited Liability Act first made similar associations possible in this country. Before alluding to them, it should be mentioned that of successful associations of operatives alone, there are in Paris upwards of a hundred; so that the experiments of 1848, for which M. Louis Blanc has been so much condemned, have not been wholly valueless. The chief of these associations is that of the masons. Its amount of business done from 1852 to 1858, both years inclusive, has increased from 45,530 francs in the former year, to 1,231,461 francs in the latter, and its profits from 1,000 francs to 130,000 francs.

* See p. 365, ante.

It lately paid 56 per cent. as the dividend of the year, on the capital. M. Villiamé remarks that intemperance greatly decreases amongst the members of the different associations, as well as everything of the nature of coarseness and rudeness.

Mr. Mill and all who have studied the subject, expect a great increase in the productivity of industry, from the advance of the co-operative movement. Mr. Mill thinks it is scarcely possible to rate too highly the benefit from placing the labourers so that it would be their interest to do the most, instead of the least possible, for their remuneration; but that this would be as nothing compared with the revolution in society that would accompany the benefit of the particular kind, and which would include the healing of the feud between capital and labour.

We have here before us particulars of the two undertakings on the limited liability and co-operative principle, to which the chief interest in the subject now attaches. The Company of "John Crossley & Sons, Limited," was founded in 1864, with a capital of 1,650,000l. The original proprietors retain four-fifths of the share-capital; and manage the business without salary. The shares are of 15l. The primary object of the formation was to give parties associated with the business an opportunity of co-operating with the original sole proprietors; and in the allotment of shares, a decided preference was given to applications from those employed on the premises, where a *bond fide* investment, and not a mere speculation, was intended. The proprietors took the step, believing it would aid to the strength and good working of the business. The Company of "Henry Briggs, Son, & Co., Limited," for working the collieries of Whitwood and Methley Junction, near Normanton, is stated, in the prospectus, as projected by Messrs. Briggs,—

with the primary view of securing the co-operation of all those connected with the collieries, either as managers and workpeople, or as customers, in the earnest hope of thus effecting a satisfactory solution of the difficult problem now so largely occupying the attention of political economists and philanthropists, namely the best mode of associating capital and labour, and of preventing the occurrence of those trade-disputes which so frequently disturb the social relations of our country. The members of the existing firm will retain in their own hands two-thirds of the share-capital; and in allotting the remaining one-third, a decided preference will be given to applications for shares: First—From the officials and operatives employed in the business; and Secondly—From the purchasers of the produce of the collieries.—Surplus shares will be allotted among general applicants in order, however, to associate capital and labour still more intimately, the Founders of the Company will recommend to the shareholders, that whenever the profit accruing from the business, shall (after the usual reservation for redemption of capital and other legitimate allowances) exceed 10 per cent. on the capital embarked, all those employed by the Company, whether as managers or agents at fixed salaries, or as workpeople, shall receive one half of such excess profit, as a bonus, to be distributed amongst them in proportion to their respective earnings during the year in which such profit shall have accrued. The adoption of the mode of appropriation thus recommended, would it is believed, add so great an element of success to the undertaking, as to increase rather than diminish the dividend to the shareholders. The advantages anticipated are, First—The attainment of a direct incentive to every worker, whether a shareholder or not, not only to do his own duty, but to see that his fellow-workmen do not neglect theirs. Secondly—The prevention of causes of dispute between the employers and employed. Thirdly—The attainment of direct advantage to the operatives as well as the shareholders, from the adoption of improved modes of working, either by machinery or otherwise; and Fourthly—The securing of a permanently settled and superior class of workmen. The attainment of these advantages is especially desirable in coal-mining operations; nearly 70 per cent. of the current expenditure being absorbed in wages for work which, from its nature, must necessarily be under imperfect supervision.

The acting partners of the present firm are to retain the management, consulting the directors from time to time. The founders of the company will make arrangements for the gradual payment of the calls, by any of their workpeople, by weekly instalments. The capital is to be 135,000l., in 9,000 shares of 15l. each; but it is not intended to call up more than 90,000l., or 10l. per share.

The feature which distinguishes the last mentioned company from that of "John Crossley & Sons, Limited," is the bonus.

We have referred to the Bill to amend the law of partnership. It was required to make some of the arrangements above detailed feasible. It enacts that if a man lend money to a trader, he shall not be deemed a partner merely because he receives a share of the profits in lieu of interest; though in case of bankruptcy of the concern, he cannot receive any portion of the principal or his interest till other creditors are satisfied; and that if a clerk or servant receive a share of the profits instead of salary, he is not thereby made a partner,—also that a widow, or child, of a deceased partner, receiving a portion

of the profits by way of annuity, shall not be deemed a partner. It has been remarked concerning the clause which permits a clerk or servant to receive profits without becoming a partner, that, whenever the system is introduced, a strike will become impossible, and that the master will find in the system the surest guarantee for the effectual co-operation of his men. The firm of Crossley & Co. had to be formed into the company with limited liability, to allow the servants to have an interest in the business given them.

The shares in the Colliery Company have not been taken up so readily as was hoped for. This is attributed to the exertions in opposition, from delegates of the trade's union. Messrs. Briggs claim to be establishing a union on a wider basis, which shall take in master as well as men. They, in the position of the master, will take 10 per cent. as their wages for management; the men will take their wages; and the profits will be divided.

As Mr. Solly told his hearers, at the meeting to which we have already alluded, when he gave the particulars of Messrs. Briggs's scheme, wealth comes from three sources, Labour, Skill, and Capital. They are not permanently opposed; though for a time they may be apparently opposed. But benefit to the workmen is long delayed, excepting where there is co-operation. For some men, indeed, co-operation may be yet unfitted; for these, the old position of servant will remain open, for some time, if not always. As the employer flourishes, the demand for labour increases; whilst the tendency of dishonesty on the part of the servant, is to impoverish the employer. Mr. Holyoake, at the Exeter Hall meeting, said the reason why Messrs. Briggs's shares were slowly taken, was simply that the workmen did not understand the position offered them: they had never been so treated before. A letter read from Mr. Mill spoke of the old plan of fixed wages as doomed, now that the capitalists themselves gave it up.

Can there be difficulty in applying the principles which have guided Messrs. Crossley and Messrs. Briggs in the foundation of their companies, to similar foundation of companies in the building-trades? Strikes have not supplied the remedy to any state of things complained of; the success of arbitration is uncertain; but co-operation of one kind at least, comes before us with argument in favour of it from workmen and master, from political economist and philanthropist. By the endeavour of the workmen to dictate terms, all parties come out losers: by the co-operative arrangement, the masters gain, by the abandonment of strikes, and by the elevation of their workmen, as much profit as that which they seem to concede.

THE REGULATION AND CONSTRUCTION OF THEATRES AND OTHER PLACES OF PUBLIC AMUSEMENT.

THE Bill now in the House of Commons, to amend the law relating to theatres and other places of public amusement, should receive the immediate attention of those who have had occasion particularly to consider the structural causes of the many lamentable accidents that have occurred, and who have seen reason for alarm at the danger which there is each night, of a calamity of the most serious character arising from one or other of two or three defects of the planning and construction of this class of buildings. The whole subject is one that we have been working upon for many years,—sometimes predicting the very disasters that have occurred; but any beneficial results of our exertions have been more than counterbalanced by the great increase of places where the provisions for egress from the building, are inadequate to a greater degree even than those of the theatres. Of course we need not say that places of public amusement are not the only buildings in which there is risk of a great disaster from the occurrence of fire, or from panic. Almost universally in buildings of public resort, the means of egress are insufficient in number, are not sufficiently distributed, and are otherwise badly planned; and staircases, in planning, are not even, as at the very least they ought to be, such as would be found in a first-class mansion, where stairs are not generally so crowded that a person descending is unable to choose the spot on which to place his foot. An architect might be expected to be able to plan a staircase suited to the requirements in any building; but it is

clear that special study is required of all the details of the provisions for safe egress from particular kinds of buildings, and that the attention to them is not in practice encouraged by the proprietors or managers of places of public amusement, or plainly demanded by the voice of the public.

Almost the worst staircase for safe descent with which we are acquainted, is that from the meeting-room of the Institute of British Architects.

Though skill in planning will do much, and is essential in every case, it will not allow of the best disposition of stairs, or the desired number of ways, if the site be closely shut in, and the number of persons dictated as for the auditory of the theatre, or other place, be such as to require curtailing of the total space appropriated to egress. Much, therefore, as we dislike to have the freedom of architects interfered with, we see that stringent enactments are called for; and these may strengthen the hands of those who would make the desired provisions, if permitted.

The Act of King George II. relates to public places for dancing, music, or entertainment of the like kind, in London, and within twenty miles thereof; and the aim of the proposed Act is stated to be to empower granting of licences for places for public entertainments of a higher kind, and to confer the powers on justices throughout Great Britain (why not Ireland also?) "and to secure that due provision be made in the construction and arrangement of places of public entertainment for the safety, in case of fire or other accident, of persons resorting thereto," and also to amend in certain particulars the laws relating to performances. By the second clause, a licence is not to be granted unless the justices or magistrates are satisfied that the place is constructed or arranged in conformity with rules which are given in a schedule; and any place licensed before the passing of the Act, is not to be deemed licensed "for the public performance" of stage plays, unless the authorities mentioned "are satisfied as aforesaid." This would have made it appear that any theatres might be closed; but clause 4 reserves the power of the Lord Chamberlain to license, and "of justices under any other Act." Other clauses repeal the section of the Act of George II. which relates to the inscription over the door, or refer to the application of the Lord Chamberlain's powers of licensing, and to the universities, to copyright, to interpretation of the term "stage-play," and other matters.

We have already given the rules of the schedule, but omitting the fourth, which originally was not correctly printed. These rules, with the exception of the sixth, provide for nothing more than a certain width of passages in proportion to the number of persons accommodated, and for these being kept free for egress. The sixth clause requires that all gas-lights within two feet of any inflammable substance, shall be guarded with wirework or other means of security against communication of fire. This clause would not be likely to meet the danger which now exists from the vicinity of gas-lights to wood-work. There is great reason to believe that, from the desecation, it is in many of these cases only a question of time whether the wood-work catch fire or not.

The width for halls and corridors, private box-lobbies being excepted, is to be not less than 5 ft.; and for each hundred persons over five hundred to be accommodated in the part of the building to which the hall or corridor leads, there is to be 1 ft. more in width. In each part of the building there is to be doorway-access of at least 6 ft. for five hundred persons there to be accommodated, and 1 ft. in addition for each additional one hundred. This would make the doorways wider than the passages leading from them,—a curious provision, and difficult to observe in actual planning. The intention obviously is that the clear opening, the door being thrown back, should not be less than the width of the passage. No internal doorway, even a box-doorway, is to be less than 3 ft. in width. All doors are to be open outwards; all halls and corridors are to be maintained free and clear, and unobstructed with barriers, in the direction of egress; and all gangways in those parts of the building where the public are placed, are to be kept clear of seats and other obstructions to free ingress and egress, and are to be used for passage only.

The 5 ft. width of these rules, for corridors, is less than that provided in the Charing Cross Hotel, indeed considerably less than that of the corridors of the principal floor; but the box-

doorways might be less than 3 ft. without disadvantage. Our object in noticing the Bill, is to draw the attention of our readers to it before it gets into Committee. Unquestionably there are great omissions in the Bill in points to which we have at various times called attention. There is nothing that would tend to check the evil,—for such it unquestionably is,—of the erection of theatres on sites that are not isolated, and thus to stop the danger of the communication of fire to adjoining buildings, and to permit of that distribution of the ways of ingress and egress which is of as much importance as dimensions, to the safety of the audience, and to non-obstruction of street-traffic. Provisions in the building, against fire, excepting by the sixth rule, have not been thought of; and the stage may still continue to be lighted in a manner which endangers the lives of those engaged in the performance. But the capital omission is that of staircases, which, for anything to the contrary in the Act, would continue to be constructed with well-holes, winders, narrow treads to the steps, insufficient hand-rails, and all the defects that we have so long striven against. The same staircase or corridor, might still, as in some theatres, serve more than one part of the house, thus involving meeting currents. And there appears to be no immediate prospect of the adoption of a better system than that which allows a crowd to congregate at each doorway, obstructing the public footway, and to become on the opening of the door, a surging mass of individuals, "good-humoured," as the newspapers say of every crowd, but very dangerous to one another's lives and limbs.

It is always difficult to decide, when an insufficient measure is proposed, whether progress is best served by the temporary acceptance of it, or the entire rejection. In this case, we could wish that the attention of the profession were directed to the means of rendering unnecessary a choice of alternatives. Legislation has become imperative; and it should be assisted by those who will themselves be subject to the rules and provisions. The only question is, whether it should not go to the placing all buildings of public resort under professional control, similar to that in the principle or intention of the Buildings' Act, but at the same time providing most efficiently against such alterations of arrangements originally good, as have been made in the case of Drury-lane Theatre. There can be few members of our profession uninformed as to what should be done; but an architect cannot provide an exit where there is no street; nor can he apportion space to staircases and passages which his employer will consider unnecessary or effecting a diminution of apparent or immediate receipts.

PORTRAIT MINIATURES AT THE BROMPTON MUSEUM.

A VERY remarkable and beautiful collection of portrait miniatures has been brought together with the aid of the committee appointed by the Committee of Privy Council, and are well exhibited in the new gallery upstairs. They are 3,061 in number, and include 16 by Holbein, 24 by Nicholas Hilliard, and 54 by Samuel Cooper. A very full and interesting catalogue has been prepared, mainly by the hands of the Rev. Jas. Beck, M.A., and Mr. R. H. Soden Smith, M.A., who, with Mr. R. F. Sketchley, a member of the committee acting as secretary for the special exhibition, have taken a main share in the formation of the collection. The catalogue will include an introductory notice by Mr. Samuel Redgrave, and we cannot do better than give our readers a foretaste of this:—

"The Miniature Art of England possesses this distinguished peculiarity—that, while no native painter had attained excellence in life-sized oil portraiture before the time of Van Dyck, we have in Miniature Art, a succession of eminent 'painters in little,' commencing with Nicholas Hilliard in the reign of Queen Elizabeth, and continued by John Hoskins, the two Olivers, father and son, down to the inimitable Samuel Cooper, in the reign of Charles I.

The works of these men became the treasures of their own and of succeeding generations. Unlike the larger portraits of their foreign competitors, which, in the troubled days that ensued, were exposed to all the mutations of our great families, the miniature was mostly a cherished decoration worn about the person and easily concealed. Many have thus descended

to us, inestimable both for their art and as the sole recollections of several of England's most distinguished men, while others, despoiled in times of need of their jewelled settings, have been lost or destroyed.

Miniature painting appears to have naturally arisen in the development of the ancient misal painter's practice, and in its first stages to have been connected with the ornamental art of the goldsmith and the jeweller. The miniaturist began by using the opaque colours of the misal painter, and like him he introduced gold to heighten the effect of his dresses and ornaments; but as the art progressed we find him treating the face, and then other parts of his work, with transparent colour. The earliest miniatures were drawn on vellum or on thin cardboard. The artists we have mentioned, to whom should be added Thomas Flatman, a poet as well as a painter, practised in this manner. Soon after, the art of painting with vitrifiable colours added great lustre and brilliancy to the miniaturist's skill; and later, probably in the reign of James II., ivory was substituted for paper or vellum, giving the means of more delicate completion, and, by its creamy whiteness, increased beauty of colour.

The art of enamelling is of great antiquity and uncertain origin. The *encaustic* enamels of Limoges were mostly applied to utensils for the church, and were the admiration of the thirteenth century. Benvenuto Cellini used this process to heighten the perfection of his works in silver and gold, and the goldsmiths of Germany employed it with success in reproducing the designs of Hans Holbein. About the beginning of the fifteenth century, by an improved process, *painted enamels* became applicable to miniature portraits, an art which was certainly derived from France, but was not brought to much perfection till towards the middle of the seventeenth century.

In 1632 a goldsmith, named Jean Tontin, who was skilled in the use of transparent enamels, produced a variety of colours, which, when used upon a thin ground of white enamel, vitrified in the furnace without any change of tint. These colours were applied in the same manner as water colours used on vellum or ivory; they were the materials of the first miniaturists, and a few years later they enabled the great Jean Petitot to carry the art to its highest excellence. They consisted of metallic oxides with fluxes of vitrifiable substances, chiefly silica and borax, both fusible at a heat capable of being resisted by the metal ground, whether gold or copper, on which they are to be used; it is also essential that these materials should be of a character to adhere firmly to the ground; should possess the transparency or opacity required to give finish to the artist's work, and maintain after fusion a clear smooth vitreous surface.

The colour produced results either simply from the colouring material used, or from the chemical combination of that material with the flux. The delicacy of the whole process will appear surprising when the brilliancy of colour and the minute beauty and perfection of finish attainable in the enamelled miniature are considered; and that the work, when completed, unites these qualities with its imperishable character.

There is, however, another class of artists whom we now term miniaturists, who practised towards the latter half of the seventeenth century. They were by education engravers, and both drew from the life, and engraved the subjects of their portraiture, as is recorded on their plates '*ad vivum*.' In this manner David Loggan, his pupil Robert White, and Thomas Forster, attained great excellence. Their works formed the portrait frontispieces of the books of that time, and were among the first book illustrations. Dryden writes of a would-be poet,—

'And at the front of all his senseless plays
Makes David Loggan crown his head with bays.'

And the impressions of the plates of these artists, as well as their highly-wrought drawings, were then, and continue to be, highly prized by collectors.

Such was the art of our first miniature painters;—commencing on card or vellum, then using the newly-discovered enamel process, and, lastly, ivory, as the means of higher perfection, and contemporary with this the drawing in plumbago, as it was then called.

When portrait art in England degenerated after the death of Van Dyck, and Lely and Kneller were followed by Jervis and Hudson, miniature painting fell into the same debasement. One of the sons of Petitot, and of the same Christian

name, settled in London at this time, and practised miniature enamel. Charles Boit also came to our metropolis, and painted in enamel under the patronage of Queen Anne. But the art languished in their hands till Christian F. Zincke, founding his style, it is true, after Kneller, and somewhat the pupil of Boit, painted in enamel with great industry and success. Commencing with the beginning of the eighteenth century, he was for many years without a rival, and his works are justly admired for their beauty of execution and correct drawing.

When at length the portrait painter's art received a new impulse from the noble works of Reynolds and Gainsborough, a new school of miniaturists grew up, and the art again shone lustreously in the works of Jeremiah Meyer, Nathaniel Hone, Richard Cosway, Samuel Shelley, Richard Collins, John Smart, and a number of other talented men, who, far from lacking employment, were beset by fashion; and beauty was decked with lockets, brooches, and bracelets, in which the painter's work vied with the precious materials of the jewellers. Under such encouragement another generation of miniaturists succeeded, and the art in modern days culminated with Henry Edridge, Henry Bone, Andrew Robertson, Alfred Chalon, Sir William Ross, and some few eminent men who have survived it,—for, strange to say, miniature painting, which had during nearly three centuries been practised by so many great artists, suddenly collapsed before the cheap mechanical processes of photography, and is now almost lost.

The value of the exhibition would have been increased if the miniatures had been arranged chronologically or personally, but the necessity of keeping together the collections lent by individuals, and other obstacles, appear to have prevented this. We should be glad if we could hope that the exhibition of the fine specimens of miniature portraits here to be found will lead to the revival of an art which the sun has for the present destroyed.

CONDITION OF THE SILK WEAVING TRADE.

THE state of this business in Spitalfields is as deplorable as it can well be, and the accounts from Coventry are not yet very satisfactory. Persons engaged in the mechanical and other parts of this business have attributed the distress produced by the want of employment, the lowness of prices, &c., to various causes. Some blame the late Mr. Cobden's policy, and would have a prohibition laid on all foreign manufactured silks, and mention other reasons which are quite as little to be depended on; and in England, it is generally believed by the artisans that in France their brother labourers in this trade are in a high state of prosperity, while they are in almost a starving condition. Such, however, is not the case; for from Lyons, the great centre of the French silk trade, the accounts come worse and worse.

The Paris correspondent of the *Morning Star*, quoting from the *Avenir National*, says that the writer, M. Horn, a man well known in the literary circles of the French capital, has been sent to Lyons to study the question of *chomage*. In a first article this gentleman reports that the exportation of silks, which amounted in 1861 to 33,000,000 francs, in 1864 amounted to 38,400,000 francs: this is an increase of nearly twelve times the amount; and the question to be solved is, why, notwithstanding this enormous increase of the production and foreign demand for this kind of labour, there should be a *chomage*. We trust that the investigations of M. Horn will throw light upon this very important subject, and show how it is that, under the circumstances, there should be at Lyons, especially amongst the silk-workers, such a sad extent of want and destitution. M. Horn says, that there are in that city at the present moment 20,000 unemployed frames, the total number which are usually at work being 30,000; so that, for each loom that is at work, there are two standing still. And these 20,000 idle looms represent 16,000 families, or 64,000 individuals. And this estimate of the number of persons who are without employment and in a starving condition, seems to us to be below the actual number; for, including the father and mother, there is only an allowance of two children made in each family.

A subscription has been opened for the relief of those artisans who are placed in such a miser-

able condition, but M. Horn states that this only amounts to 167,000 francs (less than 7,000*l.*), or a sum which is not equal to half-a-crown for each distressed person.

This is a matter for the consideration of the fair ladies, not only of Paris, but elsewhere, who flatter gaily in the hand-work of those artisans, and who might afford relief; but it is to other and more permanent means that the silk-workers of Bethnal-green, Coventry, Lyons, and other places must look for efficacious relief; and the way to effect this is in the first instance to discover, beyond dispute, the cause of the evil; and we trust M. Horn will not rest in his exertions until he has achieved satisfactory results.

In connexion with the present state of the labour market, and the working of free-trade principles, it is certain that, with the evidently great advantages, there are also important matters for anxiety. In both town and country, there is in England an extent of poverty which we do believe has not yet been rightly estimated. House rent and several of the necessities of life have increased in price; and while the increase of the circulating medium, in the shape of the precious metals, bank-notes, bills of exchange, and many other securities, is going on to a tremendous extent, the wages of the agricultural and many other labourers stand without change. Capital, not in certain of the aristocratic families only, as was shown in the *Builder* not long since, has already grown, and is still growing, in a manner which would have been considered fabulous a century or so ago. In the hands of leading manufacturers, colossal fortunes are being gathered together. We trust, however, that we shall not have in our country to lament the evil which results from the *rich man growing richer, and the poor man poorer*, an evil which has at various periods of history wrought mischief to nations. The strikes, many of them on a large scale, which are occurring in the mining districts, amongst those engaged in the working of metals, not only in the mines, but also in other parts of their manufactures, in brickmaking, and the other branches of the building trades, and the numerous disputes which are happening in so many parts, between masters and men, indicate the large extent of the disturbance which there is just now in the English labour market.

By patient forbearance, and by the display of mutual good feeling, and an extension of the knowledge of those laws which since the most ancient periods of our history up to the present day, have governed the disposal of labour, many of the difficulties which at the present time seem so hard of arrangement will be disposed of; but the transition state in which we are at present, and the solving of a great problem which is being wrought before our eyes, form a subject for the serious consideration of those who are interested in the welfare and progress of the great and varied branches of British industry.

THE WEST LONDON INDUSTRIAL EXHIBITION.

The following remarks are not intended as a criticism upon the merits of particular objects in this exhibition, but rather as general observations as to what are and should be the chief aims of exhibitions of this character, and how far they have been carried out in the present instance.

There are more reasons than one why an exhibition of this description, is calculated to do much good. Firstly, the sight of such numerous examples of well-utering patience and perseverance can achieve, even under circumstances in many cases most disheartening, and in some, at first sight, apparently overwhelming, cannot fail to encourage many who have not brought these qualities sufficiently to bear upon the task they may have taken in hand, and who consequently have not struggled so successfully as others against the disadvantages of their position. It cannot fail to cheer them on to turn to their work with renewed vigour, when they see others emerging uninjured—nay, even strengthened, from a severer test than any they themselves have borne: and if such an exhibition be not without its good effects on a mere spectator, much more must it inspire and animate the man who has had a hand in the work itself, however humble his part may have been, and however insignificant its apparent importance;

yet if he has only executed it with honest pains and zealous devotion, he may well feel proud of his efforts, since he has been promoting the fundamental object of the exhibition itself.

For assuredly the promoters of this exhibition must have sought to direct their efforts in an especial manner to the calling forth that general and individual enthusiasm which, where present, leads all other things in its train, and the want of which nothing else can supply. The opportunities which exhibitions of this nature afford for the development of these qualities is what we would point out as their greatest excellence. The old saying of "A fair field and no favour," has a charm for every man who is able and willing to work. By availing himself of the opportunities afforded by these exhibitions, he will be certain to feel encouraged by the thought that his labours are not without a definite object, and that his work, when accomplished, will be noticed by men ready to give him due credit for whatever merit it possesses. Such a man will evince a praiseworthy feeling of emulation in contending for the palm of excellence in some particular subject. Should he succeed in carrying it off, he will be justly rewarded by his own happy feelings and the kind sympathy of his friends; while failure, if he be manly and right-minded, will not render him slow to derive benefit and instruction from studying his opponent's masterpiece, and marking his own shortcomings, with a view to their correction. This brings us to another proof of the benefit of these exhibitions. They teach a man the real value of his work. Totally disregarding the estimation, be it high or low, in which he may hold it himself, the *vox populi* stamps it with a mark, whether of approval or condemnation; and in so doing, it is an agent for much good; here stripping one of the self-conceit and narrow-mindedness which have grown upon him—perhaps through his never having met a superior in his particular path; here encouraging another whom diffidence and mistrust of his own powers might have withheld from future success. Lastly, the opportunities afforded every man of seeing in juxtaposition the productions of various callings, and of observing how much patience and skill is required in other branches of labour than his own, cannot fail to give him a higher and more liberal tone, and to knit together the whole guild of craftsmen in a closer bond of mutual respect and good will.

The arrangement of the objects is, for the most part, satisfactory. We would, however, point out one important neglect in this latter respect. While the objects exhibited are very properly classified under different headings, and while such of them as are at all similar in their nature or purpose are, as a general rule, conveniently grouped together, the numbering is utterly without order. This necessitates much trouble to the visitor in referring to the catalogue, besides effectually hindering him from going straight to any particular object which he may be especially desirous of examining. The plan of classifying each object under one of eight distinct headings has enabled us, with a little trouble, to compile the following rather interesting statistics. There are,—

Of amateur productions	(A) nearly 70
Architectural, marine, and ornamental models	(B) nearly 60
Artistic objects	(C) about 230
Inventions and novel contrivances	(D) about 60
Ladies' work of all kinds	(E) about 100
Mechanical models	(F) over 40
Miscellaneous objects	(G) about 150
Professional workmanship	(H) about 370

The large excess of objects of professional workmanship over those by amateurs,—that is, over those by men who exhibit the produce of labour spent on objects not coming within the scope of their every-day employment,—enables us to see that the majority of exhibitors are desirous of making the exhibition practically useful to themselves in their different callings: and this, we think, should be the chief purpose of the exhibition. We do not forget that there are some exhibitors, such as servants, cobblers, &c., whose occupation offers no motive for the expenditure of voluntary labour on its account, and whose spare time is consequently devoted to subjects with which they are professionally unacquainted. These remarks, of course, will not apply to those whose works display artistic skill or invention: qualities like these will always elicit original productions, and when met with should be carefully recognised and appreciated. But it nevertheless becomes a question whether the object of the exhibition would not be more effectually answered by the exclusion of all such

articles as do not by their intrinsic merit, irrespective of all other circumstances connected with them, deserve admission.

As at first stated, we shall not attempt a criticism of even those objects which stand forth most prominently at the head of each distinct branch of labour. Our object is to offer an observation as to the art, or rather the want of art, displayed. This exhibition, like others to which we have before alluded, though affording innumerable proofs of unwearying industry, is lamentably deficient in evidences of art. There are here results of arduous labour which call for very great respect, and cannot but strike shame to the heart of many an idler, and send him home with an inward determination that he will at least work. But with this very industry there is often linked a want of taste, which goes far to modify the praise which the display of perseverance and mechanical skill would have otherwise called forth. We find that the so-called "Artistic Objects," number as many as 230. But a little investigation will soon prove that the term is wholly misapplied to many of those it includes. For instance, reference to the catalogue shows us that No. 802 is described as "An Original Drawing in Water-colours;" No. 672 as "A Picture of Pictures." Both are marked C; the letter used to denote artistic objects; and yet of genuine art there are no traces whatever in either. They are elaborate and excellent imitations; in the one case of a confused mass of papers, &c., in the other of pictures, scattered promiscuously over a surface. Several exhibitors have chosen the same subject, and though all the specimens are good, yet that of J. J. Pickworth, No. 511, is perhaps the best. No other so well exemplifies the extreme care and pains-taking enduring patience which the subject requires. So far it reflects great credit on its exhibitor, and probably as an exercise for bringing out his powers will have been of much use to him in his calling. But art demands far other powers than are shown forth here. She requires some share of fancy, thought, and creative power in her followers. And we, therefore, earnestly protest against the mistaken notion which so totally misapprehends her requirements, and debases the standard requisite to enter her ranks. A still more forcible illustration of the want of taste of which we speak, is exemplified in the choice of such a subject as "A Card-table after a Dispute." This is a table inlaid most laboriously with various woods, to represent cards lying about in disorder on its surface, some face downwards, some upwards, others torn. There are spectacles, counters, and, in fact, everything which imagination can suggest, to add to the illusion, all inlaid in wood. But the thing represented is in itself suggestive of unpleasant thoughts, and this makes us the more strongly deprecate the outlay of time and patience spent in depicting it. Were a man to grasp a handful of sand, and declare his determination to count every grain of it, and should he, by dint of untiring patience and scrupulous care, at length succeed in his object, who would not regret the prostitution of qualities so estimable in themselves to an object so devoid of use or purpose? And yet in the case last quoted the failing is even greater, for here the result is not only useless, but absolutely painful.

It is with much pleasure that we now turn to notice a work, which, while it even surpasses those previously mentioned in labour and mechanical skill, tempers and directs these qualities with much artistic thought and taste. We refer to the sideboard carved by Gerard Robinson, in illustration of the old ballad of "Chevy Chase." Were the centre and principal carving of this copied in a painting, it would not fail to interest and please, both from the skill displayed in its composition, and the intense life and animation which breathe forth from it. But, to our mind, the oaken wood in which it is wrought gives it a look and flavour of antiquity which, by its extreme suitability to the subject, fully outweighs the disadvantages of want of colour. We dwell especially upon the life and animation of the carving in this sideboard, since these are qualities seldom met with even on canvases, and particularly to be admired in carving. For the laborious process of manipulation in this latter art hinders the artist from developing his ideas with any speed, or from instantaneously representing his glowing conceptions; and, the knowledge that an error once made is irretrievable, forces him to carry on his work with the utmost caution. In the present instance the artist, overcoming these difficulties, has depicted scenes

from the hunt and battle with wonderful spirit. In the former, deer seem to be really fleeing for their lives from the dogs, which bound after them, full of the lust of prey. We almost fancy we hear the snorting of the horses, and the shouts of their riders, as they come dashing through the wood behind. In the latter, there are the archers in the background; while, in front, we see knights fighting in single combat with the most terrible earnestness; bodies lying about in the rigid sleep of death; women bewailing the loss of the "house-bands" of their home. And, besides all this, the sideboard is eminently adapted for a sideboard. It would equally puzzle the spectator whether to admire it more for the beauty of the general design, or the finish and grace of each particular part; because, though inviting and satisfying the strictest scrutiny, each minor detail is throughout made subordinate to the harmony of the whole. Here, then, we have two examples; the first of much bad taste, the last of much good. In the former, when once the eye, which has been attracted by its startling novelty, has satisfied its curiosity, it will turn away with a sense of weariness and indifference; but when it falls upon the latter, it will find plentiful and lasting pasture to feed on,—as beauty of form, a story to unravel, different emotions to be traced. Of course, the important distinction between these objects is, that the one aims not only at pleasing the eye, but also the mind, through the eye; whereas, the aim of the other,—even were it far better carried out than it is,—could hardly be more than to delight the eye, and the eye alone. But even here it fails, and that because it does not pay attention to the unalterable rule that this pleasure ought to be excited through the beautiful, not through the eccentric,—through the divinity of beauty, not the phantasm of eccentricity.

If those whose contributions here bear unmistakable evidence that they prize the qualities of labour and industry far beyond all others, could be induced to ask themselves whether there be not something even higher than these, valuable as they are, and would henceforth make very sure that they are not spending their toil on an unworthy object,—if they would only be led to think more of *thought* and less of mechanical skill, these remarks will not have been without result.

WORKS OF THE ARCHITECTURAL PUBLICATION SOCIETY.

WE have not, for some time, noticed the publications of this Society. The recurrence, however, of the annual meeting, as reported elsewhere, has induced us to look up the parts lately published, and to offer a few comments on the material put forth in them by the committee. In 1863 was issued the larger half of the articles comprised in the letter G. Amongst them it will be well to notice those of more prominent interest, and those which will, at the same time, fully prove the great area of knowledge included in the "Dictionary of Architecture." Such are "Gable," the three architects "Gabriel," the "Gaertners," "Gallery," with a list of the sizes of those of most importance erected late in the Mediæval period, and those of the Elizabethan era, to which it is a pity the dates, or approximate dates, of the buildings have not been placed; the six architects "Galli Bibiena," rendering it necessary to be somewhat cautious that the right one is named when a special work is quoted; "Galvanic Action" and "Galvanized Iron," two very important subjects; "Galway Marble," the city of "Gand," or Ghent, as we in England call it from the Flemish; the architect "Gandon," and the three "Gandys," clever men, all of them; "Garnet-hinge," "Gas," with a useful short historical account of its introduction, also including the contingent articles of "Gas-burner," "Gas (effects of)," especially in destroying leather bindings; "Gas-fittings," "Gas-meter," and that other description of the subject, "Gas (noxious)" arising from cesspools and decomposing substances. The article "Gement" we copy at once, as a lesson to those who endeavour to decipher old manuscripts without being able to avoid errors, thus deceiving other literary men. It will likewise serve to show the care of the revisers, one of whom, we understand, went twice to the Herald's College to verify the quotation. It is as follows:—"GEMENT, a word said to be used in a MS. of the time of Henry VII. in the Herald's College, describing the hall at Richmond Palace: the *Antiquarian Reposi-*

tory, 4to., London, 1808, ii., 315", as copied in Hunt, "Tudor Arch.", 4to., London, 1836, p. 94, quotes the "rof is of tymbre,—after the moost new invencon and crafte of the prospicif of gement;" but upon inspecting the MS., the words are found very illegible,—"*gement*" is written "*g'ment*" and the word following is "crafte." The passage may be read, therefore, with greater probability, "and pure use of geometrical crafte.—A. A." Then we may point to "Genova," or Genoa; the architect and everything-also-professor, Sir Balthazar "Gorbier," of whom, considering the period in which he lived, his intimacy with important personages, and his active life, we are surprised that no one has yet undertaken his memoir, large materials for which are noticed in this article, though it is, of course, not immediately confined to his architectural constructions; "German Architecture," "Ghetto," the derivation of which word appears to be unknown; the three architects, "Giamberti," popularly known as San Gallo; and a full account of "Gibbs," the fashionable architect in the last century. Some readers interested in this subject may remember that last year we inserted a communication from an esteemed correspondent, now no more, being a query as to the architect of the celebrated house called Canons, in Middlesex, so generally attributed to James, of Greenwich, and we notice in this account of Gibbs the original of the reply which attributed the design to him, for the first time. Fra "Giocondo," the learned commentator on Vitruvius, in 1511, and celebrated at Paris as an engineer or bridge-builder, has an account which appears to have been written with much care and research. The various kinds of "Girder" are noticed; the names of the designers of them, and the dates of their erection; a very long and complete account of "Glass," treated historically and constructively, even to its decay; with "Glazier," and "Glazing;" then "Gloucester" city; "Glue;" "Goodwill" in valuations; "Graining;" and with the commencement of the article "Granary" the Part in question is completed.

The succeeding portion, dated in December of last year, but issued early in this year, commences with the conclusion of the article "Granary," noticing Doyere's system of *silos*, lately put forth, which is an imitation of the ancient method of storing grain in excavations, or pits sunk in the ground; "Grand Stand" for a race-course; an elaborate series of articles on the different varieties of "Granite," contributed apparently by the several owners of quarries, and containing much new and valuable information respecting that material, and the mode of working it, with notices of the ancient and foreign granites; "Greek Architecture" is of course not forgotten; nor our useful "Greenheart" timber; "Grissaille Glass;" "Groined Vaulting," which would be much too short, except that it is explanatory only; "Grottoes," "Grottesque," "Ground-rent" in valuations; the *Rococo* architects "Guarini;" "Guilche," carefully distinguishing it from the more common term *fret*, which it is often called; "Gully-hole," the architect-bishop, if we may so designate him, "Gundulphus," about whose professional capacity much has been lately written by Messrs. Ferrey, Parker, and Papworth, and continued herein by another esteemed contributor; a curiously detailed description of the employment of the "Gutta" used in the Doric order; "Gutter," the three architects "Gwilt;" the Royal Academician architect "Gwynn," greatly abridged apparently from the unique detailed account of him which appeared in our pages in 1863; "Gymnasium," ancient and modern; and "Gypsum," finishes the letter; but the Part is continued with much of the letter H, where "Haberries" explains another misreading of old manuscripts; the Emperor "Hadrianus," treated as an architect, which he, perhaps, more than he deserved, considering he put another architect, Apollodorus, to death; the three architects "Hakewill," of the family of the present brothers of that name; the familiar name of William "Halfpenny," architect and carpenter, whose many editions of his many works dating in the last century, must have assisted materially in depreciating correct taste in architecture; "Halifax Stone" "Hall," with a long and carefully prepared list of such buildings, not including, however, those devoted to music, which we see will be the subject of a separate article. Surely, a larger number of foreign halls might have been obtained, but we can also imagine the great additional amount of labour

it would have required, and so rest satisfied with what is given; we also notice that many of them vary from the customary dimensions, but as several are marked, "not checked," we presume a very large amount of care has been bestowed in the preparation of the list to verify those given. The city of "Hamburg;" "Hamhill Stone;" a few of the better known architects, bearing the name of "Hamilton;" "Hammer Beam Roof," the origin of which term, it appears, has not been ascertained, although it has been traced in Nicholson's "Dictionary" to the period of 1819; some of the multitudinous "Hans" von some place or other; "Hardening Timber;" "Harmony" in all its relations of colour, form, and proportion. The Greek term "Harmus," which is—but we refer the student to the work itself for the explanation, as it would be easier to say what it is—not; a very carefully drawn up memoir of the architect "Hawkesmore," as it is here spelt from the signature to his will of 1730, placing him in a very different light to the usually received meagre description of his works as a pupil of Wren, an assistant to his master and to Vanbrugh, and the designer of five of the great stone churches in London, besides numerous buildings of importance elsewhere. "Heart Wood;" "Heat;" "Hebrew Architecture;" and the last article we will notice, "Heddington Stone," so largely used at Oxford, completes the Part.

As may be gathered from these somewhat lengthy notices, great care has been devoted throughout these publications to obtaining fresh and reliable information, not merely in reprinting the hackneyed accounts of former writers. We would advise all our readers, whether amateurs or professionals, whenever they may be in doubt as to where information is to be found on a subject connected with architecture, to first try this Dictionary, for that step will save them a vast amount of unnecessary labour and time. The work should command a much larger list of subscribers, and it would then proceed more rapidly, and each subscriber would get more for his money.

We will now turn to the one Part of "Illustrations" issued during the same period, and dated March, 1864. These comprise drawings for the articles in the work above mentioned, and are irrespective of woodcuts, a larger number of which we see have been introduced with advantage into the last Part of text. The twelve plates comprise the subject "Fortress," a square old tower-like structure, called Palazzo Valdimina, at Alghamo; a very interesting work, with its details; two plates to illustrate many of the varieties from existing examples of "Girder," "Girder roof," and "Girder bridge," in timber and iron, and both combined; two plates to the article "Granary," giving some of the large constructed examples, and one on Doyere's system, as above mentioned; two coloured plates of "Grissaille glass," from drawings made expressly for the work, by the late Charles Winston, esq., and which were very kindly and liberally superintended by him during their execution at Mr. Brooks's establishment. They are wonderful representations of the effect of such glass, and show an accurate knowledge of the manner of the crude drawing of the period; "Half timber house," from Lisieux; "Lantern," from Constances, in a view, with plans and sections; the "Loggia," or Palazzo della Loggia, at Brescia, a very grand and yet picturesque work of the Italian school; a host of knockers, and other details of "Metal work;" these with two external Staircases, at Stamboul and at Viterbo, complete the material comprised on the twelve plates, which continue to exhibit great attention in selection and arrangement, and a fair amount of care and skill by the lithographers employed.

We perceive from the report that another Part of text will shortly be ready, while another Part of illustrations has somewhat progressed. We will only further notice that those who may feel interested to assist the undertaking, will find in the last Part of text, a list of terms, to be included in the following sheets, and another list of the subjects or articles, for which drawings are required for the illustrations, so that there is no excuse for saying that it is not known what would be useful to the Society. The honorary secretary stated at the annual meeting that, from a calculation he had made, founded on the progress of the work, compared with the list of terms printed previously to the commencement of it, the Dictionary would be fully half done on the completion of the letter H, to be issued in the next Part, a statement on which we may congratulate the Society.

ART AND MR. RUSKIN.

SIR.—You have been good enough to allow me, on several occasions lately, to remark on the present state and probable future of art and architecture, and on the means now in fashion to work out of our now universal system of blind and thoughtless reproduction of the forms and methods of the past by routine and manufacture. You have yourself all along battled this, and I am convinced that nothing short of a perpetual keeping up of the struggle will ever bring about even a commencement of a change: will you therefore allow me space for only a very few lines on the very important lecture lately read by Mr. Ruskin? It is, as it seems to me, the most significant contribution on this subject of the future of art and art education yet written; with Mr. Scott's last paper: they both together are wholly right or wholly wrong. I think they are wrong,—wholly wrong,—as guides for the future.

I doubt not that it must have struck you and others that this paper of Mr. Ruskin's differs in no slight degree from all he has yet put forth to the world, and indeed would seem to be a sort of general rejection and abandonment of what he has now been for more than a quarter of a century urging on the public and on art students. It differs, too, in this, that it is the first time Mr. Ruskin has lectured to a purely professional audience. He has now for the first time lectured architects face to face. The outside world may, therefore, well ask, "What does he say to them, and through them to us?" about the past, present, and future of art? I can, of course, only ask you for space for a few remarks on one or two of his multitude of art texts in it, i.e., one or two of them indicative of a policy out of many. I ask of your readers a little careful attention to facts.

Mr. Ruskin says, "We have absolutely as a nation," now at this present time, "no motives but vanity and the love of money" to actuate and guide us; but—and this is the foundational text of his address—in the past, in *archaic* times, "there was no fame of artists," never any credit to be got by the exercise of the artistic faculties. "The artist lived in an atmosphere of perpetual, wholesome, inevitable eclipse." Is this true? If it be, then we must all allow that the whole nature of humanity must have since then entirely changed, and that man is no longer the same sort of being that he was. I ask attention to this, because if Mr. Ruskin is in error here, all he has said fails to solve the difficulty which he cannot help seeing, and there must be something beyond which he does not and cannot see. But first for facts.

Some years since, under the auspices of the Camden Society, a little MS. history, now in the British Museum, was republished and translated, being a portion of "The Life and Doings of one Jocelin, of Brakelond," a monk of St. Edmundsbury, date from A.D. 1173 to 1202, i.e., the latter end of the twelfth century; and it will be admitted, sufficiently "archaic." During these thirty years, have we not only the doings of the writer and his thoughts, but, as well, those of his abbot, fragments of the histories of his brother monks, the *servants* of the monastery, the master of the ritual, what they said and did, and the very modes of finding timber and materials for new buildings, and a detailed account of the supply of funds for the expenses of the house and church; and, what is more perhaps to our present purpose, what the writer and his abbot and brethren *thought* about things. I respectfully ask Mr. Ruskin to procure the book—it may be got for a shilling,—and give it an attentive reading. It is a perfect insight into the life and ways of twelfth-century men, living and graphic as need be. In it he will find that, so far from love of wealth being absent from the minds of people, the abbot found it necessary to prohibit his monks from borrowing money, each one for himself, and storing it up; and, when timber for a new building could not be got at as easily as desired, the said Abbot Sampson himself headed his men, and saw to the cutting of it down and its cartage. Human nature has not changed. Again, not to lengthen this, when some new buildings were finally completed, and some incredulity seems to have been expressed as to their size and grandeur, the writer, in his enthusiasm and vanity, says to all comers, "If you will not believe, open your eyes and see," and when the "shrine" itself has some additions made to it in "pure gold," Jocelin defies the "world" to show or produce the like. Such was his vanity, and

the vanity of those in whose time he lived. What does Mr. Ruskin mean? Let him open his eyes and see, and *hear*, too, the abbot's motto, over on his lips,—*"I will not abate a jot of my glory"*—&c., as master.

It is not, therefore, as I take it, the *vanity* of artists or their *love of wealth* which now a days stands in the way, any more than it did in the twelfth century, of honest and true art action and the production of objects of fine art. To my mind it is precisely the reverse; the true reason, to my thinking, is—and it is this which I want Mr. Ruskin to attentively consider—that all those to a man, in these days, who work out our art, are not and cannot be actuated by either the one or the other of those powerful human feelings and aspirations. They who actually indicate and do the work are never credited with it; the "vanity" is not for them, but for some one else, running about, it may be, from job to job, gathering up all the "vanity," but who himself personally does nothing whatever as an artist. Has not Mr. Ruskin supplied the text for a future course of art action, but read it unfortunately backwards? The artists,—that is, the executive artists, of that "archaic" day did not live in a perpetual, wholesome, inevitable eclipse; but as this worthy monk will show him in a perpetual, wholesome, and inevitable notice and personal recognition as far possible as the art-power of the time admitted, and as the onlookers saw. Artists must, I think, read again Mr. Ruskin's lecture; but it must be backwards. What is in solemn truth now wanted in the world of art, and by artists, is not that vanity should be crushed out, but that every artist, whether draughtsman or workman, shall have his fair supply of "vanity;" and that it shall cease to be, as it now is, the sole privilege of a few, and, what is still worse, capable of being taken from those who may have earned it for nothing. Truly it is not much; for, as the work is, such is the vanity to be got out of it. It is, as Mr. Scott says, "starving" work!

I must not go on, I fear. I will but notice, if you will kindly allow it, one more text in this lecture. "The meanest man can imitate." I have seen Mr. Ruskin stand over a pupil, I will not say for how long, in the vain effort to get a dead leaf copied on paper, and fail after all. You cannot deceive Mr. Ruskin when his instinct is on the watch. He got the leaf on paper at last, but he was compelled to drop it there *himself*, without "idealism," without "composition," without "enchanted memory." In my own poor way I have tried to get a leaf simply copied, not on paper, where it is of no use, but in stone, and succeeded but miserably enough. I pestered the workman neither with "idealism," "composition," nor "enchantment," nor did I trust to his memory. The leaf was our difficulty. It is all Sir Joshua and his lectures over again. I cannot help saying that I think Mr. Ruskin owed more to his audience than to repeat such nonsense as this, and that he should have given *architecture* for the first time some PRACTICAL consideration, and should have inquired of the Institute how "architecture" is brought into actual being, and what the successive stages are from and between the "design" and the "building and its enrichment." It is here that the problem and great art secret of the future will be found to lie hid. I ask Mr. Ruskin to forget his books and his Gothic—to own he did not write this lecture—to look at simple facts as they are—and at the three ways of bringing into being an art work or a building—the sketcher, i.e. the architect—his clerk who draws out and makes it practical and workable—and finally, but not least, the workman who executes, and whose handwriting or scrawl it really is which Mr. Ruskin is looking at when he imagines so vainly it is the handwriting of a master.

C. BRUCE ALLEN.

STATE OF THE STATUES.

LONDON owes you thanks for caring for its public statues. Does any historian record so extraordinary an event as the cleansing of them? Does the oldest inhabitant recollect any such occurrence? Can any of the great landlords, or the Government, or the local authorities, show accounts proving the performance of so interesting and needful a ceremony? *Achilles*, in Hyde Park, has recently been cleaned; but there are three bronze statues almost daily under my notice which sadly want a helping-hand. 1st, *William Pitt*, the heaven-born minister, standing appropriately in Hanover-square, surely deserves

relief. But there he stands, black as ever his most desperate opponents could have made him, protesting against the infernal garb he is forced to wear, insisting that his character is fair as the skies of May, and demanding consideration from the representatives of the stanch English king, whose throne he so effectually supported, and who stood by him in all his difficult undertakings in defence of the liberty and constitution of this country. 2nd, *H.R.H. the Duke of Kent*, that good, kind, and excellent prince, whose virtues are daily bearing fruit in the illustrious reign of our most gracious Queen. I look back through many years to childish walks in Portland-place, and to the repugnance I then felt to this great black image: asking, as other children now ask, why it was made black? But this is not alone a child's question; it concerns us all. Why should we not be permitted to see the beautiful work of the artist? Why should it be veiled in soot for ever? Sometimes, indeed, a glimpse is afforded: but no thanks to man for it. Jack Frost occasionally delights in showing off the countenance and the drapery, by his imitable touches of white. But a few hours dispel the vision; black resumes its dismal sway, and forbids veneration or respect. 3rd, *Lord George Bentinck* was set up in Cavendish-square by a large party of admirers, many of them grateful for his determined advocacy of *protection*; others sympathising heartily with his sporting character. When placed there, his fame was resplendent as the lustrous bronze. Has it since been eclipsed by the increasing glory of *free trade*? Or are his friends ashamed of him, and of the cause he so stoutly defended? Surely nothing else can have tarnished it; but now, alas! he is black as the heroes of the last century. *Mud* was cast upon him five or six years ago. Was this an act of malice by some opponent in politics, or by some loser on the turf? There it sticks; and had the poor man been set in the pillory, he could scarcely have exhibited more signs of disgrace.

Now, all this is discreditable. Art is now the talk and pretence for large outlay. Ambitious men aspire to direct public taste: but who cares for our statues? London possesses many of them. Why not educate the eye of the child and the wayfarer, by presenting clean works of art to view, rather than horrify the public year after year, by the spectacle of human forms of colossal dimensions, shrouded in the blackness and darkness of dirt.

C. H. H.

EGYPTIAN ANTIQUITIES AND ENGLISH TOURISTS.

IN an article by M. Renan in the *Revue des Deux Mondes*, on the antiquities of Egypt and the excavations now in progress, he makes the following statement:—

"The worst enemies of Egyptian antiquities have been the English or American travellers, systematically protected in all their misdeeds by their consuls. The names of these idiots will go down to posterity because they have taken pains to write them themselves on the most celebrated monuments and over the most delicate designs. It is thus that the invaluable pictures of the gnostics of Beni-Hassan have almost entirely disappeared: the most beautiful tombs of Biban-el-Molouk are odiously disfigured, and a precious portion of the sculptures of Deir-el-Bahari was stolen some days after M. Mariette had exposed it. The wise principle that the antiquities are the property of Government has been proclaimed: a watch is established over them; but what if a brutal stranger, despising all law, defies the guardian, burns the door of the monument, if there be one, breaks everything at his leisure, and if the guardian so much as touches him, complains to his consul, who causes the unhappy native to be beaten? The process of destruction, however, has of late years diminished. This is proved by the fact that the natives who profited by the stupid curiosity of travellers, have fallen back on the manufacture of false antiquities. We have seen some of these establishments, and we feel disposed to encourage them. The apocryphal objects produced suffice to supply the tourist, and cannot injure true science."

Mr. C. H. Wilson, of Glasgow, sends us an indignant and very proper protest against the partiality of M. Renan, which leads him to limit his condemnation to English and American travellers. Mr. Wilson says,—

When in Egypt, I saw, on nearly every monument on the Nile, in letters of white chalk, 6 inches high, and scrawled over 'delicate designs,' the name of a French 'idiot,' who called herself the Countess de something, who had thus conveyed her name 'to posterity; but I should hardly have thought, on account of this particular 'idiot,' of accusing the whole body of French travellers of being enemies of Egyptian antiquities. I venture to say, without fear of contradiction, that M. Renan found

nowhere, on these antiquities, an English name of the same social rank. On the Pylon of the temple at Philæ, there is a long French inscription of many lines, *cut into the stone*, by 'Castex, sculpteur,' commemorating the pursuit of the Memlooks to this part of Egypt by French troops; and as some insane loyalist has obliterated the name of Napoleon in part of the inscription, another Frenchman has printed in oil paint, 'A page of history ought to be respected.' Can M. Renan point to any 'English or American' inscription upon any Egyptian monument to compare with this? Has M. Renan any words of condemnation for the Romans who formed part of a scientific commission to examine Egyptian antiquities some years ago, and who, with execrably bad taste, have disfigured the beautiful columns of the abrine of Isis at Philæ by inscriptions in black paint, the letters being at least 6 inches in height? Amongst the thousands of English and Americans who have travelled in Egypt, including no doubt a legion of snobs, no one has approached the snobbery of this inscription, or has so seriously injured any Egyptian monument. The shock given by these inscriptions, which thus coarsely invade the antique sanctity of Philæ, can only be appreciated by those who have been surprised by them, on visiting the monuments there. But, on the other hand, M. Renan may quote the Anglo-Saxon names in enormous letters, and in black paint, which so hideously disfigure the column 'of Pompey' at Alexandria, evidently the work of daring and foolish sailors, whether English or American it is impossible to say; or he may point to the names on the summit of the Great Pyramid, or to those scrawled in white chalk on the top of the temple at Dendera. Do some travellers carry white chalk in their pockets? These are disgraceful enough, and amongst them predominate the names of two Glasgow 'idiots,' in letters a foot high; but they are written on the plain masonry, and nowhere that I can recollect upon works of art. Nor were the perpetrators people of rank, or even savans. At Bibân-el-Molook, 'The Gates of the Kings,' tombs of the kings at Thebes, I certainly saw many English names, but written in pencil on broken parts of the rocks, and in small characters. I cannot recall any on the works of art. Some were the names of very celebrated travellers, who never could have written them where they could do any harm, and which give a certain sanction to the practice, whilst its antiquity is illustrated in the most interesting manner on venerable monuments in the Valley of the Nile, on which the names of old Greek and Roman travellers, the 'idiots' of their time, are found inscribed. It is perhaps impossible, if it is desirable, to prevent a practice common to all nations in all times, but the partial and one-sided criticism of M. Renan may do good if it leads all travellers to indulge the propensity in a harmless manner.

BILLINGSGATE MARKET: A SUGGESTION.

SINCE the erection of this fishmarket a great change has taken place in all that respects the supply, the demand, and the transmuted interests of dealers resident within our continuously spreading town and suburbs. The river was formerly the medium whereby fish was delivered from barges; and the moored craft were used to store cargoes, more especially oysters, until the recurring market-day again cleared the hold. Such, however, has been the increase of population, and the spread, in a westward direction, of interminable ranges of houses, that while Tooley-street stands out two miles from the centre eastward, the market, which barely sufficed at the period of its foundation, is too small for the enormous traffic of the times. The greatest sources of demand lie far afield in the western, north-western, and south-western directions, and the fish salesmen and vendors have to drive farther to attend markets at four or five o'clock, a.m. But the greatest change of attendant circumstances is in the supply of the commodity, four-fifths parts whereof are now forwarded by railways from all the lines which, starting from the ports or fishing stations, converge in the grand central terminus at Farringdon-street.

There are few large commercial towns which have not markets equal to those of the City, and many possess fish, meat, and vegetable markets of greater extent and far superior in constructive provisions to those of the metropolis. It is needless to refer to Leadenhall and Newgate

Markets, which are to be supplemented by that projected and planned for Smithfield. Like the meat markets generally through all parts of the town, these central and ancient marts are not only too limited, but most unfavourably constructed for the conservancy of viands for any population; therefore the adaptation of Smithfield to the purpose will not only be a great convenience, but an additional security for the storage of meat, and for the public health, which so much depends upon the quality of their food.

If upon all these grounds the removal of the meat-market is desirable, a change of Billingsgate to a more central position, such as Farringdon-road, the new centre of railway traffic, is still more needed. A large, open, and yet unappropriated site is available there; it is more easily accessible by the dealers, the fish-salesmen, and the public; besides that, the deposit of supplies by rail would render the transit less expensive. Proper shambles, with water-supply and extensive storage-cellars, offices, assembly and reception rooms, and all the requisite appendages of a great improved market, might be provided at a reasonable rate, while the present market, hedging in and constricting, as it does, the Custom House, the shipping wharves, and the Tooley-street stores, might be disposed of at an enhanced value.

This is a question which properly belongs to the Corporation, therefore private enterprise cannot attempt competition in the matter. The attempt to establish Hungerford Market was abortive because the site was too far westward, and it was undertaken at a time when nearly all the fish supplies came by water; now all the circumstances are changed, and the opportunity occurs, before the vacant ground is appropriated, of raising a market that might do credit to the City, and vastly improve two most important localities; and also give liberty to the present stunted accommodation for wharfrage of the increasing passenger-trade by steam-vessels to London Bridge. For these purposes, coupled with the needed extension of the Custom House, and the liberation of the Pool, which is now blockaded at this most important and terminal portion of the quay, the site of Billingsgate is of almost unappreciable value; and the surplus, beyond its cost or value when these shambles were erected, would pay for the new and extended site. It ought to be kept in view that hundreds of vans and carts assemble there both to carry in and to remove the never-failing supplies of this perishable commodity; and that hundreds of dealers drive thither, thus embarrassing a neighbourhood unprovided with stabling or sheds. Therefore provision should be made in this respect at any new locality; for without it great inconvenience must be sustained by dealers as well as householders in the vicinages: this is much felt at present, as the situation close to London Bridge is full of stores, and is approachable by the narrowest defiles of the old City.

THE ALTAR TO THE NYMPHS, ALNWICK CASTLE.

EARL STANHOPE, in his recent address as President to the Society of Antiquaries, said, when speaking of the late Duke of Northumberland, "It was in accordance with the same tastes and studies that the Duke formed, in his magnificent castle at Alnwick, two museums, the one to comprise the antiquities which he had brought from Egypt, and the other devoted to the antiquities of Britain, and especially to some of the moveable objects derived from the Roman Wall. Among the latter there is now probably the most remarkable of all, an altar to the Nymphs, which was found at the ancient outpost of Habitancum, the modern Rishingham, that same spot commemorated as the birthplace of Bertram in the *Rokeby* of Sir Walter Scott. The altar in question is well described and elucidated by Dr. Bruce, at page 414, in his 'History of the Roman Wall,' but at the time he wrote, namely, in 1852, the altar was not, as now, in any museum, but held a place in the garden of Spencer Trevelyan, esq., of Long Widdon. The inscription upon it is as follows:—

*'Somnio premonitis miles hanc ponere jussit
Aram que Fabio nupta est Nymphis veneranda.'*

These two hexameters, besides that they are not free from false quantities, will be found not a little difficult to construe or to understand. Lord Macanlay, to whom I showed the lines, was, I remember, greatly interested in them, and discussed them with me on more than one

occasion. He was by no means satisfied with either of the two interpretations which Dr. Bruce in his History suggests. It appeared to him, as I confess it appeared to me also, that the passage is best explained by the ellipse, on account of the metre, of *Puellæ* or some equivalent word. In that case the meaning, somewhat different from that which in either of his suppositions Dr. Bruce assigns, would be to the following effect: 'A soldier, warned in a dream by the maiden who is married to Fabius, directed the erection of this altar to the nymphs to whom worship is due.'"

PRINCIPAL PICTURES PURCHASED BY THE PRIZEHOLDERS IN THE ART-UNION OF LONDON, TO THIS TIME.

From the Royal Academy.—"Lochaber no more," W. H. Paton, 108*l.*; Mother and Child, J. Colman, 75*l.*; Summer, A. W. Williams, 40*l.*; River Scene, Sunset, W. Ascroft, 40*l.*; The Glydys, from Lynn Gwyant, C. Marshall, 30*l.*; Old Chateau, Keak, C. Price, 30*l.*; Arran Hills, from Rute, J. Adam, 25*l.*; Group of Beeches, Knowle Park, R. Butler, 25*l.*; Cornfields near the Coast, S. R. Percy, 20*l.*
From the Edinburgh Art Union.—Dysart, Scotland, East Coast, J. Danby, 105*l.*; The Town and Valley of Festing, E. J. Niemann, 75*l.*; Scene on the River Clyde, Stonebrakes, J. Gill, 65*l.*; Solomon, H. W. Phillips, 52*l.*; Fall on the Clyde, Steneybry, E. Gill, 35*l.*; A Calm, C. Dommerson, 21*l.*; Walton Bridge, on the Thames, W. E. Bates, 20*l.*; Horses and Poultry, J. F. Herring, 20*l.*
From the Society of British Artists.—The Thorn, R. J. Colbert, 160*l.*; An old French Fishing Town, J. J. Wilson, 75*l.*; Tower in Chepstow Castle, J. Tennant, 60*l.*; At Capel Curig, North Wales, J. Hennell, 55*l.*; Warming Out, Fresh breeze, J. J. Wilson, 40*l.*; Thorngill Brook, Yorkshire, H. J. Boddington, 40*l.*; The Princess Elizabeth in captivity at Hatfield, 1559, J. Noble, 40*l.*; Near Warrington, Surrey, J. E. Meadows, 40*l.*; Blackdown, Surrey, C. Smith, 35*l.*; Godalming, Surrey, G. Cole, 31*l.*; 10*l.*; Welsh Peasant Children, T. F. Marshall, 30*l.*; On the Hills by Moonlight, A. Gilbert, 30*l.*; Little Serag Oak Farm, Isle of Wight, J. E. Meadows, 25*l.*; Morning, Noon, and Night, W. S. Rose, 30*l.*; Going to Market, J. Noble, 25*l.*; An English River Scene, E. L. Meadows, 25*l.*; An old weir on the Thames, H. J. Boddington, 25*l.*; Maggie Ait, on the Thames, H. J. Boddington, 25*l.*; The Enthusiast, W. Weir (late), 20*l.*; Woodman's Cottage, J. B. Labbrooke, 20*l.*; Bettws-y-Coed, J. J. Currock, 20*l.*; On the St. German's, Cornwall, W. Pitt, 20*l.*; In the Lleir Valley, J. J. Boddington, 20*l.*
From the Royal Scottish Academy.—Morning Light on Benmore, James Docherty, 24*l.*
From the Water Colour Society.—The Sea-view, W. Goodall, 42*l.*; Ullewater, from near Pooley Bridge, D. Cox, Jun., 31*l.*; 10*l.*
From the Institute of Painters in Water Colour.—Tombs of the Manuloke, &c., C. Yeveling, 100*l.*; Flushing, 100*l.*; Provision Boats returning from Wind-bound Vessels, T. S. Robins, 35*l.*; Bridge at Bovey Tracy, S. Devon, H. C. Fidgeon, 25*l.*; The Stream at Bradgate, J. W. Whymper, 25*l.*; Ruins at Bradgate, J. W. Whymper, 21*l.*; The Mountain Hill, D. H. M'Kewan, 17*l.*; On the Wharfe, Bolton Abbey, Yorkshire, D. H. M'Kewan, 17*l.*; 17*l.*

ON MECHANICAL CONTRIVANCES FOR THE SIGHT, AND HOW TO PRESERVE IT.

I HAVE no doubt but that, some day, we shall have spectacles whereby a man will be reading his manuscript from the desk and yet looking at his audience at the same time. Such an invention as this must come, if it has not arrived already. The opticians of the present generation will reap a fair harvest of income from the fact that people now-a-days have so very much reading. Formerly, from a want of learning, people retained their sight more vigorously than we do at present, because they did not abuse it. Paraffine oil and gas-light, and long nights of romance reading, will soon impair the visual organs even of youth. No doubt but the oil-lamp, which used to be, gave the eye also great fatigue in reading, though it had not a fraction of the temptations it has now. A magnifying glass somewhat the size of the pages generally read would be useful in keeping the eyes unimpaired, together with shades, to check the intensity of light thrown upon them. The glass ought to be square, and raised to its focus from the surface of the book just enough to enlarge the print. This would be most acceptable to the young, and as essential to them as a good pair of spectacles would be to the aged. It ought to be cheap, too, because cheapness means popularity. Our eyes, then, those delightful lenses that serve us in the wise discrimination of the beautiful, ought to be treated more than the game and "kobi-nors" of the wealthy; and the more we attend to and study their mechanism, the longer will they fulfil the office of the "good and faithful servant." A. H.

SOCIAL SCIENCE ASSOCIATION.—The ninth annual meeting of the National Association for the Promotion of Social Science will be held at Sheffield, under the presidency of Lord Brougham, from the 4th to the 11th of October next.

ARCHÆOLOGY ABROAD.

NEAR Senlis, 33 miles from Paris, some Roman remains lately discovered are being laid bare by the exertions of the Archaeological Society. As far as they have gone several courts, chambers, and doorways have been brought to light by the excavations. The funds of the Society not being very extensive are unable to satisfy the demand of the landowner proprietor, which is exorbitant. He has evidently no affection for the relics of bygone ages, having threatened that he will, if not promptly settled with, fill up the excavations as he wants to sow his crops, &c.

According to the *Courrier de Lyon* an archaeological discovery of some interest has been lately made on the Gay property at Fourvères. It consists of the ground-floor of a Roman mansion with hypocaust, bath chambers, cisterns, &c. In one of the walls surrounding the building is a niche, encircled with fresco paintings on a red ground, and supposed to have been the sanctuary of the *Lares*.

At thirty-five kilomètres S.E. from Constantine, in Algiers, on the slopes giving rise to the streams of Bon-Mezoug, not far from the Batna road, and in a country called by the natives *Mordjet-el-Gourzi*, within a radius of more than three leagues, on the mountainous portion as well as on the plain, all the country surrounding these sources is covered with monuments of Celtic form, such as dolmens, demi-dolmens, cromlechs, menhirs, alleys, and tumuli. Féraud, interpreter of the African army, who has been unremitting in the prosecution of these researches, says he never counted them, but that he examined more than a thousand during the three days that the exploring lasted. These monuments are not only scattered in great numbers over a small space, but are connected together, so that, while each monument is a complexity in itself, it also forms portion of a greater general system. Mr. Bertrand, who has studied Celtic remains all over Europe, remarks that in one case, a tumulus surrounded by several circles of stones or cromlechs, and surmounted by a great table or dolmen, is exactly similar to those he observed in Denmark. Several of the tumuli, of which the stone circles mark the bases, have been opened in the environs of Constantine, contained bodies, unburned, frequently with the arms crossed and the knees bent up so as to touch the chin. This is precisely the position of the skeletons in the stone age of Denmark. It is worthy of remark that while the latter are of the stone age and those of Gaul of the bronze age, the Constantine remains are of the iron age.

SOUTH KENSINGTON NEW ROAD BILL.

THE rejection of this Bill by the Committee of the House of Commons has been the subject of correspondence in the press, and an important preliminary meeting of the resident gentry has been held at the South Kensington Hotel, Queen's-gate-terrace—Mr. Charles Buxton, M.P., in the chair—to take into consideration the propriety of applying to Parliament for the recommitment of the Bill. The resolutions were unanimously supported by an influential body of gentlemen, including the following:—Sir Ralph Howard, bart., Colonel Sir Thomas Troubridge, bart., Lord William Lennox, Admiral Bethune, Rear-Admiral Buckle, the Hon. Captain Maude; R.N., Mr. F. H. Atterbury, Captain Walrond Cleary, Mr. C. J. Preake, Mr. F. H. P. Wetherall, Mr. G. S. Dale, Mr. John Stapleton, and Mr. W. W. Lawrence. The resolutions were as follows:—Moved by Sir Ralph Howard, bart., and seconded by Admiral Bethune, "Resolved, that in the opinion of this meeting the construction of the proposed new road or street from Cadogan place to the South Kensington Museum would be of great local and public advantage, and that the project meets with their cordial approval, and in the opinion of the meeting is well deserving of public support." Moved by Colonel Sir Thomas Troubridge, bart., and seconded by Mr. William Douglas, "Resolved, that this meeting is of opinion that it is desirable that the promoters of the undertaking should make an application to the House of Commons for a recommitment of the Bill during the present session." Moved by the Hon. Captain Maude, R.N., and seconded by Rear-Admiral Buckle,—"Resolved, that a vote of thanks be tendered to Mr. Charles Buxton, M.P., the chairman, for his able conduct in the chair."

VALUERS' TENDERS.

THE guardians of the Halifax Union advertised for tenders for the valuation of property in the Union that may be requisite during the ensuing twelve months, for the purpose of parochial assessment. The following is a list of the tenders, showing the rates per cent. on the rateable value of property on which it was proposed to take the valuations:—

	s.	d.
Robertshaw & Berry, Lightcliffe.....	100	0 per cent.
Hipperholme.....	40	0 "
J. Mallinson, Halifax.....	33	0 "
Corbett & Raby, Manchester.....	33	0 "
Hepworth & Halliwell, Brighouse.....	30	0 "
James Powell, Harrogate.....	20	0 "
B. W. Jackson, Halifax.....	20	0 "
Stevenson & Utley, Halifax.....	20	0 "
Butler, Cleckheaton.....	20	0 "
J. Booth, Halifax.....	15	0 "
Kershaw, Halifax.....	15	0 "
R. Horsfall, Halifax.....	12	6 "

and the last-named Tender has been accepted.

THE DANTE EXHIBITION.

THE *Dantesque* Exhibition, in the lower rooms of the Bargello,—on the wall of one of which, formerly used as a chapel, the portrait of Dante, by Giotto, was brought to light from under coats of whitewash in 1841,—consisted of invaluable manuscripts of different editions of Dante's works, produced during the five centuries after his birth, among which, one *engraved* on vellum (considered unique), beautifully illuminated copies, documents relating to Dante and personages mentioned by him in his works, all brought from the Florentine archives and from those of other Italian towns, as well as from the libraries of private individuals,—formed a source of deeper interest to the Danteologist than the casual inspector, and required more time than the glances obtained in a crowd during the three days when *all* were exhibited. The part belonging to Florence still remains for the student to pore over; the others have been returned to their owners. Every portrait of the poet attainable was also there; modern pictures, engravings, ivories, sculptures, photographs, medals,—in fact, every artistic object relative to Dante.

The *Medieval* exhibition was hastily arranged, the collection gathered together in a fortnight. This partly explains its smallness. In a city like Florence, the cradle of the most beautiful of *Medieval* art, more might have been expected; but all to be seen is very beautiful and interesting. Two rooms are devoted to ancient armour, among which are to be seen some of the wonderful specimens of fine steel armour, inlaid with graven gold ornament, that of a *Guadagni*, of the sixteenth century, the richest; another, of the fifteenth, of steel, with figures in relief; shields, of marvellously artistic design and execution; saddles, of finely-carved ivory, of the fifteenth century; a collection of finely-mounted daggers, of work from the fourteenth to the seventeenth century. Then there is a cabinet of Chinese small enamelled vases, encrusted with gold. The Exhibition is rich in beautiful panels; fifteen out chests, the fronts painted with historical subjects, the lids and stands handsomely gilded.

The principal room contains specimens (lent by the king) of the finest majolica known,—those also of the later kind, with elegant arabesques surrounding small gem-like cameos,—gorgeous wine-coolers, elegant tazze, marvels of art, two cases of carved ivory objects, and one of amber, manufactured into every conceivable object of ornament. The specimens of Limoges enamel are some of the finest seen. One, supposed to be by Mariano, 1530, for delicacy of design and execution, and brilliancy of colour, cannot be surpassed. An early thirteenth century specimen of Niello, an inch in diameter,—subject, an anatomist of Christ, with many figures, very perfect; it is the centre of a brass patina. Among the bronzes, a *Medusa*, by Benvenuto Cellini, and bust of Alexander de Medici, are the most interesting. A lovely female head in terra cotta, by Leonardo da Vinci, is amongst the most choice objects.

There is a fine selection of precious seals. That of the Republic, with the Hercules, in bas relief; episcopal rings of Paul II. and of Pius III. The numismatic contributions are very valuable and numerous. There are antique reliquaries, ornate in ivory, rivaling Guercino's on canvases, for expression and feeling; caskets of ivory, of silver, and coral of carved wood, in design so beautiful one would wish to send them as examples to our modern workmen. A green enamelled watch,

with gold figures in high relief, of high finish, formerly belonging to Voltaire, is among the objects of interest. Mr. Spence has sent a roomful of sixteenth century valuables.

Gorgeously painted and gilded chests, an old bedstead in excellent preservation, such as we see in Andrea del Sarto's pictures; tapestry lines the walls—subjects from the old masters. A Luca della Robbia, and cabinets of old bronzes, and gems of all kinds, are there.

The want of a catalogue is much felt, the names of the contributors alone in most cases being attached, without any explanation. The king has expressed a wish that the present collection shall form a nucleus for a permanent Exhibition of *Medieval* Art, and it is to be earnestly hoped the wish may be complied with, and that the numerous treasures now hidden in Italian private collections, may be displayed to not only the Florentine public, but the many foreigners visiting the new capital of Italy.

LABOURERS' COTTAGES.

THE "*seata questio*" of economically constructed labourers' cottages seems further from solution than ever, if we may judge from the list of tenders that have been obtained for carrying out the last prize design of the Society of Arts, published in the *Builder* of December 31, 1864. That design was estimated to cost 208l., the pair of cottages; but the lowest builder's tender, according to the list afterwards given, amounts to 397l. 13s. 4d.

Annexed is a design, prepared for the last Society of Arts' competition, but which unfortunately did not come under the notice of the Society, from having been delayed in transit. Now, as my pair of cottages were estimated by myself to cost 200l., including architect's commission and supervision; and as, moreover, I have now before me a builder's tender, offering to execute the pair for 180l., which I obtained at the time and now forward; I hope I may be allowed, "without prejudice," to allude to one or two features of the design.

On the ground-floor I have a living-room, 13 ft. by 11 ft.; a scullery, 9 ft. by 8 ft.; a pantry (not a closet in a room), 4 ft. by 5 ft.; a coal or fuel place; good entrance-porch; staircase (entirely to itself), 6 ft. by 7 ft.; and a store closet.

In the prize design there are no fewer than four doors in the scullery, which is without a fireplace, and the boiler is placed close to the door of the living-room. There are two doors in the living-room; indeed, both these rooms form a complete thoroughfare to and from the yard, and W. C. at back, and the stairs and chamber at front. That this arrangement is adopted for economical reasons I am at a loss to understand.

In my design I provide a good staircase, approachable from every room in the house separately. None of the rooms are passages from one part of the house or premises to another. I have only one entrance to the living-room and one to the scullery, both opening into the entrance passage, into which also the pantry opens; and in the same passage or lobby is the foot of the staircase.

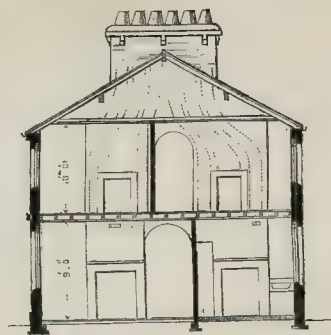
On the chamber-floor I have three bed-rooms, respectively 11 ft. by 9 ft. 3 in., 12 ft. by 8 ft. 6 in., and 6 ft. by 8 ft. In the latter is a cheaply-constructed but efficient bath, and over it a cistern, which collects the whole rainfall of the roof. Town water might, of course, be laid on to this cistern in localities where it is desirable or available. The pitch of roof I have given is just sufficient for utility. It gives more cubical internal space, and at the same time is less costly than the high-pitched roof shown in the prize design (and by some fatality generally adopted), as will be readily seen. I have also avoided that eternal central gutter, with its cost and its insufferable nuisance; and all the down conductors of rainwater I employ consist of an overflow pipe from the cistern to a water-butt in the yard, and a small pipe and tap to the sink in the scullery.

I will not now enter into further detail on the subject; but, if there be any certainty in figures, or trust in "the sons of men" in the shape of builders, I have yet to be convinced that my design cannot be creditably carried out, including cost of supervision, for 200l. the pair of cottages.

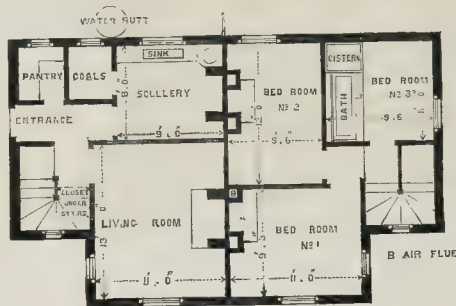
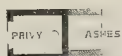
Mr. Sinclair says in his letter,—"Any one can build a good labourer's cottage; the difficulty is to build one for little money." Granted. But I am convinced that 40l. or 50l. less than the



FRONT ELEVATION



SECTION



GROUND PLAN

SCALE OF FEET

LABOURERS' COTTAGES.

sum named by Mr. Sinclair would provide for the labourer with a small family a home that, as far as comfort and sanitary arrangements go, might be to him as good as a mansion.

In my letter to the Committee of the Society of Arts accompanying my design, I find the following passage:—"In considering this design I have endeavoured to secure to the labourer the greatest possible amount of comfort with the means at disposal; and am quite convinced that this can be satisfactorily accomplished without cost to the proprietor which shall at all militate from an adequate return for original outlay."

JAMES KENDALL, Architect.

MEDIEVAL DOMESTIC ARCHITECTURE OF GERMANY.

No country in Europe offers so many examples of domestic architecture of the Middle Ages as Germany. The names of Frankfort, Nuremberg, Ratisbon, and Prague are familiar to all who take an interest in Gothic architecture; and there are many less visited towns, such as Warzburg, Bamberg, Landsbut, and Ochsenfurth,

which are nearly, if not quite, as interesting as their better-known and more important neighbours.

The architecture of Nuremberg has constantly been illustrated and described, and perhaps no town in Europe is so thoroughly Mediæval; its houses, however, are not of great antiquity, few, if any, of them being of earlier date than the fifteenth century.

Ratisbon, perhaps, contains the earliest examples of Mediæval domestic architecture in existence. Many of its houses possess Romanesque and First Pointed windows (see example, fig. 1), vaulting, staircases, &c. The windows are often peculiarly beautiful: they generally consist of two or three bead-moulded arches, resting upon slender shafts, which are quite detached from the wooden casements. Sometimes a little tracery is introduced into the heads of the lights, as in fig. 2. The "Goliath's Haas" is the finest and most perfect thirteenth century house in existence. The doorways have generally been replaced at a later date. Fig. 3 is a good example of a late doorway. The shops, basements, and passages are generally vaulted, and are not unfrequently ornamented with bosses and carved corbels.

Landsbut is a town which carries one back to the sixteenth century: its principal street, which is nearly a mile long, contains scarcely a single modern building. Every house has a gable: the material used is brick, except for the windows, which are either stone or wood. The fronts are generally covered with plaster, which in many instances still retains vestiges of decorations. A vaulted arcade runs along the east side of the street. No town that I have ever seen contains so much vaulting as Landsbut. Even the shops, stables, and beer-cellars have vaulted ceilings worthy of the aisles of a cathedral. Fig. 4 is a good example of a Landsbut gable.

Fig. 5 is a house of very peculiar design in the Cathedral-place at Frankfort: it is probably a work of the fifteenth century. The battlement is treated in a very striking way. There are houses of very similar design to be found in the "Kvautmarkt," "Römer-platz," and on the Quay. The slaughter-house at Frankfort is a curious example of Mediæval architecture, and well worthy of notice. Unfortunately modern "improvements" are making sad havoc amongst specimens of the domestic architecture of Frankfort, and soon few vestiges of antiquity will be left in this city.

H. W. BREWER.



H. Brewer. del.

T. H. Marshall. sc.

MEDIEVAL DOMESTIC ARCHITECTURE OF GERMANY.

LIFE AND DEATH IN LONDON AND PARIS.

THE fact mentioned in the *Builder* of the 22nd of April, that there has been a reduction in the mortality of Paris during the years 1860, 1861, 1862, and 1863, and that in the same period there has been an increase in the mortality of London, is a matter which requires our most serious and careful attention; for, amongst other reasons, there are still some who argue that sanitary improvements are of but little avail; and this number will be increased if it is shown that the large expenditure which has been made in the London district fails, in the matter of health and the duration of life, to enable us to compete in this way with the neighbouring capital. We will, therefore, jot down a few points on which we should have clear information before coming to positive conclusions respecting the value of the sanitary measures that have been brought into use; for there are important causes of excessive death which do not depend altogether upon the neglect of drainage, although that will always be one main point on which the inhabitants of towns, villages, mansions, and dwelling-places of all kinds, must rely for health. We require particulars, so that by contrast and comparison we may be able to test the causes by which the health of the two capitals is affected by means independent of the general system of drainage which may be in use.

The medical treatment of the sick poor is, according to the manner in which it is managed, the means of either saving or losing a considerable number of lives. In London there is great improvement required in this respect. The subdivision of the metropolis into parishes, the workings of so many contending interests, the manner in which medical relief-orders are dispensed by relieving officers, particularly in poor and crowded districts, and other matters connected with this department of the management of a great city, to which the *Builder* has before at different times referred in detail, materially affect the death-rate.

From different reliable authorities as to the manner in which the sick poor of Paris are treated, it would seem to be better than with us. The management there, not only in this way, but also in the visitation and relief of the helpless poor, is on a broad and comprehensive plan, which prevents those painful cases of neglect that are so often followed by the sacrifice of lives which might otherwise be saved; and we should know what percentage of deaths may be fairly set against London in this respect.

It is likely, also, that in Paris there is a saving in consequence of the plan which is used regarding the very large number of infant children who are either unclaimed or little cared for, but who are gathered up and provided for by the State, and sent, for the purpose of being reared, to rural places, where their condition is inspected, and where there is a better chance of life than there is in the crowded and polluted alleys, and in the wretched tenements and bad air of a great city. Even the size of a city, and the number of people that are gathered on a particular space, are the cause of death. In the comparison of the death-rates of Paris and London we should have not only notes of the extent of space which is crowded beyond a certain limit, but also the general allowance of space for the dwellers in each capital.

Under an imperial rule, when it is guided by an intelligence such as that which now reigns in France, there are many advantages in the way in which sanitary and social improvements can be carried out. We all know how difficult it is to move the municipal bodies, the Parliament, &c., to carry out measures which are known to be absolutely necessary. In Paris, the changes which have been made by direction of the Emperor Napoleon in the dwellings of the industrious portions of the community, although they cause present inconvenience and increased rent, will eventually produce good. Even now the position of affairs will be of advantage to the Parisian death-rate. In London, the state in which immense masses of the people live is one of terrible confusion and antagonism to health. Morality, even decency, is far too often impossible; and there are parishes with a population of from 150,000 to 200,000, in which thousands of people—men, women, and children—live in tenement dwellings left in the sanitary care of only two, three, and, in some rare instances, four inspectors of health, who are appointed by the boards of guardians—gentlemen who

in many instances have a direct pecuniary interest in preventing the necessary outlay of money on this kind of household property. We want an estimate of the number of deaths in the thousand occurring in the metropolis which can be fairly attributed to this cause alone.

To intemperance and its after effects, both as regard men and women, and children, who are either affected in infancy by the administration of strong drinks, or by the effect which their use has upon the constitution of children whose parents have been addicted to them, there are more deaths to be attributed in London than in Paris.

The population of London is about twice the number of that of Paris, and we should know the proportions in each city which the struggling poor bear to those who are rightly supplied with all the necessities of life; and also the numbers in each place who are employed in trades affecting the duration of life; or who work in situations which are unfavourable to the duration of life or the preservation of health.

In Paris of London, vast populations are placed in the most evil sanitary conditions. The people are under-fed, ill-clad, and live in and are surrounded by an atmosphere of filth which surely performs deadly work.

The dirty state of the streets of our metropolis has been so recently referred to in the *Builder*, that we will not at present say more on the matter, except to remind our readers of the neglect of scavenging, both in the muddy months and in those when the dry polluted dust finds its way into the lungs of every wayfarer, and which, by entering houses and shops, does not allow those who are indoors to escape. Paris is better than London in this respect; and, as a sure consequence, we must give to the last-named place an extra number of deaths.

The quality of the food used by the families of the industrial and poorer classes in a great capital, is a most important consideration; and in London there is certainly a great want of proper inspection, not only of some of the markets, but also of the shops of many of the tradesmen who deal in the necessities of life for the use of the poorer part of the community. Is this better managed in Paris? We fancy that the extra quantity of vegetable diet used in Paris will be less dangerous to health than the various kinds of butcher's meat and fish which, in diseased and often in putrid conditions, are allowed to be disguised in so many forms and offered with the object of tempting the hungry to buy.

When considering the effect of the improved drainage of London, we should bear in mind that there is here an immense quantity of work of this kind to be executed. Hundreds of cesspools still exist in situations where human life is the most exposed to their bad influence; and besides, the main drainage, so far as regards health, has not been brought yet into operation. It is our duty to use every exertion to hasten the Parisians in the healthiness of our capital, and we hope that the "good day is coming" when our rivalry with France will be in matters of sanitary science and its application, to preserve the bodily health and add to the duration of the lives of the people. In this way, and in the improvement of the arts and fine manufactures, and in the advancement of the social conditions, the intelligence and comfort of the dwellers in each land, we hope that the contest between England and France will be more severe and in earnest than the struggles which are recorded in the history of past times. A. & B.

COLOUR THE FIRST QUALITY IN STAINED GLASS.

SIR,—You have invited the expression of opinions upon the queries concerning stained glass, which were contained in your number of the 13th ult. I have just read these questions, and as an enthusiast on the subject, perhaps a few remarks of mine on the two first may not be uninteresting to some of your readers.

I consider that the primary effect of stained glass most decidedly is one of colour: a window may be badly drawn, but if the colours are well arranged and harmonized, and the glass good, the effect must be to a certain extent pleasing. On the other hand, no beauty of drawing can compensate the eye for the glare of brilliant colours mixed without regard to contrast. Again, there is a something in the nature of glass which points out to us, that to colour in the first place we must be indebted for the pro-

duction of effect. As a medium for paint glass cannot compete with canvases; but what painter can imitate the depth of tone in a piece of thick, grey blue glass; or can his palette produce anything to match the brilliancy and richness of a piece of ruby glass. Certainly not, and therefore it is by its powers of colour that stained glass should appeal to us first. Look at ancient windows; it cannot be said that it is to their drawing they owe their charm entirely, but rather it is to the correct taste with which the colours are blended, and to the tone the glass has received from age. Now, why should not this be done equally well at the present day? Surely there are many artists now living who can make designs quite as fine as those of our ancestors; and although age has a certain effect upon glass, as upon port wine, which cannot be copied exactly on now, still the use of a thick coarse glass almost entirely obviates that.

I do not wish to underrate the value of good drawing in glass-staining, but I am sorry to see a taste arising for windows which do not owe their value to the especial beauties of glass, and its characteristic feature as opposed to paint, viz., that it is seen by transmitted, not reflected, light, but which depends upon the skill of the artist in forming a pretty picture, a mere imitation fresco or oil painting. Take, for instance, the new windows in Glasgow Cathedral. No one can deny that they are beautiful pictures; but, in my opinion, they should have been painted on canvases, or on the walls of the building. Where can we find in them the beautiful pieces of glass into which you may look and imagine you are gazing into an unfathomable depth tinted with the colour you are admiring? Where are the tiny bits in which the light seems to linger and rest before passing through? Such things should always be found in a good window; but in those I am referring to, although we have the pleasing effect of good drawing and colouring as in a picture, we have none of those peculiar charms of colour which, so to speak, form the glory of stained glass. I lately visited Glasgow with a friend, for the purpose of closely examining those windows. At my companion's first glance at one of them he exclaimed, "How lovely!" "It is, indeed," I answered, but my reply referred to the loves of two sparrows I observed on a neighbouring building, through the medium of one of the Apostles, clothes and all. The fact is, the glass, being the common thin glass from Munich, is too poor and weak ever to make a good window; and the designers have, perhaps for that reason, by the use of enamels and all the skill of the painter's art, produced pictures, quite ignoring those splendid effects which glass, and glass alone, can give us.

As to your second question, I think there can be little difference of opinion, that good colouring must not be loud and glaring, under any circumstances, and this applies more particularly to glass. Of course, the position of a window should have some consideration before determining the warmth or coolness of its tone; but I think, as a rule, it is better to have a window a little too cool than a little too warm. If rather too quiet in its colouring, it will be found to improve upon acquaintance, and the eye will become more reconciled to it in time; but if too warm and loud the strain upon the eye seems to render it more critical, and we think we liked the design best at first. Glass can now be so readily obtained, of every tint under the sun, that perhaps it has caused us to be too profuse in our varieties of colour, without employing a proportionate amount of skill in blending them. To approach perfection in stained-glass, we must have colouring rich and gorgeous without being hot, bright without being glaring, and soft without being dull; and lastly, good drawing. To do this, we must first have completely coloured and finished designs, drawn by talented artists; and have such designs carried out on thick glass, so as to produce those effects of colour without which stained-glass is unworthy of its name. J. H.

DRINKING FOUNTAIN MOVEMENT.—Mr. Munro has nearly completed a drinking-fountain and its surmounting statue of a Naiad, which is of Carrara marble, and 7 ft. in height. This work will shortly be placed in Berkeley-square, opposite the residence of the late Lord Lansdowne, the donor. The base of the work is of red granite, the action of the figure that of holding a brimming urn.

A PLEA FOR ST. MICHAEL'S CHURCH, ST. ALBAN'S.

COME, sir, and see once more our little church, "rich with the spoils of Time," of St. Michael in St. Alban's. We have unroofed it, and gutted it, and unpewed it, and unchurchwardened it, and un-Batty-Langleyed it, and are letting, wisely we all think, George Gilbert Scott have his own way. Yes, sir, St. Alban's revisited will well repay all who love genius, all who study antiquity, and all who build. The noble portrait-statue of the great Francis Bacon is now to be seen to rare advantage. And, what all lovers of the great Lord Chancellor will be pleased to hear, the grave-stone—the blue-leger that covers the body of Bacon's faithful follower—is to be seen, I believe for the first time by the oldest inhabitant in St. Alban's. "With reverence look," I have deciphered, and with Layard-difficulty, these words:—

"HERE LYETH THE BODY OF"
THOMAS MEANTYS."

What the rest of the inscription was we may gather from Chauncy and from Clutterbuck. This Sir Thomas Meantys erected the monumental statue of Francis Bacon. Meantys set it up, but who the sculptor was no research has been able to detect. I suspect Sir Francis's half-brother, Sir Nathaniel, was the sculptor: he was a painter (see Walpole) and his monumental bust in the church of Culford in Suffolk, decorated with palette and pencils, is, in my opinion (and I have seen it), the anticipatory monumental-tomb of his own hands.

Church-restoration cannot go on—any more than Chancellors of the Exchequer can go on—without "ways and means." Our budget of subscriptions is not very large, but we ask, receive, and are hopeful. We want to preserve and restore the church that contains all that is mortal of "the greatest, wisest, meanest of mankind." We have faith in our architect, and every confidence in the vicar and patron of our most interesting church.

By giving publicity to this letter, carrying no great name with it—but asking in a mighty name—you can importantly strengthen and help the work we have in hand. Were I good at "begging-letters," I would re-write this. Let the name in which I ask conceal or excuse every imperfection.

PETER CUNNINGHAM.

A HOUSE PAINTER ON THE LABOUR QUESTION.

We are asked by a number of working men to publish the observations made by John Brien, operative house-painter, at the first meeting of the Working Men's Club Union, held at Exeter Hall recently, as already mentioned by us, and willingly comply. The speaker said,—"Words cannot express my feelings of gratitude to the noblemen who are present to take part in this debate with working men; but social distinctions must be banished to-night, and all must stand on this platform as men engaged in the moral fight of intellect against intellect; not for the purpose of obtaining a party triumph, but to elicit that which is beneficial to all men, *truth*. The three ingredients that compose the wealth of a nation are land, labour, and capital; and its distribution is as follows:—One portion falls to the proprietors of the soil; another to the owners of capital or tools, including food, which sets labour in motion, and which is, in fact, nothing but the stored-up results of labour; and the last falls to the share of the labourer, and is the remuneration for his toil. The two last portions fall to the employer and the workman, and the proportion in which they are to be allotted is a constant source of struggle between these two parties,—the one, the employer, endeavouring to get the largest amount of work at the lowest rate of wages; and the workman endeavouring to get the highest wages, and to spare his bones as much as possible. If I use strong language, I trust you will consider it directed against the system, and not to employers of labour. Perhaps I read political economy different to some persons; but I conceive that the writings of the father of the English economists, Dr. Adam Smith, clearly prove that the interests of the employer and employed are not identical; and, so long as the two classes exist, there must of necessity be antagonism of interests, and neither courts of arbitration nor of conciliation will prevent strikes; for, as working men advance in intelligence, wages will become more

distasteful to them, seeing that it is only a slight remove from the chattel-slavery our forefathers laboured under; and the only solution of the phrase, "a fair day's wages for a fair day's work," is the whole of the profits to the workman when he combines capital with his labour. Under the present system, strikes take place in America, with its democratic institutions; in Australia; and also under imperial rule on the other side of the water. I am firmly convinced the remedy is co-operation; and, when the working men know its benefits, the franchise will not be far distant. During the late strike of carpenters in the Midland Counties a house was in course of erection, and the bricklayers, having got up to the first story, could not proceed further without the aid of the carpenters to lay the floor. Now, what did the master carpenter do? Why, he obtained the assistance of the other master carpenters in the town, and they set to work and laid the floor in the presence of the men who were out on strike, and the bricklayers then proceeded with the erection of the house. Now, if these operative carpenters understood the principles of co-operation, they would have said to each other, "These master carpenters have combined labour with capital, and done without us. Now, if we practise temperance, economy, and forethought, to obtain capital, and combine it with our labour, we can then do without master carpenters."

ACCIDENTS.

As the workmen employed upon the Thames Embankment were pushing a truck loaded with cement along a wooden stage, almost in front of the residence of the Duke of Buccleuch, the stage suddenly gave way, and seven men were precipitated to the bottom in the midst of slush and mud. One man became so embedded that it occupied five hours before his body was drawn to the surface. He was then quite dead. It is said that the stage contained 100 tons of ballast upon it at the time of the accident, that it was manifestly insufficient to bear any further weight, and that it broke down about a week before, and then buried an engine in the mud. Since this accident a stage at Waterloo-bridge has given way beneath the weight of an engine. Some workmen were seriously injured.

One man has died from the effects of injuries received in the accident at the Liverpool-street Railway-station of the North London line. The intended station is being erected by Messrs. William Cubitt & Co. The building itself forms a parallelogram, the area of which occupies about three acres and a half of ground. The western elevation faces Liverpool-street, reaching from Broad-street-buildings, on the south, to Bloomfield-street, on the north, abutting itself upon the Ophthalmic Infirmary, at the corner of Elder-street. The eastern elevation is near to Sun-street, Bishopsgate, the lineal measurement from which point to the back wall of the western offices being several hundred feet. Before this large extent of intermediate ground upon arches is the level of the new line of railway, and here the roof is being spanned, of a semicircular construction, sustained upon intermediate pillars, thus forming a vast expanse of double roofing overhead, the fall of which caused the accident. The exact manner in which the occurrence was caused is ascertained to have been the yielding of one of the lightly-tested wrought-iron tie-rods, which, by giving way, brought with it several of the girders and the major part of the springing iron arches which were fixed in their places. The brick walls gave no appearance of yielding, and none of the general scaffolding has given way. The timber used in scaffolding—supports alone throughout the building is of the value of at least 12,000*l*.

Two bridges on the Castleary branch of the Caledonian Railway have been swept away by the flooding of a stream which runs under the line at Cumbernauld Bank.

At Ipswich, a granary-floor has fallen, at the premises of Messrs. Harpham, Palmer, & Harpham, iron merchants, on the Quay. The corn merchants hire the top part of the premises, over Messrs. Harpham's shop, as a warehouse for grain. The barley fell bodily through to the next floor, which it also carried before it into Messrs. Harpham's shop, which was filled with the grain. A man was severely injured. This is the third accident of the kind which has happened on these premises within a few years.

STATISTICS OF MAGNESIUM.

The light emitted by a wire one-thousandth of an inch in diameter, is equal to that of seventy-four stearine candles of five to the pound: 3 ft. of it are burned per minute, or a quarter of an ounce per hour, the cost of which, at the present price, would be about 2*s*. 6*d*. Seventy-four stearine candles would, however, in the same time, consume 2*lb*. of stearine, which would cost 2*s*.: 40·4 cubic feet of 12-candle coal gas would be required to produce the same effect, and would cost about 2½*d*. The dearthness of magnesium arises from the dearthness of sodium required in obtaining it. Sodium is now 10*s*. per *lb*, and one pound, under the most favourable circumstances, would be required for a pound of magnesium. But increased demand will, no doubt, cheapen sodium, and in other ways also render the production of magnesium more economical. Already the Magnesium Metal Company have reduced the price of magnesium more than fifty per cent. Magnesium gives off 265 times less heat than gas. Gas and candles vitiate the air by the production of watery vapour and carbonic acid: magnesium is free from this objection, but it has an inconvenience of its own: a large quantity of calcined magnesina is thrown off as a fine powder, which soon renders the atmosphere of a room intolerable. This is also objectionable in photography, though used only for very short periods. For ordinary purposes it would render some peculiar mode of ventilation, or purification yet to be discovered, indispensable. Perhaps the smoke might be conducted through water and there condensed. At best magnesium can be only an imperfect substitute for sunlight: its light has been found to be only the 1-525th of that of the sun on a bright November day; but, at the same time, its chemical effect was ascertained to be the 1-36th of that of the sun.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening (the 26th ult.) at the House in Conduit-street. The chair was occupied by Mr. J. H. Christian, the president.

Mr. F. Jameson was elected a member of the Association.

Mr. J. Lemon, on behalf of the committee, brought under notice the necessity of greater punctuality being observed in the payment of subscriptions by the members; and, pursuant to notice, moved an alteration in Rule 3, to the effect that at the close of any session the name of any member more than one session in arrears should be posted up in the room of meeting, and that it should be within the discretion of the committee to strike off the roll of members any who should be two years in arrears with their subscriptions. The motion was, after a short discussion, carried *nem. con*.

Mr. J. D. Mathews, Hon. Secretary, read a letter which had been received from Mr. Foster, Secretary to the Society of Arts, acknowledging the receipt of the protest of the Association with reference to the award of prizes for cottage designs, which he said would be laid before the council of that body.

The Chairman said, the Association had much reason to be grateful to Mr. Bazalgette and Mr. Poulton for their kindness in allowing their members to visit the works of the Thames Embankment. He could say for himself that he was much pleased with what he had seen, and that he had not previously been aware of the interesting nature of the works with which the names of those gentlemen were associated.

A member inquired whether any further facilities to visit the works would be afforded to such of the members as had been unable to inspect them on the occasion referred to by the chairman.

The Chairman said, that they were received with the utmost kindness and politeness by the engineers of the Metropolitan Board of Works, and that he had no doubt all reasonable facilities for inspection would be afforded those members who might hereafter desire to witness the progress of the undertaking.

Mr. H. Danby said, that the visit to the embankment had been paid at his suggestion, and that he had reason to believe that the engineers of the Board would be happy to meet the views of the Association to any reasonable extent. The works were of an extremely novel and interesting character, and he recommended that in a few weeks hence another visit of

inspection should be paid, when the visitors would be enabled to trace the progress not only of the embankment *per se*, but also of the railway, the great sewer, and the boulevard or roadway, all of which were being carried on contemporaneously.

Mr. Mathews stated that arrangements were in progress for a visit to St. Alban's Abbey, on the 3rd of June.

The Chairman recommended as many of the members as could spare the time to join the expedition, which he ventured to predict would be most interesting, and would well repay the trouble of a visit. He had no doubt but that on making application to the proper authorities the members would be enabled to see many portions of the church, interesting to students of architecture, which might not be generally open to the public.

A member suggested that a visit might also be paid to Hatfield House, the residence of the Marquess of Salisbury, which he stated was perhaps the finest specimen of Elizabethan architecture within reasonable distance of the metropolis, and which happily had not undergone the process of "restoration." He believed that the Marquess of Salisbury would give permission to view it if the necessary application were made to him.

Mr. C. L. Eastlake then read a paper on "Nuremberg."

At the conclusion, a member expressed his surprise that so few students visited the south of Germany, as there were other towns fully as interesting as Nuremberg which deserved attention. Nuremberg was easy of access, and the expense of getting there was not great. He suggested that other papers should be read before the Association upon some of these towns.

Mr. Edis understood that the object of Mr. Eastlake was not so much to recommend the details of the architecture in Nuremberg as to point out a town in which cunningly devised fables had been wrought in stone. As architectural examples, however, judging from the character of the sketches exhibited that evening, he thought they ought to be avoided. He considered that it would benefit them as students better to visit other towns where the Gothic was of a purer character.

Mr. Eastlake said the town of Nuremberg was well worthy of a visit for sketching, studying, and measuring.

The Chairman thought it was of great advantage for a student to visit a town so thoroughly Gothic in feeling. The picturesque of Nuremberg was most marked, and the peculiarity of the large roofs was much to be admired. The immense area of the skyline broken up to the high roofs of the buildings made the town marvellously picturesque and beautiful.

Mr. Ridge observed that the houses at Nuremberg appeared to be painted in a much more artistic manner than they were in England. This was produced by the houses being relieved against another in a series of tints of which the prevailing colours were green, buff, and a neutral green. They were rarely repainted—certainly not once in every three years, as was the case in this country.

Mr. Blashill thought that the longer an architect lived the more difficulties he had to meet, in dealing with London buildings. Flatted paint (like that of the Nuremberg houses) should not do for the metropolis; indeed, he would recommend the use of paint for anything but wood and iron work.

After some further discussion, a vote of thanks was passed to Mr. Eastlake for his paper.

It was announced that the next object for the committee of design would be "interior perspective;" and that on the 9th inst. Mr. J. W. Penfold would read a paper on "Metropolitan Improvements."

is shown of 388l. 0s. 11d., and an expenditure of 147l. 5s. 8d., leaving a balance of 240l. 15s. 3d. to be appropriated to the production of the publications.

The "suspense account" shows that the amount expended on completing the stock of the early years has been 145l. 0s. 6d., of which amount one-third, 48l. 6s. 10d., has been charged to each of the fifteenth and sixteenth years, and the balance will be charged to the seventeenth year. Of the cash balance, 350l. have been placed on deposit account, with the Union Bank of London, in the name of the treasurer.

The Chairman, in moving the adoption of the report, and referring to the balance-sheets, observed, that from what he had seen, the society seemed to have well husbanded an amount of subscription which, considering the object at stake, was not at all creditable to the art-loving people of England. He then proceeded,—"When I look at what that work is—the copiousness and beauty of its illustrations, the large area over which it moves,—the area, in fact, of all architecture,—without party, without partiality, and without prejudice,—I must say that I think this society has undertaken a work far greater and much more onerous than most institutions of this size could have dared; and has carried it through with a success which is perfectly exceptional. If we look at the life of Dr. Johnson, we see how his gigantic intellect almost broke down under the wearying work of lexicography, and his was the simplest of all dictionaries, namely, the Dictionary of a Language. Looking, again, at the Dictionary of the French Academy, how year after year was consumed in the work undertaken by that great Royal Institution; and looking, again, at our different encyclopedias, and how much trouble, how much finding and finding, and going back again and rewriting, are involved in every encyclopedian that has yet been produced,—what a contrast is presented when we look at the Dictionary of Architecture that is now being prepared by this society. Of course, I do not mean to say that it is perfect; I do not pretend to say that it will equal the next edition, which may be produced early in the next century, when, I hope, we shall see our friend Mr. Cates in vigorous and robust health, though, of course, of maturer years, but ready to carry that out as he has carried this. I say again, as I said before, that it is not creditable that a work of the sort should be supported by such an infinitesimally small number of the men and of the societies we know feel an interest in art. I beg leave to propose, not only from the chair, but from the heart, "That the report and balance-sheets now read be received and adopted, and printed and circulated as usual."

Professor Donaldson seconded the motion, and in doing so suggested to the committee that they might with propriety consider whether some means could not be adopted for the purpose of securing a more rapid issue of the Dictionary. He believed the plan of advertising for articles had been tried, and he felt that something ought to be done, if possible, to get on a little more rapidly towards the completion of the work, which, if delayed for another ten years would, he was afraid, dishearten people from subscribing to it. They were very much indebted to those getting up the work for the amount of labour they bestowed upon it; but he ventured to suggest that some of the articles might very well be shortened, and that the scientific and historical parts of the different subjects were sometimes too largely treated upon, while the artistic part was, perhaps, in some degree, neglected.

Mr. Sydney Smirke, the treasurer, said it must be borne in mind that the low state of the funds was a great cause of delay in the preparation of the Dictionary.

Mr. Horace Jones fully concurred in the observations made by Professor Donaldson. What the Treasurer had said was no doubt of great importance, but he could not help feeling that in these days of mercantile and commercial enterprise, arrangements could be made with some energetic publisher for the purpose of completing the Dictionary. If the Dictionary were not finished for the next ten years, the early numbers would by that time have become obsolete.

Mr. Newton declared that the object which they had always had in view was, to make the work as far as possible perfect. The work had but hitherto been done by two or three people, and it could not have been in better hands, because it had been with them a labour of love;

but he was afraid that if they paid for assistance, and did not get men to act on the same principles as those who were now conducting the work, the scheme would altogether fail.

Mr. Cates said that they had now gone through more than half the list of terms that was prepared in the first instance as an index to the Dictionary; and, according to the progress already made, they would only require five years and a half subscriptions from the completion of the publications for 1862, to enable them to complete the text of the Dictionary. There was much truth in what the Treasurer had said with regard to the funds; but the progress of the work was also retarded, to a very considerable extent, by the great care taken in the production of the text. There was great difficulty connected with what had been said about asking a publisher to take the work in hand. In his own opinion, the only course open to them to realize the wishes expressed, was to get some one with an earnest interest in the art to advance them money upon the security of their stock, which was a very good security, and thus enable Mr. W. Papworth to call in, under his own supervision, assistance of paid contributors; and in this way the work might be got on with more rapidly.

Votes of thanks to the committee and officers, Mr. O. Hansard, Mr. W. Papworth, and Mr. Cates, were then unanimously passed; and Mr. Horace Jones was elected a member of the committee.

THE BUILDERS' BENEVOLENT INSTITUTION.

A GENERAL meeting of the subscribers to this charitable Institution, was held at the London Tavern, Bishopsgate-street, on Thursday, 25th ult., to elect four pensioners on the funds, viz.—three males and one female, from a list of candidates of eight males and three females. The president, Mr. Thomas C. Lucas, occupied the chair.

The Chairman said, they had met together for the purpose of electing four pensioners on the funds of their Institution, from a list of candidates which was now before them. He was present with a mingled feeling of pleasure and regret—pleasure in carrying out a portion of the object they had in view, and regret that their funds would not permit them to return all the candidates who had presented themselves for election. The Society was a progressive one.

It had progressed to a certain extent, but more slowly than its friends desired. He trusted, therefore, that the builders of London and the suburbs would come forward and support that Institution, on which many of their poorer brethren mainly depended; and if they could not afford their five guineas, they might subscribe their one guinea, or even their 10s. 6d. The building trade was one of a peculiar character. It was full of vicissitudes, and the prosperous man of this year might, through unforeseen misfortune, the next year become a candidate for the benefits of the Society. He would congratulate those who must be successful on this occasion, and offer his sympathy to those who would be less fortunate, trusting that on the next occasion there would be more elected. He was of opinion that if the builders generally contributed, every one of the candidates would be elected on their first application. With the day's election there would be twenty-one males and nineteen females on their funds.

The poll was then proceeded with, and during the absence of the scrutineers,—

Mr. Joseph Bird who had taken the chair, owing to the departure of Mr. Lucas on a pressing appointment, informed the meeting that between 300 and 400 votes only had been recorded, so that 10,000 or 12,000 votes had not been made use of. He mentioned that in order that the candidates at the next election should be more diligent, and use greater energy in calling upon their friends. He was quite sure, that where subscribers paid for a certain object, they did not like their votes to be lost. He hoped what he had stated would act beneficially.

On the return of the scrutineers, Messrs. Cozens and Stirling, the following were announced as the successful candidates:—Thomas Martin, aged 78, carpenter, unable to work through debility and the infirmities of old age. William Terry, aged 78, painter, plumber, &c.: his distress arose from great losses in business and old age. Thomas Birch, aged 73, carpenter: his distress was caused by severe accidents, loss of trade, and inability to labour. Sophia A. Crane,

MEETING OF THE ARCHITECTURAL PUBLICATION SOCIETY.

THE annual general meeting of subscribers was held May 26th, at the House, in Conduit-street, Mr. A. J. B. Beresford Hope in the chair. The Secretary, Mr. Arthur Cates, read the report and balance-sheets for the past year, which show, for the fifteenth year, 1862, a total receipt of 478l. 10s. 4d., and an expenditure of £2. 2s., leaving a balance of 145l. 8s. 4d. available to complete the publications for that year. In the sixteenth year, 1863-65, a total receipt

aged 72, widow of a builder: her only means of support are 8l. per annum, and a residence in Balls Pond Almshouses.

The fortunate candidates having returned thanks, the usual complimentary votes terminated the proceedings.

THE BUILDING TRADES MOVEMENT.

London.—The workmen are again agitating for an advance in wages. The stonemasons—the originators of the movement—allege that the increased and increasing cost of house and room rent, the high price of butcher's meat and other provisions, the general prosperity of the trade, and the fact that in nearly all the provincial towns the wages of the building operatives have been advanced 2s. to 3s. per week, entitles them to an advance of 6d. per day. A memorial asking for that advance was accordingly presented to the masters.

Plymouth.—The men on strike at Plymouth have resumed work, and withdrawn the "rules" objected to by their employers.

Stockport.—The operative painters are still on "strike"—not, however, as was erroneously alleged, for a reduction of the hours of labour, but for an advance of wages from 5½d. to 6d. per hour, equal to 3s. 6d. per week of 56 hours. There is some prospect of a prompt and satisfactory settlement of the dispute, one or two of the masters having already consented to pay the advance.

Bradford.—The plasterers' labourers still continue on strike. The masters have offered the shilling advance in wages which is asked, on the condition that the men find their own tools, as the practice is in Leeds, Manchester, and other large towns; but these terms have been refused, and there is no sign of an agreement being come to at present. The strike of the plasterers has terminated by the masters yielding the advance of 2s. per week sought, the second advance of 2s., and a half-day holiday on Saturday in addition, since 1863. The wages of the men range now from 25s. to 28s. per week.

Middlesborough.—The joiners have struck work for an advance of 1s. per week in their wages. Some short time ago, they made a demand on the masters for 2s. advance and half-a-day's holiday, and the masters met this by granting 1s. advance and the half-day. When the men got this, they gave notice for the other shilling, since which they have now got it, the masters being unable from press of work to resist their application. The wages of the town are now 28s. per week, with half-a-day's holiday on Saturdays.

Stockton-upon-Tees.—The joiners' strike has terminated with the advance in wages, but not the half-day's holiday, except in a few instances.

THE OFFICE OF WORKS.

On the vote of 24,148l. for the salaries and expenses of this office, Mr. Cowper, in reply to questions as to Mr. Pennethorne's salary of 1,500l., and other emoluments, said that the professional fees for the work performed by that gentleman would amount to a much larger sum than he at present received. The extensive purchases of land on the site of the new Foreign-office and of the land between Bridge-street and New Palace-yard had been conducted by him, upon whom had also devolved a great deal of business connected with Battersea Park and other metropolitan improvements. It was necessary that there should be some professional man connected with the Department to whom application could be made for advice, and Mr. Pennethorne was a very able man, of great experience. The agreement with him was, that he should give his services as surveyor and consulting architect, but when he was employed to furnish designs, or act as an architect in erecting new buildings, then he must have his five per cent. like other architects. In former days the Office of Works had three architects, who received a per centage—3 per cent., he believed—for their labours, and the office was bound to employ those architects in every work which was erected. It was, however, thought that it would be an immense advantage that the office should not be restricted to any particular architect. Mr. Pennethorne had no absolute claim to be employed on any new work. It was deemed better to appeal to the profession at large. Mr. Pennethorne was the surveyor who surveyed and

negotiated the purchase of property that might be required, and Mr. Hunt (whose salary is 1,000l. a year) was consulting surveyor in the office, giving his advice on matters referred to him. The political head of the department required a professional man like Mr. Hunt to give him his advice on matters coming within his special knowledge and experience.

As to the cause of delay in laying before the Chancellor of the Exchequer the materials necessary for him to form an opinion in respect to the estimate required for the new buildings at Kensington designed by Captain Fowke, Mr. Cowper said that the building was intended for the natural history collections of the British Museum. It was thought right to give the officers of the Museum an opportunity of considering the plans. Accordingly, Captain Fowke's plans were sent to the trustees at the end of last year. They were anxious to give them full consideration, and they had only lately expressed an opinion, which was not however final, as they had referred the plans to a sub-committee. When the trustees had made up their minds the Government would resume its action.

As to the proposed road between Piccadilly and Park-lane, Mr. Cowper said that the Office of Works was concerned in the scheme, because a portion of the park was proposed to be taken. He said he had no objection to the scheme, although he did not think it the best. It was true that there was some difference between the Commissioner of Woods and himself as to the propriety of making the street, but no expense was caused thereby to either department. The best plan would be the widening of Park-lane, but such a proposal must originate with the Metropolitan Board of Works, and he had not heard yet whether the Board had decided on adopting the best plan, or only the second best.

In reply to a question as to whether it was the intention of Government to erect at Brompton the buildings designed by Captain Fowke for the Natural History Collection, Mr. Cowper said it was the intention of the Government to make a proposal, but he thought it better not to go now into the question what that proposal might be. No step had been taken which would in the slightest degree prevent full and ample consideration of the subject.

OUTLOOK v. LOCKOUT.

SIR,—In reading over your leading article of last week about "strikes," and what are commonly called "lockouts," I observe that you have adopted another form of the latter word, namely, "outlooks." This certainly appears to be a more pronounceable word than the one in ordinary use, and one which I should feel inclined to adopt myself did I know a "reason why." Therefore, I should feel obliged, with very likely others of your readers, if not trespassing too much on your kindness, if you would impart the useful information.—Q.

[Our only reason for deviating from the vulgar custom with regard to this word was a desire to conform to the settled analogy of the English language, and to avoid giving countenance to the establishment of another glaring irregularity in addition to the host which already disfigure our orthography. It is a well-known rule in the formation of compound nouns substantive from a verb and preposition, that in the compound word the preposition is placed first and the verb last, although in their simple state the reverse holds good. Thus, from *let out* we have *outlet*; from *set out*, *outset*; from *cast out*, *outcast*; from *pour out*, *outpour*; from *cast off*, *outcast*; from *cast off*, *outcast*; from *pour down*, *downpour*; and numerous other words, which no doubt will suggest themselves to our correspondent. There may be a few words, such as *look-out*, which are not yet brought under the general rule; but as this word hardly admits of a plural, the incongruity is not so striking as *lookouts* would be. Nevertheless, we do not despair of seeing this word rectified, in time, in accordance with general analogy. It is only necessary that the example should be set by a few writers of credit, and then such barbarisms as *lookouts* and *lookouts* would disappear from our language altogether.—Ed.]

A PUBLIC PARK FOR CHESTER.—It is stated that the Marquis of Westminster is preparing land for a public park and recreation grounds, as a gift to the citizens of Chester.

PROVINCIAL NEWS.

Wellington.—The contract for the erection of the new covered market at Wellington has been given to Messrs. Treasure & Son, of Shrewsbury and Newport, whose tender, 6,173l., was the lowest of five sent in. The erections, although not so large as at first contemplated, will embrace a covered market, with shops and stalls for butchers' meat, fish, poultry, butter, vegetables, fruit, &c., with a detached building in the rear, with room for unloading, for use as a potato market. The work will be carried out under the inspection of the architect, Mr. Bidlake, of Wolverhampton.

Rochdale.—The local general purposes committees have determined to suggest to the Town Council, at their next meeting, the advisability of altering the interior plans of the new Town-hall, by adding a large hall for an Exchange, at a cost of about 7,000l. In order to accomplish this, fewer corridors will be inserted in the new plans. An Exchange has been long wanted in Rochdale.

Endcliffe (Sheffield).—The large mansion which Mr. John Brown, J.P., is erecting at Endcliffe, on the site of the old hall, is fast approaching completion; and is, in fact, in so forward a state that the architects (Messrs. Flockton & Abbott) issued invitations to view the building, which were made use of by a numerous party. A large sum of money has been expended on it. The hall stands upon the site of the former residence of Mr. Henry Wilkinson; and it is just two years since the sale of the old hall to Mr. Brown was completed. The contractors had to remove the whole of the then existing building; to remove the old and excavate new foundations; to level the grounds in some parts and raise them in others, in order to open out the prospect from the front of the house. The hall stands upon a sort of plateau, just below the Rannmore road, and commands extensive views to the south-east, south, and west; and it is a conspicuous object from the Hathersage road. The site is in the centre of about 40 acres of land, which has been laid out in gardens and ornamental grounds, planned by Mr. Flockton, after the Italian model. A large conservatory, with a lofty dome, and pinceries, vineries, &c., are placed on the western side of the grounds, and behind these is an extensive kitchen garden. The general style of the hall is Italian. Above the entrance porch are groups of figures by Wyon, representing the Seasons; and the pediment of the south front, above Mr. Brown's bedroom, supports two figures by Papworth, emblematic of Labour and Art. The south is the principal front. The whole house is fitted with Breguet's patent electrical bells; which are so numerous that twenty or thirty wires pass beneath the flooring of some of the rooms. These wires concentrate on the landing outside Mr. Brown's bedroom; and, by touching an ivory knob there, he can communicate with any of the servants of the house, or with the lodge-keeper at the entrance to the estate. The stoves have been supplied from Roscoe-place and Chantry Works, and the chimney-pieces by Mr. Hadfield. The kitchen stoves are by Longden & Co. The stone carving has been executed by Messrs. Mawer & Lingle, of Leeds. The modelling for the ornamental ceilings has been produced by Mr. Green, of Sheffield, from the designs of Mr. Flockton. The outside shutters to the principal windows are a Belgian invention. They are made of iron, and slide into the wall by means of a rack and pinion. These shutters either make the window secure at night, or can be used as sun-blinds, as the *louvre*s can be regulated to any angle. The Messrs. Craven have been the contractors for the masonry and joinery. The carpentry has been executed by Mr. W. Gibson, of Ecclesall; the external plumbers work by Mr. Bissett, and the internal plumbing and the glazing by Mr. Pitt. The plasterers' work has been done by Messrs. Craven, under the superintendence of Mr. Large. The vineries, the lower terraces, and the lodges have been built by Mr. Wade; the stables by Messrs. Craven. Messrs. Ellis have fitted up the warming apparatus, iron-work, &c., for the conservatories, saloon, and vineries. The decoration of the rooms was entrusted to Messrs. Rodgers.

Newcastle-upon-Tyne.—The new county court, situated between the Assembly Rooms and the Savings' Bank, in Westgate-street, has been opened for business. The entire cost of the building is about 10,000l. and its erection has

been at the expense of the Treasury. The plans were prepared by Mr. C. Reaves, surveyor to the Treasury, the resident architect being Mr. Betts. The contractors were Messrs. Scott & Reed; the joiner work was executed by Messrs. John & William Lowrey; the fitting up of the court and various offices was done by the Messrs. Sopwith; and the gas fittings were entrusted to Messrs. Walker & Sons, of the Percy Iron Works. Mr. Patterson was the carver employed on the exterior of the building, the various stone figures which adorn the front wall being his workmanship as well as his own design. The iron railings in front of the court-house has two entrances from the front, viz., the public entrance on the left of the building, and the private entrance of the judge on the right. The court is, as might be expected, the largest room in the building: it is 50 ft. long by 38 ft. wide, and 24 ft. in height. The court is lighted by two lantern lights, the sashes of which are made to open, some on centres with quadrants; and the side lights are made to hang. Independently of the sashes, ten ventilating flues have been carried up the court walls, and made either to open or shut by patent ventilators. The room is heated in winter time by hot-air stoves in the body of the court, and the usual stove on the judge's bench, and lighted with gas by brackets fixed to the pillars. The advocates' retiring-room and the jury-room are in front of the court, corresponding to the judge's room on the same level. The public entrance to the court is by a flight of stone steps, which lead into the body of the court from behind.

ANGLO-FRENCH WORKING-CLASS EXHIBITION.

A MEETING of working men was held in the Society of Arts' great room, convened by the promoters of the above undertaking, on Tuesday evening, the 28th ult., Mr. William Hawes, chairman of the council, in the chair. After discussion, it was resolved that—

"This meeting, having heard the statement of Mr. Comingsby, in reference to the proposed Anglo-French Exhibition, recognizes in this movement an evidence of the gradual extinction of national prejudices, and of the great advance which has been made by the workmen of great countries in the knowledge and appreciation of the true principles on which the material prosperity and moral progress of nations depend;"

and that—

"This meeting pledges itself to promote by every means in its power the success of the undertaking."

"SPECIFICATIONS AND MYSTIFICATIONS."

Sir,—In your remarks on my letter upon the above subject, in last week's *Builder*, you say that "builders are, before signing contracts, that the specification and drawings are clear." Allow me to observe that, though on the surface they may appear clear, yet (as in the case referred to) it is frequently impossible to make out that the works can be carried out in accordance with the specification and drawings, without taking all the dimensions afresh, and verifying those calculations which have led the architect to the result to which he has arrived—a labour no builder could be called upon to perform, and an interference no respectable architect would admit to.

In my humble opinion, it is anything but respectable to strap a builder into signing a contract which refers to a specification and drawings which cannot be carried out, and afterwards coming down to that unfortunate for penalties, because he has not done impossibilities!

Whether the architect be the responsible party, or whether his client is the proper person to sue, is a point upon which I am at present in the dark, and on which I would wish to be enlightened?

A BUILDER.

THE NEW STREET THROUGH ST. GILES'S.

Sir,—Noticing in your pages an inquiry as to why the railway from Hampstead to Charing Cross is not proceeded with, I beg to inform A Denison of Charing Cross, that I have good authority for stating that the scheme is now pending for the want of money, the public not voting so readily taken the shares as was anticipated, in consequence of their finding that the directors were not making the arrangements for a new street through St. Giles's, so essentially divided for in the Bill; and this important provision was the principal reason that allowed the bill to pass unopposed by H.M.'s commissioners. The present position is this:—The company consented to give up the idea of proceeding with the railway than the Hampstead-road, forming a junction with the North-Western

Railway, at the spot where the said railway crosses the Hampstead-road.

They are now in treaty with the North-Western and another company, for the disposal of their interest for a small sum; and should they be able to arrive at a settlement, the proprietors will make a new railway to Charing Cross, or rather to the Thames Embankment. They will then apply to Parliament for time to make the new street, and again, after a short time, to be excused from making it altogether, thus destroying the hopes of some of my neighbours.

A. M.

"RATS, MICE, FLIES, WASPS, AND OTHER SIMILAR ANNOYANCES."

LET me add to the testimony of your correspondent, Mr. Payne, that chloride of lime will be found a most efficacious and safe wash for dogs infested with fleas. Although yours is not a sporting paper, I have little doubt many of your readers will be glad to know how they may rid their canine favourites of troublesome acquaintances; and having tried many specifics without avail, I had recourse to a dilution of chloride of lime, about three years ago, and have never found it fail.

CAVE CANEM.

CHURCH-BUILDING NEWS.

Newbury (Berks).—Newton Church has been consecrated. It has been rebuilt at the entire cost of Mr. and Mrs. E. Arbuthnot, of Newtown House, near Newbury. The edifice, which is from a design by Mr. Woodyer, is of the Early English style, and built of flint, capped with Bath stone. It has an octagonal pointed tower, containing four bells; a gable roof covered with red tiles; and an east and west window of stained glass, with several of less dimensions on either side. The church has open sittings, of oak, sufficient to accommodate about 170 persons. The roof is of polished oak, and the pulpit, reading-desk, and communion rails of carved oak. The floor is composed of tessellated pavement. At the eastern end of the north aisle there is a stained-glass window. In the chancel there are four other stained-glass windows. Messrs. Wheeler, builders, of Reading, performed the contract, the woodwork being executed by Messrs. Adey & Son, Newbury, and the painting and plumbing by Messrs. W. & G. Boyer, of the same place.

Tottenham (Middlesex).—St. Michael's Church, Wood Green, has lately been rebuilt on a larger plan, and having been sufficiently completed for the purposes of divine service, has been reopened. It was built some twenty years ago as a small chapel for a congregation of scarcely 200. Such accommodation was felt to be quite inadequate to the requirements of the very considerable district which has of late years sprung up around it. The very dangerous condition of the building too, resulting principally from insufficient foundations on a treacherous soil, rendered certain important measures absolutely necessary to secure its safety, repeated shoring and underpinning of the walls having proved unavailing, and contributing only to the disfigurement of the building. The church has accordingly been rebuilt, the old materials having been re-used to the best advantage. It now consists of a nave with clerestory windows, and north and south aisles, and is capable of accommodating nearly 600 persons. The old chancel remains for the present. The tower, which is placed at the east end of the south aisle, is carried up no higher than is sufficient to serve as a porch; its completion and the erection of an entirely new chancel remain to be done. The cost of the works already executed has been about 2,200l., exclusive of the value of the old materials. Mr. Henry Curzon was the architect, and Messrs. Carter & Sons, of Holloway, were the contractors.

Newport (Isle of Wight).—The work of restoration at Gatombe Church has now been completed. The chancel has been rebuilt. The interior walls are lined with chalk, with layers of freestone from the neighbourhood. The east window, which is of Portland stone, and is composed of three lights with tracery above, is filled with stained glass. The centre light represents the Crucifixion; that to the left, the Last Supper; and that to the right, the Laying in the Sepulchre. The chancel is raised on two steps, the part within the altar-rails being two steps higher again, and paved with encaustic tiles; and here,

in the chancel, are stalls for a surpliced choir. The nave has been restored, and the pews have given place to open benches of stained deal. The gallery, which blocked up a tower arch, has been cleared away. The ancient font now stands on a base of Portland stone. The new pulpit of open carved work, in chestnut, has a base of Portland stone and steps of the same material. The architect employed was Mr. R. I. Jones, of Ryde; and the builder, Mr. Dashwood, of Ryde. The church was formally reopened on Easter-day.

Pershore.—The whole of the restoration works of the Abbey Church originally contemplated by the Restoration Committee have now been completed. It is intended to hold special services in the church, with the object of liquidating a small balance, and, if possible, of providing an inner lobby at the western entrance, which the architect (Mr. Scott) has suggested as a great improvement to the church. The estimated cost of the lobby is between 30l. and 40l.

Llanulochairn (Cardiganshire).—The new church, built upon the site of the old one, has been re-opened by the Bishop of St. David's. The plan consists of a nave, 57 ft. by 22 ft.; chancel, 24 ft. by 18 ft.; and western porch, the whole width of nave. The walls are 18 ft. from floor to plate, and 40 ft. from floor to ridge. At the west end rises a stone spirelet, 70 ft. to the top of finial. The materials used are the local blue stone, with external and internal dressings of Box ground stone. The timber is Quebec red pine throughout. The roofs are covered with blue and green Carnarvon slates, in patterns, with red tile ridge and crest. The nave is seated with low open benches, which will accommodate 180 adults. The chancel contains the stalls and subella, with prayer-desk. The altar-table rises five steps from the nave floor, and stands on a foot-pace, backed by a reredos formed in panels, and inlaid with incised patterns filled in with cement. All the passages and chancel floor are paved with tiles, laid in patterns. The style adopted by the architect, Mr. Withers, is Early Middle Pointed, freely treated. The cost of the structure is about 1,100l.

Bulkington (Warwickshire).—The re-opening of Bulkington parish church, after restoration, has been celebrated. The church, a few years ago, presented the not infrequent spectacle of a fine old building thoroughly churchwardenized—its old roof gone, its windows mutilated, its arches blocked up by galleries, and the interior excellently whitewashed. All this has been now changed again—the galleries removed, and the tower arch thrown open, its old arcades restored, a new chancel arch added, and a complete and general restoration effected. The north and south aisle, nave, and chancel, have been entirely re-roofed, the masonry cleaned and repaired, and the church brought back as near to its original state as altered ritual and times allowed. The old pews have not been yet removed, from want of funds. The work has been carried into effect by Messrs. Fox, of Atherstone, in the main part from the designs of Mr. G. T. Robinson, the archidiaconal architect, and the chancel roof and some other parts appertaining to the chancel by Messrs. Richardson & Son, of Stamford, the architects to the lay rectors, who are the trustees of the Oakham and Uffingham charities.

Louth.—A new church has been opened at South Reston. The church consists of nave and chancel, with an eastern apsidal termination, and has a vestry and south porch. Its principal characteristic is simplicity in outline and detail. The nave and chancel are under one roof, without the usual break over the chancel gable, but internally there is an arch between the nave and chancel. The internal walling generally is of coloured brick, with some strings of stone. Externally there is a bell gable at the end of the nave. The works have been executed by Mr. T. Maxey, of Louth, from the designs and under the supervision of Mr. James Fowler, of Louth.

Sheffield.—The fund for the purpose of erecting seven new churches in Sheffield now amounts to 20,764l., exclusive of about 4,000l. which will be voted by Church Building Societies. The total amount required is 31,000l.

Fulford (Yorkshire).—The foundation-stone of a new church, at Fulford, near York, has been laid on a site of about three roods of land on the left side of the main road approaching the village from the city, only a few yards on the city side of the lane leading down to the neighbouring village of Heslington, and opposite the entrance-gates to the grounds of Mr. W. Hotham. The

style of the edifice is to be French Gothic, and it will possess a tower and spire, and accommodation for a congregation of 450 persons. Messrs. Pritchard & Son, of York and Darlington, are the architects, and Mr. Alderman Weatherley the contractor.

Hayton (Cumberland).—The foundation stone of a new church has been laid at Hayton, Aspatia. The church will be built by subscription, and will cost about 1,100l. The architect is Mr. Travers, of Manchester; the contractor for the mason work is Mr. H. Grave, of Aspatia; and for the joiner work, Mr. J. Tremble, of Aspatia. Mr. J. T. Hayton, of Oughterside, has been chosen by the committee to superintend the erection. The style of architecture is chiefly a combination of Norman and Gothic. The building will be of red stone, and though there will be no spire, there will be an ornamental bell-tower. The inside dimensions of the nave are 54 ft. by 25 ft. 6 in., and the chancel 27 ft. 6 in. by 21 ft. The church will be built to accommodate about 220, and the district assigned to it are the townships of Hayton, Mels, Oughterside, and Allerby, containing in the whole a population of 1,095.

DISSENTING CHURCH-BUILDING NEWS.

Weybridge (Surrey).—The new Congregational church here has been opened. The style is Decorated, and the plan is cruciform, and measures across the nave 32 ft. 6 in., and 48 ft. 6 in. across one transept. The length of the church, including the apse, is 69 ft., and the height from floor to ceiling is 27 ft. 6 in. The whole of the outside walls are built in stone, from the neighbourhood of Godalming, in rough random-work. The quoins are in Bath stone. The interior is finished with brick, with rough stucco, and jointed. The entrance to the body of the church is through the base of the tower, which at the same time forms a porch. From the tower springs a spire which rises from the ground to the height of 84 ft., and is surmounted by a vane, which carries it up to the height of 90 ft. The lower part of the main timbers of the roof is exposed to view, and is wrought, stained, and varnished. All the principal windows are filled in with stained glass, supplied by Messrs. Ward & Hughes, of London. The church is lighted by a number of star pendants, and all the gasfitter's work has been done by Mr. Rothwell, of London. It is warmed by hot water, by Mr. Smith, of London. There is accommodation for 330 persons at present, but when the other transept is finished it will accommodate 390. The total cost of the church, including warming, lighting, boundary fencing, stained glass, and architect's commission, will be a little over 2,100l., exclusive of site, which cost about 200l. Mr. John Tarring, of London, is the architect, and Mr. Saunders, also of London, is the builder.

Banbury.—The new Wesleyan chapel in Banbury has been opened. The architect was Mr. Woodhouse, of Bolton, Lancashire. The work has been executed by Mr. A. Kimberley, of Banbury, the original contract price being 3,400l., exclusive of the spire, which was estimated to cost about 300l. The actual cost has, it is said, run up, including sundry extras, to between 5,000l. and 6,000l. The material of the chapel is of Brackley and Bath stone. The interior is calculated to seat from 1,100 to 1,200 hearers, the free sittings being about 200. The pulpit built by Mr. Kimberley is of carved oak, upon a base of stone, the communion-table with its enclosed railing being immediately in front of it. The pillars at the main entrances to the chapel are of red Mansfield stone. The roof is an open one, and the galleries are supported on cast-iron pillars. The windows have a stained edging, while over the pulpit is one of more deeply stained glass.

Sharnbrook.—The foundation stone of the enlargement of the old Baptist chapel has been laid. The total expense of the enlargement is estimated at about 600l. The contractors are Messrs. Gostick & Tysoe, and the architect Mr. J. Usher, of Bedford.

Gamblesby.—The new Wesleyan chapel, erected on the site of the old meeting-house, has been completed. The design is of the Gothic period. Mr. Richardson, of the North-Eastern Railway, drew the plans. Messrs. Teasdale, of Gamblesby, were the contractors for the stonework; Mr. Brown, of Onsby, for the joiner work; and Messrs. Scott, of Penrith, for the plastering and painting. The pews are open, and stained a dark oak colour. At the east end of the build-

ing is a large stained window; and from a centre of the ceiling is suspended a chandelier, upon which are fixed large paraffin lamps. Attached to the chapel is a school-room, underneath which is a heating apparatus.

Fen Drayton (Cambridgeshire).—The foundation stone of the new Wesleyan chapel at Fen Drayton has been laid. The site occupies about one rood, and is given by Mr. W. Cooper. Mr. Hutchinson, of Huntingdon, is the architect; and Messrs. Baunting & Saint are the contractors. The chapel is to be in the Gothic style, with a tower and a spire, about 100 ft. high. It will cost about 1,200l., and will be complete, it is expected, about the latter end of August.

Books Received.

Notes on the South Lancashire Dialect. By J. A. PICTON, F.S.A. Liverpool, 1865.

THESE notes are reprinted from the Transactions of the Literary and Philosophical Society of Liverpool. They contain an interesting analysis of the various elements, or ingredients, and sources, of the Lancashire dialect, from its Cymric or Celtic nucleus, emanating from the adjoining high lands, to its Angle, Saxon, Jute, and other successive superfections from extrinsic sources.

Perhaps a time is coming when the relationships of the languages of mountainous, high level, or highland countries, will show that these are in general more ancient and purer than the low level languages—not so much on account of the inhabitants having been driven, as aborigines, from the low lands by invaders, but from the mere fact that the high lands were inhabited by human beings at a time when the low lands were under water. We have already pointed attention to the probability of this with reference to the philological affinities of the Sub-Himalayas and the Caucasus, and in allusion to the intrusion of the Aryan race between the Tamulian of the high land of Southern India and the coeval races of these same Sub-Himalayan high lands. Something quite analogous appears to have occurred on a small scale in the Lancastrian low land between the Cambrian and the Cambrian, the Welsh and North English high lands, anciently—aboriginally—inhabited by the Celtic or Cymric races, no doubt, at a time when the Cambrian and Cumbrin high lands were islands, and Lancashire lay between them under the sea. It was into that intermediate and less ancient land that the Celtic (first) and then the Teutonic, or the Angles, and Saxons, the Danes, and others, intruded, while still the highlands remained the great centres of the primitive or Celtic inhabitants, who could not therefore be said to have been driven into these highlands by the intruding races. As we have before said, a great philological and ethnological light is probably about to dawn in this direction on the ancient history of mankind; although first our suggestion may possibly be scoffed at by shallow thinkers, whose mental force lies solely in scoffing; and, when the suggestion has been fully adopted, then we shall be jeered at for claiming it as our own. This has frequently been the fate of the *Builder's* innumerable pioneering suggestions.

As Mr. Picton remarks, "by many educated persons dialects are considered as mere vulgar corruptions of the current language of the country, equivalent to the cant or slang phrases which obtain currency from time to time in particular classes of society in our great towns. This is an error which it is very desirable to eradicate." The fact is that it is mainly among the provincial dialects that the purer forms of the old English language are to be found. Of course, these now look antiquated and uncount, and are not admissible into refined modern society. Yet, as observed by Mr. Picton, this is not so with reference to "broad Scotch." It must be recollected, however, that broad Scotch is not merely a dialect of the English language, but is itself the language of a once separate and independent and coeval nation, not of a mere province or county of England; and it might as well (or much rather) be expected that "the American language," as a Yankee called it, should be inadmissible to polite society in England, as that the Scottish should. As for the Scottish language, however, ranking coevally with the English, it ought no more to be called even old English than old English Scottish. The two countries, as we have said, were coeval and independent, though both always spoke the

same language essentially; for the Scottish language, though as old as old English, is essentially the same. It is rapidly becoming modernized, however, under English auspices.

The Holy Sepulchre and the Temple of Jerusalem. By JAMES FERGUSON, F.R.S. London: Murray, 1865.

It will suffice to mention that we have in this volume the two lectures delivered by Mr. Ferguson in the Royal Institution, Albemarle-street, on the 21st of February, 1862, and March 3rd, 1865. Outlines of these have been already given in our pages, where indeed some of Mr. Ferguson's views were originally set forth. Investigations during eighteen years that have elapsed since the publication of his "Essay on the Ancient Topography of Jerusalem," have in no way altered his opinion that the building known as the Dome of the Rock at Jerusalem (wrongly called the Mosque of Omar) is the identical church which Constantine built over what he believed to be the Sepulchre of Christ. The volume before us gives a complete statement of the argument, contains a considerable number of engraved illustrations, and is altogether a very interesting work.

VARIORUM.

"The Quadrature of the Circle; or, the true ratio between the Diameter and Circumference geometrically and mathematically demonstrated," by James Smith. London: Simpkin, Marshall, & Co. 1865." Mr. Smith must be a highly practical man, since he is chairman of the Liverpool Local Marine Board, and member of the Mersey Docks and Harbour Board; nevertheless he here deals *con amore* with what we cannot but still think is a very impracticable and undemonstrable question. It is Mr. Smith's belief that he "can produce geometrical figures by the score in demonstration of the truth of the theory, that eight circumferences are exactly equal to twenty-five diameters in every circle." We respect Mr. Smith's ingenuity, but we are not convinced, although we see nothing to sneer at in his endeavours.—The *Calcutta Engineer's Journal* gives, in the number for April, as usual, several articles from our pages, and with our perfect goodwill. Articles that cost us much money are reprinted not merely all over the country, but all over the world; and, so far from offering any objection, provided the source be acknowledged, we see it with gratification. In the number of the *Calcutta Engineer's Journal* already referred to, we see, however, the following:—

"Amongst our selections will be found an article signed 'Rejoinders,' taken from the *Builder*; we have not inserted this on account of any merit of the article, but because it refers entirely to this country. We will ourselves say a few words on the system of building on walls."

A less gracious acknowledgment we have not met with for some time.

Miscellaneous.

INSTITUTION OF CIVIL ENGINEERS.—The Annual *Conversations* of the President of this Institution—Mr. John Robinson M'Clean, F.R.A.S.—took place on Tuesday evening last. The company numbered upwards of seven hundred. The arrangements were in charge of Mr. Charles Manby, F.R.S., honorary secretary, and Mr. James Forrest, the secretary, and were very effective and satisfactory. Amongst the objects exhibited was a large number of excellent pictures.

EAST LONDON INDUSTRIAL EXHIBITION.—This exhibition will be held in St. Mary's Schools, Whitechapel, from the 12th of July to the 2nd of August, both inclusive. The musical arrangements are under the direction of Mr. J. Pronman, the conductor of the International Refractory Exhibition. The Board of Trade have already licensed the Exhibition. There is to be another Exhibition of a speculative character in the east of London, from which it should be carefully distinguished. The East London Working Classes' Industrial Exhibition, to be held in St. Mary's Schools, Whitechapel, is under the patronage and guarantee of the Marquis of Westminster, the Earls of Shaftesbury and Macclesfield, Lord Barry, the Chancellor of the Exchequer, and various other influential gentlemen.

SMOKE PREVENTION.—The Mersey Steel and Iron Works have applied for leave to lay a gas conduit 20 ft. under the surface of the street, and leading into their works. The object of this change is to smelt their iron with gas instead of coal, and so to completely abate the smoke nuisance.

ARCHAEOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.—At the last meeting of this society, it was arranged that the annual meeting for this year should be held at Dorchester, on Tuesday, August 1, to Tuesday, the 8th, inclusive, and the local committee and students of sections were nominated.

SEWAGE UTILISATION BILL.—On the motion of Lord Ravensworth, in the House of Lords, the following were agreed to as the select committee on this Bill:—Earl of Derby, Earl of Devon, Viscount Strathallen, Viscount Torrington, Viscount Eversley, Lord Folkestone, Earl of Cork, Lord Redesdale, Earl of Longford, Lord Ravensworth, Lord Essex, and Lord Ebury.

DURHAM ARCHITECTURAL SOCIETY.—The first meeting for the season of the Architectural and Archaeological Society of Durham and Northumberland was held in Hartlepool and neighbourhood. The members who attended visited a number of places, paying particular attention to the old church of Hartlepool. A paper was read by Mr. Longstaffe, on "The History of the Church and Town," after which the members met together, under the presidency of the Rev. Greenwell, of Durham.

ALLEGED RISK IN OPENING SAFES AFTER FIRES.—At the late conflagration in Richmond, United States, according to the *New York Daily News*, a curious incident occurred. Some weeks before the fire, the iron safe of the *Enquirer* office was opened; when, immediately on the admission of the air, the books and papers were ignited and consumed. Such was also the case in all other safes which were not in brick walls. In these latter the contents were unharmed. The *Enquirer* safe, at the time it was opened, was cold externally to the touch.

PROPOSED ART EXHIBITION AT ALTON TOWERS.—At a recent meeting of the London Committee, held at the residence of Viscount Ingestre, M.P., the prospectus of the Local Committee, with amendments and additions, was adopted; it was decided that the opening of the exhibition should take place, if possible, on Wednesday, July 5. The general management of the exhibition is to be entrusted to Mr. C. B. Moscrop, of the South Kensington Museum. The committee will very shortly receive articles for exhibition. Special trains will be run frequently during the exhibition to Alton from all parts of the country.

EMERGENCY LIFTING MACHINE.—An interesting experiment of M. Eybert's newly-invented submarine lifting machine, the *Narval*, was just taken place on the crater lake of Ann, on the mountains of the Puy-de-Dôme. The valve of the huge machine having been closed, the apparatus was made to collapse and sink to the bottom of the lake. A diver then went down and attached to it large masses of iron weighing 60 tons. The machine was then inflated, and slowly rose to the surface with its immense burden. A report addressed to the Minister of Public Works by the prefect is a testimony to the perfect success of the experiment.

DAMAGE IN UNDERPINNING WALL.—In the case of Common Pleas, a case *Williams v. Long*, was tried in which the defendant, a builder, who had been employed to build a house adjoining one belonging to the plaintiff. It was necessary to underpin the plaintiff's wall, and in the course of this operation the plaintiff's house sustained damage. Subsequent upon this, an action was brought, the jury awarded him 20*l*. Mr. Philbrick moved for a rule for a nonsuit. The Act 19 Vic., c. 122, s. 108, said that "no action should be brought against any district surveyor or other person for anything done or to be done under the provisions of this Act unless a month's notice of action were first given the plaintiff must be nonsuited."

It was submitted to the court that the defendant was entitled to notice of action under the provision, and that such notice not having been given the plaintiff must be nonsuited.

BURNING OF A THEATRE IN STOCKHOLM.—A Stockholm letter states that the Park Theatre of that city was entirely destroyed by fire on the night of the 22nd. The building being constructed almost entirely of wood, all the efforts of the firemen to arrest the progress of the flames were fruitless.

IRON RAILWAY CARRIAGES.—The Chicago and St. Louis Railroad Company have received one or two iron passenger-coaches. This car is sixty-seated, in point of appearance not excelled by any passenger-coach in the north-west. It is constructed entirely of iron, with the exception of doors and windows and inside linings.

MIRAGE.—On the 26th ult., in the morning, the wind being S.S.E., the summit of the cliffs of Hastings were distinctly visible from the port of Dieppe, the distance being about 47 miles. The phenomenon of mirage is not of very rare occurrence in this portion of the Channel, the inhabitants of Hastings and Eastbourne having been often favoured with a view of Dieppe by the aid of Nature's great "refractor."

THE ATLANTIC TELEGRAPH CABLE.—The new telegraphic cable, destined once more to connect England with America, has been completed. For a year past, the machinery of Messrs. Glass & Elliott, of Greenwich, has been busily at work, and the directors of the company invited a number of gentlemen to witness the ceremony of twisting the last foot and inch of the 2,300 miles of rope, after which the completion was of course celebrated by eating and drinking, at an entertainment which took place in the Ship Tavern, Mr. J. Pender, M.P., in the chair.

EXHIBITION OF INSECTS.—The Central Society of Agriculture of France has proposed an exhibition, not of husbandry, nor of horses, cattle, or dogs, but of insects. The programme of the animalia to be displayed is thus set forth:—First class.—Useful insects: 1. Insects used for the production of silk; 2. For the production of honey and wax; 3. Tintorial insects; 4. Edible insects; 5. Those employed in medicine. Second class.—Noxious insects:—Those injurious to cereals, the vine, other crops and industrial plants, kitchen gardens, plants furnishing food for animals, fruit-trees, forest-trees, and timber wood; parasitic animals of man and the inferior animals, &c., et hoc genus omne.

THE CATASTROPHE AT THE GREAT WESTERN RAILWAY.—The coroner's jury, in this case, after hearing a mass of evidence, returned the following special verdict:—"That the deceased, Henry Charles Leblanc Newberry, was accidentally killed by the fall of a wall and a slack of coals, on the premises of the Great Western Railway Company, in the occupation of the Lilleshall Coal Company; and the jury impaneled having recorded a verdict of accidental death, desire to give their opinion that the conduct of the Lilleshall Coal Company has been utterly reckless with regard to the stacking of coals against the wall that fell on the deceased, and they also think that the officers of the Great Western Railway Company were highly culpable in not protecting the public from the danger of the falling of a wall which they knew to have been in a dangerous state for several days before its fall."

VALUE OF HOUSE PROPERTY.—The following were amongst the sales on the 30th ult., at the Guildhall Coffeehouse, by Messrs. Driver, Leesehold two mansions, being Nos. 42 and 75, Onslow-square, Brompton, producing 300*l*. per annum, term 86 years, from 1849; ground-rent, 17*l*. per annum—4,710*l*. Leesehold seven residences and premises, being Nos. 1 to 6 and 12, Summer-place, Onslow-square, Brompton, producing 638*l*. 10*s*. per annum, term 85 years from 1850; ground-rent, 35*l*. per annum—9,330*l*. Leesehold ten residences and premises, being Nos. 1 to 10, Summer-terrace, Brompton, producing 825*l*. per annum, term 86 years from 1849; ground-rent, 50*l*. per annum—12,330*l*. Leesehold mansion, being No. 17, Southwick-crescent, Hyde Park, let at 292*l*. per annum, term 96 years from 1840; ground-rent, 2*l*. per annum—4,570*l*. At Garraway's, by Messrs. Edwin Fox & Bousfield.—The beneficial interest in the lease of the professional residence, No. 45, Threadneedle-street, term 21 years from 1863, at a rent of 90*l*. per annum—2,000*l*. Leesehold house, being No. 18, Canterbury-road, Ball's Pond, let at 28*l*. term 99 years from 1852; ground-rent, 3*l*. 5*s*. per annum—

COFFER.—The demand is languid; the smelters are now selling tough at 89*l*. per ton; best selected at 92*l*. per ton; manufactured, 96*l*. per ton.—*Ryland's Circular*.

RESTORATION OF THE PALACE AT BRUNSWICK.—The Chamber of Brunswick has just met in an extraordinary sitting to consider a proposal for the rebuilding of the ducal palace. A sum of nearly a million thalers was voted almost unanimously for the purpose.

WELDING STEEL AND CAST OR MALLEABLE IRON.—Mr. William Carson Corsan, of Sheffield, has provisionally specified the use of a composition, consisting of borax, fifty parts; Calais sand, thirty parts; emery, ten parts; and manganese, ten parts, in the welding of steel and cast or malleable iron; but he does not restrict himself to these precise proportions.

METROPOLITAN BOARD OF WORKS.—The subject of the proposed gratuities of 6,000*l*. to the engineer, and 4,000*l*. among his assistants, was taken into consideration at last week's meeting of the Board, who decided, by a majority of 18 to 4, that the recommendation of the committee was excessive in amount, and the proposal premature; and that the subject be postponed until the works are nearer completion.

THE LOCAL GOVERNMENT ACT, 1858.—At a meeting of the West Hove Improvement Commissioners, held on Tuesday, a resolution was unanimously adopted, and without discussion, to apply the above Act to the district over which the said commissioners have jurisdiction, so that the whole of Hove parish beyond the Brunswick-square district, excepting some agricultural land, is now under the Local Government Act.

DEMOLITION OF THE PIAZZA OF ST. LAWRENCE, READING.—The local Board of Health having decided to remove the piazza on the south side of the Church of St. Lawrence, and also the projecting aisle known as "Knollys Aisle," the resolution as to the piazza was at once carried into effect, and the old land-mark was destroyed before even a protest could be made against the resolution. The piazza was erected in February, 1619, at a cost of 100*l*., by John Blagrove. The aisle, also, proposed to be demolished, was raised in 1637 by Sir F. Knollys.

SANITARY MATTERS IN IRELAND.—At a meeting of the Belfast Board of Guardians, a member stated that he had visited Boyd's-court, in the middle of a dense and rich population, fifty yards from Donegal-place, and the like of it he never saw. He never saw human beings in such an awful place. They were without light. There was not a bed in the place, and they had nothing but wood shavings to sleep upon. He had to hold his nose the whole time he was in it. The people of Belfast should be ashamed of themselves,—talking of their missionary operations, and sending thousands of miles to catch a stray Laplander when there was such work for them at their own doors.—The churchwardens and officers of health appointed for the parish of Down in accordance with the provisions of the 69th George III., chap. 41, have issued a notice calling the attention of the parishioners to sections of the Act relating to nuisances; and stating that it is the intention of the officers of health to enforce the law without delay, in order to prevent contagious diseases.

ARTISTS' BENEVOLENT FUND.—The 56th anniversary of this excellent Fund took place on Saturday evening at the Freemasons' Tavern—Lord Barry, M.P., in the chair. The artists have two funds for the benefit of distressed members of the profession. One is the Artists' General Benevolent, which, like the present one, has been established more than half a century, from the funds of which relief is afforded to distressed meritorious artists generally. In the case, however, of the Artists' Benevolent Fund the benefits are strictly confined to those artists and their widows or orphans who have by their subscriptions or donations established a claim upon the fund. The one is founded on the provident principle; the other is purely benevolent. During the last year fifty widows of artists have participated in the benefits of this charity, and a large amount of relief had been afforded to deserving recipients of its funds. At the dinner, of which about 100 gentlemen partook, it was announced that her Majesty had, for the twenty-seventh time, presented her annual donation of 100 guineas.

SCARBOROUGH.—Two almshouses at Scarborough have been sold by auction, by order of the Charity Commissioners, who intend to erect new almshouses on some less costly site, and to give the poor the advantage of the surplus. The commissioners stipulated that the old inscription stone over the entrance of the hospital should be handed over to them for insertion in the wall of the new building, or otherwise. The inscription is as follows:—"These hospitals were built by Elisha Trotter for two widows to live in, who died Sept. 19th, 1697." The property was purchased on behalf of the Local Board, who contemplate widening and greatly improving that part of St. Thomas-street in which this property is situated.

FAILURE OF GRANITE CASEMATE FORTIFICATIONS.—Recent experiments at Shoeburyness, it seems, show that granite is not only unsuited for resisting shot, but is a most dangerous material for those who are behind it. We invent guns which go off at the wrong end, and wound the gunners, and we erect fortifications which are more dangerous to the defenders than to the assailants. What the course of the War Office will now be it would be idle to conjecture, but the regret must be universal that the fortifications at the entrance to the Thames, about Portsmouth, around the Isle of Wight, and generally round the south and west coast, should have approached so near completion on what must now be regarded as an erroneous principle.

DISCOVERY OF CANNEL COAL IN NEW SOUTH WALES.—The *Journal of Gas Lighting* says, "Advices have been received, by the last overland mail, of the discovery, about 80 miles from Sydney, near a line of railway now in course of construction, of a workable seam of cannel coal, which surpasses the hitherto unrivalled Boghead in richness. Its yield per ton is reported to be 17,600 cubic feet of gas of thirty-one candle illuminating power, and 745 specific gravity. The discovery must exercise great influence on gas-lighting in Australia, the East Indies, China, California, and South America, by enabling the gas-works of those countries to use their inferior local coals, and bring up the quality of their gas to a satisfactory illuminating power by the addition of a small quantity of Australian cannel."

THE IRON TRADE.—The following quotations are from *Ryland's Circular*, May 27th:—South Staffordshire pigs.—Common forge, 21. 15s. to 31.; better class, 31. 2s. 6d. to 31. 5s.; common melting pigs, 21. 17s. 6d. to 31. 2s. 6d.; better class, 31. 10s. to 41.; best makes, 41. 5s.; cold blast, 41. 15s. to 51.; refined metal, 41. 10s. Manufactured iron.—Marked bars, 81. 10s.; hoops, 91. 10s.; sheets, singles, 101.; doubles, 111. 10s.; latens, 131.; angles, 81. 5s. to 91.; gas strips, 81. to 81. 10s. The commoner makes of our district in bars are being quoted at 71. 5s. to 81. at works; puddled bars, 61. to 61. 5s.; scrap bars, 61. 10s. to 71., according to quality. North Staffordshire: bars, 71. 10s. to 71. 15s.; best, 81.; best best, 81. 10s.; best angle iron, 81. 10s.; Welsh bars, 61. 10s.; best plates, 91. 10s.; Welsh bars, 61. 10s. to 61. 15s.; Welsh rails, 71. 2s. 6d. to 71. 5s. at works. These prices are quoted as "at Works," unless when otherwise specially mentioned.

STREAM OMNIBUSES.—An omnibus drawn by a steam engine has commenced running regularly on the high road between Nantes and Niort. The road from Nantes to Niort presents several rather steep hills, which the engine with its omnibus, according to *Galignani*, ascends and descends with the utmost facility and safety. The engine, called the *Avenir*, weighs about 7 tons, with its provision of water and coals: it is 16 ft. 5 in. long, and 6 ft. 11 in. wide.

THE VICTORIA RAILWAY STATION, MANCHESTER. At Victoria Station the alterations are on a gigantic scale, and must involve a vast expenditure. The works are rapidly progressing. The station, large as, in its new shape, it will be, is capable of still further extension, as the wants of the public may require it. Its appearance, too, will be greatly improved. The new triangular roof is 60 ft. high, and we believe it was erected 12 ft. higher than was intended, owing to the extensive alterations made by the London and North-Western Company in their part of the station, some time ago. All the platforms at the Victoria Station are being raised to the level of the carriages, and new waiting-rooms and booking offices have necessarily been erected to accommodate the sub-divided traffic. The Salford Station is being remodelled and enlarged.

THE LIVERPOOL WHOLESALE MARKET QUESTION. At a recent meeting of the markets committee, Mr. Samuelson proposed the adoption of a site near St. John's Market, which would give 10,640 square yards, at an estimated cost of £7,875.1.1 or, excluding corporation property, 80,000l. Mr. Fairhurst moved an amendment, to the effect that the site be at the North Haymarket, with an area of 13,000 square yards, at a cost of about 56,000l. The amendment was lost by 6 to 4. The meeting then adjourned, the original resolution not being put, as a further amendment is to be moved upon it.

TENDERS

For the erection of warehouse, Tower Royal, Cannon-street West, for Mr. J. Jacobs, Mr. M. S. Joseph, architect:—

Read & Son	£2,026 0 0
Lawrence & Son	1,883 0 0
Asby & Horner	1,870 0 0
Hill & Keddel	1,840 0 0
Hardiman & Sandon	1,780 0 0
Cowder	1,817 0 0
King & Sons	1,751 0 0
Axford & Sons	1,709 0 0
Brown & Robinson	1,647 0 0
Newman & Mann	1,668 0 0

For police offices and prison cells (except the warming and ventilating) for the Corporation of Sheffield, Messrs. Flockton & Abbott, architects:—

Byron	£3,690 0 0
Generalist	3,875 0 0
Wade	3,670 0 0
Craven Brothers	3,490 0 0
Neill (accepted)	3,840 0 0

For a house for Mr. Robert Fries, at Mistley, Essex. Mr. E. Barnes, architect:—

Saunders	£1,185 0 0
Girling	1,111 0 0
Holliday (accepted, with modifications)	1,096 0 0

For additions to seed stores, in the King's-road, Reading, for Messrs. Sutton, Messrs. Wm. & S. T. Brown, architects. Quantities supplied:—

Searle	£1,164 0 0
Sheppard	1,169 0 0
Strong	1,154 0 0
Matthews	1,149 0 0
Dunn	1,177 0 0
Wheeler, Brothers	1,186 0 0
Woodroffe	1,098 0 0
Strong	1,093 0 0
Barnicot (accepted)	1,090 0 0

For new school for British School Committee, at Redhill, Mr. Williamson, architect. The two took out their own quantities; the others were supplied by Mr. Matthews:—

Cook	£773 0 0
Wesley	741 0 0
Hodsworth	839 0 0
Thornton	710 0 0
Sheppard & Room (accepted)	710 0 0

For building new warehouse and workshops, Newman-street, Oxford-street, for Mr. Crisp, Mr. J. B. Benwell, architect:—

Green	£2610 0 0
Hyde	650 0 0
Southall & Watson	672 0 0
Tracey & Son	651 0 0

For new church at Wickham-road, Deptford, Kent. Mr. F. Mearns, architect. Quantities by Mr. W. F. Mearns:—

Stone & Pierce	£13,662 0 0
Ryder	13,385 0 0
Sharpton & Cole	13,380 0 0
Dover	13,193 0 0
Myers & Son	12,770 0 0
Sawyer	12,663 0 0
Howard	12,463 0 0
Jackson & Shaw	12,550 0 0
Longacre & Burge	12,169 0 0
Simms & Martin	11,560 0 0

For the chapel, registrar's house, and lodges at the new cemetery for Ashton-under-Lyne and Dukinfield.

Messrs. Paull & Ayliffe, architects:—	
Cley	£2,331 0 0
Easton	7,879 10 0
Storrie	7,149 0 0
Thompson	7,054 0 0
Horsman	7,062 19 11
Robinson	7,000 0 0
Burton (accepted)	7,000 0 0

For Christ Church Schools, Battersea, exclusive of teachers' residences. Mr. E. C. Robins, architect:—

Jackson & Shaw	£2,893 0 0
Sharpton & Cole	2,847 0 0
Brass	2,730 0 0
Mauers	2,710 0 0
Allen	2,702 0 0
Newman & Mann	2,700 0 0
Scriveners & White	2,651 0 0
Nicholson	2,653 0 0
Bass	2,468 0 0
Lathey Brothers (accepted)	2,423 0 0

For new class-rooms, St. Stephen's Schools, Paddington. Messrs. Francis, architects:—

Myers & Son	£994 0 0
Colls & Son	925 0 0
Cowland	894 0 0
Hill & Sons	245 0 0
Keyes & Head	739 0 0
Higgs	739 0 0
Fish	738 0 0

For parsonage-house, Christ Church, Battersea. Mr. Bennet Kays, architect. Quantities supplied:—

Jackson & Shaw	£2,150 0 0
Nicholson & Sons	2,145 0 0
Sharpton & Cole	2,035 0 0
Scriveners & White	2,043 0 0
Fincher & Martyn	2,025 0 0
Allen	1,976 0 0
Lathey Brothers	1,943 0 0
Bass	1,880 0 0
Mauers	1,870 0 0
Newman & Mann (accepted)	1,815 0 0
	1,783 0 0

For house and shop, Plough-lane, Battersea, for Mr. John Smith, Mr. Charles Bowes, architect:—

Lathey Brothers	£353 0 0
Godbolt	352 0 0
Lacy	395 0 0

For teachers' residences, Christ Church Schools, Battersea. Mr. E. C. Robins, architect. Quantities by Mr. Rickman:—

Jackson & Shaw	£1,075 0 0
Allen	1,063 0 0
Fincher & Martyn	1,036 0 0
Sharpton & Cole	1,033 0 0
Brass	973 0 0
Nicholson & Son	968 0 0
Newman & Mann	968 0 0
Mauers	948 0 0
Bass	913 0 0
Scriveners & White	901 0 0
Lathey Brothers (accepted)	860 0 0

For new buildings, Bishopsgate-street Within, for the City Offices Company, Limited. Works to level of ground-floor. Messrs. Francis, architects:—

Brown & Robinson	£11,131 0 0
Higgs	10,967 0 0
Keyes & Head	10,577 0 0
Hardiman & Sandon	10,447 0 0
Hill & Keddel	9,990 0 0
Brass & Co.	9,970 0 0
Henshaw	9,945 0 0
Hill & Sons	9,930 0 0
Piper & Wheeler	9,667 0 0
Myers & Sons	9,570 0 0
Colls & Son	9,430 0 0
King & Son	9,376 0 0

For alterations, alterations, and repairs at the Jews Free Schools, Bell-lane, Spitalfields. Messrs. Tiltott Chamberlain, architects. Quantities supplied:—

Nicholson	£13,578 0 0
Hill & Keddel	13,328 0 0
Myers & Sons	13,296 0 0
Brass	13,294 0 0
Asby & Horner	12,975 0 0
Patrick & Son	12,861 0 0
Piper & Wheeler	12,777 0 0
Lawrence & Sons	12,181 0 0
Asby & Sons	12,034 0 0
Fritchard (accepted)	11,793 0 0

For five attached cottages, Avenue, Denmark-street, Camberwell. Mr. J. Thomas, architect. Quantities supplied:—

Dennis	£1,780 0 0
Colls & Co.	1,772 0 0
Soper	1,739 0 0
Pulford	1,634 15 0
Pearce	1,666 0 0
Thompson	1,583 0 0
Minard	1,528 0 0
Pescott	1,290 0 0
Brashear	1,150 0 0
Westrope (accepted)	1,067 0 0

For sundry buildings and additions to house and homestead at the Manor Farm Old Windsor, for the Commissioners of Her Majesty's Woods and Forests.

Sargent	£2,230 0 0
Jenkins	2,217 14 0
Cowland	2,188 0 0
Oades (accepted)	2,160 0 0

For "The Albert Wing," Royal Asylum for St. Ann Society, Brighton-hill. Messrs. Wimbles & Taylor, architects:—

Hill	£5,065 0 0
Allen	4,834 0 0
Kilby	4,773 0 0
Hardiman & Sandon	4,628 0 0
Colls & Son	4,532 0 0
Adamson & Son	4,444 0 0
Sawyer	4,389 0 0
Hart	4,295 0 0
Stone & Pearce	4,206 0 0
Wills	4,200 0 0
Gulland & Thompson	4,150 0 0

For alterations to No. 11, Wardour-street, Oxford-street, for Messrs. Garrett & Whitaker. Mr. F. F. Holsworth, architect:—

Tracy & Son	£292 0 0
Lawrence	559 0 0
Manley & Rogers	517 0 0
Selleck (accepted)	473 0 0

For building a new house adjoining the Black Horse Inn, Evelyn-street, Deptford, for Mr. Stapley, Mr. W. N. architect:—

Bauks	£2,046 0 0
Day	1,694 0 0
Selleck	1,455 0 0
Worms	1,433 0 0
Pearson	1,400 0 0
Hubble	1,355 0 0
Mills	1,340 0 0

For the erection of a new banking-house, with shop dwelling-house adjoining, at Weston-super-Mare, Somerset, for the West of England Banking Company. Mr. Bruce Gilling, architect. Quantities supplied by J. A. Clark:—

Palmer	£3,050 0 0
Day & Son	2,850 0 0
Diment	2,723 0 0
Jones & Son	2,629 0 0
Perry (accepted)	2,668 0 0

The Builder.

VOL. XXIII.—No. 1166.

[Portrait Miniatures in South Kensington Museum.



Y bringing together, in a fire-proof building, and in London, the much-prized treasures—hairlooms—tied down with legal restrictions, and accompanied with all the fears of fire and injuries and losses of every kind that unwillingness can suggest, with all their little omissions, a noble "exhibition of portrait miniatures" has been provided and may be studied at South Kensington. Many thanks to her Majesty's Committee of Council on Education, thanks to the sixty-nine gentlemen of the Committee, thanks to Mr. Secretary Cole (C.B.), and thanks to the cataloguers.

The collection was ordered and set about in the March of last year, and it is now open to the

world, with three thousand and eighty-one examples—many marvellous, very excellent, very many interesting, some mysterious, and not a few of very little moment. Still, we are glad to see them together, just as they are, and in so central a spot as Brompton.

The catalogue before us is a very handsomely-printed octavo volume, of three hundred and more pages, and has, as we have already mentioned, a short "Introductory Notice," by Mr. Samuel Redgrave, partly quoted in our last.

The compilation and publication of a full and satisfactory catalogue of a "loan" that is a temporary exhibition of works of art (a splendid annual) is no easy matter. The certainty that thousands on thousands will gaze with wonder, admiration, and ignorance on the portrait miniatures they see, was not properly before the minds of the House of Commons, the other night, when they were talking about the exhibition. It is true that neither Lord Palmerston nor Mr. Gladstone, on one side, nor Lord Derby nor Mr. Disraeli, on the other, need be told about Sir William Temple or Josiah Wedgwood, Hobbes the philosopher, or Hampden the patriot. True, also, that there are thousands of schoolboys who are well up in English and foreign biography; but still, there are tens of thousands more than pleased, and to be pleased, with this Government exhibition who would find their instruction and delight more complete had the catalogue been even more full than it is;—if the character of the persons represented (as weighed by really great names) had been appended to the numbers in it. We remember, in our boyish days, an actually well-educated lady (out of the art, it will be seen, of recognising likenesses) mistaking the busts of blind old Homer and ringleted Virginius Maro for blind King George III. and the Princess Charlotte. "Whom is that meant for?" said Lady K. to Sir Henry, at a Royal Academy exhibition. "Why, my dear, Lord Fitz—, to be sure." And what was my lady's reply? "And so it is;—and how very like." My lady had

never recognised the likeness had she not been told.

Before proceeding further in what we have to say about this great *Miniature* Exhibition, we would say one word touching the use throughout the catalogue of the title or distinction of "Miniaturist." Holbein and Hilliard, Isaac and Peter Oliver, John Hoskins and Samuel Cooper, Christian Frederic Zincke and Henry Bone, nearer our own time, would not have known what the calling or profession meant. John Hoskins, one of the greatest of the several names we have mentioned, signs his will as "John Hoskins, Limner;" and the illustrious Sir David Wilkie, who died in 1841, was "Limner" to the Queen for Scotland. We trust that "miniaturist" will not take dictionary root in "the Queen's English."

That mighty master in miniature Isaac Oliver leaves in his will (he died in 1617) to his famous son Peter, "all my drawings and limning pictures, be they histories, stories, or anything of limning whatsoever."* And while Isaac and Peter Oliver engage our attention, let us state for the information of the Committee of Council on Education, future editors of Walpole, and future catalogue compilers, with kindest intent, that Peter Oliver died in 1648, not in 1660. His will, dated 13th of December, 1647, may be seen for a shilling in Doctors' Commons, where it was proved on the 15th of December, 1648.

There are many portrait-miniatures in well-known collections in England that are not (very rich, we repeat, as it is) in this Kensington garnering. We find nothing here from Burleigh House (the Marquis of Exeter's);—nothing here from Hatfield House (the Marquis of Salisbury's)—the wealthy in works-of-art representations of the two great Cecils of the reigns of Elizabeth and James;—nothing from the Vere, Cavendish, Bentinck, and Harley collections at Welbeck (the Duke of Portland's);—nothing from Hamilton Palace (Duke Hamilton's);—nothing from Longleat (the Marquis of Bath's);—nothing from Ham House, in Surrey, the seat of the Earl of Dysart, where we have seen the finest and largest John Hoskins we have ever seen; though we were at the Manchester Exhibition, and saw the Welbeck and Bulstrode collections formed with so much judgment and liberality by three *Harleys* of three generations: (1) the Lord High Treasurer Oxford; (2) his son (Vertue's friend in art; Oldys's friend in literature, and still much more), Edward Earl of Oxford, a magnificent and munificent collector; and (3) his daughter, Margaret Cavendish Harley, the Duchess of Portland, whose name is inseparably connected with art in the precious "Portland Vase" of antiquity and all time. What we have said, however, is not by any means intended to reflect on those who have gathered together the Brompton exhibition, for they have worked well; but to show the amount of this description of wealth to be found in England.

It seems strange that in an art so exquisitely delicate as miniature painting, women have not excelled. One would have thought that the delicate fingers and lustrous eyes that make such marvellous work with needles of coloured silks and threads, would be able to supply "a Queen of Beauty" on the reverse of a queen of hearts in a pack of playing-cards. Few have heard, or will ever hear, of Mary Beale, of the seventeenth century; of Frances Reynolds (Sir Joshua's sister), in the eighteenth century; or of Maria Cosway or Mary Ann Knight, in the nineteenth century. Staring into handsome men's faces, to transfer their lineaments to canvass or cardboard, is not altogether becoming

Miss in her teens; or the lady who, when asked in a court of law how old she was then (when the transaction took place), replied with sweet reluctant delay, and "said a smile to a tear" kind of look—"She did not know how old she was THEN; but she knew (her modesty still on the increase) how young she was NOW." This was up to the mark of Mrs. Mary Anne Clarke's reply (in the Duke of York case) to Mr. John Wilson Croker. Pride and paint, Dryden says, in his famous epistle to Sir Godfrey Kneller, were the main causes of the fall of Eve. It is true, he afterwards omitted four lines, in which the cause is so characteristically told by the great poet.

The seeming wonder we have expressed that ladies have not taken to limning or miniature painting, is strengthened by a practice which we find, from the collection of miniatures under review, more customary than we thought it. Many early *limnings* are drawn and coloured on the backs of playing cards. Miss Arabella Fernor's painted face, in beautiful miniature art, on the back of the queen of hearts, and Lord Petre's patched and powdered face, of a like skill, on the back of the knave of diamonds, would command good money "quotations" under the King-street hammer of Messrs. Christie, Manson, & Woods.

Were we to "place" Mr. Redgrave's "miniaturists" in the order of their several merits, we should be inclined to rank them somewhat in this way; and we base our judgment on more examples than are to be found in the present collection, admirable as it is:—

In colours, on card or ivory.	Hans Holbein. Nicholas Hilliard. Isaac Oliver. Samuel Cooper. Peter Oliver. John Hoskins. Thomas Flatman.
In enamel.	Sir William Ross. Pettiot. Zincke. Henry Bone, R.A.
In pencil, uncoloured.	Robert White. William Faithorne. David Loggan. George Vertue.
In chalks or crayons.	Samuel Cooper. Archibald Skirving.

We purposely omit the living.

As pictures of saints are known by their emblems, so many of the nameless miniatures in this and other collections might be identified by the mottoes they bear. Let us illustrate our position. Supposing there was in the Kensington collection a fine miniature of the ago of Charles I., like the great Marquis of Montrose, and so called but upon insufficient authority: all doubt would be at an end if the miniature bore the emblem of two rocks with a chasm between, a lion mounted on a pinnacle, and the motto "Nil Medium;" for such a seal was used by the gallant Graham, as we know by existing letters in his own handwriting. Again, could we find in the collection a miniature said to represent Dr. Donne, the divine and poet, "in a melancholy posture," and with a motto about it, "De Tristitia ista libera me," we should reduce all doubt to certainty, for we know, on indisputable authority, that Donne gave his portrait to the poet Earl of Ancrum with such a motto. Again, should we see a contemporary miniature believed to be Sir Philip Sydney, and like the known portraits of him, we should have full confirmation of its being so, beyond cavil, if it carried the motto "Sine refluxu," alluding to the Caspian Sea, which neither ebbeth nor floweth. Other instances might be given in great numbers; and here let us observe, that among the Trustees of our National Portrait Gallery a first-rate herald and a first-rate genealogist are sadly wanting, men like Garter-King-at-Arms and Mr. John Gough Nichols.

Several portrait limnings or miniatures in

* See the will of Isaac Oliver, first printed in 1863, by the Camden Society, in "Wills from Doctors' Commons," edited by John Bruce. George Vertue drew up a catalogue in January, 1748, of "The Right Honourable the Countess of Oxford's Miniatures, Enamels and Limned Pictures, in one of the cabinets near the door." It is still in MS.

early MSS. on vellum and on paper are of all-absorbing interest to Englishmen. Such (foremost above all) is the whole-length of Geoffrey Chaucer, the father of English poetry, among the Harleian MSS. in the British Museum, most admirably copied with its colours by Henry Shaw into one of his many capital contributions to the history of Medieval art. Oocleve, the poet, was the scholar of Chaucer and the artist. Such, too (if we could fully believe in it) is the William Caxton, the father of English printing, among the Lambeth Palace MSS.—believed in by Vertue and Horace Walpole, but very much doubted as “Caxton” by an accomplished English antiquary, the late Thomas Hudson Turner, who, in several conversations we had with him on the subject, was more than a Dissembler—an Unbeliever. An Act of Parliament alone (such as was passed in the Soane Museum case, respecting the Hogarth for South Kensington) could have removed these for a time to Kensington; but we own to a banking wish, shared in by many, to have seen them there.

“A minute” of the Right Honourable the Lords Commissioners of her Majesty’s Most Honourable Privy Council on Education, under whose careful auspices this “Special Exhibition” has been brought together, could move Lambeth and Whitehall to Kensington without any risk, to the gratification of an innocent and instruction-loving desire.

Here we must close for the present. Three thousand and eighty-one miniatures are not to be fully examined, passed judgment upon, and written about in a hurry.

ARCHITECTURAL NOTES OF TRAVELLERS.

Much valuable information connected with architecture and its history lies buried in books of travels of a kind that seldom meet the eye of the professional architect; books addressed to the general reader, and calculated to kill time agreeably, with a sprightly narrative of the ordinary incidents of travel,—books, in short, which the busy architect, in the pursuit of an active profession, has not the time even to glance at. And yet the authors of such books are often persons of cultivated taste in art, who seldom fail to record their impressions of any remarkable monuments they meet with; not unfrequently describing works of art which lie out of the beaten track of legitimate artistic touring, and which in many cases are not referred to in any existing works of a professedly artistic character.

Many such light books of travels that have recently issued from the press present to us, in the midst of slight gossiping chit-chat, very valuable information, *en passant*, connected with little known and often very remarkable monuments of art, every particular connected with which, however slightly hinted at, is full of interest as coming from the actual observation of a recent visitor, on the spot. A new book of travels in Albania and Dalmatia, though only claiming to be a slight journal kept during a summer trip of a few weeks, is yet full of glimpses, and something more than mere glimpses, into the ancient architecture of a region which is brim-full of architectural interest of a kind that is very little known.* With the exception of various notices of the remains of Domitian’s palace at Spalato (almost invariably written *Spalatro*), the whole region lying between the northern boundary of Greece proper and the course of the Danube is nearly a *terra incognita* to the modern student of art history. And yet it comprises within its limits the whet of ancient Macedonia, and was, during the Greek and Roman periods, quite a focus of European civilization. Under the dominion of Rome, it was the link which connected the eastern and western divisions of the vast empire. It was a region studded over with Greek cities, which became greater and richer under the Roman dominion, as being directly in the line of overland communication with the Roman east. It was at the most important

part of this Roman line of overland route, on the banks of the Bosphorus, that Constantine determined to transform the small Greek city of Byzantium into a vast midway emporium, that should, from its position as the link of the east and west, become the centre of the vast empire that comprised both Europe and Asia within the circuit of its dominion. After this foundation of Constantinople, and the subsequent separation of the vast Romanised world into the empires of the East and West, Greece and the regions immediately to the north, as far as the Danube, became the European centre of the arts of the Eastern empire, as Syria had been under the Greek dynasties, in the East. It was, then, under the sway of the Eastern emperors that Byzantium, under its new name of Constantinople, became the brilliant centre of that Early Christian art which we term Byzantine; and an endless number of churches and monasteries erected in that interesting style sprang up in every part of these European provinces of the Eastern emperors. From the fifth to the fifteenth century, a period of a thousand years, this state of things continued, though for the last half of that period undergoing gradual declension and decay. And then came the overwhelming conquests of the Turks, the fall of Constantinople in 1453, and the absorption of all the fine region in question into the gloomy darkness of the Turkish empire; since which time, four centuries of oblivion have, as it were, utterly effaced both the Classic and Byzantine glories of Macedonia, Thessaly, Epirus, and all the surrounding provinces as far as the Adriatic, from the pages of artistic record.

It is only within the last few years that light has been let in upon some portions of this interesting region. The still lamented Mr. Papesti, who made a charming series of drawings of the churches and monasteries of Mount Athos, with their curious Byzantine frescoes still fresh and bright upon their glistening golden grounds, was one of the pioneers in this direction. Since then, the Macedonian exploration, under the authority of the French Government, has added greatly to our knowledge of the noble remains of art still existing in these provinces, and the grand marble doors from a Macedonian tomb, with the bronze hinges still perfect, now in the Louvre, are sufficient to show what brilliant results other expeditions of the kind may be expected to bring to light of Messrs. Texier & Pullan’s book we have recently spoken.

Other less artistic and scientific travellers have since been aiding and assisting in obtaining further glimpses into this vast *camera obscura* of hidden art; and although architects may not deem such knowledge of a sufficiently accurate nature to be professionally valuable, they should recollect what we often owe to travellers who make no pretension to being either artistic or scientific explorers. To M. Botta, for instance, simply a consular agent in the interests of French commerce, we owe the first revelations of Assyrian art on a grand scale; and to an English traveller, neither architect, painter, nor professed savant, we owe the still greater discoveries, in the same field, that have enriched our national museum with a noble series of monuments of a grandiose style of art hitherto unknown to us. When first the continental drawings of Prout, Stanfield, and Roberts, so strongly arrested public attention as exhibiting architectural forms and combinations, often entirely fresh to those who only knew our North-western Gothic, and the set styles of the “five orders,” a certain class of architects, when it was proposed to them that they might get ideas from them, replied that, in a professional point of view, such representations were utterly useless, as being the work of persons unacquainted with the technicalities of the art. Happily, this line-and-rule school of architects has passed, or is rapidly passing away. The art is fast casting off its mechanical and technical trammels (perhaps too recklessly), and its professors are ready to receive, at the full value, every grain of proffered information.

Among the chief objects of architectural interest, described in the book of travels above referred to, is the Cathedral of Parenzo, now an insignificant place, nearly opposite Venice, on the Dalmatian coast of the Adriatic. When it was a city of some importance, during the early years of the Eastern Empire, and during the reign of Justin I., the present cathedral was built. Justin had interested himself greatly in church matters, and succeeded in reconciling the Greek and Roman churches after a long and acrimonious schism; and it was during this period of eccl-

esiastical activity that several of the Byzantine churches of Macedonia and the adjoining provinces were erected, and among others it would seem the Cathedral of Parenzo; for, as our traveller was informed, it was finished in the year 526, the last year of the reign of Justin I., and the year before the accession of Justinian. This would make it older than the curious and celebrated Byzantine Church of Santa Fosca, on the island of Torcello, in the Venetian lagoon, and place it in the purest and most interesting period of Byzantine art. Justinian continued the efforts of his predecessor to re-establish the unanimity of the church, and to extend the influences of the Christian religion. He constructed twenty-five churches in Constantinople, besides entirely rebuilding the celebrated Church of St. Sophia, on a scale of such splendour, that on contemplating the completion of his own work in the magnificent Christian temple which had arisen under his immediate direction, it is recorded (as every one knows), that he could not forbear exclaiming, “Glory be to God, I have vanquished thee, O Solomon!” This was the most vigorous and brilliant period of that Greco-Gothic style that sprang from the union of two distinct theories of art which met and mingled in the Eastern capital of the Roman empire. It was the epoch of the full development of the distinctive features of that kind of architectural composition which we term Byzantine. Taking into consideration the splendour and important scale of the Cathedral of Parenzo, one might almost feel inclined to dispute the date appended to it at Parenzo, and assign it to the reign of Justinian, more especially as the details of the capitals and other portions of the ornamentation appear to be very closely similar to those of St. Sophia. This, however, need only alter the date some twenty years, and that given may, in fact, belong to its commencement in the reign of Justin, at whose death it may have been left incomplete, and have been finished a few years later by the famous artists of Justinian.

The traveller describes the building as a basilica with atrium, a two-aisled nave, and one chapel; a modern transept and some other chapels having been added at later periods, and in very inferior styles. “At the east end is a rounded apse, as glorious in its mosaics as that of Santa Sophia.” Every part of the wall and roof is, indeed, covered with mosaic, as we are informed, and especial admiration is expressed for a group of nine saints and angels surrounding the Virgin and Child, on a gold ground. Heads of saints adorn the spaces between all the arches, and they are said to be very beautiful. To about 10 ft. high the walls are inlaid with whole shells of mother-of-pearl, let into dark brown stone, which “looks like a rich piece of Damascene furniture,” and though in principle this kind of decoration is a somewhat rude device, it is said to be effective, and even beautiful. The entire floor is composed of coarse mosaic, in curious Byzantine patterns; but, exclaims the traveller, “one can scarcely look at anything after the wall mosaics, except the capitals of the columns.” The columns themselves are of polished brown marble, and the capitals, exactly in the style of those of Santa Sophia, but perhaps a little bolder in treatment. Their design forms a perfect lacework of flowers, birds, and foliage, most elaborately and deeply undercut, and all the features made out clearly and gracefully with the greatest life and spirit, yet with no idly superfluous work. “Not a single line thrown away!” exclaims the fascinated spectator, expressing a hope at the same time that ere long this series of capitals may be photographed, as exquisite gems of Byzantine art.

The Baldachin is described as very fine, and of exceedingly curious workmanship, the ancient hangings not being its least interesting and beautiful feature. Of later date is a beautiful Renaissance altar-front, entirely of silver gilt; and of the original date are the remains of a porch and cloister, of which, unfortunately, only a few columns remain. The author’s account of the cathedral concludes with the expression of a firm conviction that it is well worth the time, expense, and trouble of a special journey from England to see it.

The account of the visit to Pola, a little lower on the coast, is not without a few remarks of architectural interest. The well-known amphitheatre is, of course, dwelt upon. Its vastness, indeed, strikes all travellers who have seen it; and Sir Humphrey Davy describes in his best manner the grandeur of the monument as he saw it, at sunset, with the rays of yellow light

* “The Eastern Shores of the Adriatic.” By the Viscount Strangford.

streaming through its arches. There is no attempt at architectural ornament in this vast structure; but the masonry is beautiful, and the immense stones, blocks of coarse white marble, of which it is built, are fitted to each other without mortar.

At Fiume, a fine brown marble is noted, which might become a valuable commercial staple, as it is very abundant, easily taking a high polish, and its rich nut brown is described as being of unequalled richness. There is also abundance of a good yellow marble; and a valuable material for making compost should not be overlooked by our enterprising cement manufacturers. This material is obtained from Santorini, and at the time of our traveller's visit one of the quarries was crowded with vessels laden with it. So important and valuable is this material, that a commission from our Royal Engineers has, it seems, just been sent out to examine into its qualities, and study the methods of working it; so that our men of commercial enterprise, if not wishing to be left behind, should lose no time in seeing into the matter.

The castle of Tersatto, near Fiume, is, at a distance, a very remarkable object, from its commanding position. It was bought by the late Field Marshal Count Nugent, who wasted great sums of money upon it without producing any other effect than that of a vast "Castle Rackrent." The only thing he completed was a kind of temple, in a bastard Grecian style, over a dungeon which he prepared for his own sepulchre, and where his remains now lie. In some sheds about the castle are a number of fragments of ancient sculpture discovered in the neighbourhood. They are without special interest, except as showing how rich the whole country is in artistic remains, especially of the Roman period.

The small city of Zara, nearly opposite to Ancona, on the Italian coast, has some architectural attractions worth referring to. It was once in possession of the Venetians, and a trace of their possession is found in the ancient gates of the city, which, though Venetianized on one side, still remain Roman on the other. Among other relics of the Venetian occupation, in the shape of architecture, are the handsome gate called Porta di Terra-firma, a work of Micheli, erected in 1543; and a handsome loggia, of true Italian style, in the Piazza dei Signori, close to which is a solitary Corinthian column, of fine character, the last remnant of a Roman temple.

The cathedral of Fiume is mentioned as a fine building, in the severe Lombardic style of the thirteenth century, said to have been erected by the French and Venetian Crusaders, who made this place a permanent station on their way to the East. The west façade is covered with arcade-work, with two fine rose-windows and three deeply-recessed doors. The capitals of the columns of the nave are, it appears, some of them of the severest Lombardic block style, while others are of a very florid bastard Corinthian. A remarkably beautiful triforium of white marble runs round the nave, and balustrades of the yellow marble, previously referred to, inclose the chapels. The stalls are remarkably rich, and each is surmounted by a small gilt figure holding a scroll, containing the name of the stall. The crypt is also very fine, and in a curious style. On the whole, the edifice appears well worthy of careful architectural study; and there are other remarkable churches in the place. Sebenico is another of these little Dalmatian cities which calls out the traveller's evident love of art. There is a fine loggia on the principal piazza; but the great attraction to the architect would be the cathedral, though of comparatively late date, having been commenced in 1415, and finished in 1555. The western façade, which is very rich, in the transition style of the period, has lost many of the statues which originally adorned it; but its fine rose-windows, one of twelve and one of twenty-four lights, are in remarkably perfect condition. The interior is described as being very grand in general effect, and many of its details appear to be curious. All round the top there is a gallery, adorned with "square white marble triple columns with very elegant flower-mouldings." It would be interesting to know more about this peculiar feature, and the details of its arrangement. From the centre of the edifice springs a lofty dome, the drum of which is pierced with what are described as *Cinquecento windows*. Each chapel of the choir is said to be inclosed by a range of white marble colonnettes; while the stalls, also sculp-

tured in fine white marble, do not appear to be remarkable, except for the beauty of their material. The baptistry is said to be a Medieval copy of that of Constantine at Rome. There are many existing relics of the former importance of the cities of this region, especially during the period of Venetian supremacy. One of the old nobles of Sebenico, for instance, has a fine picture by Andrea Schiavone, who was a native of the place, and also a fine picture by Tintoretto, now much injured; and he possesses also an exquisite piece of artistic chasing in metal, a splendid dagger, which formerly belonged to Matthias Corvinus, king of Hungary.

But the most interesting church in Dalmatia, speaking archaeologically as well as technically, is that of Tran. It is one of the most perfect examples in existence of the true Lombardic Romanesque, and was commenced in 1213. The exterior has all the massive solidity of aspect of the best specimens of the style, but it is well enriched with good ornament, which prevents the effect from being heavy. At the east end is a group of the usual semicircular apses, and at the west end a porch or arcade along the whole front, which, from its proportions and execution, produces the finest possible effect. From the centre of the western façade rises a campanile of two stories, which is described as of exceeding beauty, somewhat Oriental in style, having some of the Moresque characteristics which pervade some of the Gothic work of the Spanish architects of the same period. The great western entrance is described as excessively rich in sculpture, the mouldings of the doorway being profusely enriched with magnificently-executed borders; and what are described as "the flat surfaces at the sides," are also covered with the "closest sculpture." Large figures of crouching Turks are made to play the part of Gothic caryatides at this entrance, while statues of Adam and Eve, whose history is sculptured in compartments around, are supported on the backs of winged lions of St. Mark; and, finally, the vaultings of the porch are enriched with "rope-mouldings," springing from "spiral columns." It would seem that this western doorway as well deserves a photograph as the capitals at Parenzo, over which the traveller's enthusiasm was so much excited. At the end of the porch is a baptistry, which appears also to have its curious and distinctive features. The interior of this church of Tran also merits a more detailed description than it was the purpose of our present traveller to bestow upon it. Its alabaster columns and good sculpture, and its curious stalls richly carved in black oak, appear to be very remarkable features. Then there is the rich white marble pulpit, and the singular baldacchin over the tomb of William, the son of Baldwin, the crusading emperor of Constantinople. The south transept appears to be of very singular and unusual character. The walls are divided into seventeen compartments, in each of which is sculptured a small Cupid-like figure holding a torch; while the ceiling or roof is formed, in a most singular manner, of diaper pattern produced by the heads of cherubim, in the midst of which is the figure of the Almighty, a kind of device very common in illuminated missals of the thirteenth and fourteenth centuries, in which the heads are generally painted in shades of rich vermillion, or in ultramarine, heightened in the high lights with gold; but, although this kind of device is common enough in missal painting of the thirteenth century, there is scarcely no other example of its reproduction in sculpture. The capitals of the main columns appear to be composed of figures of the same kind as these in the wall compartments; but the author's notion about their being possibly intended for *Cupids*, and the whole transept to be a sort of temple of *Hymen*, causes the narrative to blossom out into fancies, which greatly obscure the meaning of the description. This church possesses some gold and silver work of very high character, and it is sufficiently evident that altogether it is well worth a pilgrimage to Dalmatia to examine, especially as Parenzo, and other places which we have still to glance at, lie close at hand, and may be seen during the same journey.

In the Gulf of Salona, a little lower down the coast, the convent of Paludi should be visited, on account of the curiously-sculptured pavement of the pretty little church; and two illuminated volumes in the library should not be forgotten, as very gorgeous but somewhat coarse examples of a late phase of that beautiful art.

At Lesina, still lower down the coast, a number

of interesting specimens of Venetian architecture of the true type will well repay a visit, some of the examples being exceedingly good, especially a loggia by San Michele. But the gems of Lesina are the two exquisite campanile towers of the Byzantine church.

The picturesque Ragusa, it would seem, would make a delightful artistic centre from which to make excursions, and is, in addition, full of interesting objects for the student of art. The ancient Dogana, or custom-house, is a very beautiful building, in the palatial style of the greatest age of Venice, but having Ragusan peculiarities of its own well worthy of architectural study. The town-hall is said to resemble the Ducal Palace at Venice, and to be almost as fine a building; the six huge capitals of the colonnade being perhaps even richer and more beautiful than any of those of the famous palace of the Doges, but perhaps more Byzantine in style and treatment,—the one representing *Asoplinus* reading in his study, surrounded with various implements of the healing art, being a perfect marvel of intricacy and finish. The interior is in many respects as full of architectural interest as the exterior, and the staircase, with its noble rail of richly floriated ironwork, calls for special attention; while other specimens of the same art, in which the Ragusans appear to have been very skilful, may be seen in the clock tower, Torre dell'Orologio, close by. The bronze well-covers which abound are also very remarkable, and marble fountains, semi-Oriental in style, invite study, and appear to be full of useful hints to the architectural student. The Renaissance cathedral is described as very inferior to the Byzantine churches of Dalmatia, but the rich gold work encasing many of the relics, is said to be of truly marvellous beauty. We are told that much remains to be learnt concerning the beauty of the gold and silver work of Dalmatia, Hungary, and all the Slave countries. The gold jewelry of the peasantry shows that the taste still exists, though in many instances the peculiarly wrought gold beads and earrings are heir-looms, which have been in the same family for centuries. The gate of the relic chapel is a specimen of delicate bronze work, which seems to surpass all the other specimens of Ragusan skill in metal working.

Cattaro is the next point of artistic interest touched at, and every one of the picturesque narrow streets of the place seems to be quite a little school of Byzantine art. "Scarcely a dozen yards of any one of them can be passed," we are told, "without lighting upon some delicious little morsel of Byzantine architecture," and the handsome Venetian-built sea gate is a very fine monument. The façade of the cathedral is also worthy of close examination. Over the porch is a beautifully designed gallery, from which the bishop gives his blessing to the assembled people; and above it is a beautiful rose-window, with sixteen richly trefoiled lights; while the "soffit" of the great entrance, and all its mouldings, are very richly sculptured. There is also a Romanesque church of good style. In the neighbouring inlets along the coast here, the artificial colours of architecture may be studied with good effect. Some of the cottages and villas,—many of them constructed in very characteristic styles,—are all highly coloured, in pink, yellow, or even sky blue, and the effect is often very happily successful.

A trip inland to Joannina or Janina and its neighbourhood, will, it seems, repay the traveller in the shape of a profusion of ancient frescoes in the monastic churches of Nisi, of various ages, their gold grounds glistening in the "dim religious light" with a singular and impressive effect, imparting a peculiar kind of splendour. But the most remarkable thing at Joannina is an altar-screen of exceeding beauty in the cathedral. It stretches all across the church from wall to wall between the nave and chancel, according to the Greek arrangement. It is about 40 ft. long and 18 ft. high. Its material is walnut wood, and the piercing and carvings are of the greatest elaboration and delicacy. It is divided into elegantly proportioned panels, containing figures of saints, and further enriched with bouquets and borders of fruit in high relief, which partially conceal the figures of angels and heads of cherubim carved in lower relief beneath the foliage. Other screens of the same kind, it is said, are to be found in many of the Greek islands, especially at Mytilene, all of which should be hunted out and photographed on a large scale, before decay, or more to be feared innovations, destroy or disfigure them. An English traveller, it appears,

has recently offered a very large sum of money for the Janina screen, but it seems that the ill-paid and worse fed ecclesiastics feared to clinch the bargain. At all events, if the work be equal to the expectations raised by the present account of it, casts might be made, from which a *fac-simile* of the work could be erected in plaster at the South Kensington Museum.

Enough has been shown to demonstrate that no region could offer greater temptations for an architectural tour of professional character than the coast of Dalmatia, whence it is quite evident that a series of architectural examples of great beauty, and frequently of great novelty of character, might be gleaned with small trouble or exertion.

A railway trip to Vienna may now be rapidly accomplished with but few interruptions, and that would be a good *point d'appui* from which to visit the opposite shores of the Adriatic. Small steamers are once or twice a week making trips along the coast, and stopping at the various ports of the islands as well as those of the mainland. In short, what may be termed an architectural trip might so easily be made to that tempting region, so rich in a class of Christian architecture hitherto very imperfectly studied, especially in its more Oriental aspect, that it is to be hoped the prospect will prove irresistible to some architect, who might doubly repay the expenses of his trip by a book on the subject of Dalmatian art, illustrated with a rich series of good working drawings, sufficiently large and accurate to serve as hints to our stay-at-home students.

FAMOUS SEATS.

The subjective association of people with their accustomed places leads us to look upon various objects with interest which would, perhaps, have little charm for us but for this relationship. After the houses in which celebrities have lived, and the clothes or trinkets they have worn, we seem to feel this association of idea in its greatest intensity when we look upon their vacant seats. Beranger gave expression to this feeling in his "Songs of the People," when he caused the village crowd to exclaim, as his "old and hoary dame" related her reminiscences of Napoleon's visit to her house,—

"Mother, and was that the chair?
Mother, was he seated there?"

As might be expected, we have several chairs and seats preserved as relics of departed celebrities, although their number is not so large as we could wish. A gallery of famous seats would be at once instructive and attractive in the now frequent exhibitions. We throw out the hint for the benefit of those concerned in organizing the most recently proposed of these.

Applying the theory of development to furniture, the first stage of a seat is a stool; the second, a chair; the third, a throne; the highest, a canopied throne raised on a dais. Perhaps, the three-legged stool was the precursor of the four-legged one; but, whether this was the case, or *vice versa*, we are never likely to ascertain. We can see, however, how the addition of a back to a stool made it into a chair; and the further addition of arms developed it into an arm-chair; and the adoption of a large scale and costly materials exalted it into a throne.

We need not trust entirely to the illuminations of Saxon MSS. for information concerning early seats, for we have actual examples. There are Saxon *frid-stols*, or stone seats of peace, preserved at Hexham, Beverley, and Sprouthburgh. The last of these three is but little known, but an illustration of it may be seen in a little volume recently published by the Rev. Scott F. Surtees, entitled "Waifs and Strays of North-umber History." Besides these stone seats we have an early wooden chair preserved in Jarrow, which is said to have been used by the Venerable Bede. This consists of a seat, having three planks, reaching from the ground to a convenient height, to form the back and sides. The boards forming the sides are sloped away from the front of the seat till they die into the top of the back. Although there is nothing distinctly indicative of Saxon workmanship about this seat, there is nothing that negatives the assumption of its great antiquity.

The Glastonbury chair has a reputation of interest. It was the property of Horace Walpole for some time, and formed one of the attractions among his curiosities at Strawberry Hill. At the

dispersion of those objects at the memorable sale, it was bought by Mr. Smyth Pigott, of Brockley Hall, Somersetshire, for 75*l*. It was again sold in October, 1849, to Mr. Brackenridge, of Cleveland, this time fetching only 43*l*. The following is the account of it given in the catalogue of the sale in which it changed hands:—

"351. A very ancient chair of oak which came out of Glastonbury Abbey; on it are carved these sentences:—'Johannes Arthurus, Monachus, Glastonie—Salvet enim Deus Da Pacem Domine, Sit laus Deo.' This chair, from its authenticity, shape, and extreme comfort, has been repeatedly copied, particularly for the late Earl Bathurst. It belonged to Sir Robert Walpole, and was purchased by Mr. Pigott, at Strawberry Hill sale."

Another famous seat is preserved at Dunmow, an illustration of which is given by Dr. Chambers in "The Book of Days." It is used in the ceremonies attending the award of the fiftith of bacon to contented couples.

At Bedford, in the vestry of the new Baptist chapel, erected on the site of the "old meeting," is preserved a chair for the sake of its owner, John Bunyan, the enrapt writer of the "Pilgrim's Progress." This is illustrated in "Pilgrimages to English Shrines," by Mrs. S. C. Hall.

The coronation chair in Westminster Abbey, in its intimate association with our successive kings and queens, may be called the seat of honour. We have so recently given an account of it in our notice of Mr. Scott's "Gleanings in Westminster Abbey," that we need do no more than mention it in this list. Holyrood, too, has chairs of regal association. The Woolscall is another famous seat; although, perhaps, not available for the exhibition we have suggested. Ducking-stools would be, however, a curious branch of the subject. These were terrible realities in their day; and our museums possess several forms of them. As a contrast to the scolding, screaming dames, and the noisy scene of the execution of the ducking sentence, it is composing to remember that some famous seats have had a reputation only, but no existence; Miss Eliza Cook's "Old Arm-chair" being a case in point. Where, for instance, could our collectors look for the "seat of the scorners," or the "stool of repentance?" And that others have had both reputation and existence, but the former only survives, as in Caute's chair, from which he bade the waves retire. Sedan-chairs would be a further appropriate variety. The chairing of members of Parliament is intended, perhaps, as a simple honour only; but it is interesting to trace the observance of a similar mode of showing respect to Rome, where the Pope is always carried on men's shoulders in a gorgeous chair, on ceremonious occasions; and to take the two facts together, and see an adaptation of a rare custom to every-day convenience in the sedan-chair. To be invited to take the chair, and be the chairman at a public meeting, is another form of the same intention to pay respect.

We leave the suggestion of collecting all our identifiable and historical chairs that are available for the purpose into one group, with a catalogue of a few scattered curiosities not available:—The Queen's Bench, London; King Arthur's Seat, Edinburgh; Cader Idris, North Wales; the civic chair; and a country-seat.

THE LATE MR. WILLIAM DENHOLM KENNEDY.

It has been observed, more than once, that the world which receives delight from the productions of men of genius, little wots of the anguish that sometimes attends upon the work, or of the amount of effort wasted that there is behind the presented scene. If anything could be wanting to urge the Government, the nation, and the Royal Academy, to terminate the unsatisfactory state of things which is represented by the arrangement of the works of art in the galleries in Trafalgar-square, and the rejection of pictures that are of great merit, it would be afforded by the relation of facts such as from time to time come to light. Each year we hear of an increased number rejected, of works that, it is not disputed, as well deserved place as those which are exhibited; whilst also we see a considerable portion of the pictures placed where no picture can be appreciated, or so that their exhibition is productive of as much pain as advantage to their authors. Not long since, an artist of great excellence, Müller, dying, spoke of the treatment which he felt he had received at the hands of the Academy, and to which his death was ascribed; and last week there was another

melancholy instance of effects that may be produced through the condition of affairs admitted to the best of the means and ability of the Academy, acting upon a peculiarly sensitive mind, such as is often that of an artist.

In the present exhibition of the Academy, in the North Room, numbered 588, and placed next the ceiling, where it is impossible to discover the beauty which we believe the work has, is a picture to which is attached the title in the catalogue,—"The Land of Poetry and Song," together with the quotation,—

"Ah, monarchs! could ye taste the mirth ye mar,
Not in the toils of glory would ye fret;
The hoarse dull drum would sleep, and man be happy yet."

It is the last principal exhibited work of one, William Denholm Kennedy, who might be ranked with some of the first of English painters, or those who have been the brightest ornaments of the Academy, whose chief honours in the schools he gained. He lived to feel himself neglected and passed over; for, though more than once within one vote of his election as an A.R.A., he never gained that distinction—perhaps because he was too proud to solicit it; and anxiety about the reception or treatment of the work which we have named, and some mortification at the actual result, acting upon a diseased frame, and coupled with grief at a severe bereavement, have sufficed to terminate his life. He had himself observed that his anxiety on the subject of his picture would "kill" him; and when the exhibition opened, and it was seen where the picture was hung, his friends made the same remark, and dreaded answering his inquiries. He was found dead on Friday morning, the 2nd inst., at his rooms in Soho-square; and though the inquest has shown that the disease from which he had suffered might have been the primary cause of his death, it is probable that had the system of the Academy allowed better acknowledgment of his talents, his life would have been prolonged and his end have been somewhat different. The writer of these lines met him two evenings previously to the last sad event; and another friend was with him the evening before his death, when he appeared well, as he had for some weeks. He had been painting on the day before the night of his decease.

His principal works represent Italian scenes, and combine great beauty of landscape-painting with a treatment of figures resembling that of Etty, with whom he was a favourite, and in some measure a pupil, and from whom he derived great love of colour. During the last few years his pictures have not been so conspicuous in Trafalgar-square, as were his earlier works; and some of them were wanting in finish; but one who knew him well, and has the capacity for appreciating a good picture, says that he never painted better than during the two years of his illness. He produced a multitude of small works that never went to the Exhibition. One dealer, we believe, sold in two years, 2,000*l*. worth of them. In one side of his character he might be said to resemble James Barry; and the neglected state of his rooms helped to keep up the idea of a similarity. For several years he had not visited the galleries of the Academy. With his intimate friends, however, by whom he was sincerely esteemed, he was remarkable for great kindness and sociability, coupled with a charming politeness "of the old school;" as he also was for humour and anecdote. A certain fraternity to which he belonged will miss him.

He was born in Dumfries on the 16th of June, 1813. Thus, at his death, he had very nearly completed his 52nd year. He received his early instruction in drawing, at the Edinburgh School of Art; came to London about the year 1830, where he became a student of the Academy; and at length gained the gold medal, and afterwards the travelling studentship. He went abroad, with Mr. Elmore, we believe, and was in Rome about the year 1830. He had exhibited previously to this time. A list of his works would perhaps be beyond the scope of our pages; but we may mention, as amongst the number, a picture to which were appended the words, "The last of all the bards was he;" &c.; "The Italian Goat-herd;"—a very fine work, but injured lately through his having been induced to paint out the principal figure;—"Sir Guyon and the Palmer;" "Gil Blas;" "I must say that Italy's a pleasant place to me;" and "The Wardens," of which works, the two last are still amongst his effects. At one time he assisted Mr. Willement with designs. The windows of the Church

of St. Stephen, Walbrook, are from his cartoons. He was a clever *connaisseur* of engravings; of which he had a choice collection. One of his pictures is now in the collection at the Crystal Palace.

His brother, Colonel J. D. Kennedy, who had served in India, died about a fortnight ago; and this loss, together with the peculiarly distressing disease, dropsy, from which he suffered, were, rather than any treatment of the Academy, the causes of his death. Still, so far as this case may be illustrative of the sad effects of the indecisive position in which the Academy is, or is left by the Government, it deserves to be recorded here. What is quite clear, is that no picture that deserves to be hung, should be placed where it cannot be seen, or where otherwise its effect may be falsified. The position of sculpture, as well as architecture, is too obviously discreditable to the Academy, or the country, to require present remark.

HENRY DE YEVELEY,

ONE OF THE ARCHITECTS OF WESTMINSTER HALL.*

THE biography of English artists in general during the Middle Ages has been a subject greatly neglected, to the prejudice of our national reputation in comparison with the Continent of Europe; and the names and works of our Mediaeval architects have shared in the common fate.

In the illustrated edition of Walpole's "Anecdotes of Painting," &c., 1828, the editor, Mr. Dallaway, has given (at vol. i., p. 208) brief notices of some half dozen "eminent master-masons" of the fourteenth and fifteenth centuries; but among them is not to be found the name of Henry de Yeveley; and yet this architect was master-mason to three successive kings of England, and to Westminster Abbey; and records are still extant that he was employed in many important works, particularly in the remodelling of the great hall at Westminster during the reign of Richard II., and in the erection of that monarch's tomb.

Walpole it may be presumed discredited, or at least he ignored, the statements of an earlier writer, that Henry Yevel built for the king the London Charter House; King's Hall, at Cambridge; and Queensborough Castle; and that he rebuilt St. Stephen's Chapel, at Westminster. ("Constitutions of Freemasonry," edited by James Anderson, M.A., 1738). And in the earlier edition of the same "Constitutions" (by J. T. Desaguliers, 1723), Henry Yeveley had been mentioned (p. 81) as "the king's free-mason or general surveyor of his buildings, employed in building several abbeys, and St. Stephen's Chapel, at Westminster."

Dreston says he was one of the five deputies appointed by Edward III. to inspect the proceedings of the fraternity of masons.

Some of these statements are indeed probably guess-work. St. Stephen's Chapel was begun about 1390; Queensborough Castle is attributed to the celebrated William of Wykeham.

Some slight notice of Yeveley might have found its way into Walpole's work, either from the collection of Rymer, or from the more popular "Survey of London," by Stowe, where his interment in the church of St. Magnus, near London Bridge, is mentioned, and he is designated as freemason to Edward III., Richard II., and Henry IV. Stowe says "his monument remaineth," but he does not describe it further, nor give the epitaph, of which no copy appears to be extant, the original having probably perished in the Great Fire of 1666. Styrpe, in his edition of Stowe, added a few brief notes from Yeveley's will; and this has now been recovered from the Hustings rolls.

The name of Yeveley is evidently local, and it was probably derived from the town in Somersetshire now called Yeovil,—this being one of the many ancient forms under which that place appears. But of Yeveley's immediate parentage or family nothing has hitherto been discovered.

Henry de Yeveley, mason, was director of the king's works at Westminster as early as 1365, if not before; and during the 364 days from September 23, anno regni 39, to September in the following year, he received the wages of 1s. a day.† At the same date he supplied 7,000 Flanders tiles, for pavements, at 6s. 8d. the 1,000; and six moulcells of plaster of Paris, at 12s. the moulcell.‡

* By Mr. John Gough Nichols, F.S.A. Written for the London and Middlesex Archaeological Society.
† Brayley's "Westminster Palace," 1836, p. 196.
‡ Ibid., p. 199.

In 1366, the name of Henry de Yeflee occurs as supplying some of the stone required for the works at Rochester Castle. Thirteen tons of Stapleton freestone were purchased of him at 8s. a ton; and thirty-two tons of Thomas Fitz-John.*

In 1370, Henry de Yeveley, mason, was employed to retain masons to be sent in the king's retinue over the sea, and was paid the sum of 5l. 12s. 6d. on that account.†

On the 1st July, 1376, at the requisition of Master Henry Yeveley, then tenant of the manor of Langeton, in Purbeck, an inquisition was granted of the record in Chancery of the liberties of that manor, as determined by *quo warranto* before the king's justices at Sherbourn, in 6 Edw. I.‡ It was doubtless as a merchant in stone that Yeveley had become interested in that locality.

In 1381, Master Henry Yevele was employed to engage thirty stone-cutters (*latomos*) for the king's service.§

In the same year he designed the south aisle, then undertaken to be added to the church of Saint Dunstan's, in Thames-street, at the expense of John Lord Cobham. The indenture of agreement is still preserved in the British Museum. It was made on the eve of Christmas, 5 Rich. II., between that nobleman and Nicholas Typtont, mason, and the aisle was to be erected *solom la devyse Mestre Henry Yveleghe*, as his name is written upon that occasion,|| at the cost of 25 marks.

In the same year, at Michaelmas, he had received from Lord Cobham (under the designation of *Mason et citeien de Louvres*) the sum of 20l., due to Thomas Wrewk, mason, for the works going on at Cowling Castle, near the junction of the Thames with the Medway; and by another still more interesting document, dated the 23rd July in the following year, we find that he was employed to measure the work done at the same castle by William Sharnale, which amounted to the cost of 456l., of which 270l. 10s. 4d. was that day paid.*

In 1383-4, by letters patent, dated 20 Feb., 7 Rich. II., under the designation of *Henricus Yevele latomos*, he was confirmed in the possession of two shops and four shillings yearly rent, in the parish of St. Martin Otewiche, formerly the property of Master Excestre, and which he had recently purchased of John Tottenham, carpenter. This confirmation was considered necessary because he feared that he might easily lose the property through the procurement of certain rivals, who had endeavoured to cause it, by false colours, to be seized as an escheat to the crown. The king's favour in the matter was conceded in consideration of the great labours which the said Henry daily sustained in the royal service.**

By an indenture dated 20 April, 7 Rich. II. (1383), between Henry Yevele, citizen and mason of London, of the one part, and William Palmere, citizen and horse-dealer (*merchant des chevues*), of the same city, and Isabella his wife, of the other, the former party gave to the latter a yearly rent of 40s., issuing from his lands and tenements in the parish of St. Martin Otewiche, on condition, that if Margaret, the wife of Henry, should survive her husband, and ask her dower of a tenement with four shops, together with 4s. of quit-rent issuing from the tenements one belonging to John Tudesham, carpenter, which the said William and Isabella held for their lives, of the grant and lease of the said Henry, by the service of 20s. per annum, then the said annuity should be in force, but otherwise void.††

In 11 Rich. II., "Master Yevele" was chief mason of the new work then in progress at the

* Fabric Roll, from 11 June, 40 Edw. III. to 11 Jan., 42 Edw. III. Printed in the "Archæologia Cantiana," ii. 112.

† Issue Roll of Thomas de Brantingham, bishop of Exeter and treasurer, 41 Edw. III., as edited by Fred. Devon, 1835, p. 3. Yeveley and the workmen are all called "plasterers" by Mr. Devon; but their designation in the original is *doublemen cementarii*. The *cementarii* was a builder in stone; and *latomos*, or *latoma*, a stone-carver or cutter; but probably in many cases either term was used for masons without discrimination.

‡ Rot. Pat. 50 Edw. III., m. 13.

§ Rymer's Collection, Brit. Mus. Harl. MS. 4592.

|| Harleian Charters, 49 E. 43; printed in the Account of the Church of St. Dunstan-in-the-East, by the late Rector, the Rev. T. B. Murray, M.A., F.S.A., 1869, small quarto, p. 19.

** These documents are printed in the *Freemasons' Magazine and Masonic Mirror*, 1862, New Series, vi. 404.

†† Nos de gracia nostra speciali ad supplicationem prefati Henrici, consideratione magnorum laborum, quos ipse in servicio nostro indies sustinet, statum quem ipse in shopis, &c. The original patent, with the royal seal in which was preserved in the British Museum, Harl. Charters, 43 E. 23.

‡‡ From the original among the Harleian Charters, 59 D. 30. The seal has been lost.

Church of Westminster, and received for his fee 100s. a year, and 15s. for his dress and furs. Henry Zyevely is also named as chief mason in 17-18 Rich. II.*

At the latter date he was a party to two very remarkable engagements, which are preserved in the collection of Rymer.

The one, dated on the 18th March, 18 Ric. II. (1395), is an indenture for making, well and faithfully, all the *table* of the walls of the Great Hall within the Palace of Westminster, on one side and the other: raising them for 2 ft. of assise, and inserting twenty-six *souses*, or corbels, of Caen stone. The parties to this agreement were the king on one part, and Richard Washbourn and John Swalwe, masons, on the other; and the work was to be done according to the purport of a form and model made by the advice of Master Henri Zeveley, and delivered to the said masons by Watkin Waldon, his warden. These terms—*selonc le purport d'une forme et modelle faite par conseil de mestre Henri Zeveley*, surely raise him to the dignity of an architect, and invest him with the credit of having designed some of the more conspicuous features of Westminster Hall.† The same observation may be made with regard to the word *devyse* already quoted from the document relating to St. Dunstan-in-the-East. In both cases other masons were employed under his direction.

The *souses*, or corbels, in the hall were clearly introduced for the support of the grand roof, which has been so much an object of the admiration of subsequent ages. We have no authority, however, to attribute the merit of the timber work to Yeveley. In the division of labour which was then prevalent,‡ it is probably due to the master carpenter, and the name of Nicholas Walton is found in that capacity.

Another indenture, dated on the 1st April (within a fortnight of the preceding), relates to the "tomb of fine marble" still remaining in Westminster Abbey, which was then undertaken to commemorate the reigning sovereign and his queen, Anne, daughter of the Emperor of Germany, recently deceased. It was made between the king on one part, and Henri Yevele and Stephen Lote, citizens and masons of London, on the other. (This Stephen Lote was afterwards an executor of Yeveley's will.) The tomb was to be made after a pattern remaining with the said masons, under the seal of the treasurer of England, to occupy in length all the space between the pillars where the said queen was interred, and to be raised to the same height as the tomb of King Edward III. It was to be finished by the Feast of St. Michael, in the year 1397, at the price of 250l.§

Yeveley died in 1400, and by his will, dated 25th May (1 Hen. IV.), enrolled in the Court of Hustings at Guildhall, by John Clifford, mason, and Martin Seman, clerk, his executors, he left his body to be buried in the chapel of St. Mary, within the church of St. Magnus, where his tomb was then already built.¶

He appoints as executors his wife Katherine, John Clifford, mason; Stephen Lote, mason; Richard Parker, his cousin; and Martin Seman, clerk; and as overseer, John Warner, alderman.||

* "Fabric Rolls," appended to "Gleanings from Westminster Abbey," by George Gilbert Scott, R.A., F.S.A. 1861. Appendix, p. 26.

† Rymer, *Fœdera*, &c., vii. 784. The name is there misprinted *Zeevely*. See an abstract of the same document in Brayley's "Westminster Palace," p. 437.

‡ Some interesting papers on these subjects, by Mr. Wyatt Papworth, will be found in the Transactions of the Royal Institute of British Architects; see that on "Superintendents," &c., 1860, January 23, p. 39; and that on "Master Masons," 1861, December 2, p. 37-60; with the index to both papers.

§ This indenture is printed in Rymer's collection, vol. vii., p. 785. "Memorandum quod xxviii die Augusti anno r. Ric. secundi xviii dominus Johannes Innocent clericus liberavit in thesaurarium alteram partem capituli dam indenture facte inter dominum Regem ex una parte et magistrum Henricum Yvele et Stephanum Lote latomos altera parte, pro una tumba marmorea faciendam et reparandam pro Anna super Regina Anglie et pro dicto domino Rege." At the same time agreement was made for the royal effigies which were to be executed by Nicholas Broker and Geoffrey Best, copiers of London. (Folgrave, *Calendars*, &c., of the Exchequer, 1386, ii. 50.) Payments to Yeveley and Lote on account of the tomb occur in Devon's Extracts from the Issue Rolls, 1387, pp. 233, 284. On the subject of this monument, and particularly its heraldic devices, see a memoir by the present writer in the "Archæologia," vol. xxix, pp. 32-59.

|| Hustings Roll, 1 Hen. IV., memb. 3.

MURAL PAINTINGS.—Mr. Cave Thomas has been commissioned to paint the Twelve Apostles for the new church of the Russian Embassy, of which we gave a view some time ago.

THE DWELLINGS OF THE RURAL LABOURERS.

IN the face of the evidence which has been given of the inconvenient and unwholesome conditions of the dwellings in which the real workers of the land have been forced to live, without any adequate alterations or improvements, it seems to be wonderful that even in these days of intelligence there are to be found, in both Houses of Parliament, men who are, however, for the most part owners of the land, who should get up in their places and argue that the tillers of the soil have had justice done to them, either as regards the state of their houses, or the number of houses which are provided for them on the respective estates on which they have often been employed from early youth to old age.

While ago we gave in the *Builder* the result of an inquiry which we made in Aylesbury, and some of the surrounding parts; and although the descriptions of the places which met the view in those parts are very much under-coloured, they betrayed a state of things which at the time we showed to be disgraceful. All who have looked into the matter must feel surprised that persons can be found in our great legislative assembly who, in consequence of having been so long familiar with the abuse, or it may be from certain interested motives, will say that the present state of the cottages, and the working of the Poor-law, as at present established, are just to the large and important multitude who form the agricultural classes throughout England.

We will not just now go beyond the district to which we have referred, but in connexion with this we will state our firm belief, founded upon personal and long observation elsewhere, that in eight out of ten of the old cottages of the Aylesbury district there are provisions neither for the health, the morality, nor even the decencies of families, in the space which is allotted: especially in the sleeping apartments there is no chance of a proper degree of health.

When making inquiries in the neighbourhood of Aylesbury, we met, at morning and evening, bands of labourers, consisting of men, women, boys, &c., going from and to the fields in which they worked—a distance of three, four, and more miles from where they were forced to seek lodgings in Aylesbury. We did not listen to the reports of the labourers themselves; but by the actual observation, and from the reports, of persons of various stations of life, we have no doubt whatever that both the homes and feeding of the children of the workers in the fields are, notwithstanding the fresh air, which is so nearly at hand, deficient and injurious; and the children are so pale and bleached, so thin and ill nourished, that in the metropolis we look in vain for similar conditions and appearances, except in some of those parts of Bethnal-green and Spitalfields to which we have so often and with pain directed attention.

Mr. Henley, and others of the House of Commons, have attempted to throw doubt on Dr. Hunter's recent report on the sanitary and social condition of parts of Oxfordshire, where Mr. Henley has large estates. If there is to any amount the existence of a reason for this doubt, by all means let us have the matter set right, beyond the chance of any mistake, by further inquiry made by able and independent persons. We believe, however, that Dr. Hunter has been careful to keep within the bounds of truth in this respect, and not expose his cause to failure by a particle of exaggeration.

Mr. James E. T. Rogers writes, as to the report on the parish of Headington, which has been said by Mr. Henley to be inaccurate—"I may say, from my personal knowledge, that Dr. Hunter's statement, as regards the condition of Headington parish, falls short of a true description, and that the miseries which the resident labourers endure in their wretched cottages are aggravated by the fact that many of the agricultural labourers are forced to earn their living in a parish where a judicious owner has been careful not to supply house-room for those who work upon his estate."

This gentleman remarks, that it is not surprising that the general body of the rate-payers welcome the prospect of an equitable system. From a parliamentary paper (No. 491, 1861), which gives a return of the sums levied for the relief of the poor in all the parishes of England and Wales during the year 1860, much useful information may be gathered respecting the variable incidence of the

poor-rates upon property. For instance, Ramsden, a township in Witney Union, appears to have paid 5s. 9d. in the pound; Burford, 6s. 3d.; Crawley, 5s. 3d.; Witney, 5s. 11d.; while the fortunate parishes of Holwell paid 2d.; Yelford, 1d.; and Brightampton 4d. Again, in the Thames Union, which contains Mr. Henley's estate, Adwell paid 1d.; Ascott, 1d.; Easington, 2d.; Wapsgrove, 4d.; Thornley, 4d.; Long Crenon, however, paid 4s. 5d.; Sydenham, 4s. 6d.; Ashton Rowant, 4s. 2d.; Tewknor, 4s. 10d.; Thame, 4s. 1d.; Mr. Henley's parish, Waterferry, paid 1s. 2d.; the average contributions being 2s. 11d.; and these anomalies are to be paralleled in many other instances; but surely there has been said sufficient here to show that in the country, as is the case in the towns, the inequalities of the poor-rates must act as a preventive of improvement in the lodging of the poorer and the industrious classes. A change in this way will press hardly on those who now pay less than the average share of relief of the poor: for instance, Mr. Rogers estimates that, taking Mr. Henley's amount paid in 1856 at 147l. as an average, his payment on the union system of rating would in time come to 369l., or thereabouts. This is, however, a question which must not be looked at from a money point of view; for the rich proprietors of the soil have a duty to perform to the labourer; and in the end they will surely—if conscientious scruples be left altogether out of the question—find the actual advantage of doing right in the accounts with their bankers.

A LONDON THOROUGHFARE AT HOLIDAY TIME.

THE working classes of London never gave themselves up to a holiday with more unanimity than they did last Monday. It is a sight which gladdens the heart, even in the pent-up parts of this vast city, to see the sun breaking with intense splendour through the grey haze, which its soon dispelled; and, as the morning passes, the great light rolls on his course without a cloud to dim his brightness. Although, from our point of view, the scene is a commonplace one, which every day's looking at has rendered familiar, it has on this Monday holiday a new appearance. The grey coal-colour of the shadow; the distinct contrast of the warm yellow, yet greyish sunlight; the startling effect of the light and shadow, and the chaotic, yet marvellously powerful arrangements of colour, are useful lessons for the painter, and remind us of the pictures Canaletti drew, which combine so much of the truthful effect of photography, although produced so long before this discovery was made. Notwithstanding that this is a holiday, Smithfield Market is busy, and country carts, the horses decked with ribbons and flowers, and the rustics in their picturesque dresses, bring loads of fresh green grass and hay to London. As the morning advances, crowds of boys and youths go towards the fishing-places, and numbers of well-dressed people, some in comfortable-looking family groups, wend their way to the railway stations for the purpose of catching the early trains, which are to wait them to distant friends and to pleasant places. The very first omnibuses are loaded inside and outside, and carts, and even costermongers' barrows, roll along; the donkeys and other beasts of burden, and the unnatural human load which they are forced to carry, are ornamented with ribbons and streams of coloured paper. Then so many vans, drawn by three and four horses, pass along, that it is puzzling to discover where the space to keep them all when not needed is to be found. Brass bands are on the roofs of many of these, but the other parts are occupied by the very cream of our industrious classes. From various directions the riflemen are going to their places of muster; and it is pleasant to notice the improvement which the drill and exercise have had on the appearance and the style of walking and general bearing of the volunteers. Up to about twelve o'clock the numbers of people on pleasure bent continue to increase, until the roadway presents an exciting scene; and on the footpath, the lines of wayfarers move in continuous streams. And it is a delightful sight to see these thousands, the chief part of whom are of the working classes, presenting a scene which cannot well be equalled. Some are going to the excursion trains,—to Brighton, Dover, Southampton, &c.; others to the Zoological Gardens, where, in the course of the day, there are nearly 30,000 visitors; some to Kensington, to

the British Museum,—but here, we fear, that the numbers who go are not so large as they should be. Others through the Crystal Palace, the East-end and other parks. Never did we see on a holiday before so many people who were perfectly well conducted and sober. Up to about four or five o'clock the thoroughfares continued to be crammed, and then for a couple of hours they presented a deserted appearance, until the women and children from the surrounding parts began to wander home; and up to midnight the jovial sounds of the holiday folks were heard, telling us that many thousands of Londoners had had the advantage of spending a delightful day and breathing fresh air, freeing their minds from cobwebs and their lungs from carbon.

CONTINENTAL NEWS.

Italy.—To the list of buildings recently restored in Rome, we may now add the curious old church of San Nicolò in Carcere. This church was originally raised upon very extensive substructures of ancient date, these being the foundations and basements of no less than three distinct temples which here cross or are heaped upon one another. The Carcere, or prisons, shown and described to strangers as a dungeon built by the Decemvir Appius Claudius, is evidently nothing more than a part of one of these temples. The church was long closed, as utterly dilapidated and unfit for service, but has now been restored at the Pope's expense. Neither marble nor gilding has been spared, and the whole sum expended on its restoration is 65,000 scudi (about 14,000l.). Two interesting discoveries were lately made on the property of Prince Torlonia, not far from Rome. One was a statue of Æsculapius, the other a Muse. Both are in marble, about one and a quarter life size, and are described as well preserved. They have been added to the Prince's collection.—At Milan an English company is engaged in making the improvements of which we have before now spoken. Amongst other schemes to be carried out by this company is a large block of handsome buildings on the Cathedral square, and also the new gallery, "Vittorio Emanuele." Thus, whilst Paris, Vienna, and other continental cities, are cutting streets through crowded, unclean quarters, the Italian cities are not slow to imitate the example. Florence is in course of utter transformation, in order to convert the seat of the Medici, and of the Grand Dukes of Tuscany, into the capital of Italy; and Milan is not behindhand. The cathedral and Scala squares will both be considerably enlarged, and an entirely new street is to be formed, and named after the first king of Italy. Mr. G. E. Seymour is chairman of this company, and Signor Giuseppe Mengoni, of Bologna, the architect. The Gallo-German Protestant congregation has erected a new place of worship. The cost of this church, which amounted to close upon 200,000 francs, was raised by the congregation, assisted by friends at home. Mr. Engelmann, of Stuttgart, was the architect, and the style is Venetian-Gothic.

Worms.—Upwards of 15,000l. has been collected for a monument to Martin Luther, and the committee, aided by the advice of the Grand Ducal Chamber of Agriculture,—we cannot imagine what they can know about it,—and the architect, have resolved to erect the monument on the Promenade, near the cathedral.

Göttingen.—The University in this Hanoverian town is supposed to educate some 1,500 young men, but although founded upwards of a hundred years ago,* it is not until this year that a specially academic building has been erected. Hitherto students had to walk from one professor's house to another, whereby one quarter of the hour set apart for any particular lecture was invariably lost. The students in chemistry alone formed an exception, their Laboratory and Anatomical Museum being now well ventilated buildings. The new building is situated near the Botanical Gardens, a part of these having been ceded for the purpose, and presents a frontage of 200 ft., with reeding wings. In the centre is a handsome vestibule and staircase, and the passages right and left lead to twenty lecture-rooms, of various sizes, each accommodating from twenty to 200 hearers. The total costs barely exceeded 12,000l., but then labour is exceedingly cheap in this neighbourhood, and the

* The "Schola Georgica Augusta" was founded in 1734, by our George II., King of Great Britain and Hanover.

stone near at hand, this being partly tuffa, partly sandstone. Medallions represent the busts of learned local celebrities, whilst near the entrance are the full-length figures of King George II., Duke Julius of Brunswick, Leibnitz, and Munchhausen, first curator of the University. The architect was Mr. Doeltz, from whose designs much has of late been built in Göttingen.

THE NEW BOULEVARDS AT VIENNA.

VIENNA, like most Continental cities, has a day especially set apart for a display of all that is new and fashionable in a "Vanity Fair." Paris has its *Mardi Gras* in the Bois, Berlin its day in the Thiergarten, and Vienna scrupulously keeps the 1st of May in the Prater. The newest shape in carriages, the last "sweet thing in bonnets," the most correct cut of coat à l'Anglais, is then to be seen, walking, riding, or driving up and down, much the same as the *habitudes* of our Row,—only with this difference, that on these occasions the scene continues all day. Some ninety years ago the Emperor Joseph II. gave to the city a new park, known as the Augarten, and the day on which he attended in person and declared the park open for the recreation of the people, has since been kept as a public holiday. On that day, and for tens of years after, the 1st of May brought its Corso in the Augarten; but fashion changes all things, and gradually the scene became transferred to the Prater, another park on the banks of the Danube, and, *par excellence*, the Hyde Park of Vienna. This year, however, the old fashion was revived on the occasion of the inauguration, by the emperor, of the new quarters of the city on the site of the old fortifications. For many years the narrow limits of the old line of bastions, curtains, and ditches, which surrounded the city, had become very inconvenient; and it was universally agreed that "something must be done." In 1858, the emperor sanctioned the extension of the city proper, and ordered the demolition of the fortifications; and now, after seven years, this task has at length been completed, and a handsome Rue de Ceinture now takes the place of the old moat, opening up large tracts of ground for handsome and commodious buildings, of which we have before now given particulars. Already a whole town has arisen; and, though many plots have yet to be filled, this part of Vienna bids fair to become the fashionable quarter for the future. Where practicable, the massive walls of the bastions have been removed; but, in the course of time, many houses,—whole streets, in fact,—have been built up against the old walls; and, as the destruction of the walls would involve the demolition of all these houses, they have been suffered to remain for the present. This is mainly the case in front of the barracks, the Coburg-Cohary Palace, and the Palace of the Archduke Charles; so also from the Hofburg, or Imperial Palace, to the Francis Gate. To the north of this a large square, the Rudolf's Platz, and eight enormous blocks of buildings, have been raised, divided from the boulevards by prettily laid-out gardens and walks. Eastwards this new extension is bounded by the palace of Count Wickenburg, opposite to which a site is reserved for the new exchange. Thence, along the Danube Canal, past the Ferdinand Bridge as far as the River Wien and the Radezky Bridge, a handsome road has been formed, and will ere long be skirted by houses. From the bridge of Aspern, along the Horticultural Gardens as far as the Kärntner Thor, many handsome mansions have been constructed, partly by archdukes and the old Austrian aristocracy, partly by merchant princes and wealthy manufacturers. Amongst the latter is the house of Mr. Henry Drasche, a great tile and terra-cotta maker. The designs are by Mr. Hansen, and the interiors are finished in the most sumptuous manner. The style of these houses is chiefly French Renaissance, with pilasters and steep, high-pitched Mansard roofs. Here the new opera is in course of erection, and, indeed, is almost finished. It will be one of the largest as well as one of the handsomest theatres in Europe; and so it ought to be, for the costs have already reached a fabulous sum. Next to this group come the "Imperial Gardens," and beyond, two sites are reserved for a new museum and the barracks of the Guards. Further on comes the People's Garden and the parade; and beyond these more sites have been formed, but are as yet unoccupied. At the junction of the Teinfalt Strasse and these new boulevards an-

other theatre is one day to be erected. Opposite to this the new Schiller statue is to be placed; but both theatre and statue appear at present to be only "in the clouds." The boulevards which we have described were formally opened by the Emperor on the 1st of May. Dr. Andreas Zelinka, the burgomaster of Vienna, approached the Imperial carriage, and read an address, thanking the Emperor for the permission to extend the city, and briefly pointing out the manner in which that extension had been carried out by the committee. His Majesty, in reply, expressed his satisfaction at the result; and added that, in commemoration of the event, the new aqueducts now in course of construction for the better supply of water should be made over as a gift to the city.

FLORENCE.

A CORRESPONDENT writes to us from the new capital:—"They are going to set about building iron and wood houses for 3,000 persons outside one of the gates here. Some one has been sent to London to pick up the most useful hints on the subject. The old walls are to be taken down; the gates left; new railroads begun: workmen, engineers, builders, architects,—all are rushing in. Where they are all to be stowed, in little Florence, is an enigma. The new part of Florence, if begun at once, cannot be finished for two years. The bones of Dante have been just found, they say! The Ravenna Dante *fête* was postponed till the 16th of June, so as not to interfere with the *fêtes* here. Preparing for the former, the bones were found. The find seems almost too *apropos*. You will have read about the capture of Mr. Aynsley and friend. I know the spot where they were stopped perfectly. Returning from Pestum, our carriage was stopped by a number of men, apparently labourers, at that very place. They asked me to buy some coins they had found. I opened my purse, and told them I had only a small piece left; for, except that, I had given all for bread for the wretched half-starved poor at Pestum. I gave the piece for an old coin, and we passed on. A lady friend, and her maid, and myself, were inside; the coachman, and a man from the hotel, out. Lucky escape for us."

THE CONVERSION OF SEWAGE TO MANURE AT CHALONS.

M. CHODKO, ancient professor of chemistry at the College of Fribourg, in Switzerland, after a long series of labours discovered some years ago the means of converting these sewage matters of towns into an inodorous compound, containing all the essential elements of a complete manure, which he called atmospheric manure, from the fumigation employed. This compound when completely prepared is in the state of a coarse powder, without any disagreeable odour, of a brownish colour, easily to be distinguished at first sight, and is the lightest of all prepared manures, the specified gravity being only 0.450 (water being 1.0), and, consequently, well adapted for cheap carriage. It contains, according to the analysis of M. Hôte, of the Conservatoire des Arts et Métiers, in Paris,—

Azotated organic matter	... 53.58
Ammonia (quite formed)	... 0.65
Phosphoric acid	... 4.48
(Corresponding to 9.70 of phosphate of lime.)	
Silex and sand	... 4.50
Lime	... 4.07
Water	... 17.75

(The azote being 4.20.)

Comparing this with the analysis given by the same chemist of the "poudrette," or dried sewage, as prepared at Bondy, we have,—

Poudrette 1.20 to 1.40 per cent. of azote.	
Chodko's manure 4.20 do. do.	

This plan of disinfecting sewage, and converting it into a complete manure, may be thus described. First, a saturated solution of coarse sulphate of magnesia and sulphate of iron in equal parts is made with water or liquid refuse: five or six litres of this mixture suffice ordinarily to disinfect a cubic metre of matter, but that depends upon the state of its decomposition and its density. After the application of this solution to the sewage, a small quantity, a saturated solution of bicarbonate of potash, is then added, in order to destroy all traces of acid reaction, and also $\frac{1}{10}$ part of a mixture of tar and

benzene, or some empyrenematic oil. This latter part of the treatment serves to destroy any remaining odour, and the preparation is then ready for the second process. This consists in pouring the sewage matter thus treated over piles of faggots, the water evaporating very rapidly, owing to its minute subdivision, while the solid particles and salts adhere to the twigs.* While this is going on, and the liquid is falling from branch to branch of the fascines, a fumigating furnace, placed below, diffuses through the mass the fumes of sulphurous acid gas resulting from the burning of sulphur and hydrochloric acid produced by the action of sulphuric acid on common salt: the first decomposes the sulph-hydrates, and the latter completes the fixture of the ammonia. Repeating the watering of the fascines once or twice a day according to the season, at the end of a fortnight or three weeks in summer, and six weeks in winter, the faggots will be sufficiently charged with the solid extract or manure to be allowed to dry perfectly. In a few days they will be ready for the operation of beating or thrashing—a very simple method carried out on one of the floors of the building. The extract is then collected and placed in sacks as ready for use.

Owing to the favourable reports on the above process made by M. Belgrand, engineer-in-chief of the waterworks and sewers of Paris, and by M. Boussingault, member of the Institute, and professor of chemistry at the Conservatoire des Arts et Métiers, the Emperor was induced to place the disinfection of the Châlons camp into the hands of M. Chodko. The establishment constructed consists principally of a building the ground floor of which is laid out in offices and dwellings for M. Chodko and his engineer, M. Lankasky, with their families. Immediately above these are disposed three stories of lofts, constituting the building of graduation, filled with the faggots ranged in two series of columns, a vacant space being left between the series furnished with a planked flooring at each story on which the faggots are beaten. Very little liquid ever arrives at the bottom of the building: any small quantity that may happen to do so is drained off by a pipe into a vessel placed to receive it.

Several farmers and agriculturists residing in the neighbourhood, constantly use this manure, some in the liquid and some in the solid state. One of them, M. Secondé-Baronnet, at Promes, made an experimental comparison, by sowing beetroots in two plots of ground, one manured with the poudrette from Reims, the other with Chodko's patent manure. The result was that in less than ten weeks on the land manured by the first-named, the produce was equal to twice the expenditure, while on the latter the return was five times the outlay.

M. Belgrand, municipal engineer, of Paris, states, in a report, that the poudrette takes twenty months, on an average, to complete, and has lost all its ammonia, whereas the manure above described is formed in about a month, and all the gases are preserved. The price of Chodko's compound is about 5s. per ton. The cost of a complete establishment for a town of 50,000 inhabitants, is estimated at 24,000*l.*; and the working expenses, including the interest of the capital for one year, 12,800*l.* The receipts are calculated to be 23,360 cubic yards of sewage matter removed from the houses (paid by the inhabitants), at 5s. per cubic yard, 5,840*l.*; 3,708 tons prepared manure, sold at 5*l.*, 18,540*l.*; total receipts for a year, 24,380*l.* Deducting the expenses (12,800*l.*), there remain 11,580*l.* net profit on the capital, or at the rate of 48.25 per cent. In case of the town being drained so as to deliver the sewage at the works, the item paid by the town would disappear, but a gain of the expense otherwise incurred, of cartage and sixty horses, would add a benefit of about 3,000*l.* per annum, thus leaving the net profit at 8,740*l.*, or 36.40 per cent. as a minimum.

NEWTON IN MACKERFIELD SURVEYORSHIP.

UPWARDS of fifty candidates offered themselves for the above office, from whom the commissioners selected four to attend personally. Ultimately Mr. R. Brierley, for several years assistant to Mr. B. P. Coxon, C.E., borough engineer of Warrington, was elected to the office.

* This etalactic process of obtaining salts from solutions is very common in the salt works on the Continent. Very often cords are used instead of faggots.



RENDCOMB.—Plan of Principal Floor.

MONUMENT TO LORD AND LADY SUDELEY.

Mr. LOUGH has just now completed a remarkably fine double monument to the memory of the First Lord Sudeley, and his wife, Henrietta Susanna. It takes the shape of a fourteenth century altar-tomb, on which lie the effigies of the individuals commemorated, the whole being raised on two wide steps. The sides of the tomb are panelled, and bear shields properly blazoned. At each angle is a finely-sculptured statuette of an angel; and between these, on each side, are two figures of the Evangelists. The tomb and steps are of Sicilian marble, the figures of Carrara marble. An inscription on metal, in the cornice around the tomb, tells us it is erected:—

"In memory of Charles Hanbury Tracy, 1st Baron Sudeley, of Toddington, in the County of Gloucester, and of Gregory, in the County of Montgomery, Lord Lieut. of Montgomeryshire. Born Dec. 28th, 1777. Married, Dec. 29th, 1798. Died, Feb. 10th, 1858. Also in memory of Henrietta Susanna, his wife, daughter and heiress of Henry, 8th and last Viscount Tracy. Born, Nov. 30th, 1771. Died, June 6th, 1839."

This is rubricated, and with the shields gives the only colour added to the monument, beyond the gentle difference observable in the two marbles used.

The principal figures are most admirably executed, and the whole is worthy of the deserved high reputation of the sculptor,—one of the very, very few amongst us who have devoted themselves to ideal sculpture.

The monument is to be set up in a chapel about to be erected specially for it at Toddington.

RENDCOMB.

RENDCOMB is a small village between Cirencester and Cheltenham, not far from the source of the Thames, though the stream is here called the River Churn, a name it retains till it becomes the Isis. The village and surrounding property belonged to the Guise family till a few years ago, when they passed into the possession of Sir Francis H. Goldsmid, bart., the present member for Reading. A natural terrace, high up on the side of the hills which enclose the valley, has been enlarged, to form a site sufficiently broad for the new house, with the gardens and terraces that are to surround it. The old house stood near the new site; but it was pulled down, being much out of repair and possessing no feature of interest.

Above the house the hills are covered with woods; to the west is a beautiful park, full of old oak-trees; and at the foot of a steep descent to the valley is a sheet of ornamental water, fed by the River Churn. The house consists of an entrance-hall, a library, two drawing-rooms, and a dining-room, on the ground-floor, which are arranged so as to command the best views of the valley. The billiard-room is near the entrance; the domestic offices are at the back of the house, and are screened from the garden by a conservatory. The dimensions of the rooms can be seen by a reference to the plan. The bedroom floor is divided into suites of bed and dressing rooms. The stables will be approached by a new road to the east, which passes in front of one of the largest wych-elm trees in England, the branches covering a circular space of about 110 ft. in diameter. The architect of the build-

ing is Mr. P. C. Hardwick: the contractors are Messrs. Cubitt & Co.; and we understand the cost of the house will be rather more than 40,000*l.*

REFERENCES.

HOUSE.	OFFICES.
A. Porte Cochère.	a. Cleaning-room.
B. Entrance-hall.	b. Brushing-room.
C. Hall.	c. Servants' Hall.
D. Principal Staircase.	d. Working Pantry.
E. Corridor.	e. Plate-room.
F. Dining-room.	f. Bedroom.
G. Music-room.	g. Butler's Room.
H. Drawing-room.	h. Storeroom.
I. Vestibule.	i. Housekeeper's Room.
K. Library.	k. Still-room.
L.L. Private Rooms.	l. Cook's Room.
M. Billiard-room.	m. Kitchen.
N. Smoking-room.	n. Stairs to Cellar.
O. Cloak-room.	o. Scullery.
P. Servicing-room.	p. Larder.
Q. Back Staircase.	q. Servants' Staircase.
R. Loggia.	r. Game Larder.
S. Conservatory.	s. Coke.
	t. Laundry.
	u. Washhouse.
	v. Coal.
	w. Wood.
	x. Entrance to Kitchen Court.
	y. Kitchen Court.
	z. Part covered.

ESSAY ON DWELLINGS FOR THE WORKING CLASSES.—The adjudicators on the essays sent in to compete for the prize of 10*l.* offered by the Liverpool Health Committee for the best essay on the above subject, have awarded it to that signed "A Workman," as the most practical, the writer's name being Edward Reid, of No. 9, Nicholson-street, Netherfield-road North, Liverpool.

RENDOME; A MANSION NOW BEING ERECTED FOR SIR H. FRANCIS GOLDSMID, BART., M.P.—MR. P. C. HADWICK, ARCHTCT.



THE ARCHITECTURAL PROFESSORSHIP, UNIVERSITY COLLEGE, LONDON.

On Saturday last, at a session of the Council, Mr. Hayter Lewis was appointed Professor of Architecture in the College, from the close of the present session, on the resignation of Dr. Donaldson, who, retiring by reason of long service, will assume the title of Emeritus Professor.

The testimonials submitted to the Council by Mr. Lewis were of the most remarkable character, and could have left them little alternative. Mr. Lewis succeeds a most accomplished, energetic, and excellent man,—a man not merely with a head, but a heart. When we say that we believe the credit gained for the position will not suffer in Mr. Lewis's hands, we pay him the highest compliment in our power.

THE ELECTION OF DISTRICT SURVEYOR FOR MILE-END OLD TOWN.

The following candidates presented themselves before the Metropolitan Board of Works, on the 2nd inst.:—E. Adams, A. Baker, W. Baker, Sidney Godwin, — Hovenden, J. Houle, J. Hudson, J. W. Papworth, E. Paraire, A. Peebles, E. W. Power, H. S. Legg, C. A. Long, Geo. Saunders, J. Tolley, F. Wallen. The following six were then selected by vote:—W. Baker, Sidney Godwin, H. S. Legg, C. A. Long, A. Peebles, J. Tolley; from whom Mr. H. S. Legg was ultimately elected to fill the office.

COTTAGES FOR THE WORKING CLASSES.

The Lower Norwood Co-operative Building Company, Limited, are putting up some cottages for the working classes on the Elm Grove Estate there. They have three pairs already occupied, and are about to build two more pairs. Each pair includes four separate lettings, with separate entrance, of living-room, kitchen, and bedroom. The following tenders have been recently sent in for the erection of two pairs of these cottages:—

Street.....	£790	0	0
Wallis.....	788	5	0
Parks.....	780	0	0
Yenoley.....	700	0	0
Barwell.....	680	0	0
Ward (accepted).....	660	0	0

SANITARY MATTERS.

Some notes on sanitary requirements, on fever and overcrowding, excessive mortality, and so on, now before us, we shall here string loosely together into one more or less connected whole.

It is to be hoped that in the new Parliament, shortly to open, the present state of the tenement dwellings of the metropolis may meet with special attention. The urgent necessity for this is every day becoming more and more apparent. The overcrowding is increasing, notwithstanding partial endeavours to prevent it; and so great is the demand for apartments in some localities, that rents have been considerably advanced; and even at the increased rates it is not easy for persons who have families of children to find a shelter. Besides the demolition of a far greater number of dwellings than would have been thought possible a few years ago, there are other causes for this: one of these is the enormous increase of the number of persons employed in connexion with the railway stations, large manufactories, &c.; and, according to present arrangements, it is thought necessary for even these men to find a dwelling near to their work.

In the Caledonian-road, in numerous instances, the apartments above the shops are let, in floors, for about 20l. a year for each floor; but few of the shopkeepers will let those parts of their premises to persons who have young children. The houses are of spacious enough proportions; and, if the drainage be all right, with good management they would be healthy enough places. Nevertheless, there has been much sickness and death in some of those houses. A majority of the cases have been from fever, of several types, and we are therefore inclined to think that there are derangements of drainage in this now bustling thoroughfare, especially at the end near King's Cross. In Abbin-street, where the houses are not large, 7s. 6d. are charged for an unfurnished first-floor; and in another street in this locality, which is

not so good as that named, a house situated in anything but an agreeable position, being over an archway, and in the immediate vicinity of a cow-shed and other unwholesome matters, rents at 6s. 6d. a week per floor. In other places 6s. a week are charged for apartments which might formerly have been had for 5s. or 5s. 3d. a week. The frequent consequence is, that many who had been in the occupation of two rooms have been driven into one; and the over-crowding is hence increased to an extent which leads to discomfort and mischief. The houses in which this increase of rental has taken place are, for the most part, property of a well-built kind, in a fair state of repair, although the rooms are in every way quite unfit for separate families. In the poorest neighbourhoods we have not heard of any material change in the matter of rent; but there can be no doubt that over-crowding is there increasing from other causes to a considerable extent; and it would probably be found, on inquiry, that the increase of fever which has of late prevailed in the metropolis must be attributed, in some degree, to this circumstance. In the City, however, and to a less extent in some other parts of the metropolis, the houses of the very poor are carefully inspected, and measures taken to improve their bad condition; and in places where fever, small-pox, and other pestilential disorders have been raging, the people have been turned out at a very short notice by a magistrate's order. Proceedings of this sort are actually a kindness to those who are forced to live in such situations; but, unfortunately, there is great difficulty in getting accommodation elsewhere. We have heard sad complaints in connexion with this: respectable women wander about for days in search of apartments before they can find anything likely to suit, or persons willing to let to those who have children. This is one of the puzzling parts of the important subject of providing proper homes for the industrious and poorer classes of the metropolis. There can be no doubt that the matter to which we now refer is a phase of the question which gives those who have thought carefully of the matter, cause for much anxiety. If, however, the overcrowding is allowed to increase, we shall be in constant danger of the outbreak of some pestilence, which would be a terrible punishment for delay and neglect. But without driving out families from overcrowded dwellings to that considerable extent which some anticipate, there is a great deal to be done by the enforcement of sanitary provisions. The landlords of this kind of property should be compelled to do their duty; and this, as our readers know, is not done at present. It is to such points as this that the attention of Parliament should be directed; and inquiry would show that there is more need of interference in this way than most people are aware of.*

There is also, requiring to be better seen to, inspection of workrooms and workshops. In the small ill-ventilated and unwholesome underground apartment to which we recently referred, wherein from twenty-three to twenty-five persons work, manslaughter still goes on, although the parties interested have been apprised that this room is not fit for five persons to work in. It appears that the law cannot touch such arrangements at present; and certainly all that has been done in this way is of but little use. With the machinery which is at present at work, the condition of these places will not be understood: those whose shops are in good order will court inquiry, but parties who encourage ill conditions will to the utmost defy inquiry.

The fever dens in St. Luke's have recently turned up into public notice by the hearing of a coroner's inquest respecting the death of a woman who had fever, and seems to have died from starvation and neglect, superadded to prostration from the fever. Twenty persons lived in the house, and all had the fever excepting one person. The family of deceased consisted of five children. They all lived in one room, for which they paid 2s. 6d. a week rent. The deceased and two of the little boys, who used to earn something, were thrown out of employment by the fever, and they were all in

great distress. A lodger said that she never saw anything in the place for deceased to eat. Once she bought her a farthing's worth of milk and moistened her lips with it to revive her!

That standing reproach to the metropolis, the sanitary condition of Bethnal-green, has also again been dragged into notice by another of those terrible coroner's inquests which lay bare the dreadful condition of the London poor. The deceased was a man of seventy, whose earnings lately had only averaged about 5s. per week, and out of that he had paid 1s. per week for rent for a wretched place. There was no furniture, with a heap of dirt in the corner of the room. The window, however, was broken to admit air. Dr. G. Haycock said the place was not fit for human habitation. There were bad smells, the walls were dilapidated, and the place was deficient of cleanliness. He ordered chloride of lime to purify the atmosphere of the room. Dr. Lesheby said that he visited the house, and found that the walls were in a very filthy state, and had not been cleaned out for years. There was a large accumulation in the cellar under the room where the deceased lived. The whole house and back premises required active sanitary measures carried out. The condition of the place was calculated to injure the vital powers of persons exposed to the influence of the atmosphere. The deceased had no doubt been subjected to the foul condition of the room where he lived, which was scarcely 7 ft. square. The water-butt at the back was very small, and inadequate for the number of inmates. The wife said, in answer to the coroner, that the deceased brought home on the last Saturday 1s. 6d., out of which she purchased two cold faggots for 1ld., a pennyworth of coals, and a similar quantity of tea and sugar. They had animal food once a week, and they had to sell all their goods, and slept upon the floor. Since the death of the deceased she had notice to quit. The jury returned the following verdict:—"That the deceased died from extravasation of blood on the brain from natural causes, and the jurors do further say that there was great neglect in the sanitary condition of the neighbourhood in which the deceased resided."

Our strictures on the sanitary condition of Shrewsbury are being fully justified by what has since transpired. Such is the present state of matters in a sanitary view, that a memorial was lately sent to Government, signed by twenty-nine ratapayers, stating that "the mortality of the borough had now reached the almost unprecedented and startling average of 32 in each 1,000 of the population," and that the memorialists felt "convinced that this high rate of mortality has been greatly aggravated by the culpable indifference of the municipal authorities to all sanitary improvements and precautions; by neglecting to carry out a proper system of sewerage; and by their still permitting a considerable number of the worst description of slaughter-houses and pigsties to remain, breeding death and disease in the very centre of the most crowded districts of the town, notwithstanding these insufferable nuisances had been most strongly reported against by Mr. Fowler in 1847, Mr. Ranger in 1853, and by Mr. Rawlinson, during his visit in 1864, since which latter period small-pox, scarlatina, and typhus fever have been fearfully prevalent. The prevalence of nuisances in the most crowded districts will be understood (continue the memorialists) from Mr. Rawlinson's expressions with reference to the slaughter-houses in the most important street in the town.—'If you want to see a state of things which exists in no other civilized town in England, for God's sake go to Pride Hill!'" The memorialists therefore most urgently memorialize the Government to direct a superintendent inspector to visit the borough for the purpose of making an inquiry and examination into its unhealthy condition, and to take such other measures as may seem best calculated to ensure, with the least possible delay, the provisions of the Health of Towns Act being applied to the borough.

As the local *Chronicle* in an able leader on this subject remarks, the present alarming increase of mortality in Shrewsbury is not a merely temporary or upstart one, but has been gradually and persistently on the increase for many years. With the attention of the Privy Council fixed upon the borough, however, and under the guidance of a vigilant sanitary watchman such as the *Shrewsbury Chronicle*, it is to be hoped that the reproach will be ere long wiped out, and that Shrewsbury will become,

* Some weeks ago we directed attention to the bad drainage of houses near the bottom of the Caledonian-road. The parish sanitary officers have since interfered, and an order has been given to do away with the cesspools, and attend to the state of the drainage of these houses, but the work is not complete: the cesspools still remain.

what it is so capable of being, one of the healthiest of our county towns. The Privy Council, we may add, have already moved in the matter by asking the Corporation what they have got to say to it, and the Corporation have set their town clerk to prepare "an explanation in reply to the communication from the Secretary of State."

The fever so prevalent in a Rochdale work-house has led to a panic among the nurses, who have all fled, leaving the patients without proper attendance. The master finds a difficulty in getting nurses on any terms, but has at last prevailed on a pensioner, who had long served in India, and two females, out-door recipients, to assist, should he obtain the sanction of the Board. The chairman and guardians gave full discretionary power to the master to meet the emergency.

THE CONSECRATION OF A JEWISH SYNAGOGUE AT SOUTHAMPTON.

THE synagogue in Southampton has been consecrated and opened for divine service. It is erected on the Maddison estate in Albion-place, and is built in the Italian style from designs furnished by Mr. H. H. Collins, of London, architect. A portico leads to a vestibule, paved with Minton's coloured tiles, having on the right a staircase leading to the ladies' gallery and a committee-room, to which are attached several convenient offices. This gallery, the seating of which is of stained deal, and varnished stop chamfered octagonal panelling, with a front of ironwork picked out in bronze and blue, is supported by two iron columns, with ornamental bands, the capitals being enriched with vine leaves and grapes. The body of the synagogue has open pews of stained and varnished deal, with boxes for the books of each worshipper. Pillars springing from the reading desk, the sides of which are of open ironwork of the same pattern as in the gallery, support six gas standards. The sanctuary, approached by three steps, is octagonally recessed and enframed with a colonnade, the entablature being supported by a pillar and a pilaster on each side, of imitation marble, the capitals of which are picked out in gold and cream colour. Over the arch is a scroll containing, in Hebrew, "Know before whom thou standest." The lining of the ark is of amber damask, and the veil of Gobelin tapestry. A pendent lamp for the continual light was presented by the architect. Messrs. Defries, of London, who supplied the gas fittings, presented a pair of triple standard lights. The synagogue is lighted by eight semicircular-headed windows of netted glass, with coloured borderings, containing a running flower. The roof is supported by beams, standing on ten ornamented trusses, and is divided into twelve panels, in imitation of inlaid cabinet work, four of which are filled with papier mâché ventilators communicating with an exterior shaft. A hot-water apparatus placed under the reading-desk communicates with a system of warming, and to give more perfect ventilation the window-heads open at pleasure. A water-tank in the roof insures a supply in case of fire. The edifice will seat about a hundred persons. It was built by Mr. James Bailey, of Southampton, and the cost has been upwards of 1,200*l.*, exclusive of the site. A stone in the outer wall near the entrance states that the synagogue was erected 5625,—1854.

THE WAGES QUESTION.

Taunton.—The carpenters and joiners of Taunton, who are in the receipt of 1*l.* per week, intend to strike for an advance of 4*s.* per week, on the ground that provisions and house-rent are as high there as in larger towns, and that they have not the means forthcoming to meet their common necessities.

Rotherham.—The notice of the operative carpenters and joiners of Rotherham to their employers, asking for an advance of 2*s.* per week, has been effective. The employers, as a body, have agreed to the request, and the standard wages of the town will now be 26*s.* per week.

Leeds.—There is no alteration in the position of the dispute here. The masters offer an advance of 4*d.* per hour to the bricklayers and carpenters, and this the operatives refuse to accept.

Darlington.—The joiners are on strike in consequence of being refused an extra hour on

Monday mornings. They have demanded the half-day's holiday on Saturday, and an increase in their wages of 1*s.* per week, both of which requests have been complied with by the masters; but they wish to commence work at seven o'clock on Monday mornings, instead of at six, as at present.

Miscellaneous.—A strike of a curious nature has occurred among the ironworkers of Worcestershire. They have issued a notice that, in consequence of the high price of meat, they have resolved not to buy any for a month. It appears that they hope by this means to force the butchers to lower their price.—The National Conference of Miners, held at Bloomfield, Staffordshire, has been brought to a close after a long discussion on strikes, outlocks, and the assistance which should be given to men on strike. The substance of the debate and the form of the resolution adopted, are best summed up in the phrase used at the meeting that "strikes are most injurious to all parties," but that the Association could not always refuse to support them.

PROVINCIAL NEWS.

Harwich.—The Great Eastern Hotel has been opened. This first-class building has been erected by the Great Eastern Railway Company, for the accommodation of their passengers to and from the Continent, and for visitors. The hotel faces the passenger pier. The style of the building, which occupies an area of 24,000 ft. in Italian. The frontage is about 120 ft. long, and 67 ft. high; and has four stories, exclusive of the basement, which rises at least 4 ft. above the ground-line. The most notable apartment is the dining or coffee room, occupying the north-east end of the building, and which is 60 ft. by 40 ft., and lofty in proportion. The enrichments of the ceiling, cornices, and panelling are of an elaborate description. At the back part next the corridor, and also from the roof, the room is lighted by embossed glass windows, and six lofty windows in the front. The ceiling is panelled, and in each of the nine panels is a bronze gasolier. The decorator was Mr. Schmidt, of London. There are two billiard-rooms, public and private, the latter being on the first floor. On this floor the Royal Harwich Yacht Club is accommodated with a club-room. There are two bars; one for the hotel, and a second for company who may have no desire to enter the hotel. The architect was Mr. T. Allom, of London; builders, Messrs. Lucas, Brothers, of London and Lowestoft. The works have been carried out under their superintendence, Mr. W. B. Lacey, Mr. R. W. D.arken, of Colchester, was clerk of the works.

Aldburgh.—"The White Lion Hotel" is about to be extensively increased by the Aldburgh Hotel Company (Limited), whose prospectus has just been issued, with a nominal capital of 25,000*l.*, divided into 2,500 shares. The greater portion of the capital has already been subscribed in London. The designs are by Messrs. Elmsley, Franey, & Haddon, of London, architects.

Croydon.—The foundation stone of a new work-house for Croydon has been laid. There will be compartments for 110 old men, 25 able-bodied men, and 45 partially able-bodied; total number of men, 180. The accommodation for females will also be on the same scale: old women, 100; able-bodied women, 25; partially able-bodied, 25; total number of women, 150. This accommodation will be provided for 330 persons. There is to be a large dining-hall in the centre of the building, over which will be the chapel. The residence of the master is to be near the tower, and the stores and workshops at the rear of the building. Mr. J. Berney is the architect; Mr. H. Hart, the builder.

Weston-super-Mare (Somerset).—A new banking-house, with shop and dwelling-house adjoining, are about to be erected here from designs by Mr. W. B. Gingell, of Bristol, architect. The site has been cleared, and the new premises will occupy a good situation in High-street, with returns in South Parade and in West-street. The general contract has been taken by Mr. John Perry, of this town.

Wellington.—The contract for the erection of the new markets has been given to Messrs. Trow & Sons, of Wednesbury, contractors, on terms which are stated to be highly satisfactory to the directors. The works will be commenced forthwith.

Sheffield.—The proposed enlargement of the Cutlers' Hall is about to be at once proceeded with. A meeting of the Building Committee

has been held, to examine and let the contracts for the work. Mr. G. Wade, and Mr. Bradley, of Sheffield, builders, each sent in a tender for the whole of the work, amounting to 5,715*l.* Their tenders were the lowest, and the committee decided to give them the contract jointly. The cost of the alterations will be larger than was originally contemplated, 800*l.* having been paid for land to complete the site. Over 4,000*l.* have, however, already been promised.

Leeds.—A first-class hotel is about to be built by the Great Northern Railway Company at the central station, Leeds. The architects are Messrs. M. G. Hadfield & Son, of Sheffield. It is expected that the works will be very shortly commenced. The estimated cost, including fittings, is 22,500*l.*, and it will probably require twelve or fifteen months for its erection.

Sunderland.—A new temperance-hall is about to be built in Sunderland, at the north end of Toward-road, and close to the New Park, for which a site has been secured. It is proposed to have a lecture-room to contain 2,500 people, with smaller rooms, for committee and other meetings. The cost is roughly estimated at 4,000*l.*

Carlisle.—During the past twelve months, says the local *Journal*, there has been in course of erection at the Holme Head a second large mill in connexion with the works of Messrs. Ferguson, in which it is intended to carry on the manufacture of their fabrics from the raw material to the finish. The new works have just been opened under auspicious circumstances. The steam is raised from six boilers, which supply the whole concern, and the machinery is set in motion by two 60-horse power steam-engines. The mill is capable of holding about 23,000 spindles, and the sheds will accommodate about 350 power-looms. The engines were built by the Fairbairn Engineering Company. The stonework of the building was done by Messrs. C. & J. Armstrong, Messrs. Wright & Son, and Mr. Milburn; joiner work, Mr. Court; plastering, Messrs. Johnston, Brothers; the shafting and gearing, Messrs. Blaylock & Pratchitt; the remainder of the iron-work, Messrs. Porter, Clarke, Lees & Graham, and John Hind; painting and glazing, Messrs. Sles & Morgan; plumbing, Messrs. Irving & Lowthian; and the slating, by Mr. T. Nanson.

FROM SCOTLAND.

Edinburgh.—In the Council Chamber, the Lord Provost has proposed that a grand exhibition, similar to the Dublin one, shall be opened in Edinburgh. His lordship is of opinion that the exhibition should be a national rather than an international one, and that it should be held in 1868.

Dumfries.—The committee of the Town Council and Kirk-session and Congregation, having advertised for plans for a church, the cost not to exceed 4,000*l.*, thirty-one plans were lodged, most of them in the Gothic style. Five of them were marked for further selection, and the committee have since reduced the list to three, and have requested the architects, Mr. John Starforth, Edinburgh; Mr. Robert Edgar, London; and Mr. James Barbour, Dumfries, to prepare detailed estimates, in order to test whether their plans can be executed at the stipulated cost. The committee, however, reserve power to reconsider any of the other plans, should they see cause.

Grangemouth.—The foundation-stone of the new Established Church has been laid, with Masonic honours. The new church is being built from designs by Mr. A. Black, of Falkirk, architect, and is in the Early English style. It will include sittings for upwards of 400, and space is left for a gallery.

Queensferry.—One of the most extensive projects of the day is that of Mr. Bouch for crossing the Firth of Forth by a viaduct upwards of two miles long. The four openings for the navigation are each 500 ft. wide, and 125 ft. high. The viaduct consists, in addition, of nineteen openings of 100 ft., ten of 150 ft., ten of 175 ft., and seventeen of 200 ft. The piers are intended to be of stone to above high-water mark, and the upper portion of open ironwork. The estimate for the viaduct is 560,000*l.* Another work of a like character, a high-level bridge over the next northern Firth—the Tay, has been withdrawn by the promoters, the estimate, 180,000*l.* having been found insufficient. This work had two openings for navigation, in separate portions of the viaduct, each of 300 ft. span, and the one 100 ft. and the other 70 ft. high,

with seventy-nine other openings of various widths, the total length being about 1½ mile.

Nairn.—It is proposed to form a joint-stock company in Nairn for the erection of a new town-hall. There are two plans, one by Dr. Grigor, and another by Mr. Clunas, architect. The estimated cost of the proposed building is £1,000.

Elgin.—The opening of the Combination Poores for Morayshire, at Bishopmill, has now been sanctioned by the Board of Supervision. Last summer the foundation-stone was laid by Mr. Alexander Stewart, builder, Peterhead, contractor for the mason-work of the house. The other contractors all belonged to Elgin. Contractor Brander had the wright-work; R. Stewart, the plaster-work; J. Gordon, the plumber-work; J. Wilson, the slater-work; and the plans and specifications were the work of Mr. Alex. Reid, architect, who engaged Mr. Malloch as his inspector. The stones for the building were principally obtained from the Bishopmill quarries, wrought by Mr. Eric Anderson. When the walls were about 3 ft. or so above the foundation, a thick coating of asphalt was laid upon them, to stop the damp from rising. The extreme length of the main building is 200 ft., the breadth of it about 70 ft., and the height to the eaves is about 26 ft. The main building is two stories high. The form of the building may be said to be that of a transept. A range of office houses, 200 ft. in length, lies back from, and runs parallel to, the main building, and the kitchen connects the two. It and the office houses are only one story in height. There are thirty-three apartments in the main building, and in the coach range twelve.

REMOVAL OF THE SMOKE NUISANCE.

SCIENCE has overcome the evil of noxious vapours from alkali works: the sewage question is nearly solved. I think it time to grapple with the smoke nuisance from houses in towns. As a beginning, I beg to suggest a plan:—A glowing fire will consume any quantity of smoke, soot, &c. There are many such furnaces in all parts of London capable of being used for the purpose. I would draw the smoke from the chimney-stack through a large tube, and by the aid of the patent blast fan force it through the fire. A two-horse gas steam-engine would serve for a small parish. The force to be lowered at night; every fireplace to be fitted with a tamper to regulate the draught; connecting pipes could be attached to draw noxious gases from houses, factories, sewers, &c.

I feel assured every difficulty can be surmounted, and the only wonder will be that it was not brought into practice before.

R. T.

*** The suggestion is an old one, but may be usefully kept in view.

COMPENSATION CASES.

Bradford Street Improvements.—Last week the case, the Corporation and Mr. Abraham Bower, was heard before the Under-Sheriff (Mr. William Murray, of York), and a special jury. Mr. Abraham Bower, who resides at Elmcroft, near Ripon, and is a magistrate, is the owner of a large block of buildings known as Bower's-buildings, situated at the junction of Tyrril-street and Chapel-lane, and of other buildings situated at the corner of Manchester-road. The property is required by the corporation in making a new street from the south-west end of Market-street to the principal street in the town to Manchester-road. The claimant and his witnesses contended that the property could fairly let for £871. After deducting 6½ per cent. for repairs, insurance, &c., they proposed to capitalise the net profits, at £871 2s. 7d., at twenty years' purchase, and to add 20 per cent. for compulsory sale, making the total claim 19,501. The town clerk, however, contended that, according to the experience of claimant's own witnesses, sixteen or seventeen years' purchase for similar property was the almost universal rule. He objected also that the rentals being placed at so high a figure, did show that the deduction for leakage was improper. The town clerk also contended that 10 per cent. for the compulsory taking would be a proper compensation to Mr. Bower. The Under-Sheriff having summed up, the jury, after being present from the court about half an hour, awarded £5,560.

A LARGE GIRDER.

SOME considerable works are being executed, and are now nearly completed, at the London and Westminster Bank, Lothbury, under the direction of Mr. E. N. Clifton, architect. The alterations there being made will give the bank a room the largest in London without columns. Mr. Shaw has built a wrought-iron box girder, 86 ft. span, and 96 ft. long, to carry all the back buildings of the bank, which, with skylights, will weigh from 400 to 500 tons distributed. The girder is 8 ft. deep, and the top and bottom flanges are 2 ft. 6 in. wide. This girder had to be built in its place, on a stage, and the whole of the riveting had to be done there. The total weight of this girder itself is about 70 tons.

ANCIENT LIGHTS AND CITY IMPROVEMENTS.

In the Vice-Chancellor's Court, a suit, Stokes v. The City Offices Company (Limited), for an injunction to restrain the defendants from obstructing the plaintiff's ancient lights, has just been decided by Sir W. Page Wood.

The plaintiffs are wholesale ironmongers, at Nos. 11 and 12, Clement's-lane, and the defendants are an office-building company. Clement's-lane is only 20 ft. in width, and the ancient houses in the street are of a height of 35 ft. from the ground, the plaintiffs' premises, which have been built nearly 100 years, being of this height, exclusive of the sloping high-pitched roof of the period. Property purchased by the defendants was of the same height. They pulled down these houses, and commenced building houses 59 ft. in height. To this the plaintiffs objected, on the score of injury to their ancient lights, and on finding their remonstrances produced an unsatisfactory result, these proceedings were instituted.

The plaintiffs proved that their business returns were 100,000 a year, and that a direct light was of the utmost importance to them in their business, to enable purchasers properly to examine the character of the iron, and more especially of the steel goods which they dealt in. It was also proved, that if the buildings in question were erected only a general or diffused light would be obtained, which would be valueless for all practical purposes.

The defendants argued that the erection of buildings such as they were about to erect would raise the value of the plaintiffs' property; and they also dwelt on the fact, that suits of this nature were a bar to all public improvements in large towns like London.

The Vice-Chancellor said, it had been aptly remarked, that the encouragement of suits of this description enabled individuals to prevent public improvements, and condemned large and otherwise improving towns to a low style of building. There was a great deal of truth in this; but it was a question for the legislature, certainly one well deserving their consideration. It was for them to say whether they would pass a general act, by which improvements in towns might be made, either by submitting matters in dispute to a jury, or sanctioning other arrangements; but it was essentially a question for the legislature. No house or land could be compulsorily taken by a railway company without first obtaining the sanction of the legislature. The legislature had made light and air, after twenty years' enjoyment, property by Act of Parliament. The injunction would, therefore, be granted, with liberty, however, for the defendants to apply to a judge in chambers with respect to any future scheme they might select in respect of any future buildings, in conformity with the terms of the injunction. At present he thought it desirable to say nothing about the expense of any application, as he was unwilling to encourage litigious opposition.

HOLBORN VALLEY.

Sir.—The plan brought forward by Mr. Abraham for the Holborn Valley Improvement, and adopted by the Ward of Farringdon-street Without, and discussed by the Court of Common Council, is a copy, in all its best features, from the plan I sent in at the competition. Being put aside, I published it, and distributed a few copies. I gave one to Mr. Abraham, on whom I called in order to explain it. I found he had a pet plan of his own, one for a double viaduct, with a sunk road between. He could not then understand my plan: now he has adopted it. Adding a sunk road and a few other objectionable features, he brings it forward with his name attached: the plan he has no more right to than I have to the wares in his shop.

C. J. RICHARDSON.

"SPECIFICATIONS AND MYSTIFICATIONS."

Sir.—In reply to "A Builder's" question, "Who is the proper party to sue?" my opinion is that, as the architect is the paid agent of his client, he is responsible only to him, and not to the builder. All his acts are, therefore, so far as the builder is concerned, the acts of his client; and any losses through his unskillfulness or through ambiguities or mistakes in the specification, must be visited on the head of the principal, who, in his turn, has his remedy against the architect.

In reply to "A Builder's" former query, who is responsible that "the specification" is not "a mystification?" I think there can be no doubt that the architect is, as it is he who puts forth the document bearing the appellation "a specification," the undoubted meaning of which is "a clear description;" and if it be not a clear description of the works to which it refers, he is guilty (to use a mild term) of gross misrepresentation, and commits a fraud not only on the builder, but on his client.

A SUPPENER FROM "MYSTIFICATION."

EXHIBITION AT PORTSMOUTH.—An industrial exhibition is about to be established at Portsmouth.

CHURCH-BUILDING NEWS.

Coltishall (Norfolk).—The church of Coltishall, one of the oldest of the 1,100 churches in the diocese, has been restored and re-opened. The church, previously to restoration, was somewhat dilapidated. The gallery at the west end effectually blocked up the tower arch with its west window, but it has now been thrown open. The whole of the interior fittings, including the gallery, have been removed, and the nave and roof are slightly repaired. The roof-screen is repaired. The communion-rails, chancel benches, reading-desk, and pulpit, are of oak, the latter bearing foliated cusps, in the Decorated style of architecture. The sedilia are repaired, the piscina is re-opened, and the old Norman font removed to a position opposite the west door; while the pews have given way to open deal benches, with oak ends and carvings, and a boarded floor. The south aisle has been re-roofed with new oak, and the exterior covered with lead, with freestone cornices. This aisle has also been lengthened, so as to give room for an organ-chamber, which now opens with an arch into the chancel. The whole of the old stonework of the nave and south aisle have been replaced by new, and the window at the east end has been restored. The windows in the porch had been bricked up, but have now been re-opened and glazed with cathedral glass, of a greyish tint, with which the other windows have been similarly filled, relieved by small panes of stained glass. In a small lancet window in the chancel some painted glass has also been inserted. The interior walls are plastered with rough stucco, and the stonework has been cleaned, as have also the pillars. The floors of the nave and aisles have been laid with Peak Staffordshire tiles, the floor within the communion-rails being of Minton's encaustic tiles. The lower part of the walls are plastered with Parian cement, relieved from the stucco ornamental work by a border of Minton's encaustic tiles. In the course of the restoration, on the north side of the nave, a mural painting was discovered; but as its design was nearly obliterated, it was again covered up with plastering. In the west wall of the nave a new circular window, with geometrical tracery, has been inserted, with the view, while maintaining the character of the architecture, of giving additional light to the west end of the church. The windows, which are all of the Decorated style of architecture, have been restored, and the eastern gable has been surmounted by a stone cross, with new buttresses to the south aisle. The tower, which is improved, is of a later style of architecture, being transitional. Mr. Kitton, of Norwich, was the architect employed, and Mr. Cornish, of North Walsham, the contractor; the glazing and plumbing work being done by Mr. E. Horner, of Coltishall. The churchyard has been enlarged, the ground (being about a quarter of an acre) being given by Mr. R. P. Kemp. The total cost of the restoration is 1,000l.

Hitchin.—The church of the Holy Saviour, erected by the Rev. G. Gainsford, at his own expense, on the east side of the Radcliffe-road, about midway between the railway-station and the town, has just been consecrated. The church will accommodate about 400 persons. The style of architecture is the Early Decorated, from designs by Mr. W. Butterfield, of London, architect, and contains chancel, chancel-aisles, nave, north and south aisles, organ chamber, and vestry. The material used throughout the church is red brick, with Bath stone dressings. In the interior the dressings are ornamented with incised patterns filled in with black cement. The roof is open and of stained deal. The entrances are by the north and south doors to the nave, and by a south door to the chancel. The aisles are paved with Minton's encaustic tiles. The chancel is fitted with oak stalls, which are appropriated to the choir. The nave and aisles have deal seats stained and varnished, and unappropriated. The pulpit is of oak on Bath stone base. The west end of the building is surmounted by a bell-turret, containing three bells, manufactured by Messrs. Warner & Co., of London. The cost of building amounted to about 2,900l. The contractors were Messrs. W. & H. Butterfield, of Hitchin; and the sub-contractors, Mr. W. Seymour, carpenter, of Hitchin, Mr. Franklin, painter and glazier, of Hitchin, and Mr. Hinton, stonemason, of Bedford.

Wolverhampton.—The chief stone of a new church has been laid at Whitmore Reans. The edifice is to be named St. Andrew's. It will be 112 ft. long by 68 ft. wide, and will have a spire

130 ft. high. It is not intended at present to build more than the nave and two aisles. The total cost of the building, when completed, will be 2,800l. The style is Early English, in the transeptal form. Mr. H. Lovatt is the builder. The locomotive works of the Great Western Railway Company, on the Stafford-road, has increased the population at the north end of North-road, Stafford-street, and Waterloo-road, some 2,000 in number, and new terraces there are occupied as soon as they are built. The want of church accommodation in that locality has been recognised by many of the Great Western Railway proprietors, who have subscribed more than 600l. towards the expense of putting up a church at the north end of the Waterloo-road, where it joins the North and Stafford Roads.

Waters Upton (Salop).—The new parish church of this village has been formally consecrated. For a number of years past the old church had been in a state of great dilapidation. In last year the old building was taken down and plans for a more commodious church obtained. These were furnished by Mr. G. E. Street, of London. The work has been carried out, and at length completed, by Mr. Cobb, of Newport, builder. The new church is built of stone from the quarry in the village, is in the Early English style, and consists of a nave, chancel, and vestry. The roof is open timbered, of unstained deal, and tiled without. The west end of the nave is surmounted by a bell-gable, with a small spire. The pavement within is of encaustic tiles in pattern. The church will accommodate 150 persons, and nearly the whole of the seats are free. The total cost of the building is about 1,800l.

Hereford.—The interior of the parish church of St. John the Baptist, the Ladye chapel of the cathedral, has recently been undergoing a refitment, and to commemorate the completion of this work—or at least so much of it as was necessary to make it available for parochial use—special services were held there on Ascension-day. The woodwork has been carried out by Mr. Merrick, of this city. New oaken seats, for the clergy and choir, have been put up; a new altar-table of the same wood, which will shortly be further embellished with carvings, has been supplied. The sittings are all new, and are free and unappropriated.

Coatham Mundeville.—A chapel-of-ease, to be hereafter consecrated, has been opened at Coatham Mundeville, in the parish of Haughton-le-Skerne, near Darlington. It is a small structure, erected from the designs of Mr. Withers, architect, and consists of a nave 40 ft. by 18 ft., and chancel, with apsidal end, 20 ft. by 18 ft., with vestry on south side of chancel. The walls are built of local brick, both inside and out; the roof timbers to nave being visible, and the chancel roof panelled. A constructional screen, with tie-beam, divides the nave and chancel, which latter is fitted with stalls and subella, the nave being seated with chairs. The three windows of the apse are filled with glass by Lavers & Barrand. Externally, a spirelet breaks the long line of roof at the junction of the nave and chancel, being 40 ft. to the cross on the same. The church seats 100 people, and the cost was about 500l. Mr. Hodgson, of Darlington, was the builder employed.

DISSENTING CHURCH-BUILDING NEWS.

Newport (Monmouth).—The Tabernacle chapel, Commercial-street, has been re-opened, after undergoing considerable renovations. The old pews on the ground-floor were removed; the plastering of the walls and ceiling renewed; and the latter being exceedingly low, the roof was raised bodily 2 ft. 6 in. higher. The old side windows were walled up, and the old front taken down and removed. The interior has been partially remodelled and improved. A group of six coffered and moulded panels of wood framing, filled with embossed glass, having a rose-coloured star in diaper pattern thereon, has been inserted in the ceiling, and through these a soft light is admitted from strong clear glass skylights in the line of roof. The sides of all the coffered are filled with panels of perforated zinc, through which ventilation is secured. A new organ gallery—parabolic in form, and lighted by an arcade—has been constructed at the back of the pulpit. The ground-floor has been refitted with partly enclosed pews, having sloping seats and backs, stained and varnished. The galleries and seats have been re-arranged, and new stairs

with enclosed lobbies constructed to them. The pillars formerly supporting the galleries have been replaced by columns, with trellis capitals. The interior generally has been painted various tones of grey, relieved by cream colour, and a little gold, and the columns are finished violet, steel colour, with copper bronze caps. The whole is lighted by a combination of standards, starlights, and brackets. The exterior now presents a new Bath stone front, of Romanesque character, having grouped and arched windows, with foliated capitals, and finished above the cornice, with an open arcaded parapet. Mr. B. Lawrence, of Newport, was the architect, and superintended the whole of the works. Mr. G. Jones was the builder; and the decorations were executed by Mr. J. Price. The whole of the works will cost about 1,100l.

Tarporley (Cheshire).—A new Baptist chapel is about to be erected here. The edifice, which will be at the south entrance to the town, will be in the Gothic style, and will be 56 ft. long by 23 ft. wide, with an ornamental Gothic entrance springing from two arches, supported upon granite pillars. The exterior will be of brick-work with stone dressings. In the interior there will be open benches. The roof will be formed of circular ribs on principals, with circular ceiling. In the front elevation there will be three tracery windows. At each angle of the front will be a small enriched pinnacle. The centre gable will be surmounted by a small turret. The building will be heated by a hot water apparatus, and lighted with two sun-lights. It will accommodate upwards of 300 persons. The architect is Mr. J. Jones, of Eaton, near Tarporley, and Mr. R. Beckett, of Hartford, is the contractor; the contract being 803l.

Cardiff.—The new "Bethany chapel," which has been erected partly on the site of the old and partly covering the graveyard attached to the chapel, has been opened for divine service. The new building has a Doric appearance, and is erected with Newbridge stone and Bath stone dressings. The front is about 50 ft. wide, having the entrance door at the centre, and two smaller ones leading to the galleries on each side. The length of the building is 70 ft., and the interior is divided by pillars, supporting arches into three aisles, the pulpit being placed in a niche covered with a dome, nearly opposite the principal entrance. The accommodation, including the gallery, which extends round three sides of the building, will afford sittings for about 1,000 persons. The architects were Messrs. Hartland & Sons, and the builders Messrs. James & Price; the contract being for 2,800l. The total cost of the building was 2,800l.

Newcastle-on-Tyne.—The foundation stone of a new Wesleyan chapel, in Park-road, Scotswood-road, has been laid. Park-road is one of the new streets which have recently sprung up at the west end of the town, and on the east and south is surrounded by the newly-built streets, radiating from Scotswood-road to Sir William Armstrong's factory, at Elswick. The chapel is in the Italian style. The front elevation and sides will be faced with coloured bricks, and stone will be used in the windows, door, and cornices. The frontage will have carving to the windows, &c. The ground floor will accommodate about 460 persons, the whole to have open benches of Menel red wood, stained and varnished. Underneath the chapel will be a school-room, three class-rooms, with all necessary conveniences; apparatus-room, with boilers, fitted up for ten parties, and apparatus for heating the chapel, &c. At the back will be the chapel-keeper's house, and the minister's vestry. The committee accepted an estimate from Mr. Walter Scott, the contractor, without competition, his estimate being within that of the architect. The total cost, including ground, will be 3,000l. Mr. Matthew Thompson, of Newcastle-on-Tyne, is the architect.

Worcester.—At a recent meeting of the Building Committee of the Presbyterian Church, tenders for the church to be erected in Salt-lane were considered. They were as follows:—McCann & Everill, Malvern, 4,100l.; Trow & Sons, Wednesbury, 3,983l. 0s. 8d.; Osborne & Co., Malvern, 3,945l.; Wood & Sons, Worcester, 3,936l.; Haigh & Co., Kidderminster, 3,864l.; Ife, Stourbridge, 3,718l. 10s.; Jones & Sons, Gloucester, 3,660l. Messrs. Wood's were accepted. The works will be somewhat more costly than was anticipated when the plan of Mr. Bidlake, of Wolverhampton, the architect, was adopted, the total amount to be expended, including the cost of the site, approaching near to 5,000l.

STAINED GLASS.

St. Matthew's, Spring-gardens.—A new east window and reredos have just been placed in this church, from the designs of Mr. Stephen Salter, jun., architect. The window has been erected by Messrs. Lavers & Barrand, and contains three large subjects, viz., the Nativity, the Crucifixion, and the Ascension, surrounded by the emblems of the Passion. The window is erected as a memorial to many former members of the congregation. The reredos is composed of different coloured marbles, the centre being a pure white statuary cross, with super altar and a cornice of alabaster. The marble work was executed by Messrs. Burke & Co.

Coalville Church.—The altar window in Coalville Church has been filled by the incumbent with a stained glass memorial of his wife and daughter. The window is a triplet, the centre 13 ft. 7 in. high, by 2 ft. 3 in. wide; the sides each 10 ft. 1 in. by 2 ft. wide. The style of the church is Early English, and the stained glass is in keeping with the architecture. The window is so divided as to introduce the Ascension in the three upper compartments, and on the lower our Lord bearing his Cross, the divisional line being so arranged with canopy work as to separate the subjects. Canopy work also fills in the top of the window over the Ascension, which contains thirteen figures, all 3 ft. 6 in. high. The whole was executed by Mr. C. A. Gibbs, of London.

Bidford Church.—Within the last twelve months the chancel of the parish church of St. Lawrence has been undergoing extensive repairs and improvements. Under the east window has been erected a carved reredos of Hampton stone, in accordance with a design supplied by Mr. H. J. Ingram, of Cheltenham, architect, under whose superintendence the work has been executed. Among the proposed improvements (provided sufficient funds could be obtained) was the erection of a new east window of stained glass, and sufficient success was speedily achieved in obtaining subscriptions to warrant the commencement of the work, and its final accomplishment has just been celebrated. The new window consists of three lights. The subject occupying the centre light is the Ascension of our Lord, which is arranged in a long or oval-shaped medallion, the figure of our Lord occupying (as a matter of course) the upper portion, while the apostles are grouped below, in various attitudes, expressive of amazement and adoration. On the right of our Lord is seen his mother, while from the ground behind her springs the lily. The two side lights are composed of ornamental work; the medallions therein, to correspond with the subject in the centre light, being filled with scrolls ensigned with texts of Scripture, in Old English characters, and combined with enrichments, whose leading features are the fruitful vine. The stonework above the three principal lights is composed of a circle, inclosing a double emblem of the Trinity counterchanged. In each of the three larger compartments, in the upper part of the window, is the figure of an angel, each with arms extended and holding a scroll. The new stonework and the painted glass have both been supplied by Messrs. Cox & Son, of London, who have likewise executed several windows and other works for Bidford Church.

Algoa Bay.—Thirty-five stained-glass windows have been designed by Mr. Barnett, of Leith, for a new Roman Catholic Church at Port Elizabeth, Algoa Bay. The windows are all gifts by members of the congregation, principally Irish.

Books Received.

The Coal Question. By W. S. JEVONS, M.A. London and Cambridge: Macmillan & Co. 1865.

THE interesting and most question of the probable exhaustion of our coal mines is here considered. The author endeavours to prove that should the consumption increase for rather more than a century at the same rate as now, the average depth of our coal mines would be 4,000 ft., and the average price of coal much higher than the highest price now paid for the finest kinds of coal; hence he infers that we cannot long continue our present rate of progress. Further, he is of opinion not only that our coal is exhaustible, but that there is no prospect of any adequate substitute for it. Nor can the

omical use of coal, he thinks, reduce its consumption. On the contrary, "by rendering its employment more profitable, the present demand for coal is increased and the advantage is more strongly thrown upon the side of those who will in the future have the cheapest supplies. We cannot even make up for a future want of coal by importation from other countries, that, it appears, there is no reasonable prospect of any relief from a future want of the main agent of industry. We must lose that which constitutes our peculiar energy; for, considering how greatly our manufactures and navigation depend upon coal, and how vast is our consumption of it compared with other nations, it cannot be supposed we shall do, without coal, more than a fraction of what we do with it." As for restrictive legislation, it may mar, but probably cannot mend or correct, the natural course of industrial development. Such is a general outline of the more important of Mr. Jevon's noteworthy bright nor cheering arguments and conclusions.

The Lady Ina, and other Poems. By the author of "Blythe House." London: Virtue, Brothers, & Co. 1865.

THE circumstance that two or three of the smaller works in this very charming little volume,—for example, "The Lighthouse," and "England's Loss,"—appeared originally in our pages, makes for it a claim on our attention, amply satisfied by its own merits. It contains, in addition to the longer poem that gives its name to the volume, forty-three pieces, all marked with taste, elegance, and feeling,—healthful and ennobling. We select for quotation an acrostic, not being by any means an example of the best art of the book, but because its teaching may not be thrown away, and the subject of it, Mr. H. Wild, was well known to many of our readers in connection with the erection of the Crystal Palace" of 1851. The subsequent early death of that gentleman, lamented, as the author justly observes, even beyond the circle of its immediate friends, gives keen point to the timely warning:—

"ENTREATY.
C areless of censure or of praise,
H edless alike of smile or frown,
A lone thou' 'st trod thine upward course,
R earing a name of good renown,
L et not Ambition's towering height
L agress too much thy eager thought;
S ay some brief moments on thy way;
H as Earth no spot with beauty fraught?
E ach blossom that the spring sends forth
A s worthless, in youth's summer day,
R ising to mind in after years,
D raws bitter tears in Life's decay;
W ords of consoling left unspeaken,—
I ntent on Fortune's glittering prize;—
L ove turned aside or rashly broken;
D ark, phantom-like, such thoughts will rise."

to give an idea of the author's descriptive power and accuracy of observation, which are remarkable, we are tempted to quote from the first story this truthful and striking word-picture of

A CHURCH.
"Toin'd to the tower, but in less rigid style,
We built the church, an ornamental pile,
Whose high-pitch'd roofs such varied lines combined—
Rich pinnacles and gables,—which inclined
The eager eye to wander on, and trace
The thousand beauties scatter'd o'er its face.
The fond supporting buttresses, which press
Against the walls with tender lovingness,
Casting dark shadows into each recess;
Heightning by contrast their own airiness.
The slender shafts, where window-arches rest—
So slight, yet with sufficient strength impress—
Wearing with grace rich crowns of forest leaves,
That mocking stone lightly around them weaves.
The portal, with its cluster'd columns grouped
In closer masses, and its mouldings scooped
Into deep lines that darker shadows gave,
And framed—as 'twere, a picture—the broad nave
That spread within the opened door and showed
Rich wealth of beauty, lavishly bestowed.
The polished pillars gracefully upreared
The pointed arches, which, in turn, appeared
With ease aloft the fretted roof to raise,
Whose vaults oft echoed with glad hymns of praise:
The deep pierced windows, with their slender
threads
Of wrought mullions; and their traceries
heads
Fill'd in with tinted glass, which but obscured
Zeph's tannell, while the light from Heaven
poured
In streams of glory through each colour'd pane,
And soothed away the soul from thoughts profane."

the volume is dedicated by special permission of Henry Wadsworth Longfellow, who, with the modesty that belongs to genius, had asked, that the wording of the dedication might be "simplified so as to bring it nearer to the level of my

poor deserts, though farther from your good opinion."

The acceptance of the dedication of the book by Longfellow is of itself sufficient assurance of the worth of the work, and leaves little occasion for praise. The fervour and tenderness of some of the pieces are remarkable; and we most cordially recommend the volume to all who can appreciate and find delight in poetry.

VARIORUM.

THE current *Art Journal* is, of course, mainly devoted to the Exhibitions of the season. Mr. Ruskin, in his paper, treats eloquently of Rembrandt and of etching; and Thomas Hood is the subject of a graphic and touching memoir, by Mr. S. C. Hall.—The June number of the *Ecclesiologist* contains two excellent large lithographed views of the Church of the Resurrection (Anglican), in the Rue des Drapiers, Brussels.—*London Society*, for the month, is very amusing. It was a good notion to treat of "Fellows"—members of societies;—but the engraved types are unluckily not characteristic.—*The Art-Student*, in announcing that the *Fine Arts Quarterly Review* had expired, says if friends are apathetic and artists indifferent, they, too, "must retreat from the field, wearied and disheartened by vain efforts and wasted time, labour, and money."—The current number of the *Social Science Review* contains the remarkable lecture on Missions to the Zulus, in Natal, recently delivered by Dr. Colenso at the Marylebone Literary Institution, a lecture that will probably supply his opponents with fresh grounds of objection.—*The American Gas-Light Journal*, when published under that title, quoted largely from our columns, and uniformly acknowledged the source. Now that it is called the *Mining and Petroleum Standard*, under other hands, a different and less satisfactory system is pursued. Thus, in the current number now before us, we find three extracts from our columns, but not one of them is acknowledged.

Miscellanea.

THE WORKMAN QUESTION.—On Tuesday afternoon Mr. Edwin Chadwick commenced a course of three lectures, at the Royal Institution, on what he terms "the wage classes" of England.

THE LATE SIR CHARLES BARRY.—The statue of the late Sir Charles Barry, executed by Mr. Foley, and intended to be placed in the Westminster Palace, is now finished, and in the course of a few days will be placed in the assigned spot on the staircase.

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN AND CLERKS OF WORKS.—That it may not be overlooked, we mention that the anniversary dinner, on behalf of the funds of the above institution, will take place at the London Tavern, on Tuesday next, the 13th inst. Mr. G. G. Scott, R.A., will take the chair.

THE LONDON GUILDHALL RESTORATIONS.—The common council have agreed, by a majority of 40 in a court of 96, to a recommendation of the Guildhall Restoration Committee to expend a further sum, not exceeding 9,380*l.*, on additional restorations and improvements, besides providing 6,000*l.* odd for other works already agreed to be executed. Other improvements are contemplated, amounting, with those already decided on, to 15,348*l.* Upwards of 39,300*l.* have now been voted for these works. The roof is nearly finished, and the interior will be done with by the end of the present month.

THE SEWERAGE WORKS OF RIO DE JANEIRO, IN BRAZIL.—The works of the second section of the City Improvements Company are progressing rapidly, eleven miles of main drains having been laid; and the whole works were expected to be completed within about eighteen months. The first section is working to the satisfaction of the householders. It is calculated that when all the sections are at work, upwards of 10,000 blacks can be dispensed with, whose services are needed under the present system, and thus that number of effective men will be set free for other purposes, for which it is to be hoped they will all be required. The Italian Minister at Rio appointed a Commission, composed of scientific officers of an Italian corvette, to examine into the working of the system of sewerage employed in Rio (including the disinfecting works at Gloria), as the same system is to be adopted at Naples.

NOTES FROM HOUSE OF COMMONS.—The Hyde Park Gate Estate Bill has been read a second time. The majority for the second reading was 83 to 47.—The General Post Office (Additional Site) Bill has also been read a second time.

EAST LONDON WORKING MEN'S INDUSTRIAL EXHIBITION.—It is proposed to hold this Exhibition in the month of July next, at St. Mary's School, Whitechapel, as we have already said, and that it is in no way connected with the one now held at the Beaumont Institution. The tender of Messrs. Wood, of Mile-end, has been accepted for the counters, gallery, and other fittings, by Mr. Wigginton, the honorary architect, on behalf of the committee. A large amount of space, we are told, has been applied for.

OPENING OF THE NEW ZEALAND EXHIBITION.—From Otago newspapers just received we learn that the opening of the first New Zealand Exhibition took place at Dunedin, in the province of Otago, on the 12th of January last. The ceremony was performed by Mr. J. Hyde Harris, the superintendent of the province, in the unavoidable absence of Sir George Grey, the governor. The building has been erected at the cost of the province. The Exhibition itself, although confessedly very incomplete at the time of the opening, held promise of great improvement, and the articles and productions exhibited, both colonial and others, were exceedingly creditable to so young a colony.

THE PROPOSED TOWN-HALL AND EXCHANGE FOR ROCHEDALE.—At the last monthly meeting of the town council a resolution was put to the effect that the amended plans of the proposed town-hall, now made to include accommodation for an exchange, be accepted, and the committee instructed to obtain estimates of the cost of construction, and report to the council. The chairman said the architect had intimated that some 7,000*l.* additional would be required to complete the plans in the form in which they now appeared, in addition to the 20,000*l.* for the town-hall alone, and besides the foundations, which are to cost 5,000*l.* The estimate for furniture and fittings is 8,000*l.*, which will bring the whole cost up to 40,000*l.* The resolution was carried by 18 to 13.

NEW ODD-FELLOWS' LODGE, NORTH SHIELDS. On the 5th, the ceremony of laying the foundation stone of a new hall for the members of the Royal British Flag Lodge of the Independent Order of Odd-Fellows, M.U., took place in North Shields, amid great rejoicings. The proposed erection will consist of a building of brick with stone facings. It will have a frontage of 50 ft., and will be two stories in height. The ground-floor will consist of two shops, underneath which will be commodious cellars, the hall-keeper's rooms, &c. Above the shops will be the hall, the dimensions of which will be about 50 ft. by 30 ft. Annexed to the hall will be a suite of committee-rooms, retiring-rooms, and other conveniences. The architect is Mr. Thomas Forrest, a member of the lodge. The contract for the erection of the hall is not yet let.

THE CRIMEAN MEMORIAL AT NETLEY.—The cross erected in the grounds of the Royal Victoria Military Hospital at Netley by subscription among the medical officers of the British army to the memory of their comrades who fell during the Crimean war, is now completed. Being 56 ft. in height, it forms an object of interest from the Southampton Water. It was designed by Mr. T. H. Lewis, of London, architect, and is built in the style of the beginning of the thirteenth century. The principal part of the erection is of Portland stone. It is close to the river front of the grounds, and about midway between the hospital and the officers' quarters. A series of four steps, having appropriate divisional pillars at the angles, support the base, which is about 5 ft. high, and from which spring a series of arches forming an octagonal arcade, supported by eight coupled columns of polished Derbyshire marble. Under this arcade, eight tablets record the object of the memorial and the names of the officers. These tablets are surmounted by a smaller arcade, also of an octagonal form, and enriched by columns of polished Derbyshire marble, supporting four niches, containing figures illustrating the relief offered to the sick, wounded, and dying. A column springs from this, surmounted by a large cross. H.R.H. the Prince of Wales, it may be remembered, laid the foundation-stone in August last. The builders were Messrs. Myers, of London.

SEWAGE AND ESSEX RECLAMATION BILL.—At the meeting of the Metropolitan Board of Works held last week, the chairman said he was sure that the members of the Board would be pleased to learn that the Sewage and Essex Reclamation Bill had been read a third time in the House of Lords, and it must afford to them an additional satisfaction to know that his Royal Highness the Prince of Wales had registered his first vote in favour of that Bill.

SALE OF JARROW IRON WORKS.—We understand that the extensive iron works of Messrs. Palmer, Brothers, at Jarrow, have been sold, and are about to pass into the hands of a company conducted on the principle of limited liability. The capital is 2,000,000*l.*, and the shares, the whole of which, we believe, have already been taken up, are 5,000*l.* each. The purchasers are the same parties who some time ago bought the works of Messrs. Bolckow & Vaughan, at Middlesbrough. The Messrs. Palmer, of course, will retain an interest in the Jarrow Works in the new form which they are about to assume.—*Newcastle Chronicle.*

A BRIDGE OVER THE MERSEY.—The Mersey Dock Board have had before them the preliminary plan of the proposed bridge across the Mersey, to extend from Canning-street (about the central point of the docks on the Liverpool side) to Birkenhead. The idea is, that the bridge shall be supported on three columns, each column to be 150 ft. above high-water mark, while another column will be placed on the river margin. The chairman of the Board thought that it would be scarcely possible to construct such a bridge without interfering with the navigation of the river; but the scheme was referred to the Works Committee for consideration.

THE SOCIETY OF ARTS' EXAMINATIONS.—H.R.H. the Prince Consort's prize of twenty-five guineas has been awarded to Thomas Healey, twenty-five, of the Burnley Mechanics' Institution, book-keeper, who has obtained the following first-class certificates:—1862, arithmetic, first-class certificate; English history, first-class certificate, with second prize. 1863, book-keeping, first-class certificate. 1864, algebra, first-class certificate, with first prize; mensuration, first-class certificate, with second prize; chemistry, first-class certificate, with second prize. 1865, music, first-class certificate, with first prize; animal physiology, first-class certificate, with first prize. For free-hand drawing no prizes were awarded. For geometrical drawing, the first prize, 5*l.*, went to Edwin Alexander Merry, twenty, Bristol Trade School, architect's clerk; and the second prize, 3*l.*, to John Sargeant, twenty, Slough Mechanics' Institution, carpenter.

MEMORIALS AND MONUMENTS.—The mayor of Tenby has received an official communication from Sir Charles Phipps, stating that Prince Arthur will represent her Majesty at the inauguration of the Welsh memorial to the Prince Consort at Tenby. It is believed that the inauguration will take place about the 15th of July.—A stained-glass window has been placed in St. John's Church, Eton, as a memorial of the Prince Consort and the other founders of the church. The memorial consists of six lights, and will occupy the east window of the edifice, facing High-street. The lower part of the compartments of the window, which is about 30 ft. high and 14 ft. in width, is devoted to scenes in the "Passion" of our Lord, wherein St. John was conspicuous, while the upper is occupied by subjects depicting the "Resurrection," the decorative tracery at the top of the memorial representing the Saviour receiving the "Just," who have risen. About 500*l.* will cover the cost of the memorial, which will be defrayed by the subscriptions. The window has been executed by the Messrs. O'Connor, of London.—Lord Harris writes to say that the Canning Monument Committee have obtained permission to place a full-sized statue of Lord Canning in Westminster Abbey, near to that of his father, and Mr. Foley has been instructed to furnish designs.—The committee for erecting a memorial of the late Field-Marshal Lord Seaton have resolved that Mr. Adams shall be employed to execute a bronze statue of not less than 8 ft. in height. A model of a statue has been prepared by the sculptor. The committee confidently rely on obtaining the full means of executing the work and placing it at Devonport on the Government Parade, where a site has been obtained from the Secretary at War.

A MONSTER CASTING.—On Wednesday, at the works of the Bolton Iron and Steel Company, Bolton, Mr. J. Ireland undertook the casting of the largest anvil block as yet made in England. The block, when finished, is estimated to weigh 210 tons. It was run out of two cupolas, the whole process occupying about eight hours, and being most successful in every respect.

FAILURE OF NEW BRIDGE AT NEWPORT, ISLE OF WIGHT.—The commissioners of the local highways having ordered a committee to report on the present state of the new bridge at Wootton, the committee met on the spot, for the better ascertaining the nature of the foundations on which it was erected, but they assembled when it was exactly high water! and not an inch of the abutments was discernible; consequently they adjourned. Having met again at the bridge, the architect's statement was read, by which it appeared that, in sinking for the foundations, he had come across a stratum of yellow clay, which he supposed was quite capable of bearing anything he could possibly put upon it; but, after erecting the bridge, he discovered that there was a mud formation of considerable depth under the clay, and the bridge began to sink in consequence to such an extent as to be considered dangerous. He, however, now proposed the taking down a portion at a time, so as not to interfere with the public traffic, and rebuilding the arch of the bridge, the cost of which he estimated at 300*l.*, and the contractor had offered to complete the work for 350*l.* There were no difficulties of any serious import to encounter, and the original tender of 2,035*l.*, including all the extras, would not be exceeded beyond 400*l.* or 450*l.* The committee resolved to consult Mr. Alfred Giles, the engineer for constructing the Southampton Docks, in conjunction with their own architect.

THE AGRICULTURAL EXHIBITION AT COLOGNE.—This exhibition has been opened, and is considered to be a success. It was started by the Flora Horticultural Society. There are 1,370 exhibitors registered in the catalogue, many of them reckoning their contributions by the dozen. Leaving the meadow land inclosed for the occasion, the garden of the Flora Horticultural Society is entered. With an imposing background of terrace, conservatory, and fountains, it presents a fine view, even in the infancy of the grounds. The conservatory more especially, a miniature imitation of Sydenham Palace, is quite large and tasteful enough to serve as a point d'appui for the eye, and render the vista a thing beautiful in itself, independent of the horticultural surroundings. By blending the architectural effect of solid masses of masonry with the light and transparent beauty of crystal and glass, the society is said to have produced a building equal to anything of the kind.

AS TO AN ADVERTISEMENT.—Our attention has been called to a recent advertisement in our pages wherein Mr. S. Trickett cautions the trade against a person calling himself Stredder, who, he is informed, is representing himself as S. Trickett's agent or representative. Mr. Stredder now requests us to say, that there is no foundation for the charge made in the advertisement; that he has never had any thing to do with Mr. Trickett, and never represented him in any business transaction whatever.

TENDERS

For Battersea and Wandsworth sewers:—			
Chambers & Ridley	£59,890	0	0
Webster	55,000	0	0
Roddin	49,870	0	0
Hill & Keddell	49,200	0	0
Detthick	47,500	0	0
Hiscock, Rudkin, & Co.	46,524	0	0
Beeson, Keddie, & Doyle	45,383	0	0
Moxon	44,700	0	0
Pearson	43,798	0	0
Blackmore	41,675	0	0
Wignone & Whitlick	39,620	0	0

For repairs and painting, &c., at the Western Synagogue, St. Alban's-place, St. James's:—			
Painting, &c.		Gas-fitting.	
Total.		£613	
Holden	£467 11	250 12	518 3
Harland & Fisher	450	0	0
Thorpe	393	0	0
Ramsden	340	0	0
Wilkinson & Co.	339	0	390 0
Cuben (accepted)	310	0	330 0
Sherwood	243	0	282 0
J. Thorpe	0	0	210 0
Berry	78	8	—
Chatterback	73	16	—
Sangster	51	10	—
Bousfield	39	10	—

For works to ground-floor, new buildings, Bishopsgate-street Within, for the City Offices Company (Limited). Messrs. Francis, architects:—			
Browne & Robinson	£11,131	0	0
Hight	10,967	0	0
Hardiman & Sandon	10,447	0	0
Hill & Keddell	9,900	0	0
Brass	9,070	0	0
Henshaw	9,545	0	0
Hill & Sons	8,630	0	0
Piper & Wheeler	8,597	0	0
Myers & Sons	9,579	0	0
Keyes & Head	9,557	0	0
Colls & Son	9,430	0	0
King & Sons	9,376	0	0

For works, No. 11, Wardour-street, Soho, for Messrs. Garret, Whitaker, & Co. Mr. F. Holworth, architect:—			
Tracy & Sons	£292	0	0
Bryant & Baugh	569	0	0
Munby & Rogers	517	0	0
Selleck	478	0	0

For alterations and repairs to a detached residence, Ealing-green. Mr. W. L. Gomme, architect:—			
Stables.			
Wilson	£745	0	0
Westcombe	731	0	0
Nye	683	0	0
Adams & Sons	679	0	0

For warehouse, Farringdon-road. Messrs. Wimble & Taylor, architects:—			
Brown & Robinson	£5,773	0	0
Colls & Son	5,742	0	0
Hardiman & Sandon	5,697	0	0
Piper & Wheeler	5,384	0	0
Adamson & Sons	5,340	0	0
Gannon	5,337	0	0
Brass	5,284	0	0
Hill & Sons	5,220	0	0
Kilby	5,220	0	0

For the erection of the Grand Hotel at Cairo, Egypt, for the Oriental Hotel Company (Limited). Mr. C. G. Wray, architect. Quantities supplied by Messrs. Linsell & Giffard. First contract, exclusive of stone, to be supplied by the proprietors:—			
Ferry (accepted)	£65,425	0	0

For rebuilding a portion of Messrs. Garrett's Brewery, Portsmouth. Mr. C. G. Wray, architect. Quantities supplied by Messrs. Linsell & Giffard:—			
Brass & Sons	£2,715	0	0
Handley	(too late)		
Perry (accepted)	2,418	0	0
Orley (accepted, for engineers' and cast-iron work)	1,660	0	0

For vestry-hall and porter's lodge (revised estimate), to be erected in City-road, Finsbury, for the parish of St. Luke's. Mr. William Chubb, architect. Quantities supplied by Mr. F. Warburton Stent:—			
Bishop	£2,760	0	0
Woods	2,554	0	0
Summ & Martin	2,180	0	0
Mace	2,070	0	0
Jacobs	2,030	0	0
Langmaid & Way	2,000	0	0
Arley	1,996	0	0
Loft	1,933	0	0
Palmer	1,890	0	0
Hill & Keddell	1,818	0	0
Sawyer	1,845	0	0

For alterations, No. 1, Friday-street, Chesham, for Mr. Williams. Messrs. Wimble & Taylor, architects:—			
Arford & Co.	£320	0	0
Kilby	311	0	0
Ramsay	302	0	0

For a pair of small residences, Thornton Heath, Surrey. Mr. Henry Leston, architect. Quantities supplied:—			
Marland & Son	£1,425	0	0
Sherwood, Bros.	1,375	0	0
Martin	1,350	0	0
Budd & Pearce	1,318	0	0
Lathey, Bros.	1,273	0	0
Megath	1,268	0	0

For building a house at Addiscombe, near Croydon, for Mr. H. J. V. Greenway. Mr. George Perry, architect. Quantities supplied by Messrs. Arding & Bond:—			
Mallett, Brothers	£2,825	0	0
Piper & Wheeler	2,222	0	0
Brass	2,810	0	0
Patman & Fotheringham	2,777	0	0
* Accepted.			

For house in Bramley-hill-road, Croydon, for Mr. R. Porter. Mr. Chas. Hennan, architects. Quantities supplied by Mr. F. J. Milman:—			
Myers	£5,580	0	0
Dover	5,287	0	0
Lawrence	5,140	0	0
Jarrett	5,074	0	0
Sons & Pearce	5,019	0	0
Sawyer	4,836	0	0

For the erection of workmen's dwellings, seventeen cottages, school, club, and two residences, baths and laundry, at East Greenwich, for Captain Blukely:—			
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Workmen's Dwellings.	Seventeen Cottages.	Mission House, &c.	Baths and Laundry.
Simpson	£14,145	£6,890	£3,750
Holland & Hansen	13,780	6,621	3,710
Myers & Sons	13,261	6,420	3,633
Sharphing & Cole	12,222	5,990	2,965
Hill & Keddell	11,800	5,797	3,214
Bagley	11,710	5,785	3,022
Rider	11,688	5,645	3,017
Patrick & Son	12,051	4,630	3,284
Browne & Robinson	11,524	5,568	2,980

The Builder.

VOL. XXIII.—No. 1167.

The Late Sir Joseph Paxton.



HE claims of Sir Joseph Paxton to biographic notice in the pages of the *Builder*, along with architects, would in 1851 have been estimated by our profession as but slight; but time which has moderated some of the pretensions advanced in his behalf, in inflated language, by the newspapers, rather than at

all by himself, has permitted of a higher as well as of a more just appreciation by architects, of his abilities in connexion with the pursuit and practice of architecture. Absurdly as he had assigned to him place with Wren for the estimate of posterity, and regrettable as it was to see that misconception of our art, and of the qualifications required for the profession of an architect, which allowed Paxton to be ranked equal with Barry, there is no doubt that he who mainly conceived the effect of the Sydenham nave, deserves a place in the company of architects, if not as one of them. It may be not the highest art-architecture that he brought into use: he may have been entirely wrong in his anticipations,—for, these in common with the public, he seemed to have,—that the “ferro-vitreous,” or iron-and-glass, system of architecture would displace every other even, for dwelling-houses; but his merits, we think, well earned the place which we shall accord to him, after due consideration of those which he had and those he had not. It may be considered seemly to follow the custom of saying nothing but what is good of the dead; but it is in our belief better, with a view to real and lasting fame, to leave on record only the particular good that posterity justly can endorse.

Sir Joseph Paxton died at his residence, Rock Hill, near the Crystal Palace, Sydenham, on the 8th inst. He was in his 62nd year. His remains were to be laid in the churchyard of Edensor, near Chatsworth, in Derbyshire, on Thursday, this week. He was born on August 3rd, 1803, at Milton-Bryant, near Woburn, in Bedfordshire, and was the seventh son of William Paxton, yeoman, of that place. He was educated at Woburn Free School. When very young he went to work as a gardener at the seat of Sir Gregory Page Turner, Battlesden, in Bedfordshire, where his elder brother, who is yet living, then was, and where a new mansion designed by Sir Joseph's son-in-law, Mr. George Henry Stokes, architect, is just now being built for Sir Edward Page Turner. Here young Paxton received about 15s., or 16s., a week. Subsequently he was at Kensington, we believe at the gardens of Messrs. Lee & Kennedy. Persons still resident in that neighbourhood call him to mind as making himself generally useful with a wheelbarrow. But he soon got to the Horticultural Gardens, Chiswick, where he and Dr. Lindley, both young men, were resident at the same time. There he attracted the attention of the late Duke of Devonshire. The duke, a great lover of horticulture, arboriculture, and the fine arts, was pleased with Paxton's taste in making up *bouquets* for him, and with his manner of rendering slight services, and became in the habit of inquiring for Paxton whenever he the

duke, visited the gardens. Soon afterwards, or when as it appears Paxton was not more than about 24 years of age, there being a vacancy at Chatsworth, the duke invited him there; and he eventually occupied a very important position, not merely as head-gardener, at Chatsworth, but as an adviser of the duke in the most important affairs connected with his several estates. About the time of his removal, or in the year 1827, he married the third daughter of Mr. Thomas Bown, of Hurst-Bridge House, Matlock, Derbyshire. Though there were a land-steward and a house-steward at Chatsworth, the present writer recollects, about the year 1838, or when Paxton would have been with the duke about eleven years, and would be about 35 years of age, hearing him spoken of by one who was in the best position for knowing, as the man who above all others had the duke's confidence: in fact, it was said that he could “do anything with the duke.” At that time the great conservatory was in progress. It was built to contain large palm-trees, and was regarded as a wonder of horticultural-building; in which however it was not Paxton's first essay, on the estate, any more than was it the first progenitor of the building of 1851,—though sometimes it has been thus regarded.

Mr. Paxton became the duke's house-steward in the year 1840.

During the period of the building of the conservatory, he resided with his family in a large house near to the extensive gardens and forcing-houses, which are in the park, at some little distance from Chatsworth House itself. Attached to the latter are other gardens and grounds, and an arboretum, as well as cascades, fountains, and “temples,” dating probably from the time of the building of the original portion of the house, a fine Italian work by Talman. These waterworks of course suggested those of Sydenham. In one place the water flows down a long and steep flight of steps from a “temple” at the summit. This cascade, and all the architectural features connected with it, are better in character, though on a smaller scale, than the cascades and “water-temples” at Sydenham. About the time we speak of, Sir Jeffrey Wyatville had just completed his extensive additions to, and modifications of, the original house. They included galleries for the extensive collections of sculpture, and other works of art, which the duke had brought together, chiefly from Italy, and also a very effective feature of the exterior, a terrace-garden, with its flower-beds in geometric patterns, and with balustrading and other architectural accessories. His position with the duke obviously led him to take the greatest interest in all these architectural works and fine-art collections. In fact, without the Duke of Devonshire, and the lesson of Chatsworth, there would have been no Crystal Palace at Sydenham. The arrangements at the latter building, indeed, for the disposition of sculpture, as designed, may be considered a step in advance of those at Chatsworth,—albeit *sculptors* are not universally of opinion that their works are best placed with foliage and flowers as accessories or background. Paxton, however, was of that opinion; and to be convinced that he was right, nothing more would be required, we think, than a visit to the Chatsworth sculpture-gallery, stocked though it be with the finest of *Camova's* works, after having seen the arrangement of the sculpture in a garden, as ordinarily at the Exposition in Paris, at the Palais de l'Industrie; which method adopted was of later date than the Crystal Palace, and was probably suggested by the disposition of the works in the latter building. Sir Edward Bulwer Lytton, in one of his novels, has some apt remarks on the inferior effect of sculpture in galleries exclusively devoted to it, to that of sculpture placed in libraries, or with the furniture of ordinary apartments.

The duke's taste for horticulture must have been of the greatest service to Paxton in furnishing him with means of rendering himself famous in that branch of his acquisitions. To do justice to his services to horticulture and botany,—and, we must add, cottage-gardening,—would require a distinct article, which may perhaps be looked for more fittingly in one of the periodicals devoted to those subjects, than in the pages of a journal like our own,—even not forgetting that landscape-gardening is truly an art with which the architect must be acquainted, and a matter which is not merely important to the effect of a building, but almost to be regarded as essential thereto. But we ought to mention as amongst his literary works, a “Treatise on the Cultivation of the Dahlia,” in 1838; and amongst others, or to which his name has been attached as editor, the “Magazine of Botany,” commenced in 1840, and of which the sixteenth and last volume appeared in 1852; “The Flower Garden,” with the joint editorship of Dr. Lindley, commenced in 1851, and brought to an end in 1853; the “Botanical Dictionary,” of which there have been several editions, the latest in 1853; the “Horticultural Register,” and the “Cottager's Calendar.” There was considerable resemblance between the subjects of Paxton's attention, and those to which Loudon devoted himself; though the literary works of the latter must be considered of much greater importance to the architect specially than were Paxton's. Paxton's name however is more likely than Loudon's, to remain identified with important designs that were actually carried into effect. Neither can be said to have gone much nearer to the professional ideal of the true artist-architect, than may be comprised in the appreciation and skilful direction of the abilities of others; but both had great knowledge of, or aptitude in, matters of construction.

It is difficult for the architect who has gone through a regular course of pupillage, and whose comprehension of the requirements of study is now expanding every day, and who would fain reach the inevitable speciality of practice only subsequently to his grasp of the widest area of attainments, to realize to himself the possibility of approaching the profession of an architect by way of the practice, empirically in many cases, of the speciality. The fact however is that structures required for horticultural purposes are produced chiefly under the direction of gardeners; moreover, many of those who, not being landscape-gardeners, have no claim to rank as artists, acquire great skill in contrivance of the buildings that often happen to be connected in position with conservatories; which last, themselves indeed, require the exercise of much ingenuity in their mechanical appliances. In Paxton's case, the ingenuity must have been peculiarly called for by the variety, as well as the extent, of the horticultural buildings that were under his care. The duke seems to have collected plants from every quarter of the globe; and the gardener had to provide each with its fitting domicile. One of these plants, now almost to be regarded as naturalized, was the *Victoria Regia*. It is impossible to omit mention of it, even in a biography addressed chiefly to persons interested in architecture; and the study of the plant, no less than the provision of its place of abode, really belonged to the gestation of the Exhibition building itself. Paxton was proud of his success with the *Victoria Regia*, which first flowered in 1849. In the paper descriptive of his design for the Exhibition building, read at the Society of Arts on November 13, 1850, he exhibited a leaf of the plant, 5 ft. in diameter, and the growth of five days. He pointed out that the underside of the leaf was a beautiful example of “natural engineering,” in the “cantilevers” radiating from the centre, where they were nearly 2 in. deep, “with large bottom flanges and very

thin middle ribs, and with cross-girders between each pair to keep the middle ribs from buckling; their depth gradually decreasing towards the circumference, where they also terminated. This, at least, was observation of the character fitted to form an architect, and might be compared in truth with that of Wren, of the shell whose strengthening novel kept unharmed its form when dashed against the rocks, and suggested to the great architect, as Cockerell loved to tell, the arrangement of the spire of St. Bride's.

Paxton arrived at the solution of each question, on the Baconian principle, that is, by the way of experiment. The experiments may be said to have commenced immediately upon his arrival at Chatsworth; and whatever the value, architecturally, of the building of 1851, they should be mentioned as having led up to it, and thus conducted to the success of the Exhibition of that year. They were begun in the year 1828. The pine-house, built in 1833, was the first in which the ridge-and-furrow roof was employed. In that case, the roof was contrived on the system of numerous short spans, the ridges and valleys transverse to the longitudinal axis of the plan; whilst the valleys or rafters were inclined. The object of all was that the glass might be more nearly at right angles to the slanting and weak, though valuable, rays of the morning and evening sun, than that in the "lean-to," or simple double-slope roofs. This was followed by a greenhouse in 1834, and a "curvilinear" hothouse in 1836. In this last, the Victoria Regia first bloomed, or fifteen years later. The great conservatory was commenced in 1837. In 1840, in a conservatory at Darley Dale, Mr. Paxton first employed the ridge-and-furrow-roof with the spans on a level, that is, with the ribs, valleys, or gutters, neither curvilinear nor inclined as in the former cases, but borne horizontally by an arrangement of trussing to them. The proprietor of the building wrote in 1850 to Mr. Paxton, saying that he used this conservatory as his family sitting-room. Then followed the new Victoria Regia house, spoken of, in 1850, as a perfect type, on a small scale, of the Exhibition building. In the last or greatly magnified work, it must be recollected that the lines of the valleys, or gutters, were parallel with, instead of transverse to, the longitudinal axis of the building: thus their ends had to be carried by cross-girders, which were themselves carried by the columns. Upon the cross-girders were large trough-gutters.

This statement of particulars of the growth of the ridge-and-furrow method of roofing, which was a main feature of the building of 1851, is derived from the paper before referred to; but there have been other claimants to priority of authorship of that system, and also as regards the "Paxton-gutter," of which more has to be said. What there is less immediate difficulty about, is in according to Paxton the merit of the invention of a particular machine for making sash-bars, which was of the greatest service in the rapid achievement of the building of 1851. This machine had been the subject of communications by him, to the Society of Arts, in March, 1840, and was rewarded with their silver medal. The invention was made during the construction of the great conservatory at Chatsworth, with a view to abridging the amount of labour in sash-bars, that would have been required. In the first state, the machine was merely one for grooving; but it was afterwards improved so as to make the bar complete. It saved the labour of twenty men for one year, or an amount of about 1,200*l.*; and the length of bars made by it was about 40 miles. In the improved form, the machine was first used in August, 1838. The sash-bars in the conservatory were precisely similar to those in the Exhibition building; that is to say, they had grooves sunk at the sides, so that glass and bars would have to be fixed alternately, instead of in the way of bedding the glass upon the bars after the latter had been all laid.

We now approach the period of Paxton's association with the chief feature of the display of 1851. It is important that the origin and nature of the connexion should be distinctly stated. A new generation has sprung up since the year of the first Great International Exhibition; and even at the time, facts were so much distorted, that what they really were was known to few persons amongst the general public. From 1851 to the present time, nothing has appeared more clear to those whose conclusions are simply whatever happen to be those of the newspapers, than that the whole combined architectural and

engineering profession failed to solve a problem duly presented; and that it thus brought the undertaking to the verge of failure. Without diminishing the credit due to Sir Joseph Paxton, we have to oppose to these notions "the inexorable logic of facts." And we may observe in passing, that whilst it is admitted that professions are apt to get into the state of requiring the valuable contributions which they receive from without, it is none the less exceedingly unsafe to prefer, as to a large extent the public seem to do, the man who has not had, to the man who has had, the education and training for the particular profession, be it medicine, engineering, or architecture. If Paxton's attainments were those of an architect or engineer, surely to him should be attached some share of the blame, if there were any anywhere applicable, for not having come forward before the danger of shipwreck was felt. If they were not such attainments, and yet were those required at the juncture, then certain writers, who would represent the public, are called upon to show this curious position, to wit that the best mode of arriving at skill in a profession is not to acquire the special knowledge for it. Paxton's sagacity in matters of engineering was considerable; he was quite competent to originate most ingenious contrivances; and he had an intuitive perception of what would be good construction; still, his attainments fell short of those of an architect or engineer; and he could not, as we believe (even given his previous experience in that class of buildings), have accomplished an enduring work in the form of the building of 1851, or even the building as it was, without the aid of the architects and engineers who ably co-operated,—or rather, who took the entire work into their hands. As regards the Sydenham building, however, he appears to have maintained a much more important position; everything was directed by or submitted to him; and, in particular, the construction of the principal-ribs, by which the arched form of roof, the whole length of the nave, as well as to each of the transepts, became possible, without external buttresses, was his idea; though there was assistance from others in the drawings, calculations, and supervision.

But as to the building of 1851, points brought out in the discussion at the Institution of Civil Engineers, in January of that year, after Mr. M. Digby Wyatt's paper on the construction of the building, should not be forgotten, and there is no reason to doubt that the representations then made, led to the extra strength given to the structure in certain places, as well as that the additions were required. In "The Practical Mechanic's Journal Record of the Great Exhibition, 1862," Mr. R. Mallet has gone very carefully into the question of the sufficiency of the method of construction in the building of 1851, and in the Crystal Palace, Sydenham. In the former building he had found, on a summer's day, certain columns two inches "out of plumb" in the first range in height only; he shows the uselessness of the wooden keys and wedges for the objects for which they were introduced; he reminds us that M. Barraut found the expansion in the building of the Palais de l'Industrie sufficient to fracture glass and produce leakage; and lastly, he comes to the question of the effect of wind, which had been the subject of some important remarks by the Astronomer Royal. He says that, fortunately, during the whole period of the existence of the original building, London was not visited with a single really severe gale. At Sydenham, the building has greatly increased stability, in the major portion of it at least; and, from 1851 to the time of his writing, he says, "London has never been visited by one of those 'first-class' tornadoes that about twice in a century sweep over our temperate regions." Yet he observes that a wing representing best the construction of 1851, has been blown down; and he predicts that, "should London ever be visited with such a cyclone as that which swept over a large portion of these islands in 1839," and the storm strike "broadside on" upon the Sydenham building, "strengthened though it is, its towering beauty and precious contents will but too probably be left one commingled mass of ruin and rubbish." Thus he comes to the conclusion that "the unbroken columnar and girder structure is neither safe nor durable."

Such conclusions, not confined to Mr. Mallet, it is strictly just to mention, in order that there may be a right estimate of the merits of the ferro-vitreous system of construction, or "archi-

ture," or that variety of it to which, as exhibited in the Hyde Park and Sydenham buildings, the name of Paxton has been attached. We resume our narrative, which has been already anticipated in parts.

In the course of the elaborate preparations for the Exhibition of 1851, there was one matter, that of the building, that was too long left uncommenced. We suppose every difficulty was expected to be overcome through those who were at first the contractors for everything, the Messrs. Munday; but due warning, was given that there would be by no means superabundance of time. The Royal Commission itself was not appointed till January 1850. Sir Charles (then Mr.) Barry was upon it, as was the president of the Institution of Civil Engineers, but not the president of the Institute of Architects. Mr. Richard Turner, who constructed the conservatory at Kew, had previously exhibited a model of a structure which he suggested, and which was designed by his son, Mr. T. Turner, an architect. The main building, in the design, was described in the *Builder* of January 26th, 1850, as "in truth, an enormous greenhouse, 1,020 ft. long," and having five domes of iron and glass. It was proposed to be a permanent structure, eventually to be used for concerts, "winter-garden," and the like purposes. In February, 1850, it was said by us—"Arrangements should be immediately come to as to the building; there is not a week to spare." The Commissioners then were expecting the building to be completed by the 1st of January, 1851. In the beginning of February, 1850, however, a committee for matters connected with the intended building had been appointed. It consisted of the Duke of Buccleuch, the Earl of Ellesmere, Messrs. Barry, Cockerell, and Donaldson, architects; and Messrs. Cubitt, Stephenson, and Brunel, engineers. Early in March, they took what at least is a common course with committees similarly placed, and desiring not to show favour. They issued an invitation for suggestions to be sent to them; and though they offered no pecuniary reward, the usual result followed: they were responded to sufficiently to find their judgment troubled by number of the projects sent. Could the eminent professional men on the Committee have gone to work themselves, they would probably have adopted the right course. As might have been expected, and as indeed they themselves seemed to have contemplated as possible, they in effect rejected all the suggestions; and they proceeded to the preparation of a design of their own.

It may be well to observe that their original paper of particulars contained a careful statement of rules and conditions, and general requirements. Attention was directed to distribution of parts, mode of access, and internal arrangements and contrivances, as going to constitute the convenience and fitness of such a building as that to be erected on the site which by this time had been pointed out in Hyde Park. The conditions included one for fire-proof construction; and amongst the requirements were "means of classification," or according with the four divisions, or sections, that had been determined upon. Each of the stipulations ultimately was sacrificed; and a building was erected into which wood largely entered, and one which left classification entirely to the arrangement of stalls and fittings.

Designs, in number two hundred and forty, according to Mr. Wyatt, were received about the first week of April. An exhibition at the Institution of Civil Engineers, shortly afterwards, showed, as we well recollect, that the aim at classification had operated largely in giving the character to designs. Some of the plans proceeded upon the datum of stalls arranged parallel with one another, and with transverse passages at considerable distances; others made the stalls radiating: other plans showed four distinct buildings; and some had these buildings in parallel lines, with interspaces. There were designs that might have suggested the glass-case or conservatory method of meeting the requirements, and others the railway-shed method. The committee could make no use of the designs, after awarding "honourable mentions," further than in arriving, with the aid of them, at certain views, which in June they sought to embody in the design of their own.

Amongst these views were the "advisability" of constructing the building, "as far as possible, in such a form as to be available, with least sacrifice of labour and material, for other pur-

poses, so soon as its original one shall have been fulfilled, thus insuring a minimum of cost." And it would appear from the description of construction adopted, that they contemplated a permanent building. One of the "points of excellence" which they explained themselves as endeavouring to attain, was "some striking feature" to exemplify the state of the science of construction; and this was to be attained by a dome of 200 ft. in diameter. Here, it was thought, Mr. Brunel had been at work; and on one occasion subsequently, he spoke of the whole design as his. There was no engineer for whose talents architects, his contemporaries, had greater admiration; there was none whose grandiosity of character and practice, they would have been less in the position, or less disposed, to imitate. We cannot say much for the dome; but the plan, besides having special reference to the intended classification, had the stalls or cases distinctly marked as to be placed all at right angles to a central passage. It is evident that some consideration of the arrangement of stalls, would have tended to facilitate ultimately examination of the articles and works displayed. In fact, the committee had been right on several important points. Time, however, had so much advanced by the beginning of July, that it became evident that brick walls, which the committee proposed, were a mistake. An outcry was raised against placing the building in Hyde Park; and about the same time, many persons were determined rather to sacrifice the whole undertaking, than to allow one of the few trees which there were in that part of the park where the building was to stand, to be cut down.

The Committee had on the 12th of June invited tenders for their design; and several were received on the 10th of July. It was the original intention of the Committee when they asked for the suggestions from architects, to invite by a *second public notice*, more precise designs accompanied by tenders. But their subsequent course in making a design themselves, and issuing the data upon which tenders could be based, and for which materials they charged five guineas to each person, did away with the first expressed intention. Yet, when inviting the tenders for their own matured design, they intimated that "Tenders for methods of construction other than those shown upon the drawings, and described in the specifications, would be entertained, but on condition only of their being accompanied by working-drawings and specifications, and fully-priced bills of quantities." This seemed to involve injustice to those who had originally been induced to submit designs. We shall see in the sequel, how the curious posture of affairs was attained. Any competent person, after study of the 240 suggestions, and examination of the design of the Committee, might have been in a position to produce, if not one intrinsically better, one more exactly hitting requirements of the moment. The apparent intention, as said in the *Builder* at the time, was not that designers should again enter the field, but that practical men should be able to suggest ways of doing the same thing cheaper and better than the methods shown on the drawings. However, one of the tenders, that of Messrs. Fox & Henderson, was accompanied by an entirely fresh design, which had been made by Mr. Paxton. It was immediately caught at, as means quite at hand for escaping from a difficulty. It differed considerably from the design that was ultimately carried into effect; though in each, the idea was the simple inclosing and covering the objects exhibited, in a completely lighted case,—the arrangement of the objects and the circulation of the crowds, being left to hazard, or the chances of the contending claims of exhibitors. We have adverted to the fact that more than one suggestion of the green-house sort of building had been previously made. In April, in the *Westminster and Foreign Quarterly Review*, Mr. W. B. Adams had written, that the structure should be like "a great metropolitan conservatory, the materials of which should be chiefly iron and glass," and that the building should be permanent for purposes of "a conservatory and winter-garden." The real merit of Paxton's suggestion consisted in its being accompanied by proof of the success, for certain purposes, of the methods of construction to which we have referred as adopted at Chatsworth, and which Mr. Donaldson went to examine, and in the applicability of all the resources of machinery. A view of the exterior, which appeared in the *Illustrated London News* about this time, shows that the original design

consisted of three stories, each upper one set-in from the sides, and the end-elevations taking the character of a pyramid of three steps. The description showed that the trees, if not removed, were to pass through the glass. The idea of fire-proof construction was so far abandoned, that the whole of the roofing and guttering, a considerable portion of the upright encasement, many of the supports, and portions of the trellis-girders, were eventually of wood.

Immediately upon the acceptance of Mr. Paxton's suggestions, the design underwent considerable modifications. The most important of these was the addition of the transept, and lastly of the arched roof to that part of the building. There was considerable difficulty at the time, in settling to whom should be ascribed the credit of what was certainly a very fine feature of the internal effect. Mr. Henderson was said to have had some hand in it, and Mr. Barry also, at least as to the roof. Mr. Barry was largely concerned in a modification of the details, which was made with a view to some decorative effect therefrom. The transept grew partly from the desire of breaking the length of the building, and partly from that of preserving the larger trees, since gone. However, the arched roof itself was claimed for Paxton, by his friends, when the Exhibition was open; and upon a sheet of blotting-paper, framed, and exhibited in the Stationery Court, the visitor was told to see the first conception of the whole design, and the delineation of the arched form as part thereof. We must say that the sketch was so exceedingly vague, that it was difficult to make much of it; still there was something like the end of a semicircular roof. There is more to say, however, than can be given in one article.

THE GOLDEN AND IMMUTABLE MEAN, THE MEASURE OF THE SCIENTIFIC IDEAL OF THE GOOD AND THE BEAUTIFUL.

"There is a mean in all things, and a certain measure wherein the good and beautiful consist, and out of which they never can depart."—Dryden.

THE following outline of a science of formative ethics had its origin in an early desire to establish the principles of taste on a scientific basis; but the inquiry, which was at first limited to a special branch of study, gradually extended to a survey of the whole phenomena of the solar system; and it can hardly be too forcibly impressed upon the attention of the student of nature that there is scarcely any phenomenon which can be fully and completely explained without a union of several, perhaps of all the sciences. The great phenomena of astronomy, perhaps, may be considered exceptions; but this is merely because the scale is so vast, and those agents whose sphere of action is limited to a more immediate perception by sense, become merged into oneness by the vast distance. Hence it is hardly possible to arrive at the knowledge of a law of any degree of generality in any branch of science, but immediately furnishes us with a means of extending our knowledge of immutable others, the most remote from the point we set out from; so that, when once embarked in any physical research, it is impossible for any one to predict where it may ultimately lead him.

The objects of my former and present lectures are, to demonstrate that the fundamental form of phenomena is quantitative; to prove, by the testimony of the most eminent mathematicians and astronomers, that the mean sometimes called the golden is the immutable law of rectitude in the solar system, and, consequently, the metrical expression of the scientific ideal of the good and the beautiful. To expound the great remedial, curative principle, the law of compensation, by which the divinely appointed mean of well-being is preserved, by which erring nature is rectified and restored to its moral form; to found upon the premises of the immutable mean and the law of compensation, a formative science by which man and all being under his dominion may be conformed to the standard of rectitude.

The comprehension of the Divine purpose revealed by phenomena is the comprehension of

art in its widest signification,—of that Will by which faith, science, politics, social life, the pen, the pencil, and the chisel minister, either consciously or unconsciously, to one appointed end. The theory of the Divine governance of nature set forth in formative ethics is founded upon the evidence of science. Truths, common to what at first sight appear independent and disconnected branches of inquiry, have been appropriated and systematized, revealing in the process dominant principles of such sublime simplicity, that the mind rests satisfied that it has discerned the truth.

The progress of science and art is always from the vague and complex, to the definite and simple; astrology and alchemy gradually grow to be astronomy and chemistry; the multiplicity of incident and minuteness of detail of the early painters gave place to the simplicity of conception and treatment of maturer intellects. But, to the growing, I will not say dull mental constitution, with its vague expectations and aspirations, this ultimate simplicity of science and art is unsatisfactory and disappointing; it looks for something more recondite and complex, and often spurns the truth which lies at its very feet. For men are born intellectually blind, and have to stumble and whine in the mazes of confusion, complication, and misconception, before their mind's eyes are permitted to behold nature simplified by the full light of truth. It is for these reasons that the intellectual cost of destroying fallacies and expounding nature is so often undervalued, and that the Columbus of a new world of ideas is frequently neglected and unthanked; for, the work once accomplished, appears to have been of such easy attainment, that every one supposes he might have done the same.

It is many years since the theory of formative ethics was conceived. Its verification and elaboration have at times interfered with and prevented an undivided attention to my profession, but the labour has been a pleasant one. If with a very common weakness I over-estimate its importance, you will know what deductions to make on this account. But sincerely believing as I do my subject to be a most important one, I venture to predict that when what is now attempted shall be perfected, and raised to the dignity of a science, and becomes a part of elementary education, the energies of mankind, no longer dissipated by vague philosophies, will be concentrated upon the practical duties of life; for it will be perceived that the immutable mean is the ultimate term of scientific inquiry beyond which lies the region of faith. When it is seen, too, that the law of rectitude is eternally fixed—must ever remain intact in the aggregate, though nature be convulsed to the utmost by error,—it will be an important and abiding testimony to creative design; and, being capable of mathematical demonstration, will be accepted wherever reason dawns as the basis of moral science and goal of human progress. Moreover, when the science of formative ethics, founded on the premise of the immutable mean, shall be discerned to be in harmony with, and recognised by, Christianity,* it will prove no unimportant means, not only of re-forming, but of increasing the power, and extending the bounds of Christendom.

In my introductory lecture last season, I endeavoured to show that the subtle ambiguity of words is one of the great barriers to unity of thought. That the word "truth," for instance, constantly thwarts just conclusions by gliding imperceptibly from one of its significations to another; and that the imposing, and at first thought, perplexing question,—what is truth? is in a great measure divested of its obscurity, and the gate to its solution opened so soon as what is really meant is correctly expressed. The question should be,—not what is truth? but—what is right in nature? for all the incidents of being are as facts, truths; but being also, as facts, either right or wrong, it is the province and highest aim of science to determine the law of rectitude. For to know this law is to know the law of highest generality, the supreme law; the law of God manifest in nature, which is the basis of moral science; the law which gives true critical powers of discrimination, a forecast of the future, in brief wisdom! I endeavoured to show that this law, ascertained and enunciated, is the criterion by which the aberrations of nature may be estimated and rectified: hence

* "The antique world, in his first flow'ring youth,
Found no defect in his Creator's grace,
But with glad thanks, and unrepined truth,
The gifts of sovereign bounty did embrace:
Like angel's life was then men's happy race:
But later age's pride, like corn-fed steed,
Abused her plenty and fat swine increase
To all licentious lust and gain exceed
The measure of her means and natural first need."
Roderic Queneo, canto vii., s. 16.

* "Let your moderation be known unto all men."
"He that striveth for the mastery is temperate in all things."
"Be not excessive towards any."

the Old and New Testaments, comprehending such a law, predict a new earth, a world conformed and restored by moral ideas and forces to its moral form. I then touched upon the nature of scientific progress, and pointed out the fact that it is always towards the exactness of numerical statement, and that man can produce no effect upon nature, can fully appropriate none of her powers, if he be not conversant with general relations according to measure and number;* that this must necessarily be the case if the fundamental form of sensation be force in space and time, if the fundamental form of phenomena be quantitative,† which are demonstrable truths; that upon this theory all sciences will ultimately be considered branches of metrology, and all phenomenal differences as definite proportional differences, having corresponding metrical expressions,—consequences which are necessarily dependent not only on these facts, but the popular hypothesis, that heat, light, electricity, &c., the imponderables, as they are called, are only modes of motion.

Having decided the exact quantitative statement of the law of rectitude to be the most important object of scientific attainment, the calculations of the most eminent mathematicians and astronomers were interrogated with reference to the planetary law of rectitude, for the law of rectitude in the larger phenomena of nature. Their evidence on this point, which was then cited at some considerable length, may be briefly recapitulated, viz.,—That, notwithstanding all the variations, fluctuations, or aberrations which can possibly take place in the solar system, the general balance of its parts will always be preserved, and every departure from a mean state periodically compensated; that all the changes which the mutual action of the planets on each other can produce are periodical,—that is to say, increasing to a certain extent, and that never a very great one; and then again decreasing, so that the system can never be destroyed or subverted by the mutual action of its parts, but keeps constantly oscillating, as it were, round a certain mean state from which it can never deviate to any ruinous extent. The researches of Laplace and Lagrange in particular have demonstrated the absolute immutability of the mean distance of each planet from the sun, and, consequently, of its periodic time.‡ Here, then, was glorious testimony drawn from the depths of space to the law of rectitude reigning in the solar system, an astronomical revelation of the law we sought, of that immutable mean against which all the powers of aberration will never prevail; and whoever may hitherto have been tossed to and fro by the unstable waves of opinion, may here grasp a principle of certitude, the immovable rock and foundation of moral science. For could any principle but that of rectitude be unchangeably, eternally fixed?

It is a remarkable circumstance, and some slight collateral testimony to the truth of the theory I am expounding, that the records of astronomy were searched with a presentiment of the laws they would disclose, as by a careful study of phenomena more immediately my province, and of the limits of the variation of ratios, I believed I had detected a universal moral law presiding over the near and the remote terrestrial and planetary phenomena, viz., that every aberration from a mean state of any system of being must be compensated at some time or other by one of an equal but opposite kind, i.e., in excess by one in defect, and vice versa, or that system will remain perpetually injured and unbalanced. This is precisely the law of compensation by which the mean of the planetary system is maintained, a principle which was at first surmised was found to be abundantly confirmed by facts gathered from a variety of sources, astronomical, meteorological, political, ethical, æsthetic; from man's physical nature, animal and vegetable life. If the mean, then, be the ordained immutable measure of well-being in nature, as the cumulative evidence from all these various

sources confirms, it must be the measure of ideal rectitude, of the good* and the beautiful.

It may now perhaps be perceived how phenomena apparently the most remote are linked together by a common quantitative basis and the same general laws; how everything that is right in the planetary system, in the conduct of life or in art, must be in conformity to the same immutable moral principle; and that all aberrations or departures from the divinely-established mean or mid-point of rectitude must be rectified or compensated by the same means. This enables us to comprehend the inevitable penalties of extreme action, the necessary reaction, the fitful oscillations which the eternal principle of right in nature demands till compensation be effected; and that it is the duty of man as a responsible agent to avoid and prevent to his utmost departures from the golden mean.

The mean, then, being the quantitative expression of rectitude in the solar system, is also the expression of the ultimate term of natural development, that desirable state in which the ideally good and beautiful will be realised; and, to judge from the past history of the system, the geology of this planet, and the history of the human race, there are abundant evidences that the perturbations, fluctuations, aberrations, or, in other words, the convulsions of nature, are becoming less and less, and that the whole progress of being is towards this balanced mean state. All our sources of evidence, then, unmistakably point one way, and proclaim the object of the Creator's formative design, which we, as stewards and doors of His will, are bound to promote in the development of the earth, of its animate being; above all, in the formation of man, intellectually and physically: this is the key to the conception and design of a science of formative ethics. And in observing that nature in its largest physical aspects is being moulded to rectitude by an unseen will and power, we are naturally led to look forward through the vista of the future to a period in the history of man, when, from a universal perception of the purpose of the divine will, the moral intellect will have conformed and moulded the human body to rectitude,—to a period when beauty will be reunited to goodness. I am aware that this part of my theory, viz., that goodness rectifies the body, does appear, on a superficial glance, to be negated by the facts of every-day experience. It has been said, indeed, in reference to my views on this subject, "that I have to deal with an ugly saint; that the plainest looking men in England were lately three persons most conspicuous for every kind of excellence, moral, intellectual, and religious;" how then would my theory "account for such a singular phenomenon?" Nevertheless, I believe I can perfectly reconcile this fact to the theory, for it should be recollected, that excessive and defective exercise of the intellectual or physical powers and functions are the two great deforming influences. Now the present imperfect state of society, with its ignorance upon many subjects necessary to its improvement, often exacts the devotion and extreme mental exercise of good men to develop truths of the utmost importance to its future well-being. Thus it is that the physical beauty of the best and wisest men is often marred, and their more perfect natures sacrificed, for the ultimate benefit and redemption, in some form or other, of the human race. But notwithstanding the deep wounds and scars of thought which score their features, those ponderous brows and sunken eyes, those bent shoulders and ill-compacted limbs, which sometimes mar the external aspect of great and good men, it is ugliness very different from that of thousands in our goals, which is ungraced, unsummed by goodness. But this part of the subject will receive ampler investigation in another place; meantime, however, as a preparative for the full acceptance of the theory advocated, take up the converse position, or that moral goodness tends to deform and degrade physical nature in the aggregate, and see whether this hypothesis commends itself to your understandings.

You will perhaps exclaim, "This immutable mean, of which so much is made, is recognised by every body in trite and commonplace proverbs; it is as old!" You are right: it is and has been acknowledged under the familiar appellation of

the golden mean by millions of the human race. You are right, too, that "It is as old." Shall I finish your sentence?—as nature, as time. It is set forth in the Proverbs of Solomon; it is the natural basis of ethics recognised by Christianity. Under the title of "immutable" it was the great doctrine of Confucius; it was recognised in an aphorism of Thales; it is the basis of Aristotle's ethics; it has been deeply graven and enshrined in verse by the great classic poets, and more recently by Spenser,* Shakespeare, Dryden, and Pope. But, except in the Scriptures, it has and could have had acceptance but in a very limited sense; for those observations and calculations which put its truth and universality beyond guess and surmise, are but of yesterday. In fact, the yet numerous objectors to the mean being the principle of beauty, and the few who can be found to grasp the theory logically dependent upon the central premise, leads me to believe that the mean has been, and is, popularly recognised only through that hazy dawn with which all great truths rise on the understanding. Indeed, a high authority in art has, within a few years, dismissed in one of his works the mean as the principle of beauty as absurd, because, if true, beauty would then be the average of deformity; but this is no greater absurdity than that truth is evolved from averages of error, which is unquestionably true, in confirmation of which we have the greatest scientific set against artistic authority. The following quotation is from a well-known treatise on astronomy: "The quantitative or exact method pursued by modern science is pre-eminently distinguished by the attainment and correction of mean values. The useful and valuable property of the average of a great many observations, that it brings us nearer the truth than any single observation can be relied on as doing, renders it the most constant resource in all inquiries where accuracy is desired. And it is surprising what a rapid effect in equalising fluctuations and destroying deviations, a moderate multiplication of observations has." Thus in obtaining the average proportions of any race or species of living being, (the opposite deformities in excess and defect (fluctuations and deviations) neutralise each other, and yield the mean average or standard proportions of the race or species; otherwise it would inhere in excess or defect, which is absurd. And here I should desire to impress a very important consideration, viz., that the theory of the mean being the measure of perfection and beauty is the theory of probability, which ought to have acceptance in the absence of direct testimony, unless it be more reasonable to put our lamp because we have not the light of the sun; and the great diversity of opinion existing on the subject shows that there is no popularly-recognised ground of certitude, no recognised doctrine. But when the testimony of the most eminent mathematicians and astronomers, above all of the Scriptures, is brought to bear witness to the mean being the immutable or governing law of creative being, we have the certainty and sunlight desired, and the theory is no longer probably but certainly true.†

W. CAVE THOMAS.

BAMBOROUGH CHURCH.

THE recent death of the venerable father of Grace Darling, and his burial by the side of his brave and tender-hearted daughter, has caused Bamborough Church to be brought prominently into notice. As it is a fabric of more than average architectural interest, and misleadingly described in the local gazetteer as "a plain neat edifice, dedicated to St. Aidan," and in the

* "But Temperance, said he, with golden squire
Betwixt them both can measure out a measure;
Neither to melt in pleasure's whet desire,
Nor fire in battle's grief and doleful tears;
Thrice happy man, who fares them both attentive!"
Puerio Quæstio, b. ii., c. i., s. 56.

"Love moderately, long love doth so;
Too fast arrives, as fairly as too slow."—Shakespeare.

"Austerity averse and cold,
Or wild excess,
Wine voluptuous quaff'd from gold,
Not happiness.

They true enjoyment find alone
Who steer between
A torrid and a frigid zone,
A temperate mean.
Avoid extremes, and shun the fault of each.
Who still are pleased too little or too much."—Pope.

† The quantitative theory was illustrated by an instrument which the lecturer has designed, and entitled "The Balance of Nature," upon which he promises at some future time to demonstrate the theory of harmonic ratios applicable to the fine arts.

* "Measure is that which perfecteth all things, because everything is for some end; neither can it be available to any end which is not proportionate thereto; and to proportion excesses as well as defects are opposite."—Hooker.

† This has recently been announced as the secret of Hegel.

‡ "Tempering goodly well
Their contrary dislike with loved means,
Did place them all in order, and compel
To keep themselves within their sundry reigns,
Together link'd with adamant chains." Spenser.

§ "So every scope turn'd to immediate use,
Turns to restraint."—Shakespeare.

* Goodness answers to the theological virtue Charity, and admits of no excess but error; the desire of power in excess caused the angels to fall; the desire of knowledge in excess caused man to fall; but in charity there is no excess, neither can angel or man come in danger by it.—Bacon.

Daily Telegraph as a "little village church," we give a few details. It is a large Transitional cruciform church, built at that period when the Early English style was being developed into the Decorated, standing in a spacious, grassy, but bleak, churchyard, on an elevated site removed by the length of the village from the seashore, having north and south aisles to the nave, and a low square tower at the west end. From the church to the famous castle, or to the shore, down the wide, gravel-pathed, scrupulously clean and neat village of small houses and one-storied cottages, built on either side of a long piece of ground thickly planted with young trees, the distance is about that of four long stonethrows. Standing in the churchyard, you look up to the castle on the stupendous rock at the other extremity of the village as you would look up to the clouds; and the church, compared with the edifice, certainly appears to be of less commanding proportions than it really is; but we have only to concentrate our attention upon it, and pace its length, to arrive at a correct appreciation of its dimensions. The nave and chancel, with the tower, measure 161 ft. long; the transepts 90 ft. wide. Still lingering in the churchyard, before entering the edifice to look at the white lighthouse on the rock in the glittering sea, now so well known, the eye presently falls upon a canopied monument rising high above the grass and nettles, on which reposes the figure of a female with an ear in her hand. This was created to the memory of Grace Darling, by public subscription. Her real tomb is several paces from it, among the lowly grave-stones of her kindred. The churchyard is not so far from the sea but that the sand from the shore is borne in eddies round it, and sometimes deposited on it in great quantities. There is a proof of this in the fact that the ancient crypt was completely buried in sand, and, until a few years ago, quite lost to sight and memory alike. This subterranean feature consists of two chapels, the one being about twice the width of the other; the length nearly the same, the smaller one having at its west end traces of steps that gave ascent to the chancel above. The large chapel measures 12 ft. 2½ in. by 21 ft. 5 in.; the smaller one is 5 ft. 6 in. in width, and the same length as the other, from which, however, the steps would make some deduction. The east ends of both are formed by the east wall of the chancel; and both chapels are lighted by narrow splayed slits looking into the paved trench made round the chancel, several feet deep, when the crypt was newly formed. The masonry is in excellent preservation, and proves, in various details,—such as a cusped trefoil-headed piscina, and shoulder-heads to the inside of the window-splays,—that crypt and church were built at the same time. There is an exterior entrance to the principal chapel on the same level as its base, likewise in good preservation, owing doubtless to its long concealment and conservation by the sand-drifts mentioned. Thus, as in the newly-found Saxon crypt at Hexham, there was a descent from the church and exit into the open air, or *vice versa*. A curiously-low doorway, to pass through which it is necessary to stoop very considerably, affords communication between the two chapels. Seeing the importance of Bamborough in Saxon times, antiquaries would have rejoiced to find this long-buried crypt to be of Saxon workmanship; but it is not so. We must look elsewhere for the site of the edifice in which Aidan and his contemporaries and successors preached, with quickened pulse, the duties imposed upon us by the bright example and luminous exhortation of the Founder of our faith. As there is nothing left of the Saxon castle which the brave Ida defended till he saw her husband in the hands of the Norman Rufus, with the pincers ready to put out his eyes unless she surrendered, except the draw-well—still full of reverberations of these old times, as we may hear when the *cicero* drops a stone into its depths,—it would be unlikely that the fabric of the church should have been handed down. At all events, there is no fragment of it here. The roof of the principal chapel is divided into two bays.

The principal entrance to the church is in the large double aisle on the south side. No sooner has the foot stepped through it than a pleasing effect is produced upon the eye by the spaciousness and antiquity of the interior, as revealed in the nave between the massive arcades dividing the nave from the aisles. The columns supporting these are stout cylindrical pillars, with plain moulded caps, of transitional character; the arches are pointed. Coming into view of the

chancel, the effect becomes richer. This is lighted on the south side by lancets, most of which are filled with stained-glass of deep brilliant hues, grouped in couples, having an arched panel between each group. The east end is lighted by three lancets; the north side by two couples of lancets. It is seated with stalls, leaving for the sanctuary exactly that portion of the chancel which is occupied below by the crypt. The aisle and transept on the south side of the nave have three-light windows, except at the westernmost end of the former, where there is a lancet; that on the north side by double-lights, except at the north end of the transept, where a treble-light corresponds with that at the southern transept, and in the case of a curiously narrow splayed light at the east side of the same transept, which is of similar width to the slits mentioned as lighting the crypt. At the west end there are two double lights; and a single one lights the vestry built against the north side of the tower. We have said the stained-glass is of deep brilliant hue. Unfortunately, that is all that can be said of it. It was bought second-hand not long since, and bears no relationship to the general design of the fabric, nor to the intensely interesting history of the Early Church in this district, nor even to the loving bravery of the lighthouse-keeper's daughter. The chancel is nearly as long as the nave; the one measuring 60 ft. by 23 ft., the other, without the tower, 63 ft. by 30 ft.

Many will be glad to hear that Grace Darling's brother now fills the situation once occupied by her father. The lighthouse is a marvel of cleanliness and neatness. After climbing from the boat up an ascent of rocks covered with seaweed, through which Mr. Darling has cleared a precipitous path, the pebble-paved and enclosed yard of the lighthouse, where everything that is not painted red is painted white, appears strikingly different from terra-firma objects. The spiral staircase conducts the visitor past room after room, all scrupulously neat, and decorated with marine curiosities, till it terminates in the glass chamber containing the revolving lights. These are triplets of moderator lamps, each having a reflector of surpassing brilliancy behind it. The three lights appear as one from a distance, and as the revolution of the machinery takes these out of sight before the next three come into view, that intermittent effect is produced that makes it distinguishable from any other. Not a smut or a flyspot is perceptible on any part of the brilliant gear; nor indeed a mark of any kind, except one dent in a reflector that the keeper vainly endeavours to efface: a bird bewildered in a long-ago storm had dashed its breast through the glass walls and fell dead in its dearly-sought shelter. The rocks or islets that make this part of the sea so dangerous for navigation, are the breeding places of myriads of cormorants and other large sea-birds, which, as boats approach them, flap their wings, and with fierce noises object in a most unmistakable manner to any landing. The island nearest to the shore, with the lighthouse upon it, known as the new light, has a pele tower upon it of Edwardian architecture. The largest chamber on the principal floor has a small recess in it, which, from the opening in the masonry, appears to have been a confessional; it has lately been rendered habitable, and is now in use as a marine seat. St. Cuthbert's Chapel, upon the same island, has also been put into repair, and furnished with some old carved oak fittings brought from the mainland, and divine service is occasionally performed in it in the summer months. The memory of the two vigorous ascetic ecclesiastics, St. Aidan and St. Cuthbert, with that of their first regal convert, the good St. Oswald, is still green on this part of the coast.

Bamborough appears to have been as much knocked about by the Danes and Normans as Sebastopol was by the English and French. And the poetic faculty of Mediaeval times seems to have idealised some such tragedy as that of the "thin red line" at Balaclava in the ancient Northumbrian poem, "The Laidley Worm of Spindleston Heughs," the long loathsome horror doubtless representing an armed and hostile force.

OPENING OF A PUBLIC PARK AT BINGLEY.—A public park has been opened at Bingley, amidst great demonstrations of rejoicing. The site of the park is at Brown Hill, on the left side of the Aire, and it consists of eighteen acres of ground, ornamentally laid out. The park bears the name of the Prince of Wales.

CHRIST'S HOSPITAL.

A COMMOTION lately made on the proposed removal of the Charter House from its ancient site to the country induces a return to the question mooted several years back in the *Builder*, advising a similar change for the still more important and equally ancient foundation of the Blue-coat School. Both are richly endowed and magnificent institutions, established for the education of the children of distressed but reputable parents; the Charter House having forty resident free scholars, and some sixty decayed pensioners; while Christ's Hospital nurtures, clothes, and educates 1,300 boys, the complement maintained for many years on its foundation. These children are taken in between the ages of eight or ten years, and are wholly sustained within the establishment, first in childhood at the infant school in Hertfordshire, and afterwards until completely educated; when for good scholars and successful aspirants there are exhibitions at Oxford and Cambridge, and livings in the Church.

It may be that in the lapse of ages, as the value of the estates and possessions of either have become enormously enhanced, and as the sites which were at first suburban have both been circumvented by the great and still growing metropolis, that the benevolent intentions of the founders of, and contributors to, these God-like charities have not been fully carried out; and that, in fact, we find therein, not the children of decayed or distressed tradesmen, or of reduced gentlemen, but the sons of independent families; yet still these institutions are to some extent eleemosynary; and, if the sphere of their utility could be enlarged, as most undoubtedly it could be by a transfer from the centre of the busiest of cities to the country or the suburbs of London, surely there can be no reason for the retention of the original localities, which are now as inappropriate to the objects of education and health as they were formerly well chosen.

Formerly Giltspur-street on the west, and King Edward-street on the east, and from Newgate-street on the south, the busiest thoroughfares of the City, and Bartholomew's Hospital on the north, a large space divided into several squares, with a magnificent hall, a church, and numerous extensive buildings, affords an asylum and playgrounds for over 800 boys. This is the largest school in England, educating as many as any four of our most celebrated metropolitan seminaries. It occupies, in proportion to its numbers, a large site; and the position it stands on has now attained a value that could never have been contemplated by the royal founder, Edward VI. Surrounded by prisons, hospitals, railways, markets, and busy thoroughfares, the space is needed for civic and national buildings of importance; and, as it has been prejudicial to educational purposes, and to the health and morality of the scholars, its removal to one of the Hospital estates in Middlesex, or one of the home counties, would enable the governors to increase the numbers at least 100 more, and, at the same time, to erect more extensive and appropriate buildings, with a park, gardens, and premises tributary to the bodily health, mental culture, and gratification of the pupils.

Many of the governors (300 in number) and principals of the institution are favourable to a change to the country,—the question having been under discussion some six years back. Since then, the completion of two railways, and the foundation of the great meat-market in Smithfield, make such a change more requisite, and on all accounts more desirable. But the Corporation has a paramount influence, as the lord mayor, the aldermen, and twelve common councilmen are governors *ex officio*; and they also have each of them the privilege of one presentation to the school every year; while the other royal and noble governors are entitled to one in turn only. Besides that, there are other deferences paid to the Corporation by the school, which is received annually at the Mansion House, when every boy is treated to a bun and a shilling!

It would be vain to expect that so large a body of distinguished governors would interfere in the management of the school, although each one contributes 500*l.* on election; still in a question of such vital importance, wherein the education, health, and nurture of 1,300 youths are concerned, it is worth a little consideration, and an attendance at a Board meeting, to settle the point of transfer or otherwise.

Seeing that a glorious national college of

1,500 students might be the result of a well-managed change to one of the home-county estates of the school, a day devoted to the object would be well spent if at the same time some little alteration were made in the ancient costume which is still so absurdly retained. It is needless to point out the absurdity as well as the inconvenience of a long yellow cloth petticoat, under a long blue coat; of antiquated tight knee-breeches and yellow (clouted) woollen stockings in summer; and the bare head! Nothing could be more ungainly, awkward, or perhaps more unhealthy.

A uniform of a modern kind would be more grateful to the public than the old monastic costume,—"nimium ne crede colori,"—it matters not what colour they choose, but the rifle uniforms are more consistent with modern tastes, and most certainly more conservative of health and comfort, and favourable to free exercise.

As the estates of the institution now realize 70,000*l.* a year, the additional income sure to be derived from the sale of the City grounds, the buildings, and Mr. Shaw's noble hall, offers a fair incentive to re-open the question of transfer to the country;—these remarks being offered as *addenda* to former articles in the *Builder*.

IMPROVEMENTS IN THE MANUFACTURE OF GLASS.

On the 15th ult., M. J. Pelouze presented a memoir to the Academy of Sciences of Paris, on the action of metalloids upon glass, and the presence of alkaline sulphates in all the glasses of commerce.

It has been known for a very long time that glass is coloured yellow by charcoal and by sulphur, but the effects of other metalloids had not been ascertained. The experiments conducted by M. Pelouze, in the Siemens' furnaces of the Saint Gobain works, were as follows:—

Charcoal Glass.—To colour glass yellow by charcoal, he took the following composition (called A):—White sand, 250 parts; calcareous spar, 50 parts; carbonate of soda (of 85 degrees), 100 parts; wood charcoal, 2 parts. After a lapse of a few hours, the glass being melted and refined, the crucible was taken from the fire and cooled. It contained a mass of homogeneous glass, of a deep yellow colour.

Sulphurised Glass.—This preparation is the same as the last, and the colour identical with that obtained by charcoal. Owing to the volatility and combustibility of sulphur, 6 grammes of sulphur are equal in effect to 2 grammes of charcoal.

Silicium Glass.—The following composition was taken:—White sand, 250 grammes; carbonate of soda (at 90 degrees), 160 grammes; calcareous spar, 50 grammes; silicium, 2.50 grammes. This gave a yellow glass impossible to be distinguished from the two former.

Boron Glass.—Same mixture as the last, the silicium being replaced by 2 grammes of boron. This gave a glass of a fine yellow colour similar to the others above mentioned.*

Phosphorus Glass.—Amorphous and pulverulent phosphorus, mixed in considerable proportion with the composition A, gave no colour whatever to the glass. All his efforts to obtain a positive result failed, in consequence, no doubt, of the entire vaporization or combustion of the phosphorus; but when the composition A was acted upon by phosphate of lime (prepared by the process of M. Paul Thénard), weighing from 5 to 6 grammes, the phosphorus ceased to be volatile, and furnished a yellow glass exactly similar to the rest mentioned.

Aluminium Glass.—The presence of even a very small portion of aluminium in the composition renders the glass most difficult to be fused or refined. When, after much time and pains, this is accomplished, the result is a yellow glass, as in the other cases. He thus sums up, as giving a yellow colour to the white glass of commerce, among the metalloids, carbon, sulphur, silicium, boron, and phosphorus; among the metals, aluminium. M. Pelouze was of opinion at first that this constantly identical colour was due to the presence of silicium, the only one of these substances which necessarily entered into the composition of glass; but experiments soon demonstrated that he should search elsewhere for an interpretation of these singular phenomena.

* The silicium and boron, obtained through the kindness of M. H. Deville, were beautifully crystallized, and of remarkable purity.

Hydrogen, thoroughly purified, colours glass yellow at a red heat. If this gas be passed through a porcelain tube containing a platinum dish filled with fragments of glass, the latter, raised to a temperature not very elevated and then cooled in the current of hydrogen, gives a yellow colour, less fine and less intense than that produced by carbon, boron, &c., yet well defined. It is surprising that this reaction is not generally known, for reductions by hydrogen gas in glass tubes are of frequent occurrence in laboratories. The reduction of the silicic by hydrogen appearing impossible, especially at low temperatures, M. Pelouze attributed this colouration of the glass to the presence of alkaline sulphates, of which every glass of commerce contains notable quantities, and therefore turned his experiments in this direction. In melting the composition A with some hundredth parts of its weight of sulphate of soda, and submitting it to a current of hydrogen, he obtained a glass of an exceedingly deep yellow colour, in which were easily recognisable the odour, taste, and all the properties of an alkaline sulphuret.

The most distinguished chemists who have analysed glass not having noticed the presence of sulphur, he proceeded very cautiously with his experiments in ascertaining the presence and proportions of sulphates in glass of commerce. For this purpose were examined mirror, window, table, Bohemian, and bottle glass, also a specimen of ancient glass brought by him from Pompeii in 1863. The mirror glass gave different quantities of sulphate of soda, varying from 1 to 3 per cent. The fusion, refining, and annealing of this sort of glass take in general from eighteen to twenty-four hours. After exposure to the same temperature for 120 hours, the glass contained still 7 per 1,000 of sulphate. The Pompeian glass gave a quantity of sulphate of barytes corresponding to 2 per 100 of sulphate of soda. The Bohemian furnished 2.2 per cent. of sulphate of potash. The other glasses gave from 1 to 3½ per cent. of sulphate of soda. It is well known that glass-makers employ two fluxes, sulphate and carbonate of soda. As this last salt rarely exceeds 85 degrees, or at most attains 90 degrees, it contains constantly considerable proportions of the sulphate of soda. To obtain, therefore, glass totally free from the sulphate, a carbonate should be used which is free from it also, and operations should be carried on in the manufacture by aid of a carbonate of soda hitherto unknown, at least in glass-making, marking 92.5°. No such glass exists in commerce. It would be undoubtedly less alterable and more homogeneous than those hitherto known, and capable of rendering great services to the arts and sciences, especially to optics. With a view of proving that the colorization of glass, being due to the presence of sulphate of soda, when acted upon by charcoal, silicium, boron, &c., does not take place when the sulphate is absent, he took the following composition:—White sand, 250 grammes; carbonate of soda, pure and dry, 100 grms.; carbonate of lime, pure, 50 grms.; starch charcoal, 2 grms. The glass obtained was well melted, well refined, and perfectly white. The same result took place when the charcoal was replaced by boron, silicium, or hydrogen; but as soon as even half a hundredth part of sulphate was added, a light yellow colour was the consequence. Pure glass, then (made with carbonate of soda free from sulphate), is coloured yellow by sulphur, or an alkaline or earthy sulphuret.

Instead of preparing for commerce yellow glass by the aid of carbon, it can be obtained directly with sulphuret of calcium; but it must be recollected that the sulphate contained in the carbonate of soda acts as a combustible, and wastes a corresponding quantity of the sulphuret. It is, then, only when the sulphate has been destroyed that the excess of the sulphuret colours the glass.

The following combinations were fused:—

A. White sand, 250 grammes; carbonate of soda at 90 degrees, 100 grammes; carbonate of lime, 50; sulphuret of lime, 20 to 10 per cent.* This gave a very deep yellow-coloured glass, hardly translucent.

B. Same combination, with 10 grammes of sulphuret of calcium, or 2.5 per cent. He obtained a glass of a lighter yellow than one would have expected.

C. Same mixture, with 1.25 per cent. of sul-

* Prepared by calcining at a red heat, a mixture of 250 grammes of wood charcoal, and 2 kilograms of gypsum. The sulphuret still contained a certain quantity of sulphate.

phuret of calcium. This glass was completely colourless.

D. Same combination, with 5.5 grammes of sulphuret.

E. Same, with 6 grammes of sulphuret of calcium. Glass of not a very deep yellow, similar to crystals of native sulphur.

The extreme point of decoloration corresponds to 5.500 grammes of sulphuret of calcium, or about 1½ per 100 of the vitrifiable compound, and the yellow colour does not commence to appear until the quantity of sulphuret exceeds this last proportion. Also, in the compound B, where 20 grammes of sulphuret were employed, 14.5 grammes only entered into the colouring of the glass, 5.5 having disappeared by oxidation. With these data one can readily prepare a combination to produce the required shade of yellow. The proportions given by M. Pelouze, on a practical scale, are 270 kilograms of sand, 100 kilograms of carbonate of soda at 90 degrees, 50 kilograms of marble, 12 kilograms of sulphuret of calcium.

THE NATIONAL AND PORTRAIT GALLERIES.

On the vote for 13,336*l.*, to complete the sum of 23,336*l.* for the expenses of the National Gallery, including the purchase of pictures, being moved in committee of supply in the House of Commons, Mr. Cowper said an estimate of the cost which would be incurred by the enlargement of the National Gallery was in preparation. This estimate would be for the purchase of the ground in the rear of the National Gallery. Nothing could be done at present beyond the purchase of the land. The vestry were willing to dispose of their property, provided they received such a sum as would enable them to erect another workhouse in the suburbs, and a casual ward and parochial office within the parish. The trustees of Archbishop Denison's school were also willing to part with their property, provided means were given them of obtaining another school within the parish, and a similar arrangement could be made with the parochial school. It would, therefore, be his duty to bring in a Bill for the purchase of these properties; and the land thus purchased could be used from time to time as the enlargement of the gallery was required. A proposition had been made to the Royal Academy, informing them that if they pleased to apply for a site at Burlington House, the Government would be prepared to grant it to them; but there was not yet time to ascertain the intentions of the Academy, and a considerable time must elapse before they could obtain another building. Many of the persons for whom the national collections were kept could not, from their daily vocations, see them during the day. Therefore he agreed that, as far as it was feasible and safe, the public exhibitions should be opened in the evening. If a building were erected from the commencement with a view to using it at night, it would be made fireproof, and gas could be introduced in such a way as to cause the smallest amount of danger. He did not think, however, that it could be so arranged in the present building, and he could not but think that the pictures would run great risk if gas were introduced into it.

Sir W. Fraser urged the importance of increasing the Gallery, as an incentive to individuals to bequeath their pictures to the public.

A supplementary estimate has been presented to Parliament, asking for 20,000*l.* for the purchase of a site for the enlargement of the National Gallery. The total estimate of the sum that may be required to acquire possession of the land and premises between the National Gallery and Hemming's-row is 100,000*l.*

On the proposal that 1,650*l.* should be voted for the British Historical Portrait Gallery, Mr. Cowper said the portraits are at present only in a temporary place of accommodation; they can only be very imperfectly seen, and it is a source of anxiety that they cannot be better exhibited. It is intended to find a proper place for these portraits in the new gallery that is to be erected in connexion with the National Gallery. He would call the attention of those who manage the exhibition to the expediency of rendering the hours of viewing the exhibition more convenient to the public.

SOUTH KENSINGTON MUSEUM.—During Whitson week 30,471 persons visited the Museum.

ON METROPOLITAN IMPROVEMENTS.*

It has of late years been the fashion to sneer at the attempts made in this country to carry out such improvements as have become necessary from time to time in our metropolis, and to draw unfavourable comparisons between what is done here and what is done on the Continent under similar circumstances, and especially with regard to the magnificent works which have been carried out in the capital and provincial towns of France, under the auspices of the present Emperor.

Now, although we do not enjoy the advantages of a paternal government, to guide and preserve us in the right path, like our neighbours across the Channel, and our civil improvements, taken one by one, will perhaps hardly bear a comparison with theirs, either in grandeur of conception or in the rapidity and spirit with which they are carried out; still a glance at the extent and conditions of our metropolis some sixty years ago, will soon convince us that a very large aggregate amount of work has been done (some of it, no doubt, wretchedly conceived and badly executed), but which on the whole will bear a very favourable comparison with what has been accomplished in the same time in any part of the Continent.

Let us take a map of London at the time we are speaking of. This is one entitled "The Stranger's Guide to London and Westminster, exhibiting all the latest Improvements up to the present time," published in 1806. We shall find that, practically, the City was bounded on the north by the New-road,—Gower-street ended in a market garden,—and it was a pleasant walk by Bagnigey Wells, the Merlin's Cave, and the New River reservoirs, to the Angel at Islington. Parties to Primrose Hill could stroll through Marylebone-Park Farm (belonging to the Crown), and stop to refresh themselves at the Jew's Harp, if they desired anything more potent than the curds-and-whey they would obtain at the adjacent farm-house. The inhabitants of Westminster might walk across Tot Hill Fields to the river, and be ferried over to Vauxhall Gardens; or if they wished a quieter walk, might turn to the right, through the Five Fields belonging to Earl Grosvenor, and passing the large reservoirs of the Chelsea Water-Works, go by the Royal Hospital on to Chelsea Common. Westminster, Blackfriars, and London were the only bridges below Battersea. The access from London Bridge to the Royal Exchange was by way of the narrow Fish Street-hill and Lombard-street; while we can only hope that very few people were obliged to attempt the difficult passage from the Bank to Finsbury-square, up Coleman-street and Little Moorfields. Regent-street did not exist; and the Royal Mews, at Charing Cross, however convenient it may have been for the Prince Regent at Carlton House (close by), must have seriously impeded the traffic at the junction of the leading thoroughfares of the Strand, Whitehall, and Charing Cross. The possibility rather than the probability of being whirled through the air at the pace of ten or twelve miles an hour by steam on a railway was only then beginning to haunt the dreams of a few enthusiasts; and Londoners journeyed seven or eight miles out of town to be astonished at the marvel of a long string of coal trucks drawn by two or three horses along the Surrey Iron Railway, just then completed, to connect the river Thames at Wandsworth with the inland towns of Mitcham and Croydon.

Until within the last ten or twelve years, however, it has been tolerably easy for any one whose attention was directed to these matters, by business or inclination, to keep pretty well informed on the subject; but since then, such rapid and important changes have taken place, and others of still more consequence are in contemplation, that the difficulty of obtaining, or rather of retaining, the information has much increased, while the necessity for its acquisition, in a professional point of view, is daily becoming more obvious and pressing. It is now a matter of every day occurrence for an architect to be called on to advise on the eligibility of a building estate, or as to the site of a new building and the effect which the opening up of some new street or railway, or the contemplated diversion of a line of traffic, may have on the business or the objects for which it is proposed to be erected; besides the many other incidents of an architect's ordinary practice, in which the knowledge of the present or prospective value of property

plays so important a part. Looking on the subject from this professional point of view, I have thought it might be of some advantage if I were to lay before the members of the Association a brief outline of some of the most important works which have been executed during the present century, and include in my survey some others which are already in progress or on the eve of being commenced. With the object I have just indicated in view, I propose to confine myself chiefly to a consideration of those undertakings which have been set on foot for the purpose of affording new or increased facility of intercommunication between different parts of the metropolis; the principal points we shall have to notice, therefore, will be bridges, streets, and railways.

Now, any one who has not thought much on the subject, as he walks down Regent-street, or along Cannon-street, and sees the line of splendid shops or ranges of lofty warehouses, knows very well that if he wishes to buy or rent premises, either in one street or the other, a price will be asked amounting almost to a fortune, or to a handsome yearly income for a man of moderate expectations; and the idea may occur to him, what a fine speculation it must be to get an Act of Parliament, and open up a new street like this! But he would think it strange, when he came to inquire more closely, and was told that the actual net loss on carrying out a new street is equal to one-half or two-thirds of the money expended, and that that proportion of his capital would be utterly sunk and lost. Cannon-street, which was only half a street, has, I believe, turned out the least loss of any recently executed, and it entailed a loss of 40 per cent. The leases of houses in Regent-street might have been bought, after they were built, at prices equal now only to the rents which they realize per annum. This arises from several causes, the principal being the fact that a new street is generally made through a densely-populated locality; and the area occupied by so many small houses, all of which have to be paid for by heavy compensation, is thrown into the improved width of roadway, which does not return a direct equivalent profit in the increased value of the frontages thereto. Again, it is a long time before a new street takes with the public or the shopkeepers. The slow progress of New Oxford-street towards respectability is a case in point; and, at the present time, it has hardly got into the position it ought to occupy as a leading thoroughfare. It is obvious, therefore, that the ways and means for accomplishing any of these undertakings are of the utmost importance; and to this subject we will devote a few preliminary observations, as the sources from whence such funds are derived must of necessity exercise an important influence, both on the character of the projects themselves, and on the rapidity and manner in which they are carried out.

First, then, it is well known, I have no doubt, to all, that the revenue of the estates belonging to the Crown is made over to the executive Government in return for what is called the civil list, or Parliamentary allowance to the Sovereign. These estates are vested in commissioners during the life of the reigning Sovereign, the reversionary interest of the estates being reserved for his successor. These estates themselves are therefore kept intact, the commissioners dealing with the revenue as may be deemed advisable in the interest of the State. It is with a portion of this revenue, aided by grants and loans from the Consolidated Fund, that many of the improvements at the West-end, where the Crown has valuable estates, has been effected; the two-fold object of accommodation to the public and increase of value to the reversion of the estates being for the most part kept in view.

Next, perhaps, we should mention the corporation of the city of London, who have a large revenue derivable from property in their possession, and a great proportion of this is annually devoted to improvements from which no direct profit accrues to them. They have also been intrusted, from time to time, with the administration of large funds which have been raised with the sanction of the legislature for making new streets and other works, such as London Bridge and approaches, the Royal Exchange approaches, and others of equal importance. The chief source of the revenue which they have thus administered is the well-known coal-tax. This duty consists of 1s. 3d. per ton on all coals brought within a radius of about 20 miles of the City, and was originally granted in the time of William and Mary, for the relief of the orphans

and other creditors of the city of London, and has been continued from time to time by various Acts of Parliament, which point out the specific purposes to which it is to be applied. Now the coal-tax produces 240,000*l.*, and in 1836 it was about half that amount. The commissioners of sewers, also, of the city of London have a separate fund raised by taxation, out of which they are constantly, bit by bit, improving existing streets and setting back projecting houses whenever an eligible opportunity presents itself for so doing. There are also the local Boards, and the Metropolitan Board, who have certain powers of taxation, and now generally administer the funds derived from public sources for most of the important civic undertakings. A further source of revenue in years now gone by, was the profit derived from the State lotteries; and with it Westminster Bridge and the improvements at Snow-hill were partly executed. The profits were between 300,000*l.* and 400,000*l.* per annum. This was rather too good a sum to lose on the score of morality; and the committee, if they did not actually recommend, very strongly suggested that there would be no harm in raising by way of lottery (or, as some of the witnesses put it, availing themselves of voluntary taxation), a sum of about 120,000*l.* per annum, to be appropriated to improvements from which the public themselves would derive the benefit.

Bridges.—Facilities for crossing the river are perhaps the most important to a city like London. Bridges, therefore, seem to claim our first attention; and first among these comes London Bridge. We are all familiar with the aspect of old London Bridge, as it appears in old prints and engravings. There is a very good view of it in the Vernon Gallery, with its houses, gateway, mills, chapels, and narrow arches. The Great Fire of London, in 1666, destroyed most of the buildings, and damaged the bridge; they were, however, restored in a great measure, and so remained till about 1754; when an Act was obtained for clearing off the houses, throwing two of the arches into one, and otherwise improving the bridge. This was done from designs by Sir Robert Taylor and Mr. Dance; and as it stood after this, the bridge consisted of nineteen arches of various spans, the water-way at low water being only about 231 ft., while the space occupied by the piers and starlings was 700 ft. This of course was a serious obstruction to the traffic; and at length, after having been duly sat upon and reported upon by various committees, an Act of Parliament was obtained in the year 1823 for the erection of a new bridge. This was commenced in 1824, from the designs of Mr. Binnie, and opened on the 1st of August, 1831. The bridge is built of stone, and now consists of five arches, with a water-way of 690 ft., and a space occupied by piers of 92 ft. only. The cost of the bridge was about 426,000*l.*, which was raised principally from the Bridge House Estates, belonging to the Corporation.

The Act of Parliament for the construction of Blackfriars Bridge, which was originally called the Pitt Bridge, was obtained in 1756, under powers given to the corporation of the city of London, who were empowered to raise a sum of 30,000*l.* per annum by tolls, to pay off part of the expense. Out of a large number of designs, among which were some by Smeaton, Chambers, Dance, and others, that by Mr. R. Mylne was eventually selected. It was commenced in 1760, and completely opened in 1770. It was built of stone, and consisted of nine arches, leaving a water-way of 788 ft. The cost of the bridge and approaches was about 265,000*l.*; of this amount about 166,000*l.* may be put to the expense of the bridge itself. However, from some inherent defect in the foundations, the arches sank; and between the years 1832 and 1843, 105,000*l.* were spent in repairs; and since that time it has been a source of constant expense to the corporation. The parapets were taken off and replaced by wood; and within the last year or two the Corporation obtained a number of designs, and the new bridge, which is to be somewhat similar to that of Westminster, is now being erected, under the superintendence of Mr. Joseph Cubitt.

Westminster Bridge was commenced in 1739, from the designs by Labeleye, and finished in 1750; about 300,000*l.* were expended. It consisted of fifteen arches, leaving a water-way of 820 ft. This bridge also, like Blackfriars, seems to have been a constant source of annoyance and expense. Even during its building, in 1747, one of the arches failed, and had to be made good at a large expense. The whole structure became so bad that, as we all know, it was

* From a paper by Mr. Penfold read at elsewhere mentioned.

taken down and replaced by the present structure from the designs of Mr. Pogo, which was commenced about 1855. There are seven main arches and two or three smaller ones. The bridge is nearly twice as wide as the old bridge, being 85 ft. against 44 ft. of the old. The bridge was erected in halves, the old remaining while half of the new was building: this delayed the completion. The cost was about 316,000*l.*, besides the approaches.

In 1809 the Strand Bridge Company was incorporated, and they were empowered to raise 500,000*l.* in shares, and a further sum of 300,000*l.* on mortgage. Further powers were obtained in 1816, and the name was changed to Waterloo. The bridge was commenced in 1811, from the designs of Mr. John Rennie, and opened in 1817. It consists of nine arches, with a water-way of 1,080 ft. The original estimate for the bridge alone was 680,000*l.*; and it deserves to be recorded, to the credit of Mr. Rennie, in a work of such magnitude and so much uncertainty, that the estimate was not exceeded by more than 5,000*l.* The total cost of bridge and approaches, with expenses, was 1,030,852*l.*, which was raised by shares, annuities, and bonds. The company met with great opposition from the City; and Mr. Mylne, their engineer, stated before the committee of the House of Commons that it would be impossible to build a bridge on the site; and, if built, it could not stand. It, however, has survived to the present time, and seems likely to last still longer; while Mr. Mylne's bridge is fast disappearing from the face of the earth. Whatever advantage this bridge may have been to the public, the shareholders have not derived much profit; and although, since the opening of the Waterloo Station, the traffic has increased, some years ago the 100*l.* shares might have been obtained for about 3*l.*; and the clerk to the company, in evidence before a committee in 1836, on a question of opening the bridge free of toll, said that the then market value of the whole property—shares, annuities, and bonds—was 303,841*l.*, or about 700,000*l.* less than the cost.

Southwark Bridge, an iron bridge, was also designed by Mr. Rennie. It has three arches, with a water-way of 660 ft.; it was commenced in 1814, and opened in 1819. The expenditure of capital for the bridge and approaches, and other expenses, was 666,486*l.*; of this, 186,000*l.* were paid for purchase of property, 278,000*l.* for masonry to bridge, 143,000*l.* for iron work to bridge and approaches, and 60,000*l.* for miscellaneous charges. About 150,000*l.* were raised by preference shares, at 5 per cent., and the holders of these are the only proprietors who have received any dividend, and these only at the rate of 2 or 3 per cent. The 100*l.* shares might have been bought at 2*l.* or 3*l.*

Vauxhall Bridge is also a cast-iron bridge; it was designed by Mr. James Walker, and carried out by him, though Mr. Rennie and Sir James Benthall seem to have had some hand in it. It was commenced in 1811, and opened in 1816. It has nine arches; and the cost was about 300,000*l.*

Lambeth Bridge was erected by a private company. It is on the suspension principle, being of wire cable. The bridge has three spans, each of 280 ft.; the piers are cast-iron cylinders, the same as Hungerford. There is a carriage-way and footpaths, the total width being 32 ft. The works cost about 28,000*l.*, the whole cost for land, &c., being 40,000*l.*

Chelsea Bridge, which connects Battersea Park with Pimlico and Chelsea, is a suspension bridge. The width of the river at this point is 737 ft., which is crossed by three spans, the central one being 352 ft. between the piers. The roadway is 32 ft. in width; the footways overhang, and are each 7 ft. 6 in. wide. The four towers which support the chains are of iron, except about 15 ft. at the top, which are of copper partly gilt. The bridge and the embankment in connexion, are from the designs of Mr. Thomas Paine.

Streets.—The first, perhaps, that claims our attention is that of Regent-street, and the works connected with it. The immediate cause of its being undertaken was the desire of the Commissioners of Woods and Forests to improve the Marylebone Park Farm, belonging to the Crown, and the lease of which had just expired; and also (through the influence of the Prince Regent) to form a good means of communication from Carlton House to this estate, where it was proposed that a residence for him should be erected. There was a competition, with a premium of 1,000*l.*, for laying out the proposed park and

forming the necessary communications; but the result does not seem to have been satisfactory; and in the event a plan, which was a combination of the designs of Messrs. Leverton & Chawner and Mr. Nash, was adopted. This was about 1813; and, in a few years, the Regent's Park, as we now see it, was fenced in and planted, and the terraces built. The net cost of laying out the Regent's Park was about 20,000*l.* This was paid out of the revenue of the Crown estates. Regent-street was opened some time in the year 1819. The total cost of forming the street, for compensations, and other expenses, seems to have been about 1,406,000*l.*, and the expense of the sewer 60,800*l.* besides. Of this amount, 515,000*l.* were paid out of Crown revenues, and 800,000*l.* out of the Consolidated Fund.

As the improvements in Regent-street drew near their completion, those in the neighbourhood of Charing-cross were commenced, and comprised the extension of Pall-mall into the Strand, by cutting off a part of the churchyard of St. Martin's, clearing away the King's-mews, and the formation of Trafalgar-square, and widening the Strand and St. Martin's-lane at their junction with the extension of Pall-mall. Up to the year 1835 these improvements had cost about 1,500,000*l.*, principally defrayed out of the revenues of the Crown lands, and carried out under the superintendence of Mr. Nash.

In the meantime considerable improvements had been going on in the City. London Bridge I have already alluded to; and, in connexion therewith, the street from the Mansion House to the bridge, now called King William-street, was carried out, as also the continuation of that thoroughfare to Finsbury and the New-road by way of the present Princess-street and Moorgate-street. These works were carried out under the superintendence of Sir Robert Smirke and Mr. Montague, the City surveyor. King William-street cost about 212,000*l.*; Moorgate-street about 156,000*l.*; the approaches on the Surrey side about 300,000*l.*; and other matters in connexion made the total cost about one million, and this burden was laid on the coal-tax. St. Thomas's Hospital, the burning of the Royal Exchange also, and its re-erection, necessitated great improvements in the neighbourhood of the Bank and Mansion House; and these were also paid for out of the coal-tax fund. Some new openings in connexion with Waterloo Bridge were also carried out at this time.

In 1836, a committee of the House of Commons was appointed, of which Alderman Wood was chairman, to inquire into a variety of schemes connected with London and Westminster, among which were the improvement of Skinner-street and Snow-hill by a viaduct; a new street from St. Paul's to Bricklayer's Bridge; from Farringdon-street to Clerkenwell; from the Post Office to the Bank; Westminster Abbey to Pimlico; Finsbury-square to Whitechapel Church; St. George's Church to Blackfriars Bridge and Waterloo Bridge; and opening Waterloo Bridge and Southwark Bridge free. Mr. Donaldson, Mr. Montague, Mr. Cottingham, and others, gave evidence, and submitted plans. In 1838, the committee were again engaged on the same subject, and they recommended Cranbourne-street, Endell-street, New Oxford-street, and Spitalfields, for some of which plans had been prepared by Mr. Nash.

In 1844 and 1845, Cranbourne-street, New Oxford-street, and Spitalfields-street were opened, at an expense of about 841,000*l.* These were carried out under the superintendence of Mr. Pennethorne.

The improvements in Westminster, and notably Victoria-street, were entrusted to commissioners, who were incorporated by the Westminster Improvement Act, 1845. This, however, did not work very satisfactorily, and an Act was required nearly every following year up to 1852 and 1853, giving powers to raise various sums of money amounting to something like 250,000*l.* The commissioners also obtained powers to lend money to builders, which they did to the amount of about 400,000*l.* They also issued a large number of bonds without sufficient security; these got in the market, and became depreciated in value; the creditors interfered, and there was the usual crop of Chancery suits. And in the years 1859 and 1860, Acts were obtained for reconstructing the commission on a new basis, and making arrangements for paying off the creditors, Mr. Tite having been persuaded to take a leading part in the new constitution.

Canon-street had also been opened in the mean time, at an expense of about 500,000*l.* paid chiefly by the Corporation of the City.

The Act for the new street in Southwark was obtained in 1857. The works were commenced in 1861, and the whole of the street was thrown open to the public on the 1st of January, 1864. The street is about two-thirds of a mile long, and the estimated cost was 519,424*l.*, including about 9,000*l.* for sewer. Instead of the sewer, a subway was carried out at an expense of about 25,000*l.*, including which the total cost of the street has been 557,051*l.*, a result creditable to Mr. Marrable, who carried it out; and, it is anticipated, that of this amount about 267,000*l.* will be recovered by sale of land, &c.

Almost every engineer and architect who has taken any leading part in such matters, from the days of Sir C. Wren downwards, has been pressing on the notice of the authorities the necessity of embanking the Thames. Almost every committee has reported on the subject and earnestly recommended its adoption. John Martin, the painter, made great efforts, extending over twenty-five years, to get a design he had made carried into effect. In 1842 a commission, with the late Duke of Newcastle for chairman, was appointed, and many designs were laid before them; but nothing was done except here and there in connexion with other works, and by private individuals, according to a line laid down by Messrs. Walker & Burgess; and it was not till 1861, after the Metropolitan Board of Works had been empowered to carry out the main drainage, and the inhabitants of the Strand, along which the low-level sewer was to be carried, became alarmed at the prospect of being enclosed in a hoarding for a year or two, that any serious steps were taken to carry out this long-contemplated scheme. In this year, another commission was appointed, who took evidence and received a large number of designs, one by Mr. Shields, being the basis of that now proposed to be carried out. The commission recommended the Embankment, and a new street from Blackfriars to the Mansion House. An Act was then passed, providing funds for the Embankment, by continuing the Coal and Wine Duties till 1872. The necessary plans were then prepared, and, after much opposition from the Duke of Buccleuch and others on the question of carriage traffic, the Thames Embankment Act was passed in 1862.

This Act authorises the construction of an embankment, with a roadway of 100 ft. wide and the necessary divisions of existing streets therewith. The width of the Embankment varies from 450 ft., near Buckingham-street, to 180 ft. by Somerset House. The works were commenced at the end of 1863, and two contracts are let; one from Westminster to Waterloo, by Mr. Furness, at 520,000*l.*; and the other, from Waterloo to near the Temple, by Messrs. Ritson, at 229,000*l.*; this includes the Embankment sewer and subway.

The Act for the Thames Embankment did not include the powers for the new street to the Mansion House, the Act for which was obtained in 1863 by the Metropolitan Board, after some sparring with the City authorities, who wished to have the administration of the funds and the honour of carrying out the work.

The railway will pass up the middle of this street, which is not yet commenced. The street will have a subway.

In revenge for slight put upon them in giving to the Metropolitan Board the works of the new street within their boundary, the Corporation applied for, and obtained, last session, the Act for the Holborn Valley Improvement.

SANITARY WARNINGS DISREGARDED.

THE occurrence, in Nichol-street, Bethnal-green, of yet another of those dreadful plague-warnings which are following each other up, in rapid and still more rapid succession, like a ghastly procession of evil-foreboding skeletons, suggests to us that this same Nichol-street was distinguished in "Another Blow for Life," as a fitting example of all that is vile and death-dealing in the horrid metropolitan district which is now making itself so notorious before the public. In alluding, at page 12, to the operation of the Local Management Act, and the mistaken idea that the district surveyors under the Building Act, whose duties are entirely structural, were responsible for neglects occurring under the Local Government Act, the author says:—

"For the most part, therefore, the Act is nugatory,—we had nearly written, with Hood, Newgatory,—excepting where, as in Islington, and some other parishes, the inspector of nuisances, or other qualified person, obtains

the proof of occupancy, calls on the district surveyor for a report as to the structural deficiency only, and carries the case before a magistrate, in accordance with the Act. *This is done at Bethnal-green, and scores of murderous dens would be shut up.* It is no answer to say the inhabitants prefer to live, or (more truly) to die, in such rooms rather than meet the difficulty of finding a better room elsewhere. They must not be allowed to do so. Suicide is not permitted; still less suicide that leads to the death of others not desiring to die, and to the pauperising of a still larger number, who must be maintained by the more sensible and provident.

One of the worst examples, that of a room (underground) in Nichol-street, No. 59, is then described and illustrated by engravings. The author then proceeds to remark on the "frightful picture of what met the sight in an upper room of a neighbouring house," and reiterates the immediate object which he had in view in drawing such special attention to Nichol-street, Bethnal-green,—an object

"which is special and precise,—to call for a sufficient water supply; the periodical removal, at short intervals, of all refuse; and the enforcement of the law in respect of the occupancy of underground dwellings."

It is now much more than twelve months since these desiderata were so earnestly called for; but we regret to observe, from the report now to be given from the daily newspapers, that Nichol-street, Bethnal-green, is no better, in respect to filth and want of water, at least, than it then was.

An investigation respecting the cause of the death of Frances Hoff, aged 48 years, has been held at Bethnal-green.

It appeared from the evidence that the deceased lived with her married daughter in a room at No. 12, Old Nichol-street. There were five rooms in the house, each of which was let to a family. The deceased, who was eight persons in all lived in it. The sanitary state of the place was described as being dreadfully bad; the stench was abominable and awful. The yard was wet. A month or two back there had been no water laid in for four or five weeks at a stretch. The wells had not been cleaned or repaired for an indefinite period, and the cesspool had not been cleaned out. The parish doctor, Mr. Heycock, was called in to the deceased. He pronounced her to be dying from fever, and she died in half an hour afterwards. Her son-in-law had the fever too, and his wife had to be removed to the hospital.

Sarah Ann Raysbeck, a lodger in the house, said that while they were without water they continually complained to the landlady, Mrs. Hurst, who lived next door, but she only said, "You must do as I do—do without it, get it where you can." Witness told the landlady that the deceased was dead, and in an hour he came down with a man, who put two bags of lime and gravel, &c., into the cesspool to fill it up. The man told her to tell any one that might come that the nightman had carted the soil away; but none of it had been removed; it was only covered up. He left in the evening, before the job was finished. When he came back in the morning, witness's husband put his head out of window and said, "You are too late; the coroner appears to have been here and seen everything." The witness said, "You don't see what I?" and went away, leaving the place as the jury found it.

Dr. Letheby, professor of chemistry at the London Hospital, said that he inspected the premises in question. The house was dilapidated. The ground-floors and the flooring of the passages were decayed, and permitted the escape of the effluvia from the soil. The water seemed to come into the upper rooms from the roof. The ceilings were broken up. The yards were small and in a filthy condition. The closets were undergoing repair. There had been no proper drainage of the place, but the soil was washed down a small pipe, and was carried into the earth of the neighbourhood for a considerable distance. In close proximity to the closet was the water-but, which was uncovered and open to the reception of filth, and to the escape of effluvia. The yards were small, and the neighbouring houses and Shepherd's-court, in the rear of them, were in the same condition, the privies overflowing with soil, the water-butts open, &c. He had rarely seen places in a worse condition.

The Coroner, in summing up, said that the state of the dwellings and neighbourhood in question was disgraceful. It was creditable to the landlady, a man holding an exalted position in the Kingdom, to have part of his income drawn from property in such a condition; and then there came the middleman, who made his money by grinding the poor. The next parties to blame were the sanitary officers of the parish, who permitted such most dangerous nuisances to exist.

A Juror asked who the freeholder was? Mr. Bainbridge, surveyor to the vestry, said he believed the Marquis of Chandos.

The Jury, after a long deliberation, returned the following special verdict:—"That deceased died from typhoid fever, accelerated by the sanitary condition of the neighbourhood and premises in which she died; and they consider that such condition is dangerous to human life, and shows gross neglect on the part of the freeholder, as well as on the part of the sanitary and medical officers of the parish; and from the evidence it appears that there is not a sufficient number of sanitary officers for the inspection of so large a parish."

The accounts given in this report of the state of the street are as like as possible to much that was said of it and of the district which it was shown so fully to represent, in our pages long ago.

The serious increase in the mortality of Shrewsbury of late years is still engaging the attention of the local papers. One of these, called the *Journal*, appears to be an exponent of the dirt interest, which is very active, like the dirt itself, in Shrewsbury. The *Chronicle*, on the other hand, gives convincing proofs of "the connexion between dirt and death" as "one of those stern facts which few will be prepared to deny." A heavy responsibility rests with the

local press of a town in respect to its line of conduct as to sanitary matters. We have always been grateful to the *Shrewsbury Chronicle* for the proper spirit in which it received our somewhat severe strictures on the state of the town in our leading articles of 10th and 17th August, 1861. In reprinting these the editor said:—

"While on this subject, we may allude to an article in our sixth page from the columns of the *Builder*, wherein the writer draws a frightful picture of the sanitary state of the town. It is evident he has sought out some of the worst places,—which are, however, quite as horrible as he has described them; and, taking them under their most repulsive aspect, has presented such a picture as ought to induce our Improvement Commissioners to inquire from their inspector along such things really exist."

That they "really exist," the inhabitants of Shrewsbury, we are glad to perceive, are now convinced; and, should Sir George Grey be also convinced, in spite of the "explanation" of the corporation, there is now a strong hope of speedy sanitary amendment and consequent diminished mortality. As we remarked in our leader of 17th August, 1861,—

"One man can do but little: Hotspur could not control the result of the battle of Shrewsbury. To accomplish a decrease of the death-rate there must be accord and determination; in other words, a long pull, and a strong wall, and a pull altogether. It is to be hoped the men of Shrewsbury will go in and do it."

It has been urged by Dr. Lankester that mortuaries for the dead, to prevent the necessity for poor people living and even sleeping with their dead before burial, should be established; and a correspondent of the *Morning Post* draws attention to the fact that the Vicar of Heston suggested the same thing "some months since." The suggestion is a good one, and ought to be realized without loss of time; but, had the *Post* correspondent been a reader of the *Builder* some years since—nay, a good many years since—he would have known that the desirability of establishing mortuaries for the dead was then repeatedly urged in our pages.

NORTHUMBERLAND STREET SCHOOLS, IN THE PARISH OF ALL SAINTS, POPLAR.

The establishment of these schools is mainly owing to the energy and exertions of the Rev. T. W. Nowell, the rector of Poplar. The first stone of the new buildings was laid on Monday, the 21st of November, by Mrs. Money Wigram, in the presence of the Lord Bishop of London, and an influential body both of clergy and laity.

The schools are being erected in the midst of the densely-populated parish of Poplar, and comprise accommodation for about 900 boys, girls, and infants, together with class-rooms and two complete teachers' residences.

The external construction is of stock bricks, with red bricks in window-arches, and in parallel bands on the wall face. The internal face of the school and class-rooms is also worked fair, with red brick courses every 2 ft. The ground-floor is appropriated for the boys and infants, and their class-rooms; the upper floor for the girls and the two residences.

The contract for the buildings has been taken by Mr. W. Howard, of Chandos-street, Covent-garden, for 3,687*l.*, to whom, also, will probably be entrusted the erection of a church in the same parish, about to be built in the East-India Dock-road.

The architects, both for the schools and the church, are Messrs. Francis, of Upper Bedford-place, London.

CHORLTON UNION HOSPITAL, NEAR MANCHESTER.

The hospital of which a plan is given on the adjoining page is now in course of erection at Withington, about five miles from Manchester, for the guardians of the Chorlton Union,—a union said to be one of the largest, if not the largest, in the kingdom. The population of the district has increased enormously during the last five or six years; and the great rapidity in the growth of pauperism has induced the guardians to undertake the important works which are now in progress.

Some years ago the guardians erected a large workhouse; but the hospital part of the building has long been found utterly inadequate to meet the requirements of the union, the inmates being frightfully overcrowded, and all kinds of infectious diseases being of necessity indiscriminately mingled in the wards. The absolute necessity of a change led a few of the guardians

to study the subject very carefully, and the result of their inquiries was a determination to erect a new hospital, on the pavilion principle, on a plot of land at the back of the workhouse buildings, and to appropriate the present hospital as lunatic wards.

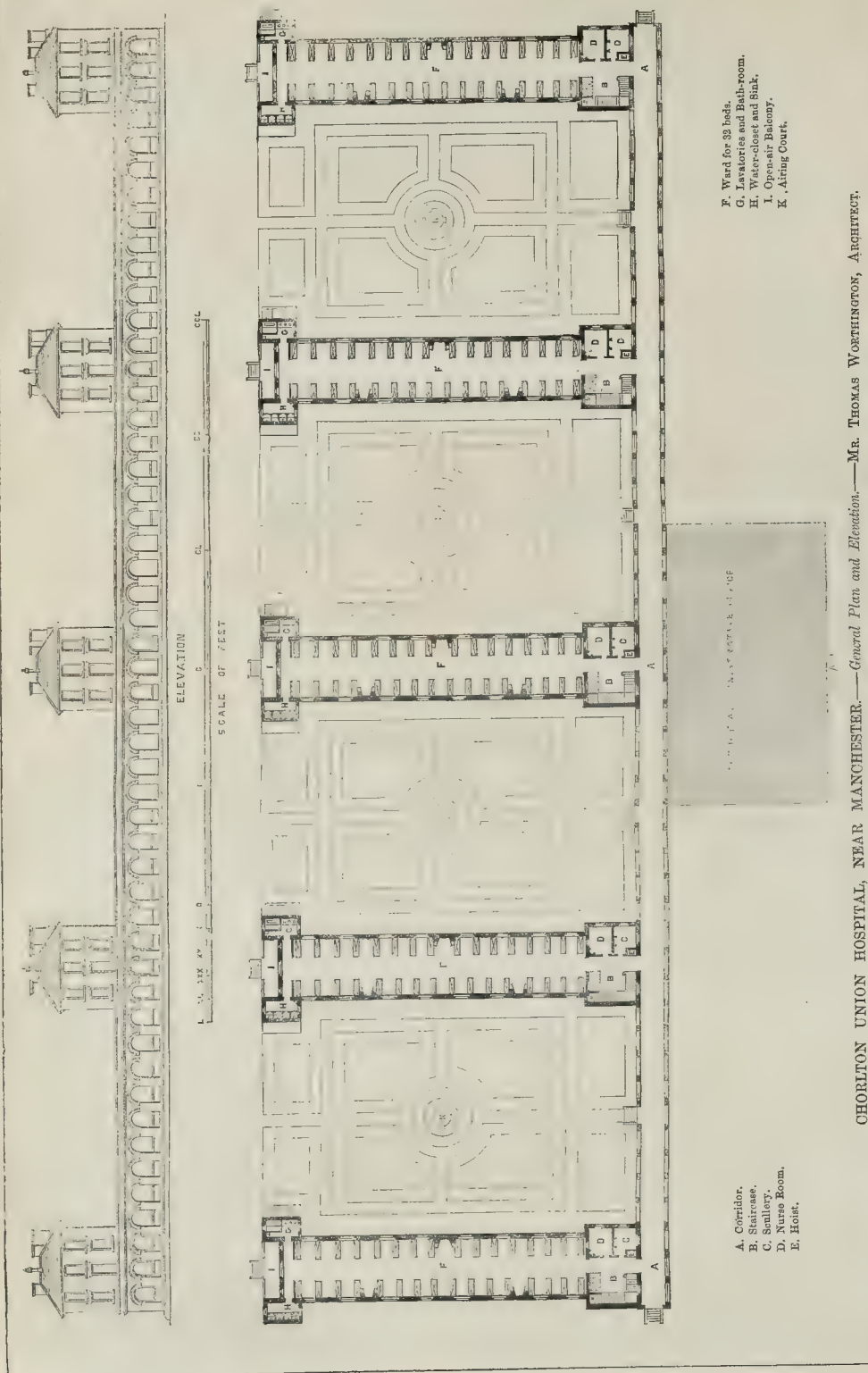
The plan we illustrate, which gives accommodation for 500 beds, is only a part of the ultimate scheme which will embrace eight pavilions, and it is probable that very shortly the three other blocks will be proceeded with. Mr. Thomas Worthington, of Manchester, is the architect to the guardians, and the contract for the execution of the works has been taken by Messrs. Warburton. The architect tells us that he has largely availed himself of the articles and suggestions made in the columns of the *Builder*, and of the valuable works of Miss Nightingale and Mr. Robertson, on hospital construction. He has also visited many of the most important hospitals in Brussels, Paris, Bordeaux, and other places, previously to preparing his plans.

The buildings were commenced last spring, and it is expected will be completed in the course of the present summer. They consist of five pavilions connected by a long arched corridor. Each pavilion is 124 ft. long by 24 ft. wide, containing three floors, and ninety-six beds for patients, in addition to the small rooms for the nurses, adjoining the wards. The height of the wards is respectively as follows:—Ground floor, 14 ft. 6 in.; first floor, 14 ft.; top floor, average of about 15 ft. The wards are entirely warmed by open fires, three in each ward, each 5 ft. wide and 4 ft. 6 in. high. They project about 3 ft. into the wards, and it is intended to surround them entirely with firebrick, the coal being confined simply by light iron bars. The windows are 4 ft. 8 in. wide, in three divisions; the two lower portions opening like an ordinary sash, and the top part being pivoted; while a small portion of the top of each window is provided with a narrow passage for air the full width of the window, but guarded by a sloping iron frame covered with fine wire gauze, so arranged as to distribute the air, and give it a direction towards the centre of each ward. These windows reach from 2 ft. 9 in. above the floor to within a few inches of the ceiling. Each patient will have an air-space equal to about 1,350 cubic feet, which is very considerably greater than the regulation quantity defined by the Poor-law Board.

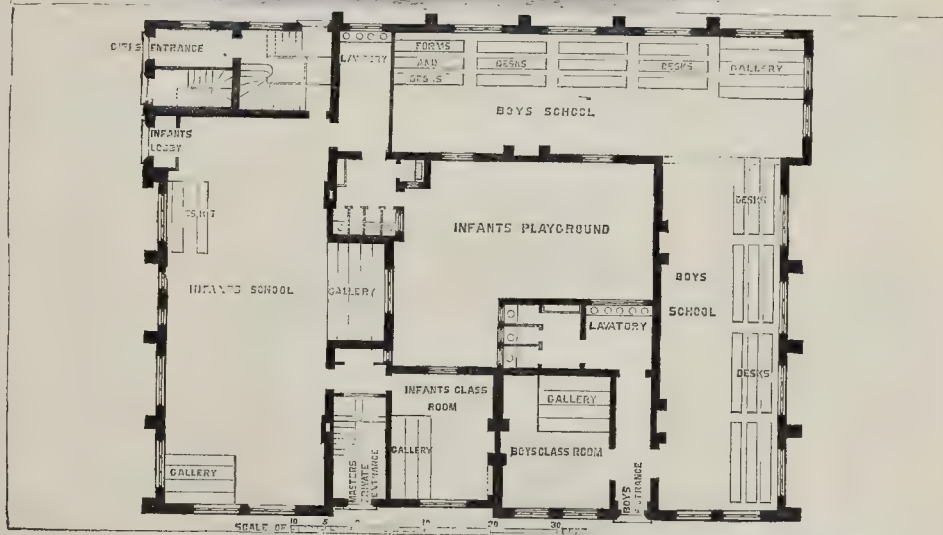
The arrangement of the latrines and bath-rooms has been the subject of very careful consideration. It will be observed that the position of the windows in the latrine department admits of a current of air being constantly kept up between the wards and the W.C.s. The bath-room and lavatories are in the opposite projection, and in the angle of this wing are the dust-shoot and foul linen shoots; the former being of iron with hoppers on each floor, and discharging into a small sunk pit outside the building; the latter having its outlet into a ventilated chamber in the basement. A large ventilating trunk is provided to carry off the foul air from these flues terminating in a revolving ventilator. Between the two wings containing the latrines and the bath-rooms, on each floor, is an open-air balcony with a large sash-window, opening so that a full-grown man may walk out without stooping. This window reaches, like the others, to the ceiling, and over the door at the opposite end of the ward is a louvre window, also reaching to the ceiling, worked by a lever and rod, so that a rapid change may be made in the air of the wards by opening these windows at the two extremities, when the air may from special causes have become foul or oppressive. The balcony looks over a wide extent of green fields, and it is hoped will prove a feature of value to convalescent patients.

A point of the greatest importance is the distance between the pavilions, and this, after much discussion, has been fixed at 100 ft., or more than twice the distance between the pavilions at the great hospital at Bordeaux. At the Hospital Lariboisière, Paris, the distance is 65 ft.; at the new Herbert Hospital, Woolwich, 64 ft.; at St. Jean, Brussels, barely half that distance. This interval, it is believed, will allow of a sufficient circulation of air round the several buildings, and as the country about is open and used chiefly for agricultural purposes, it is anticipated that the wards cannot fail to be well supplied with pure fresh air.

The administrative buildings will be placed in the centre of the corridor, and hoists will be provided in the staircase of each pavilion to raise the food to the several floors.



NORTHUMBERLAND STREET SCHOOLS, POPLAR.—MESSRS. FRANCIS, ARCHITECTS.



Plan.

DISCOVERY OF THE BONES OF DANTE.

DANTE ALLIGHIERI, as is well known, ended his days at Ravenna, whither he had retired after his unjust banishment from Florence.

In Ravenna he was the guest of Guido da Polenta, the then Lord of that State; and there, though yearning to return to his native city, he gave himself up to his poetical studies. But Venice began to wage war with Guido, his host; and the latter besought Dante to undertake an embassy to that powerful belligerent State, to attempt to bring her to reasonable terms of peace. He failed to accomplish the end of his mission. The Venetians forbade his return to Ravenna by sea; and, after a fatiguing journey over the marshy pestiferous lands of the east coast of Italy, and sad at heart at the ill success of his negotiations, he fell ill of a fever, and died, September 14th, 1321.

"Guido da Polenta," says Boccaccio, "had the body of the poet laid on a bier, decked with poetical adornments, and this was borne on the shoulders of grave citizens to the Convent of the Frati Minori of Ravenna with due honours; and, in the stone urn or coffer (*arca lapidea*), he caused it *go tem*, to repose, intending to honour the remains of his friend with a sepulchre more beautiful than any before seen."

What the vicissitudes of fortune prevented Guido da Polenta from doing was effected by Bernardo Bembo, prior of the republic of Venice, at Ravenna, in 1483. The insignificant tomb gave place to one of coloured marbles and ornamental sculpture. The original inscription, by Giovanni del Virgilio, a poet of Bologna and friend of Dante, was omitted, and instead, on the right of the chapel, where the ashes of the poet reposed, appeared the still traceable inscription recording the erection of the tomb by Bernardo Bembo. This tomb was surmounted by a half-figure of Dante, by Pietro Lombardi.

In 1692, Cardinal Corsi, legate of Ravenna, again undertook the required restorations and some additions; and in memory of this placed, on the left of the chapel, an inscription relating his deed.

Finally, in 1780, the tomb was again restored, by Cardinal Gonzaga, who took from the left wall of the chapel the inscription of Cardinal Corsi, caused one to be placed in its stead written by Morelli, with an allusion to the restorer Gonzaga introduced in it, and as such the monument has remained to the present day.

In order not to interfere with the late centenary *fetes* in Florence, Ravenna postponed hers until the end of the present month, as we mentioned last week.

There stand behind the monument four arches (bricked up) of an ancient chapel called Braccioforte. It was at first intended to remove them, to give greater space around the monument, but finding they were of as early a date as the ninth century, it was proposed that the arches should be opened only. On the 27th of last month, while removing the bricks from the arches, the workmen discovered, about 60 centimetres from the ground, firmly walled in, a box of pinewood, 80 c. by 30 c., and 31 c. in height, containing, as said the telegram bringing the news to Florence, "the veritable bones of Dante." Inside the box is written:—

"DANTIS OSSA,
A Me Fra Antonio Santi,
Hic posita anno 1677, die 15 Octobris."

On the outside,—

"DANTIS OSSA,
Denuper revisa, 3 Junii, 1677."

The discovery, as may be imagined, has occupied exclusively the attention of all interested in it, in the old city of Ravenna.

At a council held on the 31st, it was decided that the marble tomb of Dante should be opened, to ascertain what it contained. A commission appointed by the Government here, with Otio Vanucci at its head, proceeded to Ravenna, to be present at the opening of the tomb. This was publicly done on the 7th, and two bones of a hand and one of a foot, with a few dried laurel-leaves, alone were found in it. The authenticity of the bones found hidden by the monk is considered confirmed.

Numerous are the conjectures and reports respecting the reason of this concealment. The date agrees with a struggle made to put down everything anti-Papal, and the revered bones of Dante, whose verses of bitter acrimony against Papal abuses were passing from mouth to mouth, might have been feared as a rallying subject,

have been threatened to be removed, and have been hidden by this monk in consequence. Others imagine they were intended to be taken to Florence. Their absence could not have been known in 1780, or Gonzaga would not have lavished any care on the preservation of the monument. The records of his family, as of those of Corsi, will be searched for any light to be thrown on the mystery. In the mean time, the wooden box is to be encased in a strong iron one; and after the *fetes*, at which the bones, jealously guarded and covered with glass, are to be shown publicly, they are to be placed in the monument.

We regret to have to record an act of modern Vandalism that has occurred, since the discovery which has attracted persons from all parts of Italy. To the restorations of Gonzaga—done by Morigia, a native of Ravenna—the arms of the cardinal have been twice added. These, within the last ten days, have been destroyed, and a threat implied that a two-headed eagle, also found among the sculpture, shall be erased also. These hot-headed iconoclasts forget, or are ignorant of the fact, that the Venetian prior and the cardinals Corsi and Gonzaga were alone willing and active in preserving the monument of the Florentine exiled poet, and also of the fiercest Ghibelline who ever lived and wrote.

Florence.

RESTORATION, CONSERVATIVE AND DESTRUCTIVE.

THE ECCLESIOLOGICAL SOCIETY.

THE twenty-sixth annual meeting of this Society was held on Thursday evening last, at the House in Conduit-street.

The chair was occupied by the Rev. William Scott (chairman of committee), who observed that he had been suddenly called upon to preside, in consequence of the absence of the president, Mr. A. J. B. Beresford Hope, who was prevented from attending in consequence of the sudden death of his brother-in-law, Lord Craunbourne, which took place most unexpectedly that afternoon. Referring to the operations of the Society generally, Mr. Scott observed that when they looked back to the state of church architecture six-and-twenty years since, and contrasted it with the improved tone of the present day, he thought they had great reason to congratulate themselves upon the progress that had been made. A badly designed church was nowadays very rare, and such was the rage for re-edification, that the Society had rather to curb excessive zeal than to stimulate the negligent or apathetic.

The Rev. B. Webb read the report of the Society for the last twelve months.

On the motion of Sir C. Anderson, it was received and adopted.

The Rev. Mr. Cox called attention to the propriety of having a choral festival in either Westminster Abbey or St. Paul's Cathedral.

The Rev. H. L. Jenner said there was a choral society at Canterbury, which proposed to hold a festival at one or other of the great metropolitan churches.

The Treasurer's report was received, and the office-bearers of the Society appointed for the next year. Archdeacon Freeman was also elected vice-president of the Society.

The formal business having been disposed of, The Chairman called upon Mr. Parker, of Oxford, to report his experiences in a recent visit to Rome.

Mr. Parker expressed his regret that he had nothing favourable to report. The intentions of his Holiness the Pope were no doubt good, and he was a most estimable and amiable person; but unfortunately for ecclesiastical art, he was surrounded by as ignorant and conceited a set of architects as could be got together in any part of the world. The restorations now going on in Rome reminded one of the buildings put up by churchwardens during the reign of George III. Christian art of every description was being destroyed wholesale, including the beautiful frescoes of the twelfth and thirteenth centuries, the like of which were not to be found anywhere out of Rome. In fact, the advisers of the Pope deprecated as modern all art of a later date than the fifteenth century. There were in Rome two distinct periods of art: the first, the removal from the pagan era; and the second, the millennium of the Christian era; but it was not until about the fourteenth century that the Romans had any style of their

own. He regretted to observe that the wonderful works contributed through three generations by the Cosmeti family were either wholly neglected or wilfully destroyed. The modern architects of Rome prided themselves upon following in the steps of Vitruvius, forgetting altogether that Vitruvius built heathen temples and not Christian churches. He regretted to say that, among other demolitions which were threatened, was the destruction of the wonderful mosaic pictures of the fourteenth century in the church of St. John Lateran. These were about to be destroyed, in order that the choir might be enlarged. He feared that unless some earnest protest could be addressed to the Papal Government, every vestige of early Christian art would be lost to Rome.

A member inquired whether an archaeological society had not been established in Rome.

Mr. Parker replied, that such a society had been formed, and that it had been supported by several learned persons, including many ecclesiastics of the Roman Church, and among them Monsignor Talbot (now Cardinal Talbot), who filled the office of vice-president. Unfortunately, however, he (Mr. Parker) was so unhappy as to fall foul of the Pope, although he had not the faintest intention of giving offence. It seemed that, wishing to visit the lower church of St. Pudenzia, he applied to the abbot for leave to make certain excavations at his own expense in order to assist his studies, the body of the church being filled up with rubbish and earth which had been thrown through the windows. His application was favourably entertained by the department of the Government to which the subject belonged, and a resolution was passed by three to one giving him the necessary permission. However, when the matter was brought before the Pope, he declined to sign the order, having been prejudiced against him by reports that he had been seen "poking about" all the churches in Rome making discoveries. The Pope was angry when he was told that he (Mr. Parker) had made a discovery of the lower church of St. Pudenzia, declaring that it was no discovery at all. In this respect, however, his Holiness was right, because the fact of the church being there was stated by Baronius, although when at Rome he (Mr. Parker) had not had an opportunity of consulting that authority. He regretted, however, for the sake of archaeology, that the Pope had taken offence at his very harmless proceedings, for he stopped his lectures after two had been delivered.

Sir C. Anderson brought under notice certain restorations at the cathedral of Lincoln. He did not think that the present mode of conducting the works there was quite conservative. The stone of which the cathedral was built was a very good oolite, similar to that at Peterborough and Ely, and in his opinion there was no reason whatever for scraping it, simply because it had become necessary to replace decayed stones here and there. At the minister at Beverley, good Yorkshire common sense came to the rescue, and new stones were put in the place of the old ones without any of the scraping process. The scraping to which he referred gave a very spotty appearance to the south and west fronts of Lincoln Cathedral.

The Chairman said the remarks of Sir Charles Anderson reminded him of two effigies of the Courtenay family in Exeter Cathedral, which were chipped away to such an extent that they might be said to be diminished and not restored.

Mr. Street observed, with respect to restorations, that the best thing would be to leave matters as much as possible as they were in 1550. If they were tooling away the stone at Lincoln Cathedral in the manner described, all he could say was that the sooner the dean and chapter were caught and toolled in the same manner, the better it would be for the church. While upon this subject he ventured to recommend the paper issued by the Royal Institute of British Architects, which was the result of much consideration by architects of experience, and was intended to convey instruction to restorers generally, in order to prevent them from doing mischief. A notable case of "tooling away" came under his notice a short time since. When removing the jamb of a window, set up in 1790, he came upon a jamb of fifteenth century work, and upon removing it another was found beneath it of thirteenth century work. Ultimately he was enabled to find enough stones to reconstruct an eastern triplet of the original design. As a general rule, therefore, he would recommend restorers to let well enough alone, and not to destroy things simply because in

their opinion they were old and unsightly. It was, he thought, sad to see the destruction of screens which was going on in several places, simply because the bishop or the archdeacon thought them too high. Some people who did not know better made war upon the screens because they thought it was desirable to see one clean sweep of everything in the church, from the door to the altar. The over-restoration of monuments and mural paintings was also much to be deprecated, and he thought it would be better to leave those things as they were rather than to attempt their restoration in an ignorant or thoughtless manner. Indeed, he did not think we had any right to restore sculpture at all. He had himself on one occasion fished up a Crusader out of a farmyard. He found him short of a leg, but he put him up as he found him, and he believed very few people would detect the fact that he was minus a limb. At Worcester Cathedral he was sorry to find that they were tooling away the buttresses by an inch or so, which he regarded as a great mistake, as he generally found that in cases where the weather-face (so to speak) was removed the subsequent decay became much more rapid. Patching and repairing work which would last three or five centuries was greatly to be deprecated, but some people would continue to do so until nothing of the original remained.

The Rev. Mr. Williams said he could not agree with Sir Charles Anderson with reference to the "tooling" going on at Lincoln Cathedral. He had examined the work very carefully, and he could not see that any tooling had been done in order to get up a new surface on the work. They had used soap and water, certainly, and a round scraper, but the sculpture had not been restored, while the ashlar had been preserved as much as possible. It struck him, however, as singular that when the restorations were made in the beginning of the present century, sandstone, brought all the way from Yorkshire, should have been used for the shafts when there was plenty of the original colite of which the cathedral was built ready at hand. At King's College, Cambridge, the stone presented very much the appearance of that which had been treated as described by Sir Charles Anderson, but it had been carefully washed and repaired here and there when necessary. Mr. Williams subsequently introduced to the meeting Count De Vogué, the Syrian traveller, and invited him to describe the state of the chambers which he had examined in that portion of the East.

Count De Vogué observed that he was indebted to the work of the gentleman who had last spoken for much valuable assistance in his researches in Syria. Should the Christians ever again get possession of the country, the restoration of the churches to their original use would be a matter of little difficulty, for as a general rule they were still (owing to the climate and apathy in the matter of "restoration") in very good preservation. The Count then described the church of St. Simon Stylites, between Aleppo and Antioch, which he said was a cruciform building, containing, in fact, four churches, with a large open space in the centre. It was built in the fifth century, and was one of the most interesting churches in Asia.

After some further discussion, in the course of which the Chairman, referring to the mutilated crusader discovered by Mr. Street, threw out a hint as to whether strict conservatism had not been kept in view in the retention of the statue of his Majesty George II. in Leicester-square, the proceedings terminated.

THE APPROACHING HANDEL FESTIVAL.

The approaching Festival at the Crystal Palace promises to be very satisfactory. The rehearsal will take place on Friday, the 23rd instant. It will include both solos and choruses, and the pieces selected will present great variety, the object being to make the rehearsal day an epitome of the three days of the Festival. The first day of the Festival will be Monday, the 26th, the "Messiah," the second, on Wednesday, the 28th, will comprise a selection from Handel's best known and most popular works; and the third, on Friday, the 30th, will be "Israel in Egypt." The selection on the 28th will present many attractive features. Amongst other pieces it will comprise a selection from "Saul," commencing with "How excellent," and including the chorus, with Carillon's accompaniment,

"Welcome, welcome, mighty king," the chorus, "Envy, eldest born of Hell" (which created so much sensation at the last Festival), and the famous "Dead March." This day's performance will also include the Nightingale Chorus from "Solomon," "May no rash intruder," and, as the 28th instant is the anniversary of her Majesty's coronation, the great anthem, "Zadok the Priest," written for the coronation of George II. in 1727, will be appropriately introduced. A selection from "Judas Maccabæus" will also be given, concluding with the popular chorus, "See, the conquering hero comes." Mdlle. Adeline Patti will sing "Let the bright seraphim" (trumpet obligato, Mr. Harper), and "From mighty kings." Besides "Sound an alarm!" Mr. Sims Reeves will sing the great song in "Joshua," and Madame Sainton-Doby, Mr. Santley, and other well-known artists will take part in this and the other performances.

Some alterations in the construction of the great orchestra are said to facilitate hearing very much. It is proposed, too, to place large screens on each side of the great transept, transforming it into an inclosed concert-hall. Thus an old suggestion of the *Builder* is about to be realized.

The concert last Saturday was very satisfactory and charming: Mdlle. Lucca, in particular, ran away with her audience completely, and was forced to sing everything twice.

The gardens are more bare of flowers just now than we should like to see them, and all the vases scattered about have been emptied of their floral contents, to the detriment of the general effect. The gardens must not be neglected.

THE LANGHAM HOTEL, PORTLAND PLACE.

The Langham Hotel, built by Messrs. Lucas, under the superintendence of Messrs. Giles & Murray, architects, was opened formally on Saturday, the 10th inst., when H. R. H. the Prince of Wales honoured the directors with his presence. The decorations were designed by Mr. Owen Jones, and carried out by Messrs. Graham & Jackson, who have supplied all the furniture. In our volume for 1863 (pp. 531, 532, and 533) will be found a view of the building and plan of the principal floor. We content ourselves, further, on the present occasion, with a detailed account of the kitchen arrangements.

THE KITCHEN OF THE LANGHAM HOTEL.

This kitchen is understood to be the largest in London, its dimensions being 54 ft. long by 48 ft. wide; and the scullery adjoining being 37 ft. by 19 ft. All around the walls are recesses, formed in various parts, in which the cooking apparatus is fixed. The first which attracts the eye on entering is the large roasting range, which is 8 ft. wide and 7 ft. high: the roasting-jack over this is driven by hydraulic power, having provision for cooking at least fifty or sixty joints at one time, and is very complete in its details. Passing thence, we come to a very extraordinary and spirited piece of work, consisting of a series of stoves in a semicircular form, fitted completely round the bay-window at the end of the kitchen: they are 30 ft. in diameter, and are for the preparation of the higher class of viands, under the special control of the *chef*. They include a large hot-plate, with an oven for soufflés, entrées, &c.; several charcoal stoves; gas steamers, constructed so that they cannot possibly smoke; a large bain-marie, for keeping sauces hot, heated by steam; and another gas-stove for the large stockpot, which is kept at work during the whole night, in preparation for the next day's soups. Passing on, we come to the fish-cooking department, where we have the means for frying, broiling, and boiling any quantity that may be required: one large copper pan, heated by steam, is specially reserved for salmon and turbot, the largest of which can be placed whole in this apparatus.

In the stoves for cooking chops and steaks, the fires have all the draught striking downwards, to prevent the meat being smoked and blackened. On the opposite side is the large pastry-oven, and just at the back is the pastry-oven, cool and well-ventilated.

Opposite to the large bow window is the serving window, whence all the viands are dispatched to the upper floors by means of an

hydraulic lift; but before they leave the kitchen they are all brought to a serving table placed near, to be entered by the clerk in his book. This table, which is of bright polished iron, is 16 ft. long by 4 ft. wide, heated from end to end by steam and fitted with two bain-maries, one for soups and one for sauces, so that every dish leaves the kitchen perfectly hot: there are a whole series of hot closets besides, for heating plates and dishes, all fitted with steam chambers and pipes.

Passing into the scullery, we find a range of steamers for cooking potatoes, boiling hams, puddings, rounds of beef, &c., the excess steam being carried by a flue to the top of the building, and then we have a large hot-plate for cooking all sorts of vegetables. On the opposite side are sets of troughs fitted with hot and cold water for preparing the vegetables, washing up plates and dishes, &c. Another department for the scouring of the stew-pans, where the water is kept hot all day long, the large troughs and pans being fitted with steam jackets. In the centre of the scullery is a large closet heated by steam, and a table.

The grand table in the kitchen is 20 ft. long by 6 ft. wide, and has the top made of elm 6 in. thick. Some idea may be formed of the quantity of materials used in fitting up this kitchen when we state, that the total weight of the iron of which the cooking apparatus is constructed is upwards of twelve tons; and there is a complete system of underground pipes by which all the waste steam is collected and made to heat a tank holding 500 gallons, supplying hot water to all parts. The length of iron pipes used in the kitchen alone for steam, hot, cold, and waste water, exclusive of gas, is upwards of 3,000 ft. The fittings were all designed and manufactured by Messrs. Adams & Son, of the Haymarket, and erected by them in the building.

PARIS.

Two new thoroughfares, the Boulevard des Amandiers and the Avenue Lacée are in course of construction in the east of Paris: these, starting from points widely distant asunder, intersect at the Eleventh Arrondissement, at a point not far from the Abattoir Monilmontant.

The Avenue Lacée owes its name to General Lacée, killed at the battle of Gantzbourg, in the Austerlitz (1805) campaign. It commences at the Pont d'Austerlitz, at Bercy, and follows the axis of the bridge, cutting across the Rues de Bercy and de Lyon, the Avenue Damesnil, and passing under the Vincennes Railway by a bridge of considerable span; here it enters the densely peopled quarter of the Faubourg Saint-Antoine, through the mass of cabinet-makers' workshops where are manufactured the luxurious articles of Parisian furniture which find their way all over the world. In the passage of this avenue an ancient wall-fountain at the angle formed by the Rues Basfroi and de Charonne, has been made to disappear, having shared the fate of most of the old Paris fountains, now replaced by *bornes fontaines*. This, built under Louis XV., was one of the usual type of the period;—a brass mask, delivering the water from its mouth, enclosed in a semicircular niche surmounted by a triangular pediment. It is worth knowing, that the most ancient fountain of this nature now existing in Paris, is that at the corner of the Rue Maubée, not far from the Hôtel de Ville: it was erected at the beginning of the fourteenth century.

The works of the new terminus of the Northern Line of France are nearly completed. Covering an area of 30,000 square metres (nearly 7½ acres), the building is composed of five principal parts; in the centre the great hall, on the left the departure saloons, and beyond that the lobbies; on the right the arrival saloons and the covered carriage sheds. This last portion cannot be commenced till after the demolition of the ancient station and the temporary installation of the service in the new buildings. The lateral façade adjoining the right pavilion consists in a series of arches resembling the system adopted for the great hall, and affording to the public ready access to the several arrival departments.

Four great thoroughfares are in progress to complete the group of new streets on the slopes of Chaillot. The Avenues de l'Alma, de Josephine, de Jena, and de l'Empereur. This latter is the most important as it may be considered the prolongation of the Cours la Reine (that magnificent drive from the Place de la Concorde along

the river side towards Passy) as far as the Porte de la Muette, one of the central entrances to the Bois de Boulogne, and consequently the nearest road from the Tuileries or Paris proper to the ornamental waters and the Pré Catelan. In this unbroken drive, as it will be when finished, the length is six English miles. The first three miles from the Porte de Pantin, along the Route de Metz and the Rue de Lafayette, as far as the New Opera House, are in one single straight line. No finer opening exists in Paris than the Rue Lafayette for ready communication between the whole of the North of Europe (for the Northern terminus is in it) and the rest of the metropolis.

HINTS IN CONNEXION WITH LOCAL INDUSTRIAL EXHIBITIONS.

If the Prince Consort had been alive at the present day, he would have felt great pleasure in the development of these institutions, which give promise of being permanent, not only in the metropolis, but also in the provincial towns of Great Britain. Throughout the civilized world; in the capitals of England, Scotland, and Ireland; in Paris, and elsewhere on the Continent, "Great Exhibitions," held at periods long between each, seem now to have become less frequently but as firmly established as the Christmas feasting at the festive season of the year.

The general result of all this development is satisfactory. In the first instance, it shows that there is a strong feeling in favour of gatherings of this description, that have been the means of originating and developing ideas; of enabling manufacturers to form companies, which will show the merits of their goods; and in these great gatherings there is a source of pleasure, either in one department or another, for all kinds of visitors. Many other important advantages might be mentioned, and not the least of these is the rise of the local Industrial Exhibitions in the London districts and elsewhere. There is, if we may judge from the present indication, a prospect of the opening of exhibitions of this kind in villages and districts, where there is only a small amount of population.

When looking with anxiety at the practical working of these exhibitions, we have noticed several hopeful results which lead us to expect better things in future. Amongst these may be mentioned the advantages which arise from persons of different classes meeting together, if only for a short interval; but in nearly every case the working men, whose benefit is chiefly sought for in connexion with these gatherings of themselves, and the articles of their own manufacture, have been too much pushed out of the management and working of these exhibitions, the award of the prizes, &c.; and many of the best men of this class, whose manners, general intelligence, and right feeling, entitle them to fitly take their places of management on committees of this description, feel that, in too many instances, they have been overlooked for the sake of the appointment of persons who seek to distinguish themselves. There is nothing so unpleasant to us as to say what may be hurtful to the feelings of any one, or to give expression to ideas which may seem to reflect upon well-intended, and, to a large extent, useful, endeavours; but, in the end, plain truth, is of far more advantage than puerile and unmeaning praise. We have, therefore, somewhat unwillingly, said this much, and will also again express a strong opinion that, so far as the advantage of individuals is concerned, and as a means of advancing the reputation and pecuniary position of those who have displayed the articles produced by their skill and appliance, the results have not been at all satisfactory.

There are many reasons for this undesirable result, some of which may be arranged as follows:—

1. The neglect of exhibitors to endeavour to distinguish themselves in the branches of their own line of industry.
2. The expenditure of a large amount of labour on articles which have no particular use.
3. There is also the thought that, in the present state of the law of patents and copyright, ingenious inventions, &c., may be appropriated by other than their owners.
4. In the large towns, in the metropolis especially, there is a want of the opportunity of men meeting together who are engaged in simi-

lar branches of labour after the regular hours of work have passed, for the purpose of comparing their knowledge and endeavouring to direct their attention to the best means of advancing themselves and giving interest to these exhibitions.

There are many other considerations which come to mind; but, while thinking of these, we should not lose sight of the fact that these exhibitions are still but in their infancy, and allowance should be made for all the difficulties usually associated with new experiments. We must, however, mention that the committees will, for the purpose of ensuring future success, do well to change much of the present plan of arrangement and selection; for we doubt much the wisdom of the management which gives a prominent place and prizes to such matters as the pen-and-ink drawing which has so strangely roused the fear and anger of the Bank of England authorities, although, to many who have not given consideration to the higher principles and practices of the fine arts the production of a Chinese imitation such as this seems surprising.

However creditable to the patience and even the hand-skill of the producer, this is not one of those things which are likely to advance the welfare of Industrial Exhibitions. To many who do not know the mechanism for some of the stages of engraving on metals, drawing on wood, lithography, &c., the execution of the group referred to would seem to be one of much greater difficulty than it is. By means of tracing-paper, good transfer-paper, a finely-sharpened and firmly-loaded pencil, pens with the requisite varieties of point, and a well-mounted and closely-grained sheet of drawing-paper, a neat and steady-handed person, without artistic ability, might readily produce that which many persons would consider wonderful.

None can be more glad to see the useful development of art in any of its branches than we are, and in the present instance we do not write for the purpose of damaging the fame which the producer of the pen-and-ink drawing has gained; but it is our duty to look at such matters as this from a broad point of view, and in this case consider in what way industrial exhibitions may be benefited by the encouragement of works of this kind.

We trust that the time is not far distant when it will be a curiosity to find in England a workman who is deficient in the rudiments of education, and who cannot also perform at least the simple process of outline delineation of objects; but in the manner in which the generality of the Industrial Exhibitions are at present managed, it is not clear in what way this desirable end either has been or can be advanced.

In connexion with the schools of industrial art which have, under the management of the South Kensington directors, been established throughout the country, there are facilities for not only the display, but also the teaching of this mechanical art in its higher branches. There are also the various exhibitions in both town and country, in which artistic works of real merit are likely to obtain a fair amount of notice; and in many directions there are at present opportunities for fostering art when germs of the right kind have been shown to exist. If therefore appears that attempts of workmen verging upon what may be considered pictorial art, and having no application to the improvement of designs for the general forms, ornamentation, or colouring, of articles of manufacture, should be considered with particular care by committees having the kind of knowledge which will enable the members duly to appreciate such attempts; and in one department there should be gathered together all matters of delineation of value for the general purposes of art manufactures. Here might be displayed rare efforts of neglected genius which may be found in painting and sculpture.

But, as it appears clearly to us, in the Industrial Exhibitions, committees should not give especial encouragement to such matters as bank-note imitation, or to pictures, simply because they have been executed by a pork-butcher or a general-postman.

Even in an artistic way, there is much to be done in connexion with these local exhibitions. Take picture-frames, for instance; and let us see the workmen's ideas respecting them, and show not only their actual work in this way, but also display models and sketches. There are, also, the panels of cabinets, doors, &c., of rooms, or the cornices of ceilings, for which we should have designs. Let us see who can

fashion us the most graceful and useful door-knocker, or bell-handle, or scraper; who can give us the best idea for an arena railing, or a street lamp; and let our tin-plate worker, or tailor, continue to find delight in his sketching; but let him also, if he lives in London, take occasional holidays, or go on certain gas-light evenings and see at the South Kensington Museum how articles in his way have been fashioned and wrought formerly, not only here, but in Germany and elsewhere; and let us have his views, not only on paper, but also in tin or cloth. Our tailor might, perhaps improve his cut by examining the engravings of costume, which he will find ready access to in the print-room. There is great reform still needed in the style of men's wearing apparel; and hints for this purpose might be got in these places.

In the Great Exhibitions, it has been complained, the employers obtained all the credit, and the men were deprived of what was fairly their due. In the local exhibitions this is not the case, except in as far as the employment of large capital gives facilities for the completion of articles at reduced prices; and in the way of finish, in all parts by the subdivision of labour; but in the designing and working of many things the men have now afforded to them rare opportunities of distinction. Workmen who have for long been employed in the manufacture of articles of general use, have peculiar and often valuable views in connexion with them, and these it is most desirable to get gathered together. There is also the ornamental painter's work, in the imitation of woods, marbles, &c., the fashioning of letters, and other things which appertain to this trade. All these, and in the same way the results of the choice labour of other handicraftsmen, should be systematically arranged, not only with a view to distinctness, but also so that they might be readily studied by all interested in them.

Up to the present date the local Industrial Exhibitions cannot be said to have been fairly got into working order; but one principle in connexion with them should be, the reward of utility rather than of what has no especial use; and that the workman who, with ingenuity and skill, applies either ancient or modern devices, should, in such displays as these, be rewarded and meet with praise, rather than the amateur artist who spends time in the execution of matters which will neither raise him to the rank of a Royal Academician, nor assist him in any department of art industry.

There is much more to be said in connexion with this most important subject, but we will just now only remark further, that in the Industrial Exhibitions it might be found of great use to afford space for the selected works of boys and girls of the age of from twelve to fifteen years. By this means, some would be likely to discover the right bent of his or her talent, and get it launched into the proper current for its successful progress.

THE SHEFFIELD SCHOOL OF ART.

THE annual *conversations* has taken place in the Arundel-street building. The visitors, owing to the changed season for holding the meeting, were much fewer than usual. Mr. Roebuck, M.P., and Mr. Tom Taylor, were among those present. Mr. Taylor, who distributed the prizes, said, in the course of his address,—"If I were asked, as an outsider, whether the reproach of indifference to the claims of art still attach to your town, I should naturally appeal, in answer, to the contrast between the lugubrious trio of 1841, that party in a parlour,—all silent and damp,—with this brilliant assemblage, gathered within a spacious, commodious, and elegant school-building; these classes, attended by 250 students in all degrees of art, from its elementary rudiments up to the most elaborate branches of design; these proud records upon your walls of local and national honours achieved and prizes won; the rapid increase in those honours for the last three years, shown in a constantly rising influx of medals from seven to nineteen, till this year it stands at thirty-five,—a spring tide,—thirty being the maximum for any one school fixed by the regulations of the central department. Yet, when I come down to Sheffield, I do not find the local supporters of your School of Design hopeful, nor those employers, as a rule, enthusiastic in its support, highly impressed with its value, or sanguine as to its success. The former tell me that the reduction in the amount of Government aid hitherto given to

this school is, as they fear, likely to be seriously prejudicial, if not absolutely fatal to it; and this is, I am sorry to learn, very much the case with all the schools at the great centres of manufacturing industry throughout the three kingdoms,—at Manchester and Birmingham, at Stoke-upon-Trent and Newcastle-upon-Tyne, at Glasgow and Dundee, at Cork and Limerick. If we look at art as applicable to industrial production, it is evident from all, that a man honestly seeking information on the subject, can see, hear, and read, that the local sense of the value of art is not as yet sufficient to make schools of art self-supporting either by means of fees or subscriptions. The ladies of Sheffield show their sense of the value of sound education in art by attending these classes; but the sons of your manufacturers, those to whom knowledge of the principles of art is, we would suppose, essential to the superiority of their wares, and the rise of their reputation in the great market of the world, do not enter as students here. The manufacturers themselves, I am told, are lukewarm: they do not, it is said, see any direct benefit from the school: nay, I hear of some who actually punish their apprentices by not allowing them to attend the classes of this school; of others who do not scruple to say that they consider it an injury to themselves to educate a class of skilled designers, as it will deprive them of such advantage as they can now obtain over their competitors by securing the services of a solitary designer. When employers are thus short-sighted, have we any right to wonder or complain of laborers or apprentices that they do not see very far; that the artisans or apprentices who attend these schools are apt to show a mistaken sense of the object and value of the instruction given; that they want to be set at once to learn what will be immediately useful to them in their crafts and trades, and are vexed and disappointed, and apt to give up the school in disgust, if they do not get this special instruction at once?

Mr. Roebuck said,—There are things about and around us which no other age has seen. We travel now faster than men ever travelled before. We have compelled the power of nature to our use in a way that mankind never beheld before. But Mr. Taylor says the spirit of beauty is wanting. Now, I do not think that, altogether. I will take rather a warlike instrument—a rifle turned out from the armoury of Whitworth or Armstrong. Is it not a beautiful thing to look at? It is simple: it is designed to do its work with the least possible trouble; it is light and strong. What do you want more? I say that there is a spirit of beauty, but it requires an eye to see it; but that spirit of beauty, I think, does reign, ay, in the midst of England. I like to see men like my learned friend, who belongs to literature, coming down to give his assistance to the manufacturing power of England. It is a distinction which belongs to our age. We have had all the bright stars of literature—Shakespeare, Milton, Bacon, and Spenser,—and when I mention those names, I am sure my hon. friend will rather be anxious to be numbered amongst them; but they never aided mechanical art in England. I see this great advantage, when we can compel men like my friend to come down here among us—working artisans—to aid us with that spirit of beauty which ought to live amongst us.

THE COMING ELECTIONS.

It is unfortunately the case that, in the House of Lords, and the House of Commons also, there are but a very small number who have bestowed much attention upon the promotion of those social and sanitary improvements upon which the lives and health of a large part of the industrious and poorer classes of the country depend. In the House of Lords, the Earl of Shaftesbury,—whose personal labours have been attended with so much good,—finds it to be no easy matter to get a dozen noble lords to attend to matters on which so much depends. It would therefore be a great advantage if, in the approaching elections, we could get into the Commons House a few more men who would pledge themselves to bestow special attention to the life and death question. Twenty additional men who could be depended upon in this respect would, by their cohesion and energy, have much effect on others. During the canvass which will be made, and the meetings which will soon be held throughout the land, it would be well for those who are convinced of the necessity which there is for more

vigorous action in sanitary matters to ask candidates to pledge themselves to support, or, if needful, bring forward measures upon which the condition of the dwellers in both town and country so much depends. Out of about 600 members who will be returned, it would be easy by this means to gain a number of new men, who would with advantage join those whose exertions are well known to have been productive of much good.

NATURE AND ART.

Let never man, from Nature think
The sciences to part:
Creation is in every link
The prototype of art.

Earth is the fav'rite work of God,
By wisdom spher'd in air;
For man design'd, from sea to sod,
Imitatively fair.

Are not the caves on Edin's shore,
Where tempests chafe and weep,
And music lulls the changing floor,
The temples of the deep?

The circlet of the showery sky
O'er the sun's radiant march,
Who shall its holy name deny?
Mercy's memorial arch.

The blending branches of the grove,
The vast stones piled in haste,
The roaring streams, and cliffs above,
Disruption's giant waste.

Primeval bridges of the earth,
Ere art arose were they,
The silent tutors of its birth,
And masters in decay.

By Nature summon'd to aspire
While scarcely art was known,
The rocky cave, the mountain's spire,
Was modell'd forth in stone.

The solid majesty of mass
In mystic Egypt shrined,
The ponderous skill of ornate class,
Growth of the Roman mind.

The beauteous harmony of line
By subtle Hellenes proved
The holy splendour of design,
By Gothic prelates loved.

The sumptuous dignity and grace
By Arab fancy wrought,
The multiples of form and space
The Asian's laboured thought.

All sprang from Nature, grave or gay,
By one enerring law:
The technic elements portray
How each creation sav'd.

From henceforth let not creed or caste
Man and his teacher part:
The future is reacted past,
And Nature nurtures art.

W. R. COOPER.

Working Men's College.

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN AND CLERKS OF WORKS.

The anniversary dinner of this institution took place on Tuesday evening last, at the London Tavern. Mr. Digby Wyatt presided. The usual loyal toasts having been proposed by the chairman, and duly honoured,

Mr. Taylor proposed "The Royal Institute of British Architects." Without the aid of that association neither he, nor those whom he addressed, would be able to pursue their callings as they now did. It consisted of a class of gentlemen whose ability and energy they all appreciated, and without the exercise of whose ability so many fine buildings would not be seen as are now rising in many parts of the metropolis. The members of the Provident Institution owed them much, and he was therefore confident that the toast would be well received. He asked them to associate with it "The Institution of Civil Engineers." They, also, by their talent and industry, had carved out a great deal of work for those whom the Provident Institution represented; and he was sure they would acknowledge the obligation by heartily drinking the toast he proposed.

The toast, which was coupled with the name of Mr. Burnell, was drunk with applause.

Mr. Burnell returned thanks. He said that both the Institutions,—the subject of the toast,—felt deeply the extent to which they were under an obligation to the Associated Foremen and Clerks of Works, for the co-operation which they extended to them, and the zeal and ability which they displayed in carrying out the important and onerous duties confided to them.

The Chairman said the next toast was one which he was sure would be cordially received. It was the health of "Builders, Contractors, and Merchants." He, representing professional men, and many of those whom he addressed representing the executive body, occupied two positions, between which stood the class which he called upon them to honour. They ministered to professional men, and to their employees, and each class derived advantage from them. Independently of that consideration, they had a special claim upon members of the Provident Institution, as that part of its funds which was derived from supplementary sources came from them. Their occupations demanded intellect, courage, energy, and enterprise, and those qualities he had found to be displayed by them in a remarkable degree. They were to a great extent the strength and stiffness of the nation, and therefore he had no hesitation in calling on those present to drink their health.

The toast was duly honoured.

Mr. Patman briefly responded.

The Chairman said he now came to the toast of the evening, before speaking to which he should express his sincere regret at the absence of Mr. Gilbert Scott, who was to have presided, and at the cause which rendered his absence unavoidable. Mr. Scott had the interest of the Institution entirely at heart, and had written him a long letter, stating the grounds on which he would have advocated its claims to continued and increased support. He had a great regard for the respectable body of which it consisted, and wished every prosperity to it, owing to the useful purposes for which it was founded. The president of the Royal Institute of British Architects had also requested him to express his regret at being obliged to be absent, and his sympathy with the objects of the Provident Institution. The toast he had to propose was, "Prosperity to the Institution;" and that prosperity was a thing that ought to be earnestly wished for by all right-minded persons, because the class whom it especially benefited was one that must be greatly respected. No man in a country which thrives by labour could look with a cold heart upon the best representatives of labour. Those whom the Institution included were picked from the working classes for their superior ability, and for the display of intellectual and other faculties which distinguished them from others, and they rose step by step until they were enabled to express the thought and conception of the professional man. They occupied a responsible position, and their labour was all essential for the success of the building art, an art which ministered to the well being of the vast body to whom it gave employment. The class which benefited by the Institution was one which demanded respect also for its providence. The very fact that they had associated themselves for improvement for educational purposes, for fitting themselves for the better discharge of the duties they have to fulfil, and for making provision for those accidents and mischances which might overtake them, proved them to be a thoughtful and a provident body. They had now, he was happy to say, only thirteen pensioners upon their books, and they had gathered together a sum of 3,000*l.* in order to establish the Institution upon a permanent basis. The Institution rested upon the first principle of humanity, namely, that of mutual assistance, the assistance of the weak, who were stricken down; extended to them by the strong and sturdy, who were happily enabled to hold on their way in the path of life. It was much to the credit of the Institution that its funds were solely directed to the purposes of charity. The subscriptions and donations which they received are not devoted to any extent to personal ends, but are sedulously applied to or set aside for the objects for which they were given. He spoke with diffidence of the class which composed the Provident Institution, for he could not but remember, that throughout his life they had taught him much. From builders' foremen and clerks of works much of the most valuable information he possessed had

been derived. Professional men were indebted to them for the all-important assistance they received from them; and as the march of mind went on, and the building art progressed, so would their duties become more onerous and their position more important. They now occupied posts of trust of no ordinary kind, and the providence which enabled them to look forward to a reasonable provision for themselves and those who were dear to them, was calculated to keep them in the straight path, and was thus a benefit to the entire community. He therefore sincerely and hopefully called upon them to give their cordial and practical support to the Provident Institution of Builders' Foremen and Clerks of Works.

The toast was coupled with the names of the governor and officers of the Institution, and was drunk with enthusiasm.

Mr. Henry Lee, governor of the Institution, responded.

The health of the chairman was subsequently drunk with all the honours.

During the evening a selection of music was performed, under the direction of Mr. Fielding. The vocalists were Miss Rose Hersee, Miss Eyles, Mr. Fielding, Mr. Shoubridge, Mr. Ransford, and Mr. Montem Smith.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of the members was held on Friday, the 9th inst., at the House, in Conduit-street.

The chair was taken by Mr. J. H. Christian, the president.

Mr. J. D. Mathews (honorary secretary) read the list of names suggested by the committee as office-bearers for the ensuing year, on which a conversation ensued.

The Chairman, referring to the recent visit of the members of the Association to St. Alban's Abbey, said he regretted extremely not being present on the occasion, but that he was compelled at the last moment to forego what would have been an agreeable admixture of business and pleasure for an engagement of a purely business nature. He moved a vote of thanks to the Rev. Dr. Nicholson, for the facilities which he had afforded the members for inspecting the abbey.

The motion having been agreed to,

Mr. Mathews read a letter which had been received from Mr. Bazalgette, engineer of the Metropolitan Board of Works, stating the pleasure it would afford him at all times to allow the members of the Association to view the various public works under his charge. Mr. Mathews also announced that the annual dinner of the Association would be held on the 27th inst., and that they hoped before the session terminated to be able to visit either Montagu House, Whitehall, or the New India Office.

Mr. L. W. Ridge inquired how it was that the lectures at the Institute were so badly attended. Various reasons had been suggested to him, to which he would not more particularly refer except to say that occasions had occurred on which the persons who attended in the hope of hearing a lecture were informed that no lecture would be delivered.

A member said that no sufficient notice was given of the lectures, and that no intimation was given beforehand of the subjects.

Mr. Blashill said he had only attended one of the lectures, and that was an extremely valuable one in its way; but that, had he known what it was to be, he would not have attended it, because it ought to have been printed, so that it might have been studied with profit elsewhere.

The Chairman said, as he understood it, the lectures were not to be regarded as complete in themselves, but were intended more as suggestions to students as to the line of study they ought to adopt.

Mr. Mathews observed that the lecture he had attended contained an enumeration of about fifty books,—a circumstance which, so far from encouraging, was likely to deter a student. He believed that the members of the Association would have attended the lectures in greater numbers if the inducements held out had been greater. Moreover, on some occasions, when the members did attend on appointed evenings, they were informed that there would be no lecture, which was very like making fools of them.

Mr. Plunbe suggested whether the non-attendance at the lectures might not be accounted for by the circumstance that the

members of the Association did not intend to go up for examination.

The Chairman said he was sorry to hear that gentlemen were likely to hold back from the examinations simply because they did not altogether like the manner in which the Association had been treated by the Institute. It would be like biting off their noses to be revenged on their faces. He recommended them by all means to go in for the examinations; for if they lost the present opportunity, they might find that after they got into practice no time would be afforded for going up. With regard to the Institute, he confessed, for his own part, that he was far from satisfied with the manner in which the memorial of the Association had been treated by that body, and he recommended that some further correspondence or communication should be opened on the subject. He had reason to believe that they had now some friends in the council of the Institute who would get a hearing for their memorial; for it was quite clear that when it was presented last session, it had been received, but not taken into consideration. There was another subject on which he desired to throw out a suggestion, and that was, that greater anxiety should be evinced in future by the members to take part in the discussions of the Association. Possibly the forthcoming dinner might do something towards removing the reluctance of which he complained; as the more the members knew of each other, the less difficultly they would have in speaking on the subjects which they were called together to discuss. He hoped, therefore, that there would be a good attendance at the dinner.

The Chairman stated that as the meeting on the 23rd inst. would be the last of the session, he hoped that members in arrears of their subscriptions would pay up, in order to prevent the unpleasant necessity of posting up their names as defaulters.

Mr. J. W. Penfold then read a paper on "Metropolitan Improvements."

The subject for the next class of design will be, "Interior Perspective;" and on the 23rd inst. Mr. E. G. Turner will read a paper on "Organ Cases."

A NEW FIELD FOR LANDSCAPE-PAINTERS.

SINCE the French Emperor's visit to his Algerian province, the accounts of its rare and picturesque beauty are coming from many pens, and most tempting some of them are,—for, besides the historic interest of the locality, the picturesque charms of the scenery appear to be remarkable. On this point Mrs. Rogers, in a book which she has recently written, says: "A warm genial spring seems really to have set in. To-day we discovered one of the most romantic walks we have yet found in our roving;—in a short, or rather direct, cut to the Bouzareah, through gorges and glens, ascents and descents equally steep, and with views of exquisite beauty, a gurgling stream descending from its mountain-source—flowing over a grey rocky bed—amidst rich foliage of overhanging banks, transported us in fancy, as we stood on the narrow bridge by which it was spanned, to some of the lovely dales of Derbyshire, till some dark, glossy, richly-laden orange-tree dispelled the illusion; and then a sudden opening outspread before us, as with the enchanter's wand, one of the beautiful bays around Torquay, till the cacti and the aloe, and the mosque-like building surmounting the grey stone slope, recalled us to Africa. Cork-trees were in the hollow; and ascending the old Roman road, if such a narrow overgrown path ever really were so, we noticed on the opposite side of the ravine the picturesque effect of an orchard of fig-trees denuded of leaves, and, with multitudinous stems and twigs so white as to appear pasted against the bright green background, they looked like huge branches of white coral. The fields are now covered with the sweet jonquil and the purple iris; but hitherto we have searched the hedges in vain for the snow-drop or the primrose. The mignonette is finer than ours; but the daisy, although larger than those met with in Great Britain, has not the crimson tint; the hawthorn has whitened the hedges and scented the air, and strange flowers are peeping up in anticipation of the floral glory of the summer. Exquisite views meet the eye on the right hand and on the left, and from the heights the scenery is very grand: on one hand are the dark frowning chains of the Atlas, and

on the right the view stretches towards Gilbraltar, which was, however, far beyond our ken; but we saw Sidi Ferruch,—the landing-place of the Gallic conquerors,—part of the western plain of the Metidjah, and all those promontories and inlets, and bays so dear to a painter's eye, especially when bathed in the lustre of the setting sun as we saw them now. Turning from the left we again caught the blue sea calmly rippling on in front of the Hessian dey and the Hammah, encircling in the embrace of Cape Matifon, which one could hardly believe to be about fifteen miles from Algiers; the snow-tipped hills keeping stately guard around, on every side opened out a series of pictures. Why do not more of our R.A. artists come out here? Do they really know that it is but four days from London? Above all, how richly would be their trouble repaid. Poor Mr. Egg, R.A., indeed, came here, but in an advanced stage of consumption, and only to find a grave. His widow is here at the present time, having undertaken the long journey, all alone, for the purpose of erecting a tomb to his memory."

Some of the Roman remains seem to exist in the most perfect condition. In England the incessant changes, the perishable nature of the climate, &c., have destroyed much of the great conquerors left of their handiwork; but in Algiers, houses are to be found perfect in all parts, in which the most elegant ornamentation and the various appliances for luxury and comfort are still to be seen.

BRITISH STAINED GLASS.

IN continuation of the articles on this subject in your last two numbers, allow me to submit some remarks on the most noticeable defects of modern British glass, and on what appears to me to be their natural remedy. I should premise, however, that all the defects which I shall mention may not be found in all the stained glass of British manufacture; but, more or less, the remarks apply to every specimen I have yet seen.

1st. Our stained-glass artists, as a rule, use too much blue.

2nd. That blue is often of a very bad quality, being either semi-opaque, or otherwise objectionable in tone, and much inferior to the beautiful colour used by the artists of Munich, Dresden, and other Continental manufactories.

3rd. Too much white glass is used; and this, with the objectionable blue, gives a hard, harsh, and cold aspect to all the window.

4th. The outlines are very frequently spoiled, and the effect disturbed by blotches of coloured drapery cutting the figures horizontally or obliquely, and causing it to be a matter of no slight difficulty and considerable ingenuity to trace each figure from head to foot. Another objection connected with this is, that often every object is equally emphasized, and consequently figures or accessories intended to be in the background appear on the same plane as those in front, and so add to the confusion.

5th. Flesh is painted too white, or a dirty yellow.

6th. Want of concentration of effect: equally light parts are distributed in the most meaningless and random manner all over the window, especially in large subjects.

7th. Too many colours are used in almost equal proportions.

The preceding are, I believe, the chief defects in the manipulative part of our British glass; but the faults in the conception and design are more heinous. Not to mention the absurd imitation of the worst parts of Mediæval work practised by some manufacturers, nor that puerile conceit which gives a metallic stiffness to the draperies and figures, and calls it "Mediæval spirit" and "feeling," there are sillinesses perpetrated in the name of Religious Art which are only a ludicrous parody of art: expression is in many cases totally ignored; and on faces which are intended to represent divine or glorified beings, the meaningless everlasting stare of the wax doll is substituted. Most of the works give evidence of a very desultory training on the part of the artists: the aim seems to be neither high nor very decided, and the designs smack more of the manufacturer than the artist.

The stained-glass makers may object that they could not get a sufficient remuneration for their labour were they to study their designs more fully; but works of merit will command their own price in this as in everything else; and if the British glass were equal to that of

Munich, no one in this country would refuse to give home talent the preference. But, compared with Munich, Dresden, and some other Continental glass, our own is lamentably behind; and, notwithstanding "J. H.'s" perhaps truthful sneer at the thinness of the Munich glass in Glasgow Cathedral, I know nothing that would tend more to raise our own art than the zealous study of the magnificent windows in that building: faulty some of them may be, but they have at least the merit of telling their story boldly, simply, and without affectation; and it would be difficult to surpass the broad, rich, and luminous draperies, the quiet brilliancy of the skies, and the grand, dignified, and thoughtful heads, which are their leading characteristics. Next to studying under the masters who produced these works, the studying of the works themselves would be, I believe, the surest way to the attainment of those excellences which are as yet unknown in British stained glass.

Your correspondent "J. H." gives it as his opinion that a cool tone should be preferred in stained glass: I fancy that a warm mellow light is the most agreeable—at least, in a building such as a cathedral, where the cool grey of the stone wants something to enrich it. I had the advantage of comparing the effects of the warm and cool treatments in two windows which stand side by side in the crypt of Glasgow Cathedral: one is from Dresden (I think); and though only a single lancet light, is the most beautiful piece of colour I have seen. The subject is "Christ and St. Peter on the Sea," and—so far as I can recollect—a fine red and a delicate straw-colour are used for the draperies; the border is formed by a small gem-like design, in which green, relieved by red, predominates. The whole effect is exquisitely rich, soft, and warm; and it is with an inward shiver that we step from its light into that of a "very cool" St. James of British manufacture, in which blue drapery, "cool flesh," and neutral colour have a disagreeable pre-eminence.

In conclusion let me say, that if I have written somewhat harshly of our infant school of stained glass, it is because I feel that our country—with a school of painting which owns no modern superior, and with sculptures almost rivaling the antique—ought not to be behind in anything which demands harmony of colour and beauty of form.

J. MOYR SMITH.

TRAPS TO RAINWATER PIPES.

In a season of drought the traps at the foot of rainwater stack-pipes frequently become quite dry, and if there are dormer windows in the roof, the gases from the drains are drawn off by the stack-pipes, and flow into the windows, and from the attic rooms find their way into the whole house. With a high house it is not an easy matter at all times to let water into the dry traps. Last summer I thought upon a very simple plan which answers admirably, and gives no trouble. About 2 feet from the ground I had a hole made in the stack-pipe, and inserted a plug with a screw thread upon it, and with a square head. Whenever it is required to fill the traps the plug is withdrawn, and water poured in from a common watering-pot. Decolorizing fluids can by this means easily be sent into the traps, and into the drains. The plan is simple, and although very efficacious, is not in any way costly.

WALTER FERGUS, M.D.

Medical Officer of Marlborough College.

. Particulars were given in our pages not long ago of an improvement in rainwater-pipes, with a view to the remedy of the evil complained of by Dr. Fergus.

HOW MAKE STONE IMPERVIOUS?

SIR,—I have just been called upon to remedy some defects at a parsonage-house, built four years ago. The house stands on an elevated site, facing south-west, and in wet weather the rain penetrates quite through the window jambs and spandrels over, which are of freestone, nowhere exceeding 8 inches in thickness.

Can any of your readers inform me of a method of rendering the stone impervious to rain, without altering its appearance externally? Oil paint would have the desired effect, but would spoil the appearance of the stone. The occupier has tried oil colours internally, but without success, although he says the stone was perfectly dry when painted.

W. B.

SENSE IN DESIGN.

WHEN architects adopt the Antique or Mediaeval as their models, I wish they would reflect a little on the reasons for different materials being used together. For instance, the iron bars through open-work wooden gates were only used to draw them together, and so strengthen them; but now we often see the iron bars added for ornament where they could be of no use.

As an instance of this, I enclose you a rough sketch of the gate of what appears to be a very costly entrance, lately erected near Belfast. The gate is of very massive pierced woodwork; but those handsome twisted iron rods, with *fleur-de-lis* ends, are quite out of place, for no one could screw them in with that twist in the upper part of them; and if not of use to strengthen the gate, they should not be there.

Pardon these free remarks from an

AMATEUR.

RAILWAY MANAGEMENT.

THE late accident on the Great Western Railway, near Shrewsbury, is another proof of the great defect in the present system of starting long and heavy trains without sufficient break power.

Put forty carriages together filled with passengers, with a break at each end, and start them up a heavy incline, and the chances are, one of the coupling-irons breaks, and thirty of the carriages run back, which the hindmost break will not hold; the same as occurred some time ago with an excursion train filled with school-children, out of Birmingham. Do the same thing with forty carriages as the Great Western did a short time since, and send them down a heavy incline, like the one at Holloway, and the chances are that they run into King's Cross, and into the Pancras-road.

Do the same thing with forty carriages as the Great Western have now done, and send them down a heavy incline, with rails out of repair at the bottom, and the chances are that the carriages run down at full speed, and smash up. Whereas, if the train had been an ordinary train, and passed slowly over the rails which were temporarily laid, the chances are they would have gone all safe. But it is of no use the press writing; it is of no use even for her Most Gracious Majesty to write. Your paper was the first to point out, in the case of Mr. Briggs's murder, that such might be remedied by having glass partitions in the carriages, and it was taken up by the other papers; but nothing has been done. Passengers' lives are reckoned up in the working expenses, and nothing will be done till a law is passed making all railway carriages and trains come under inspection, the same as all other public conveyances; the same as cabs, omnibuses, and steamboats; and duly licensed, as fit and proper, and to carry so many and no more; and that every train with ten carriages shall have a break and guard at each end; and every increase of ten carriages over that number shall have an extra break, with an extra guard; and that a train shall not consist of more than a certain number of carriages. Also, that every railway train shall be compelled to run two trucks, either empty or full of goods, next the engine, so as to receive the concussion in case of accident.

Railway companies do nothing unless compelled by Act of Parliament; and that they will try and evade, the same as they did with the closed carriages of the Government trains, by having wooden shutters and a skylight in the roof. But, under proper inspection, the same as cabs, and enforced by a heavy fine, we might then travel with comfort and safety.

B.

OBITUARY.

The late Mr. Lightly, Architect.—A very amiable, clever, and unassuming young architect has just now been called to a better scene.—Mr. William Lightly, the coadjutor with Mr. I'Anson in the restoration of the Dutch Church, Austin Friars, of which we gave a view a few weeks ago. Mr. Lightly, who was a pupil of Mr. I'Anson, had acted for some time as the Honorary Secretary of the Architectural Photographic Society, and had lately commenced to edit a volume of Photographic Views, the first few parts of which that have already appeared were noticed in our pages. Decline was the cause, we believe, of his regretted premature decease. He was a Fellow of the Institute of Architects.

GREAT MUNDEN CHURCH, HERTFORDSHIRE.

THROUGH the exertions of the Rev. C. W. Maude, the rector, and the liberality of the few holders of property in the parish of Great Munden, near Ware, funds have been raised to do some of the works much needed at the church. The building dates from the Norman time, and has some remnants of the architecture of that period in the shape of a north doorway and part of the chancel arch. It has been altered in various ways, and, with the exception of the chancel, which was repaired a few years ago, is in a miserable condition. It is proposed to reset the nave, put on a new roof, and restore the stone-work generally. Tenders are now being invited. Messrs. G. & H. Godwin are the architects.

THE SEWERAGE OF KINGSTON-ON-THAMES.

THE Conservators of the Thames sought to obtain an injunction to restrain the Corporation of Kingston from discharging the sewage of that town into the Thames under a new scheme of drainage, by which the existing cesspools are to be discontinued and one main intersecting sewer constructed with an outfall into the river a little below Kingston Bridge. The case made by the information and evidence in support was in effect that the increased quantity of sewage would in time cause an offensive deposit in the river, pollute the water for bathing, boating, fishing, or drinking purposes, be injurious to human health, and so interfere with the enjoyment of the public in the use of the river as to create a public nuisance.

The Vice-Chancellor, in giving judgment, after admitting that such a nuisance might be so committed as to authorise an injunction to stop the works, was of opinion that the existence of such a nuisance had not been proved on that occasion. Further than this, some means of defeating or decolorizing the sewage might be applied before the nuisance actually arose. Was he, then, to stop the works of the defendants on a mere case of prospective apprehended nuisance? The Court would have full power to deal with the matter when any case of actual nuisance arose, and the proper course would be to dismiss the information, such dismissal being prefaced by a declaration that the Court was of opinion that the evidence did not establish the existence of any nuisance in respect of the works executed or intended by the defendants, or any case for the interference of the Court. The order would be without prejudice to any future proceedings on the part of the Attorney-General in case the works should occasion a nuisance; and under the circumstances, it was not a case for giving costs.

THE SEWERAGE OF GREAT CROSBY.

THE ratepayers of Great Crosby, Liverpool, at their meeting on the 9th, had before them a plan for drainage of the district, by Mr. Clarke, their surveyor, supported by Mr. Thorburn, of Birkenhead; and a plan by Messrs. Reade & Goodison, strongly supported in opposition to the first, by Mr. James Nowlands, of Liverpool. Mr. Nowlands said he estimated the first would cost 8,500*l.*, Messrs. Reade & Goodison's 5,100*l.* After considerable discussion Mr. Clarke's plan was adopted.

THE SMOKE NUISANCE.

SIR,—In your last impression there is an article, signed "R. T.," on the subject of the removal of the smoke nuisance. Your correspondent, in his suggestion, seems to have overlooked the now established fact, that by passing smoke over a red-hot fire it is not the smoke itself that is consumed, but merely that portion of it called soot. The noxious vapours, such as creosote, sulphuric and carbonic acids, &c., that also form part of the smoke, are still allowed to escape into the atmosphere, and really do more harm than by being combined with the soot, which partly neutralises the bad effect these gases would otherwise have.

The only effectual method is to prevent any smoke at all from going into the atmosphere. This can be effected by a very simple apparatus which I have invented, but which I hope you will excuse me from describing, merely saying that it was pronounced by one of our eminent engineers—Capt. Grant (the inventor of the army postbox and cooking apparatus)—to be "the simplest and most effective apparatus he had seen." I took it, some time since, to Lord Palmerston, who expressed himself highly pleased with it, and said, that although he could not help me with it himself, he would do what he could to enforce the law in regard to its use, if I could have it brought out. It would require a much larger sum to give it a fair trial than I have at my command.

W. H.

THE BUILDING TRADES MOVEMENT.

Wolverhampton.—The strike of the bricklayers still continues, and there are no apparent signs of an adjustment of the difference. On Thursday before last there were only 25 bricklayers left in the town, out of 180. At a meeting of the masters they resolved on a series of rules under which they would engage bricklayers. These rules, with few and unimportant regulations, simply embodied the terms which they had offered the men at their conference, and which the men then rejected, and which those that remain in Wolverhampton say they are equally determined to reject now. They offer 5½d. per hour as wages. These rules refer also to the labourers, who are offered 3½d. per hour. They demand 4d. an hour; and it is estimated that perhaps 100 are at work at that price. The result of there being little or no bricklaying is that the plasterers and carpenters are getting worked out and reduced to forced idleness.

Bradford.—The masons' labourers now are out on strike. The number of hours of labour at present is 50½ hours per week, a reduction having recently been yielded, and the men are now seeking an advance also of 1s. per week, making the wages 20s. per week, instead of 19s. A strike on the part of the operative joiners, for an advance of wages, also seems inevitable.

Leeds.—The strike in the Leeds building trade was terminated by a friendly arrangement of the matters in dispute. The men will receive an advance of wages, but the hour system, which the bricklayers have strongly opposed, is to be adopted both by the joiners and bricklayers, and the bricklayers' labourers. The two former are advanced a halfpenny per hour, and the latter a farthing, the wages for joiners being now 6d. per hour, and for bricklayers 5½d.

Darlington.—The painters are on strike: they demand an advance of 2s. per week, summer and winter; and to leave work at one o'clock on Saturday, instead of four, as previously. The brickmakers have given notice that they will strike, unless the half of Saturday be allowed them.

Middlelebro'.—The Middlelebro' ironmasters have, in answer to a requisition from their employees, agreed to give them a half-holiday in the week, the works to close in future at one o'clock on Saturday afternoons, instead of four, as heretofore. The privilege has been granted for six months. If at the end of that time the masters see that the men have not abused the privilege, it will be granted altogether. The men's wages will continue the same.

COMPENSATION CASES.

The Holborn Valley Improvement.—At the Lord Mayor's Court last week, before the Recorder and a special jury, there came on for hearing a compensation claim in respect of the Holborn Valley, made by Messrs. Lloyd, tobaccoists on Holborn-hill, against the Corporation of the City of London, for their premises and business. Several witnesses were called in support of the claim, which was for about 12,000l. A sum of 3,153l. was agreed upon for the leasehold interest in the property, and the principal question was as to the business and the removal of the stock to new premises near Gray's-inn-road. The receipts were about 25,000l. a year, and the gross profits from 9 to 40 per cent. on a certain class of goods. The stock would be deteriorated by the removal. It was proposed to give evidence as to a fair sum for such a business, but the court declined to receive such evidence, and Mr. Cronin and other valuers in attendance were not called. A conference took place, which ended in a settlement for a sum of 7,350l., including the value of the leasehold property.

Marson v. The Metropolitan Railway Company. In this case at the Sheriff's Court, before Mr. Humphreys, the claim was 8,195l., and made by Mr. Marson, as the freeholder of the Cobham's Head, Coppice-row, Clerkenwell. It was supported by Mr. Cronin and other gentlemen on the ground that the house had been closed for some years, and if it had not been closed the premium for the place would have been 4,500l. On the present occasion witnesses for the company were examined. It was denied that the works of the company had caused the house to be closed. There had been some little damage done to the property, but the extent was about 100l. The house was very old, and the best course would be to pull it down and build another. Mr. Jay, the contractor, was called. He was answerable

for damage, and he had paid the amount and done the repairs. He purchased the lease and had not opened it as it had only two years to run, and the expense would have been considerable. The coroner, in placing the case before the jury, said the question was whether the injury done to the property was by the works of the company. The house had been closed by Mr. Jay and not by the company. No doubt it had lost its prestige by being closed, but the question was whether the company were liable to the extent alleged. No doubt they were liable for the structural damage done by their works, but that was only to an extent of about 100l. Witnesses had been called on both sides, and it was admitted by all that the house had better be rebuilt. The question was whether the works of the company had done the damage. The house was an old one, and had been closed by Mr. Jay, who had purchased the lease. The jury would consider the evidence as presented on both sides, and say what in their opinion the claimant ought to recover. The jury retired for some time, and on their return assessed the compensation at 500l.

An unprejudiced correspondent who was present, writes to us to ask whether Mr. Jay did not in reality represent the company?

Wall & Robson v. The London, Chatham, and Dover Railway.—At the Lord Mayor's Court, this compensation case was investigated by the Recorder and a special jury. The claim was for a freehold house and land, 48, Ludgate-hill, the premises having been pulled down on account of the bridge on the north side. The claim was for 10,000l. The rental was valued at 450l. a year, at twenty-two years' purchase. Mr. Bovill, Q.C., who appeared for the claimants, took occasion to allude to the state of the law on railway compensations, and complained that there were many extra expenses which were not allowed on taxation, and it was an additional reason why jurors should give ample compensations. Until the Legislature interfered there would be no remedy. Mr. Lloyd, for the company, called several witnesses to show that the value was under 6,000l., and the rental only 250l. a year. The jury, after a long investigation, awarded 7,500l.

Books Received.

The Grammar of Ornament. By OWEN JONES. Illustrated by Examples from various Styles of Ornament. London: published by Day & Son.

When the costly folio edition of "The Grammar of Ornament" was first published, we expressed strongly our admiration of the work, and offered our congratulations and thanks to Mr. Owen Jones for the manner in which he had carried out the idea. The book was at once accepted, as well supplying a want, and is now out of print, notwithstanding the large price at which it was necessarily published. The company which has since been formed to carry on Messrs. Day's business have now wisely issued a new and cheaper edition,—an edition not made cheaper by any curtailment or diminution in worth, but by a reduction of the size of the plates; and the cost is thus brought down so as to place the book within the reach of a much larger number of persons than was the case before. The publishers only speak the truth when they say that,—“The ‘Grammar of Ornament’ has not only been adopted as a class-book in all the Government schools in this country, but also by the principal schools of the Continent, where the importance to art of this invaluable collection, and of the principles explained in the text, by which Mr. Owen Jones has sought to guide the student to its use, has been fully recognised and honoured.”

The several plates have been proportionally reduced by the photographic process, through the care of Mr. Francis Bedford, who so skillfully conveyed to stone the original drawings of the folio edition. In some cases, where the general scale of reduction was unavoidable, the examples forming a plate in the original have been retained to a larger scale, and spread over two plates; thus giving, on the 112 plates of the present edition the whole of the material contained in the 101 folio plates of the original work. Without the aid of photography and other mechanical appliances, the perfect reduction we now have could not have been obtained but at a cost that would have prevented the publication.

The text, with all its woodcuts, is complete as in the folio edition, and consists as before, of twenty chapters, treating of,—The Ornament of various Savage Tribes, with 3 plates; of Egypt, 9; of Nineveh and Persia, 3; of Greece, 8; of Pompeii, 4; of Rome, 3; of Byzantium, 4; of the Arabs, 3; of the Turks, 3; of the Moors, 8; Ornaments from Persian MSS., 6; from the Indian Exhibitions of 1851 and 1855, 9; the Ornament of the Hindoos, 3; of the Chinese, 4; of the Celtic Races, 3; of the Middle Ages, 9; of the Period of the Renaissance, 10; of the Elizabethan Period, 3; of the Italians, 6; a series of Leaves drawn from Nature as Models of Ornament, 10; and Illuminated Title-page.

The author has endeavoured in these several chapters to define the apparent origin and trace the development of the several styles of ornament. He then proceeds to ascertain the laws which govern their composition; both those which are general to all styles and those which are peculiar to each.

Of course there are points in the various essays accompanying the illustrations of the different styles with which we do not agree. Take the following observation, for example, on which we happen to stumble in the chapter on Greek Ornament:—"In the well-known honeysuckle ornament it is difficult to recognise any attempt at imitation, but rather an appreciation of the principle on which the flower grows; and, indeed, on examining the paintings on the vases, we are rather tempted to believe that the various forms of the leaves of a Greek flower have been generated by the brush of the painter: according as the hand is turned upwards or downwards in the formation of the leaf would the character be given, and it is more likely that the slight resemblance to the honeysuckle may have been an after-recognition than that the natural flower should have ever served as the model." Now, the resemblance is anything but "slight," and that the original flower did originally serve as the model we feel no doubt; but the fact obviously is, that the ornament was in constant use by the Assyrians, and was carried on and immensely improved upon by the Greeks, owing nothing of its origin to the brush of the painter. However, we are not now to review the book. We would simply say that "The Grammar of Ornament" is a work of great value, and we applaud and recommend for a wide circulation the new and cheaper edition that has just been published.

Elementary Drawing Copy-Books, for the Use of Children, from Four Years old and upwards, in Schools and Families. Compiled by a Student certificated by the Department as an Art-Teacher. London: Chapman & Hall.

These copy-books are seven in number, and are intended to be used in the same manner as the ordinary writing copy-books; that is, the copy, being set at the side of the page, is to be copied on that same page, either below or on a line with the copy. Books 1 and 2 consist of horizontal, perpendicular, oblique, and curved lines, as letters; 3, geometrical figures and ornaments; 4, objects; 5, leaves; and 6, birds, beasts, &c. Simple instructions are given on the covers. The price is small. We have no doubt they would be found useful, not merely for children, but by adults who may wish to obtain some facility in copying objects. With good will and perseverance considerable progress might thus be made.

VARIORUM.

Hardwicke's Science Gossip. London: Hardwicke. No. 6, for June, contains chat on various subjects in zoology, entomology, botany, microscopy, geology, piscatology, &c.; and sustains its position and its interest as a monthly medium of interchange and gossip for students and lovers of nature.—A Report on the Condition of Journeyman Bakers of London, by the Standing Committee of the Department of Economy and Trade of the National Association for the Promotion of Social Science, has been issued by the society, at 1, Adam-street, Adelphi, London. It states that much good has been done by the new Act, although it cannot directly reach the subject of adult labour and night-work. Bakehouses were found by the inspectors to be frequently in a foul state most unpleasant to think of, and which, we should fancy, must greatly promote the interests of machine-making bread companies. The journeyman bakers of London appear to be looking a little more closely to their own interests than the poor fellows have heretofore done. An amalgamated union of operative

bakers have been formed, for the purpose of obtaining an abridgement of the hours of labour and the abolition of night-work. They have a small room in 13, Rolls-buildings, Fetter-lane, which they are now desirous of extending, as they find it inadequate for public meetings, and they are unwilling to resort to the general but most pernicious practice of workmen meeting in public-houses. We hope some good Samaritans will help them towards the very commendable object which they have in view. They also aim at having a home for young men from the country to lodge in till received under the roof of a master, so keeping them also out of the lowest public-houses, to which they are now generally obliged to resort.

Miscellaneous.

THE THEATRES BILL.—Mr. Locke's Bill has been abandoned.

MADLLE ROSA BONHEUR.—This distinguished artist has received the Cross of the Legion of Honour. It is the first time it has been bestowed on a woman unconnected with the army.

CAUTION AS TO THE CONSTRUCTION OF "LIFTS." At the Grosvenor Hotel on the 12th inst., the beam which suspended the machinery of the lift gave way, and the ascending-room, with persons in it, was precipitated to the bottom. One of the persons was killed by the counter-weight falling on him, and a gentleman's servant had his leg fractured.

MONUMENT IN THE CITY OF LONDON AND TOWER HAMLETS CEMETERY.—A monument has been erected to the memory of the infant daughter of Mr. Josh. Westwood, Tredegar House, Bow, after the manner of an Eleanor's Cross. The height is about 30 ft., and the whole is built of selected Portland stone. It is inclosed by an iron fence. The floors are laid with Minton's ornamental tiles. The architect was Mr. John Moxon, of Bow.

THE WORKING MEN'S COLLEGE.—Great want of room is felt. The drawing-class, one of the largest and most efficient of all, has to complain of a most unwholesome atmosphere, and of want of space for their regular work. Every other is severely crippled in proportion to the numbers which frequent it. So the council are driven to the necessity, which they have always avoided as much as possible, of begging help from the public generally. They hope that they may set up a building suitable for their present purposes, and capable of further enlargement, at the expense of 1,000l. For this object they now seek subscriptions.

CONVERSAZIONE OF THE SOCIETY OF ARTS.—This society held a *conversazione* at South Kensington on Wednesday evening, which was most numerously attended. Mr. W. Hawes, as chairman, received the visitors. The new Raffaele Room and Sheepshanks Gallery were open; and these, as well as the rooms containing the exhibition of miniatures, were thronged. Two bands were in attendance—that of the Coldstream Guards and that of the Royal Artillery. One of these was stationed in the Cartoon Gallery, and the other in the new North Room, near to which refreshments were served. The miniatures appeared to be objects of especial attraction. The arrangements reflect credit on Mr. Le Neve Foster, Mr. Davenport, and the officials of the South Kensington Museum, by whom they were made. The evening was one of unqualified satisfaction.

ART-SCHOOLS AND THE COMMITTEE OF COUNCIL ON EDUCATION.—There has recently been issued the copy of a minute of the Committee of Council on Education relative to the art-schools. On the 1st instant the consideration of the memorial from various schools of art was resumed, and the Council agreed to modify the arrangements, consenting to resume the payments of building grants and grants for examples, but declining to revert to the system of payment by certificates. They do not consider that the art-teachers come within the provisions of the Superannuation Act, 22 Vict., c. 26; but they will increase the amount of the payments proposed in the schedule appended to the minute of February 9, in the hope that certificated art-teachers will earn payments equivalent to the value of their certificates. The schedule referred to is cancelled, and another, which is given in the return, is substituted for it.

STOPPAGE OF THE NATIONAL WALLACE MONUMENT WORKS AT STIRLING.—The tower has reached the height of 155 ft. but funds are wanting, and the committee have resolved to suspend building operations, and dispose of the plant and materials for the purpose of liquidating existing obligations.

LAYING THE FOUNDATION STONE OF THE HARTLEPOOL RESERVOIRS.—On Thursday last week, the ceremony of laying the foundation stone of the new reservoirs in connexion with the Hartlepool Gas and Water Company was laid. The reservoirs are situated near the village of Hart, at an elevation of 170 ft. above the level of the sea. They are capable of containing 25,000,000 gallons of water, and are supplied by a spring which is estimated to fill the reservoirs in twelve hours. The supposed cost of the works is 12,000l.

GALWAY.—The Atlantic Sawing, Planing, and Moulding Mill, recently erected by the firm of Messrs. Clougherty & Sempie, has been set agoing. The mill is a large edifice. The machinery is turned by a turbine wheel of 40-horse power. There are six different machines entirely distinct from each other, viz.,—A planing and moulding machine, a large saw-bench, a small saw-bench, log frame, a deal frame, and a band-saw. The machinery was supplied by Messrs. Robinson & Son, of Rochdale.

THE ART EXHIBITION AT ALTON TOWERS.—An Art Exhibition will be opened at the commencement of July, at Alton Towers, Staffordshire, the seat of Earl Shrewsbury, as we have already announced. The purpose is to aid the funds for the erection of the Wedgwood Memorial, Burslem, a building intended to be "an experiment of Ceramic Architecture on a bold principle," and it is proposed that it shall continue open for about three months. A gallery of modern architecture is to form a portion of the Exhibition, and offers of drawings from architects are being invited.

DOWLING'S "METRIC TABLES."—We are glad to see that Mr. Charles H. Dowling's "Metric Tables" (Lockwood & Co.), for converting British into metric measures and weights, and *vice versa*, have been well approved in France. The *Moniteur* a short time since said,—"This work was completely wanting; having, at every instant, to convert into French measures English measures of every sort, and obliged to trust to the insufficient tables of our almanacs, we often felt discouraged. Thanks to Mr. Dowling, we shall never more be at a loss."

THE BONAPARTE MONUMENT IN CORSICA.—Prince Napoleon presided over the inauguration of the grand monument raised at Ajaccio to the memory of Napoleon Bonaparte and his family. The Emperor is on horseback, surrounded by his four brothers, and all are dressed in Roman costumes. The equestrian statue is nearly 10 ft. high, and the others are about 7 ft. each. The base is raised more than 12 ft. above the level of the soil. The statues are cast in bronze furnished from cannon taken in the late Italian campaign; but two winged Victories, placed in the basement, are of marble. The entire monument is about 100 ft. in length and 25 ft. in height. The general arrangements were made by M. Viollet le Duc, and the sculpture was executed by MM. Barye, sen, Thomas, Jean Petit, Maillet, and Dubray.

FIELD-LANE RAGGED SCHOOLS AND NIGHT REFUGES FOR THE HOMELESS POOR.—On Tuesday last, the ceremony of laying the foundation-stone of a new building, for an increased and more efficient accommodation of the Field-lane Ragged Schools and Refuges, was performed by the Earl of Shaftesbury. The site of the new building is in Vine-street. It will command a frontage in Saffron-hill opposite the Italian Catholic church, and a still larger frontage in Vine-street itself, now called Hatton-wall. The building will consist of three main divisions—first, night refuges for men and women; second, a home for female servants; and, third, the ragged schools. In the night refuges there are waiting-rooms, lavatories, baths, and dormitories for 80 men and 30 women, with separate entrances. The servants' home will have living-rooms and sleeping-rooms; and the schools will consist of one large room 90ft. by 40ft., and capable of being divided into three departments for girls, boys, and infants. Mr. F. W. Porter is the architect, and Mr. W. Higgs the contractor. The tenders for the erection of the building will be found in another page.

ASSESSMENT OF THE BANK OF ENGLAND.—The *City Press* says the Bank of England has been assessed at the gross annual value of 47,000l. by the Assessment Committee of the City of London Union. The former assessment was something like a fourth of that sum; but the increased amount is considered by the committee to be strictly fair and equitable. We understand that the Bank authorities have given notice of appeal. Under the Union Assessment Committee Act, the rateable value of property in the City has been equalized. The disparity between the amount at which premises were previously assessed and the present value has in many instances been very great.

AN IMPROVEMENT IN IRON.—An improvement in iron, increasing greatly its tensile strength, is claimed by Mr. J. D. Williams, of Pittsburgh. Tested at Fort Pitt, a specimen of wrought iron made by him was subjected to a strain of 166,900 lb. per square inch, without breaking, which is nearly twice the endurance of any iron ever tested, and is much greater than that of cast steel. The process of imparting this unexampled tenacity of strength to iron adds only two dollars per ton to its cost. If after facts justify this test, it will add nearly 150 per cent. to the strength of steam boilers, the thickness of plate being the same. Chains of equal tractile strength can be made of less than half the iron now used. For suspension bridges it will be invaluable. The improvement is chemical in its nature, and is applied in the boiling furnace. The iron of which the piece which was tested was made was principally anthracite pig, with a small quantity of charcoal iron. —*New York Paper.*

SASH WINDOWS.—A writer in *Notes and Queries* says,—"Your correspondent, 'A. A.' proves the use of this word as apparently rare in May, 1710. A reply to his note suggested that that term was derived from the Old English word *sasse*, a sluice; and *sas*, the Dutch, also for a sluice; the common French term for such a window being *à la guillotine*. The following note is, I venture to suggest, a very little, if at all, known assertion of the introduction of the window into France from England, and opens the question whether the invention was a Dutch or German one, and brought over with paint for house work, and sundry other building inventions, by the Dutch with William III. —

"De Lorge: We had the good fortune here to find the marshall himself. He showed us his great sash windows; how easily they might be lifted up and down, and stood at any height; which contrivance, he said, he had out of England, by a small model brought on purpose from thence, there being nothing of this sort in windows in France before; the house was but building," and was situated near Montmartre.—*Literary, "Journey to Paris,"* 8vo. London, 1699.

NEW IRON BRIDGE.—There has just been completed, in the yard of the Regent's Canal Ironworks Company, an iron bridge, which is the largest yet constructed on a system invented by Mr. A. Sedley. The *Society of Arts Journal* says,—"The structure in question has been made to the order of the Indian Government, and is designed to be erected in India. The leading feature of the new principle is that, without the necessity of any subaqueous works, or the erection of any intermediate towers or piers, the bridge can be built to cross in a single span any river or chasm up to an extreme width of 500 yards, or 1,500 ft. The bridge just finished is of 75 ft. span and 14 ft. wide; its total weight is 22 tons, including the roadway, and it will support a nominal strain of four tons per sectional inch, but really a greater weight. Two great cantilevers, or wedge-shaped girders, are built up piece by piece till they are projected from opposite sides of the chasm or river which is to be bridged over, and extended till they approach within a distance something less than a third of the whole span. Across this space a central girder is thrown, which, while it completes the continuity of the bridge, acts, when fixed in position and riveted down, as the key stone, so to speak. The wedge-shaped girders which project from either side of the stream are at their wide ends embedded and built into massive piers of masonry on the shores. The base of the wedge is fixed by iron tugs, in an upright position; the central arm of the girder supports the actual roadway of the bridge; the lower arm, stretching to the point of the girder, becomes a bracket support; and the upper arm passing over the summit of the upright end, which makes the thick end of the wedge, is extended backwards as a tension-bar, and anchored firmly in the earth, thus giving suspensory support to the central arm, which attains a perfect rigidity."

METROPOLITAN RAILWAY.—The number of passengers conveyed on the Metropolitan Railway on Whit Monday was 83,440. This is the largest number conveyed in one day since the opening of the line.

INTERESTING TO ANTIQUARIES.—The Rev. E. Kell lately exhibited at a meeting of the Literary and Photographical Society, Southampton, some curious specimens of ancient Roman workmanship, recently dug up from the site of an old Roman station near Andover. There have been great disputes as to the site of Vindomis, some antiquaries fixing it at Basingstoke and others at Silchester. Mr. Kell considers the site near Andover to be the true one. He has just discovered the site of a Medieval glass manufactory in Western Hampshire.

BLASTING.—A notable result of gunpowder blasting has been witnessed at the Colcerrow Granite Works, belonging to the Treffry estate, situated about one mile from Per station. The granite rock operated upon measured 56 ft. in length, 55 ft. in width, and 16 ft. in height. The hole was bored near the centre of the rock, about 16 ft. in depth, and charged with about 30 lb. of the "patent safety blasting powder," from South Down. The result was that the quantity of rock fairly disengaged is 3,520 tons. Scarcely any noise was made by the blast, although the rock was rent in the form of T, from top to bottom, and lifted as by a lever from its bed.

THE PUBLIC BUILDINGS OF WOLVERHAMPTON.—The Town Council have resolved to pull down the buildings at present used for the public offices in North-street, and erect a Town-hall, Sessions-house, Police-court, Police-barracks, Vestry-room, and Overseers' Offices, and other requisite public offices; and a committee already appointed are to "procure plans and estimates for such new buildings, and submit the same, with their opinion thereon, to the Council; such committee, in their advertisements for designs, being empowered to offer a premium of 100l. for the design which shall ultimately be selected as the best in the order of merit, and 50l. for the second best; the first premium to merge in the usual commission, in case of the author being employed to carry out the works." The contemplated cost will be about 12,000l., exclusive of sale of premises.

METROPOLITAN FREE DRINKING FOUNTAINS.—In the poor and densely-populated parish of Shoreditch there were forty-five miles of streets and only one public drinking-fountain; and at the London Fields, where large numbers of the poorer classes are in the habit of assembling on Sundays and holidays, there was much need of a drinking-fountain. The committee of the Metropolitan Free Drinking Fountains Association have therefore erected two fountains in Shoreditch and one at the London Fields. The Fields fountain has now been opened. The first Shoreditch fountain also has been opened. A site was granted by the vestry at the corner of Chapel-street. This fountain is the ninety-first which has been erected in the metropolis by this Association, who greatly require the means of going on with their useful work, their funds being now completely exhausted.

THE METROPOLITAN BOARD OF WORKS.—At the usual weekly meeting, the Board opened tenders from persons desirous of contracting for carrying out the works of the Falcon Brook covering and diversion. There were six tenders—viz., from Mr. Buston, for 39,400l.; Mr. W. Moxon, 35,400l.; Messrs. Hill & Keddell, 37,850l.; Mr. Dethick, 39,430l.; Mr. T. Wainwright, 36,000l.; and Mr. Rixon, for 36,857l. The tender of Mr. W. Moxon for 35,400l. was accepted. The engineer reported the quantities of filling-in material supplied to the Thames Embankment, from the 9th December last to the 7th instant, to be as follows:—On No. 1 contract, 30,780 cubic yards of land stuff, and 86,109 cubic yards of river-dredged material; on No. 2 contract, 6,864 cubic yards of land, and 9,299 cubic yards of river-dredged material; total quantity from both sources, 132,882 cubic yards. In reference to Park-lane, the chairman observed, that the works proposed in the Bill which the Board promoted, involved an expenditure of 12,000l. or 15,000l., whilst the widening of Park-lane proper (as proposed by the Parliamentary Bill which was lost in committee during the session) would have involved an expenditure of at least 150,000l. He considered it most important and necessary for the convenience of the public that that greatly overcrowded district should be relieved of its enormous traffic.

GAS.—The Harwich and the Woodbridge gas and coke companies have each declared a dividend of 8 per cent. per annum. The Market Harborough Gas Company have agreed to reduce the price of their gas from 5s. 6d. to 5s. The Melrose Gas Company have announced a dividend of 7½ per cent. per annum, and a reduction of 1s. 3d. in price.—Mr. Jaques, from the London Equitable Gas Company, has been appointed engineer to the Borough Gasworks, at a salary of 300l., in the room of Mr. Leslie, C.E., who is now with the Crystal Palace Gas Company.

THE METROPOLITAN HOUSELESS POOR ACT.—The Act of Parliament to make perpetual the Metropolitan Houseless Poor Act, which received the Royal assent on Friday, has just been issued. The provisions in the former Act as to the period for relief are repealed. The Poor Law Board are to have the wards and other places of reception provided by the Act inspected, and may revoke and renew the certificate, and an allowance may be made by the Board for providing wards instead of a sum in respect to each pauper. "Any constable of the Metropolitan Police or one of the police of the city of London, may personally conduct any destitute wayfarer, wanderer, foundling, or other destitute person, not having committed or being charged with any offence punishable by law within the knowledge of such constable, to any wards or other places of reception approved by the Poor Law Board under the said Act or this Act, and every such wayfarer, wanderer, or foundling shall, if there be room in such wards or other places of reception, be temporarily relieved therein." The wards are to be opened for the relief of destitute persons between six in the evening and eight in the morning between October and March, and from eight o'clock in the evening till eight o'clock in the morning between April and September inclusive.

A HOME FOR APPRENTICES.—Mr. Hartley, of the Westminster Marble Works, in Earl-street, London, has founded a home for boys, who are taken as apprentices, and placed in a small house, in which a person resides connected with the works, who acts as a master; his wife is the superintending matron; and the control of these lads is placed in their hands. They are called in the morning to go to their work; they return at stated times to their meals, which are always ready for them. After the work is over there are books and newspapers for them to read, or occupation is found in writing and drawing. They are allowed full liberty of ingress and egress, being fined, however, if not in by a stated time, which varies according to the season, and they are allowed a small sum a week for pocket-money. They are thus placed in a position which must have a very material effect in qualifying them to fulfil their duties properly when arrived at manhood. The boys are taken at about thirteen or fourteen years old, and retained until twenty-one, at which age they ought to be able to take care of themselves, and make room for others. This institution is said to have been found exceedingly advantageous, not only as an industrial school, but to the master who has founded it; for, on a comparison made by Mr. Hartley of the loss sustained by him during a year, taking twelve boys of the Home and twelve apprentices living at their own homes, he found that the loss by absence amounted in the whole to but 11s. 3d. from the college boys; whereas, from the apprentices living with their parents, the loss on the same account exceeded 40l. during the same period.

TENDERS

For hunting-stables, farm buildings, and cottages, for Mr. S. T. Cooper, Bulwell Hall, near Nottingham. Mr. S. D. Walker, architect:—
A. & R. Dennett & Co. (accepted) 22,250 0 0

For sundry additions and alterations to the residence of Mr. Samuel Smith, Woodberry Down, Stoke Newington, London. Mr. R. D. Walker, architect:—
Dovson 23,333 0 0
Higgs 2,237 0 0
Dawson 2,100 0 0
Sewell & Son 2,692 0 0
Wright 1,725 0 0
Simpson & Lyman 1,720 0 0
* Accepted, with modifications.

For alterations and additions to 153, High-street, Camden-town. Mr. Thomas T. Green, architect. Quantities supplied:—
Manley & Rogers 8913 0 0
Scrivenor & White 808 0 0
Stevenson 800 0 0
Palmer 700 0 0

For the Girls' Orphanage, at Bletchingly. Mr. E. W. Pugin, architect:—
Smith & Son 23,900 0 0

For the Boys' Orphanage, at Hellingly. Mr. E. W. Pugin, architect:—
Wilson 211,888 0 0

For additions to a house at Wimbledon, for Mr. R. J. McCabe. Messrs. C. W. & S. W. Lee, architects:—
Patrick & Son 21,129 0 0
W. & E. Avis 1,082 0 0
* Revised tender of 980l. accepted.

For house, stabling, garden-walls, and entrance-gates, at Ravenscourt Park, Hammersmith, for Mr. L. Spain. Mr. J. Crawley, architect. Quantities supplied:—
Bywater 23,247 0 0
Galsworthy 2,888 0 0
Hayward 2,798 0 0
Futman & Fotheringham 2,300 0 0
Cowland 2,080 0 0
Scrivenor & White 2,550 0 0
Simpson & Son 2,444 0 0
Scott 2,442 0 0
Smith & Son 2,390 0 0

For building Field-lane Ragged Schools. Mr. F. W. Porter, architect:—
Building. Fittings. Total.
Holland & Hannen 25,030 21,535 46,565
Jack & Shaw 9,100 1,405 10,505
Mansfield & Sons 6,900 1,400 8,300
T. Anson 8,550 1,540 10,090
Fatman & Fotheringham 8,794 1,403 10,197
Sawley & Sons 8,585 1,560 10,145
Hayward 8,572 1,455 10,027
Coleman 8,200 1,620 9,820
Henshaw 8,023 1,560 9,583
Higgs 7,960 1,350 9,300

For building three houses, at Peckham-rye. Mr. H. Jarvis, architect:—
Colls & Son 23,173 0 0
Jarrant 3,064 0 0
Marland & Son 3,015 0 0
Wheeler, Brothers 2,967 0 0
Piper & Wheeler 2,925 0 0
Henshaw (accepted) 2,834 0 0
Kynoch 2,625 0 0

For the proposed restoration of Sheffield Church, Becks. Mr. W. H. Woodman, architect. Quantities supplied:—
Bullen 21,305 0 0
Pritchard 1,390 0 0
Woodroffe 1,300 0 0
Wheeler, Brothers 1,160 0 0
Thomas 970 0 0

For twenty-three houses, at Wimbledon, for the Rev. Alfred Peache. Mr. James G. Smith, architect:—
Mitchell (accepted) 24,796 0 0

For alterations to No. 220, Vauxhall Bridge-road. Mr. James G. Smith, surveyor to the estate:—
Cornish (accepted) 2,822 0 0

For building new flour-mill, at West-end, Southampton, for Mr. John Slater. Mr. Charles Bowes, architect:—
Bull 21,787 0 0
Stevens (accepted) 1,639 0 0
Sauders 1,437 0 0

For alterations, Ratcliff Workhouse. Mr. W. R. Kinipole, architect. Quantities not supplied:—
Mascars 2,970 0 0
Stann & Pate 923 0 0
Ramsay 891 0 0
Kelly 817 0 0
Johnson 728 0 0
Curtis (accepted) 750 0 0

For a pair of semi-detached residences, Hornsey-rye. Mr. J. W. Reed, architect. Quantities supplied:—
White 2,258 0 0
Lambel 2,230 0 0
Smith 2,200 0 0
Carlton 2,155 0 0
Ramsay 2,180 0 0
Hawkes 2,090 0 0

For erecting a beer-house and cottage adjoining, at Basingstoke, for Mr. Gardener. Mr. W. Smith, Architect:—
Muscelwhite & Sons 2,454 0 0
G. Charlton 400 0 0
Litchfield 388 16 0
Pritchard 350 0 0
F. Charlton 290 0 0

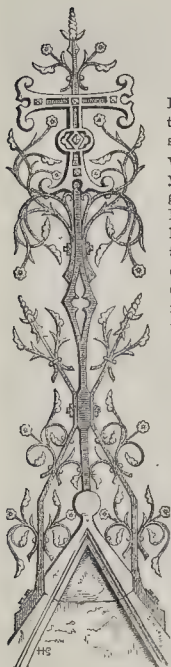
For erecting three cottages, for Mr. Hockley, Basingstoke. Mr. W. Smith, Architect:—
Muscelwhite & Sons 2,474 0 0
Litchfield 400 15 0
G. Charlton 400 0 0
Pritchard 393 0 0
Adams 370 10 0
F. Charlton 280 0 0

For the erection of two shops and storehouse, for Messrs. McKenna, Swan-street, Manchester. Mr. Herbert B. Tjouw, architect:—
Ward 21,925 0 0
Parrell 1,802 0 0
Cochran 1,741 0 0
Davison 1,710 0 0
Thompson (John) 1,659 0 0
Thompson (Joseph) 1,618 0 0
Bowden & Edwards 1,447 0 0

For alterations and additions to St. Wilfrid's Roman Catholic Schools, Hulme, Manchester. Mr. Herbert B. Tjouw, architect:—
Thompson 21,488 0 0
Ledge 1,328 0 0
Davison 1,303 0 0
Ward 1,250 0 0
Harrison & Shaw 1,200 0 0

The Builder.

VOL. XXIII.—No. 1168.



Architecture
and Engineering in
India.*

THE revival of architectural taste which has sprung up in England within the last twenty years is slowly but gradually spreading to India; and within the last few years more than one handsome church, railway-station, or other public building has been erected which would do no discredit to any European capital. This improvement certainly has not come before it was wanted. Until lately we did not shine in designing public or private buildings at home: witness the heterogeneous rows of suburban villas in the neighbourhood of London, or the unmitigated monotony and ugliness of many of our modern streets. But we certainly surpassed ourselves in India, and succeeded in inventing a style of

building (irreverently known as the Military Board style), which for ugliness beat everything that ever was constructed by man.

"Who does not know the sense of desolation that comes over one at first sight of some of our Indian cantonments," says Major Medley; "the straight and dusty roads, the rows of glaring white rectangular barracks, the barn-like church, differing only from a barn in the presence of a square tower and classical (?) portico; the Roman Catholic chapel ditto, only smaller and with bright green doors all round."

Then the houses, evidently built after the model of the barracks, unless when the genius of the builder had displayed itself in a profusion of bright colours on the external walls, arranged in such startling contrast that the dark horses were very apt to shy at passing it. If we go inside, matters are not much better. High bare white-washed walls, a barn-like roof, with perhaps a dirty ceiling cloth shaking in the wind; a dilapidated plaster floor, and square holes cut in the walls doing duty as doors and windows. One exception alone is there to this puritanical simplicity, in the fire-place, which is evidently an offspring of the genius of the native mason, and consists of a grotesque mass of ornaments which would perhaps be more effective if unblackened by the smoke from the ill-constructed chimney."

The general reason assigned for such a state of things is, — 1st. The requirements of the climate; 2nd. The necessity of economy. But the cogency of either argument must be altogether denied. There can be no doubt that a thoroughly airy and well ventilated building may be made just as ornamental as one which is adapted for a cold climate only; and that a small amount of money expended in judicious ornamentation will scarcely affect the total cost of the building. The real reason has been undoubtedly a want of taste and knowledge, and now that such deficiencies are beginning to disappear, it is hoped and believed that the beginning of an improved state of things has arrived. It must be allowed that the true principles of

architectural construction for buildings in the East, which are to be used by men habituated to an entirely different climate, have not as yet been discovered.

"A mosque," remarks Major Medley, "has a pleasant temperature both in winter and summer, while a Gothic church in India is, as a rule, either very hot or very cold. I do not say that Gothic churches are unsuitable to India, but only that they are so as we now build them. In the same way, many of our houses with lofty rooms, numerous openings and thin walls, are far less cool and pleasant than native houses, low and badly ventilated as they are, with thick walls and few doorways. I do not say that we ought to live in native houses, but simply that we have not as yet hit upon the right way of constructing our own."

Treading of architecture as distinct from mere building, it is an art, not a science, and therefore does not fall under exact rules of instruction; one consequence of which is, that while engineering advances and improves, architecture stands still and copies. We make better roads and bridges now than in the fifteenth century, but we have hardly got beyond copying their churches; and until there is a reformation in this respect, it is hopeless to expect that we shall have an architecture adapted to the peculiar circumstances of Anglo-India."

As to the style of dwellings in the Upper Provinces of India, it is doubted whether the present style is not radically unsuitable to the climate.

"In a hot and damp country, especially if near the sea coast, numerous doors are certainly required by which the cool breezes may sweep through the house; and hence verandahs are necessary to shade the doors from the direct glare of the sun. But where, as in Upper India, it is necessary during the fierce dry heat of April, May, and June, to exclude the hot air altogether, by night as well as by day, the fewer doors there are the better; and ventilation should be secured through the roof. In the cold weather, the paucity of doors would add much to the comfort of the house; and verandahs might perhaps be altogether dispensed with. The thin walls which now get so thoroughly baked that they continue to radiate heat by night and day for months together, should be made twice their present thickness, or, better still, might be double. Upper-storied buildings are perhaps more suitable to Lower than Upper India, unless the upper rooms are used solely as dormitories; but considerations of expense will generally bar their adoption. In many parts of the country, perhaps the old Eastern style of building round an open quadrangle in the centre might be adopted with advantage. This open court, paved with marble or stone, filled with fragrant shrubs, and with a fountain and tank in the centre, is characteristic of most of the dwellings of the wealthy throughout Syria and other Eastern countries, and is, indeed, common enough in native houses in India. Perhaps some one will work the idea into a tangible shape."

He protests against the indiscriminate use of plaster so generally applied to buildings of all kinds in India. In most cases it is simply used to conceal bad masonry, and every plastered building looks shabby in a few months after being constructed. It is expensive and adds no strength to the work. Brick masonry, if well executed, as he observes, has a beauty of its own, and with well-made bricks, well bonded, and with fine joints, there can be no meaning whatever in hiding the material. Some excellent specimens of brick masonry have been lately erected * in Upper India, but improvement is required in the manufacture of bricks before this kind of work can be executed to the best advantage.

Will somebody, he asks, invent a new material for roofs in India?

"Slates we have not, except in one or two out-of-the-way localities. Galvanized iron we cannot get. Tiles get broken and look ugly, and are very heavy. A trussed roof with a very slight pitch (say 10 degrees), and covered with flat bricks and lime tarmac, is about the best we know, but is very far from being what it should be."

But floors are worse. A lime floor looks very well when just finished, and for a private house answers its purpose fairly; but for a building like a barrack it is soon cut up, is unhealthy (the dusty particles flying about engender ophthalmia), and it is impossible to repair it satisfactorily. A plank floor is expensive, perishable, and warps from the extreme changes of the climate. The best floors hitherto made are those of flat brick or brick-on-edge. But why should not this method be improved upon in public and private buildings? Excellent coloured and glazed tiles are made in the Punjab and other parts of India. The glaze is objectionable as making the floor slippery and apt to chip or wear off, but why not use the unglazed encaustic tile now employed so largely in England by Minton and other manufacturers? The requisite materials exist, it

appears, in plenty throughout India, and nothing is wanted but the requisite skill and capital. One other material may be named for floors, viz., plaster of Paris, which abounds in some parts of India, as for instance, the Delhra Doon. It is well adapted for floors, as well as cornices, and other interior parts of buildings, and is capable of being made into highly ornamental forms.

In India the architect and engineer are generally one, and he is also the constructor as well as designer. The requirements of the climate necessitate modes of construction differing from those in England, but until lately our Indian engineering architects have not managed to combine coolness and ventilation with much architectural beauty. A reform in this respect is, however, in progress. Major Medley says, —

"We are at least erecting handsomer buildings, and attention is being directed towards cooling them effectually. The difficulties are great, but with all drawbacks, many fine public buildings have been completed, many more are being constructed and projected, and churches, railway stations, and Government offices are rising fast, which would do no discredit to any capital."

Some specialties of construction which are common to most Indian buildings attract the attention of the new comer. Except in the Presidency towns, they have no upper story, partly from considerations of expense, and partly because the upper rooms get very hot during the dry months. The roofs are either thatched or tiled, or else are flat and covered with brick and lime plaster. The thick beams supporting the roof are, as a rule, left exposed below. The room walls are very rarely papered, being usually plastered and whitewashed. Wooden floors would be too perishable and dear, so floors of flat tiles or of lime plaster are substituted. Doors are numerous, and are invariably double, opening in the middle. Verandahs all round a house are considered indispensable.

In many of the most important and interesting branches of engineering, little has been done as yet in India: in drainage, water supply, and gas-lighting, they are now only making a commencement even in the Presidency towns. A fine scheme is, however, in progress for the drainage of Calcutta; and a similar project will shortly be submitted for Madras, while the drainage and conservancy of native towns and European cantonments are engaging much attention.

In the improvement of the great rivers for inland navigation, little or nothing has been done, but many navigable canals are at work in Madras and Bengal, and others are in progress. In Bengal, inundations from the sea and rivers have also given practice in the important subject of embankments; and the Hidgelee Sea Dyke, when completed, will, it is said, be a noble work.

Of military engineering not much is said. Like the Romans of old we encamp our Indian troops in the open instead of shutting them up in forts. The arsenals are for the most part inside old native forts, slightly improved, and except Fort William and the outposts on the north-west frontier, there is scarcely a single fort of modern construction in the country.

In India the Government is the constructor and maintainer of nearly every public work throughout the country. Not merely works which specially appertain to an immense military establishment, but every road, bridge, church, court-house, jail, &c., has to be built from imperial funds, and through Government officers. Nor can even the railways be excepted, for though the capital employed is not its own, yet the controlling power possessed by Government is so great,* that not the smallest work can be undertaken, nor the salary of the least official paid, without its written authority.

Every effort is being made to introduce the contract system, and it is generally in vogue in

* "Professional Papers on Indian Engineering." Vol. I., 1863-64. Edited by Major J. G. Medley, R.E., A.I.C.E. Principal, Thomason College, Roorkie. Printed and published at the Thomason College Press, Roorkie, Calcutta: Thacker, Spink, & Co. 1864.

* The new Government School-house at Umritsur, built by the Municipal Engineer, Mr. W. Gordon, and the new Lahore Railway Station, are instanced as excellent specimens.

* This arises from the guarantee system.

the Presidency towns, and on most of the great railway works; but over the whole country the vast mass of the Government work is done by daily paid labour, and the extra work thereby thrown upon an engineer may be easily conceived.

In many parts of the country there is no organization of labour whatever, and when works have to be executed, the engineer has to collect and train his workmen, to make arrangements for carriage, to make his own bricks, burn his own lime, cut his own timber, and in a word superintend a hundred petty details, which in a civilized country are undertaken by a hundred different men, each skilled in his own peculiar business.

Of the workmen themselves, much good is reported. If well managed, they are as a rule both intelligent and teachable. Excellent masons, carpenters, and smiths abound in the country. The machinery in the various railway workshops is managed by natives under European superintendence, though there are no native engineers as yet.

The most striking thing to the engineer fresh from England, is the total absence of the ordinary mechanical appliances for executing work. Vast earthworks are still made by the help of the *phowrah*, or native spade, and baskets carried on the heads of women and children. Wheelbarrows are scarcely ever seen; horse carts still more rarely. For getting water out of foundations, &c., pumps are coming into use, but in general the primitive native modes of baling, or the *Churms* (leather bag), or Persian wheel worked by bullocks, are still employed. Bricks and tiles are almost invariably hand-made, and the pug-mill is unknown: the saw-pit is never used.

The principal reason for this is the comparative cheapness of labour, but if the rate of labour increases for a few years longer, as it has done for some time past, the introduction of more elaborate appliances will become essential. At present, except the railway workshops, and those established at Boree, there is no steam machinery in the country, unless at the Presidency towns. Machines driven by wind power are also unknown, it is difficult to say why. Of the enormous water power available on the numerous canals and rivers, very little is utilized.

In Central India and the hilly districts all over the Indian continent, many varieties of excellent building stone exist, and are abundantly used. In the great plains of Bengal, Hindostan, and the Punjab, however, brick is the only available material. The English sized bricks, or those of a still larger size, are now coming into general use. The native bricks are very small, excellently burnt, laid with little attention to bond, and with a profuse expenditure of mortar. Bricks are burnt with wood fuel, in kilns of several kinds, or in stacks like English clamps, with dried cow-dung instead of coal.

Excellent lime is everywhere abundant, produced either from limestone *in situ*, or the boulders found in hill torrents, or the kunkur found in the plains. It is mixed with various substances for mortars, of which pit-sand and soot-lime (pounded brick) are the chief ingredients. For very strong or fine mortars, coarse sugar and egg-shells are sometimes added.

A great variety of fine timber is found in India, generally brought from the forests in the hills, among which may be noticed *Saul*, a dark heavy, straight and strong wood, and *Deodar*, nearly the same as the cedar of Lebanon; the former used in the North-West Provinces, the latter in the Punjab for every kind of building purpose. Both of these are found in the hills alone, at an elevation of from 2,000 to 5,000 ft.: the trees are cut down and thrown into the rivers, and when these rise the logs are floated down to the plains. In West and South India *teak* is in general use. It abounds in the forests of Burmah, being one of the most valuable productions of that province. *Toon*, an inferior sort of mahogany, is extensively used for furniture; *Sissoo* or *Sheshum*, and some of the varieties of acacia, are hard, heavy, crooked woods, used for strength and toughness.

Iron ores of fine quality are abundant in many parts of India, but from the want of fuel and carriage are little worked, and English iron is generally used. Government have made, and are now making, several praiseworthy attempts to develop the manufacture of iron.

The greatest works as yet executed in India, belong, as in England, to the railways. Indeed, there are none in the world more interesting or important than the Bhoré Ghat incline, of which we have more than once given particulars in the *Builder*, or than the Scane and the Jumna

bridges, and other works little inferior to them which might be enumerated. The East Indian Railway, 1,000 miles long from Calcutta to Delhi, with the branch to Jubulpore now under construction, is probably the longest line in the world owned by a single company, as it is certainly one of the greatest triumphs of engineering. The Great Indian Peninsula, and other lines, though inferior in length, are some of them, at least, of equal engineering interest.

With them may be classed the great roads, though the system, like that of the railways, is still far from complete.

“The Grand Trunk Road from Calcutta to Lahore, 1,300 miles in length, comprises every variety of construction, from the heavy gradients through the Rym-hill hills, to the massive and level embankments between the Jumna and the Sutlej. The Lahore and Peshawur road, a continuation of the Trunk line, 270 miles long, and now rapidly approaching completion, may challenge comparison with any in the world; while, in the formidable extent of drainage crossed by it, it probably stands alone. Of others, the Hindustan and Thibet road when finished, may take its place by the side of any of the famous Alpine roads; while the great Deccan road, the Assam road, and many others still in hand are works of considerable magnitude.”

It is, however, in the great irrigation works that have been, or are being, constructed in India, that the peculiarities of Indian engineering are more especially to be sought; for, except in Italy, these works have no counterpart in Europe. The Ganges canal, 600 miles long with its branches, and pouring its waters over a million of acres through 3,000 miles of distributing channels; the East and West Jumna canals, 200 and 500 miles long, respectively; the Baree Doab canal, also 200 miles in length; are works of which any country may be proud, and in the principles and construction of which engineers have to learn much which they cannot be taught in England. An entirely separate class of works are the great weirs and tanks of Madras, whereof the works on the Godavari are the finest examples, and which are also purely Indian specialties.

Of the Solani aqueduct, by which the Ganges canal is carried across the valley of the Solani river, we have already given an account in the *Builder*; but the subject is one of so much interest to the profession, from the magnitude and peculiarity of the work, that we cannot refrain from here inserting the brief description of it given by the editor of the work under notice, with reference to a lithographed photograph of it which appears as a frontispiece.

“The Solani Aqueduct, by which the Ganges Canal is carried across the valley of the Solani river, consists of an earthen embankment or platform, raised to an average height of 10½ ft. above the country, having a base of 350 ft. in width, and a breadth at top of 200 ft. On this platform the banks of the canal are formed, 30 ft. in width at top, and 12 ft. in depth. These banks are protected from the action of the water by lines of masonry retaining walls formed in steps extending along their entire length, or for nearly 2½ miles north of the Solani.”

The river itself is crossed by a masonry aqueduct, which is not merely the largest work of the kind in India, but one of the most remarkable for its dimensions in the world. Its total length is 920 ft.; its clear waterway 750 ft., in fifteen arches of 60 ft. span, each. The breadth of each arch is 102 ft.; its thickness is 5 ft., its form is that of a segment of a circle, with a rise of 8 ft. The piers rest upon blocks of masonry, sunk 20 ft. deep in the bed of the river, being cubes of 20 ft. side, pierced with four wells each, and sunk into the ground in this manner. These foundations, throughout the whole structure, are secured by every device that knowledge or experience could suggest; and the quantity of masonry sunk beneath the surface is scarcely less than visible above. The piers are 10 ft. thick at the spring of the arches and 12½ ft. in height. The total height of the structure above the valley of the river is 38 ft. It is not, therefore, an imposing work when viewed from below, in consequence of this deficiency of elevation; but when viewed from above, and when its immense breadth is observed, with its line of masonry channel, nearly three miles in length, the effect is most striking.

The water-way of the canal is formed in two separate channels, each 85 ft. in width. The side-walls are 8 ft. thick and 12 ft. deep, the depth of water being 10 ft. A continuation of the earthen aqueduct, about three-quarters of a mile in length, connects the masonry work with the high bank at Koorkee, and brings the canal to the termination of the difficult portion of its course.

This great work was designed by Sir Philip T. Cantley, and chiefly executed by Capt. (now Lieut.-Col.) A. G. Godwyn, R.E. It occupied seven years in construction, and cost Rs. 35,37,000.”

Among the numerous illustrations in this interesting volume there is a photograph of Trinity Church, Sealkote, designed and built by Lieut.-Col. J. H. Maxwell, R.E., at a cost, to the Indian Government, of 41,000 Rs., besides subscriptions to an unknown amount. The spire cost a further sum of 3,869 Rs., and was completed in 1861.

Engravings are given of the design for Cawnpore Memorial Church. This edifice was in progress when the volume under notice was published. Competitive designs were called for in 1861, the cost of the building being limited to 1,20,000 rupees. The design of Mr. Walter Granville, C.E., consulting architect to the

Government of India, was selected. This design is founded on the round-arched Lombard and Romanesque styles of architecture, with introductions from the later Italian Pointed style, in accordance with a suggestion of the Government of the North-Western Provinces of India.

The architect, in his descriptive remarks, says:—

“It is proposed to build the walls of the church of red pressed bricks, faced in part outside with Chunar stone in dark grey bands; inside, the walls are to be faced solely with stone. The roof is groined in stone in the simplest manner. The cornices, arches, and columns are to be also of Chunar stone. The flooring is also of stone, with a pattern of grey Chinese marble. It is not intended to have any plastering either externally or internally. It is argued that this church especially should be a memorial church, *ere perennius*, and as such typical of our enduring supremacy.”

The dimensions of the church are as follows:—

	Feet.	Inches.
Extreme length inside	141	0
Extreme width inside	69	6
Height of church	46	0
Width of nave	25	0
Depth of chancel	42	0

The church is capable of affording sittings for 500 persons on the ground floor. In the gallery at the west end, over the vestibule, 100 more persons can be seated. The organ is placed in the gallery of the south transept, and there is a corresponding gallery in the north transept; these will seat, if required, 100 more persons: thus giving accommodation in all for 700 persons.

The method by which the church is lighted and ventilated and secured against the intensity of glare, forms one of the chief objects of the design. In this bright climate light should be admitted with caution, and there is this advantage that it produces a shadow effect or “dim religious light,” which is highly favourable to architectural grandeur. The principal light is obtained from a considerable elevation immediately above the lower passages or aisles. It is admitted *in feno*, through a series of small pointed arches pierced in the outer walls of an upper arcade built over the passages below; secondly, through a series of similar arches left in the inner walls of the church. This double arrangement for admitting light will tone down the rays of the sun and obviate any inconvenient glare, while it effectually prevents the rays from falling directly on the floor, and so on the seats, the floor of the church. By leaving all these openings free from glass, a free current of air is afforded for the ventilation of the church.

So far the design differs from any known church; but whilst I have departed from the usual plan of northern churches in this particular, on account of the climate, I have adhered to the orthodox plan of a church appointed for celebrating the rites and ceremonies of the United Church of England and Ireland. I have moreover endeavoured to give to the exterior and interior at least an Oriental stamp, by the introduction of coloured bands, which, so far as I remember, had their origin in the East among the Tartar tribes, and were introduced by them into every country they occupied.”

The architect's estimate amounted to £17,700 Rs., but subsequent experience showed that the estimate was insufficient, and it was raised to £51,381 Rs., which sum was sanctioned by Government. An improvement has at any rate been initiated in India, and not before it was called for.

THE LATE SIR JOSEPH PAXTON.*

ACCORDING to Montesquieu, the success of most things depends upon the knowing how much time will be wanted in order to succeed. (“*Le succès de la plupart des choses dépend de savoir combien il faut de temps pour réussir.*”—*Pensées Diverses.*) In such a case as that of the building for the Exhibition of 1851, as we have seen, the time being fixed, the success is dependent upon the selection of means and appliances with reference to the time, and upon a certain tact in the rejection, consistently with safety to life, of numerous details. It is dependent also upon tact to select, if not upon the good fortune of having, agents to whom matters of supervision, and if need be contrivance, can be delegated. Ability of the particular sort finds its best illustration in the career of Napoleon. Ordinarily it neither renders the less necessary, but rather the reverse, genius, so called,—which is the accumulation of the results of thought and study, just as capital is the accumulation of the earnings from labour,—nor dispenses with the necessity of fresh and increasing exertion of the personal kind. It is a peculiar gift,—that which secures the co-operation and aid of numerous hands and minds. Probably there is involved with it the readiness to accord credit to others, when due. Both the gift and the disposition were features of Sir Joseph Paxton's character; and probably were he now living, it would be easy, with his aid, to determine the exact share of merit due to him for what would have been the architect's work in the design of the building of 1851, as well as in that of the Crystal Palace. That he himself thought he had, for one of these buildings at least, accomplished the greater part of what is ordinarily architect's duty, is possible. Architects

* See p. 421, ante.

* Vol. ix, p. 134.

thing connected with the building as well as the grounds, the services of Messrs. Wyatt and Jones being generally confined to the collection of the works of art, and their arrangement in the fine-arts courts designed by them.—Mr. Jones, however, having the management of the decorative painting of the building. The first column was raised in August, 1852. The report presented, and the chairman's speech, on the 17th March, 1853, repeatedly mention Sir Joseph Paxton, in connexion with plans and designs; and a printed paper issued in the following August, names Messrs. Jones and Wyatt as "Directors of Decorations," and Mr. Charles Heard Wild as "Engineer." Sir Joseph had now associated with him Mr. Stokes, to whom are due the architectural features of the external terraces and fountains, and the Sheffield Court. We believe also that Mr. Stokes assisted in the preparation of the original drawings of the building.

It is plain however that Paxton occupied a more important professional architectural position than he had filled in relation to the building of 1851. But those who would claim for him the entire status, at this time, of an architect, must be prepared to defend much of the work that there is reason to consider defective in the Sydenham building. The bulk of this particular construction is that of the building of 1851, and was the result of the employment of its columns and girders; but the defects so comprised must be considered as so many instances of original failure; since, as we have seen, even the building as designed for Hyde Park was contemplated as to be permanent. We have given attention to certain views on the particular system of column-and-girder construction, which are assumed to have gained importance from the destruction of one of the wings at Sydenham; and we may here add that many parts of the building are in gradual process of reconstruction, as by the substitution of iron supports for wood, or in order that the whole may have better chance of permanence. The brickwork supporting the iron columns, on the east side, where the slope commences, if we remember rightly, had no great strength; but what is most important for the question of the ability of whosoever is to be regarded as architect, is the fact that the two water-towers, after considerable progress had been made with them, had to be taken down, that they might be erected on wider areas of base. As regards effect of outline in themselves, and the grouping with the main building, they were not very successful at first; and they are less so as they are. In an architect's work, there is no substitute for thought; and the danger from dispensing with it is so serious, that whoever even has had the luck once to achieve success that way, should be duly mentioned when the result is the reverse, or that which generally is probable. It is not a settled question whether the architect shares responsibility for the failure of a peculiar contrivance of scaffold, brought into use by contractors, under novel conditions of the execution of a design; otherwise, in the zeal after crediting Sir Joseph Paxton with the performance of the duties of an architect, he might have ascribed to him some of the discredit of the accident during the construction of the roof of the central transept, when there was sacrifice of life, and when no sufficient cause of the accident could be stated by the contractors. With the particular contrivance then, he had, however, as we believe, no connexion.

We have already alluded to claim made on Paxton's behalf, to the credit of the particular construction of the arched roof. If this be allowed, there should be attached to it that of the arrangement of the projecting pairs of columns, which support the principals, and add much to the internal effect.

It remains only to mention of the Crystal Palace, that the ceremonial of the inauguration took place on the 10th of June, 1854; and that the general conception of the scheme, the direction by Sir Joseph Paxton as to the building and its contents; and his designs for, and superintendence of, the unprecedented and most elaborate hydraulic works; as also his artistic skill in the arrangement of the grounds, are now monuments of him that require no addition here of panegyric.

Contemporaneously with the achievement of the Crystal Palace, Sir Joseph Paxton became absorbed in a successful career, both of general public usefulness, and, now unquestionably, of the practice of an architect. He was elected a member of Parliament, for Coventry, in December, 1854; and in this capacity, his experience in connexion with works of construction, has

been of great advantage. During the Crimean war, he secured the establishment of the Army Works Corps, of "navvies;" and he also designed huts, of somewhat novel form, to which reference will be again made. He was a most useful man in committees; and it may be considered owing to his exertions that the Thames Embankment is now in progress, and that the Low-level Sewer is not being constructed along the Strand; which latter route, the engineer had been compelled to take into consideration, seeing the apparently interminable delay as to the originally designed route by the river-side. About the time of his active connexion with the Crystal Palace, Sir Joseph Paxton projected and designed a very important glass-roofed London thoroughfare, which is to be found illustrated in a Parliamentary paper on Metropolitan Communications. The first suggestion of a covered way of the kind, was however made by Mr. Gye, even before 1851. Somewhat later there was a design by Paxton, for a permanent exhibition building, of iron-and-glass construction, for a spot in the environs of Paris. It was first intended to be erected on the elevated ground near St. Cloud. The principal front was to have three circular projections, or attached rotundas, surmounted by domes. Mr. Owen Jones had made a design previously.

But of actual works to which Paxton's name must be attached as architect, there were several. Indeed, they might be said to have commenced before the period of his connexion with the building of 1851. The village of Edensor, near Chatsworth, was rebuilt from his designs, and is considered a great improvement in point of taste upon what had been done before. The farm-buildings at Chatsworth also were his. After 1851, he designed and carried into execution the house at Mentmore, in Buckinghamshire, for Baron Mayer A. de Rothschild, M.P.; illustrations of which have been given by us,—also the Dairy and Cottage, and the labourers' cottages at the same place. He was the architect of the mansion at Ferrières, in France (thirty miles from Paris, on the Strasburg line), which was erected, by Mr. Myers, for Baron James de Rothschild, and of the lodge and entrance. He also made extensive alterations and additions to Lismore Castle, in Ireland, for the Duke of Devonshire, a building which we have illustrated; and he had laid out the grounds of Burton Cloes, near Bakewell, the seat of Mr. John Allcard, the house being designed in some measure under his directions.

Besides these works, he had the planning and superintendence of some important public parks and gardens. A park at Liverpool was, we believe, completed some five or six years before 1851; and about the latter period he had in progress the park at Birkenhead. He laid out parks at Hall, Glasgow, and Dundee,—a pavilion at the latter place being designed by his son-in-law,—and the Coventry Cemetery—the chapels and lodges of which also were designed by Mr. Stokes. A design bearing his name, for the laying out of Shepperton Park, near Hampton, in building-plots, is now to be seen at the railway-stations. His last work was a design, just completed, for a park at Dunfermline, in Scotland.

In 1862, Sir Joseph Paxton exhibited a form of hothouse, of very ingenious but simple and economic construction. It was suggested by the Crimean huts, which consisted of two simple slopes, from eaves at the ground, to a ridge, and spanning a space composed of two flat slopes which were cut in the ground. For the hothouse, nothing additional is required, unless dwarf-piers in the ground, some distance apart, on which to lay the eaves-guttering, which rests immediately on saddles. The sashes are hinged together at the ridge; and there are no rafters: thus the whole framing and glass can be easily moved; and it can be modified in arrangement in various ways. A lean-to, of course, can be fixed on the same principle. The span can be lessened or increased, or an addition of a fresh length of framing can be quickly made. Air is given by means of narrow sashes, hinged to spaces extending from eaves to ridge. These conservatories appear to be getting into extensive use.

Sir Joseph Paxton was a Fellow of the Horticultural Society, having been elected in 1826, a Fellow of the Linnean Society, 1833, and a Member of the Society of Arts, 1850. He was created a Knight of St. Vladimir by the Emperor of Russia, in 1844; and he became a Captain of the 11th Derbyshire Rifle Volunteers in 1860. He was a Magistrate of the county of

Derby, a Director of the Midland Railway, and connected with many other undertakings. His funeral, at Edensor, on Thursday the 15th, was attended by the Duke of Devonshire, the Lords Richard, George, and Frederick Cavendish, Mr. Jackson, M.P., and Messrs. Brassey, Wythes, Owen Jones, Mark Lemon, Evans, Scott Russell, Grove, and Bowley.

Though we have thought fit to endeavour to disabuse the public of the exaggerated notion of his greatness, and of his claims to rank as inventor of a form of architecture which he had rather the good fortune to apply to a single new purpose, we regard Sir Joseph Paxton as one for whose real abilities and services, and even works, the appreciation of architects is rightly due. His personal qualities had so much relation with what he was able to accomplish, that we should add that to his discrimination of character, his ability to retain friends and useful people about him, his sharpness of understanding means, even structural, conducive to ends, his industry, and that probity which procured him the friendship of the late Duke of Devonshire, in addition to his unquestionable acquirements of a certain kind, his success may be attributed.

PORTRAIT MINIATURES IN SOUTH KENSINGTON MUSEUM.*

NEARLY "blind yet bold," we have, with a dogged determination of purpose—fatigued rather than satisfied—made ourselves critically "up" to the test of examination in the special exhibition of portrait-miniatures, borrowed for public instruction by the "Science and Art Department of the Committee of Council on Education." The importance of the collection is very great, viewed in any of three lights in which it may be advantageously studied,—with a view to history, with a view to biography, or with a view to art. Of Holbeins proper, or "ascribed to," or believed in by their owners, we have twenty examples. We shall give them numerically:—

648. Mr. Hollingsworth Magniac's Katherine of Aragon, first wife of Henry VIII., on vellum. From Strawberry Hill, Walpole calls it (Works ii., 477) "an admirable original by Holbein," and so Mr. Redgrave might have told us.

652. Henry VIII., from Strawberry Hill, 'now Mr. Hollingsworth Magniac's.

673. Sir Stephen Poyntz, of Iron Acton, in profile, lent by Mr. R. S. Holtord, M.P.

1,011. The Countess of Kildare. Lent by Lord Boston: very curious.

1,039. The Earl of Kildare: ditto.

1,391. Queen Jane Seymour, Queen of Henry VIII., and mother of Edward VI. (very fine), lent by the Rev. Dr. Wellesley, of Oxford, whose knowledge and taste in Mediæval art is indisputable. It is in crayons, tinted, and as fine as the best of the Windsor (badly engraved) Holbeins of the same character.

1554. Thomas Howard, third Duke of Norfolk, father of the poet Earl of Surrey; lent by Mr. Philip Henry Howard. This we remember to have seen before, and our doubts that it is by Holbein are confirmed by a further experience of six years.

1590. Katherine of Aragon, Queen of Henry VIII., on vellum. Lent by the Duke of Buccleuch.

1603. Thomas Lord Seymour of Sudley (on vellum), the Lord High Admiral of England, who married the widow of King Henry VIII. Lent by the Duke of Buccleuch.

1645. Queen Jane Seymour. Lent by Mr. Sackville Bale, whose well-chosen collection, purchased by himself,—not inherited,—merits to be carefully studied. End wall, division four, contains fourteen most valuable miniatures, the property of this gentleman.

1651. Queen Mary, daughter of Henry VIII., from the collection of the poet Rogers. Lent by Mr. Bale.

1810. Queen Anne of Cleves, fourth wife of Henry VIII., signed H. H. Oil on panel. Lent by that thoroughly well-informed Scottish antiquary, Mr. David Laing. This picture made us sigh to renew our acquaintance with the Meyrick (Goodrich Court) miniature of Anne of Cleves, the finest miniature by Holbein, or by any one else,—some connoisseurs unhesitatingly assert. Colonel Meyrick kindly sent it to the Manchester Art Treasures Exhibition of 1857. Thanks to Colonels De Bathe and Meyrick, of the Scots Fusilier Guards, and to

* See p. 405, ante.

Mr. John C. Deane, the sole father of that triumphant exhibition,—a great success, with a money balance on the right side.

When Mr. Redgrave revises his catalogue for a new and (we trust) cheaper edition, he will possibly think it well to insert, or refer, to a letter (printed by Sir Henry Ellis, 1st series, ii., 122), written by Nicholas Wotton to Henry VIII., and dated Duren, 11th August, 1539:—"Your Grace's servant, Hanze Albein, hath taken th' effigies of my Lady Anne and the Lady Emelye, and hath expressed they images very lyvely." Wotton and Berde were the two persons deputed to negotiate Henry's marriage with Anne of Cleves. The passage just quoted we have copied most carefully into our own annotated Walpole.

2,082. Henry VIII. Oil. Lent by Earl Spencer.
2,093. Portrait of a Gentleman, in a furred dress. Lent by the Earl of Shaftesbury.

2,627. Portrait of a Lady, "Anno Ætatis sue 23." Her coat of arms is affixed to the case. Card. Lent by Mr. J. Heywood Hawkins. Here we renew our cry for Herald's College and Mr. J. Gough Nichols.

2,655. Hans Holbein, the painter. Oil. Lent by Lord Spencer.
2,664. "King Edward VI., in a black dress and jewelled cap, soon after his father's death. Set in a case, enamelled on gold. 1547." So runs the catalogue, p. 248; but at p. 293 of the same catalogue we are told, and truly, that Holbein died in 1543, four years anterior to his having painted this spurious Holbein. The portrait is lent by Mr. Henry F. Holt.

2,946. "Charles V., emperor of Germany, wearing the badge of the Order of the Golden Fleece, when a youth, about 1520." A very old Parr of a youth, Messrs. Whittingham & Wilkins, printers.

2,947. Queen Anne Boleyn.

2,948. King Henry VIII.

Both lent by Mr. William Mosely. Now, of these twenty half genuine, half doubtful, Holbeins, Dr. Wellesley and Mr. Sackville Bale possess the very finest.

Of Nicholas Hilliard, born at Exeter in 1547, four years after Holbein's death, and the second great name in point of time (if not of skill) in miniature art, or limning in little, the Kensington Exhibition supplies twenty-nine examples:—

103. "Portrait of a Gentleman in a ruff and white dress; ascribed to N. Hilliard." Oil, and, as we marked on the spot, "genuine." Lent by Lord Cremorne.

308. Queen Elizabeth. Enamelled frame of the period. Lent by Mr. Samuel Addington, and a "gem" we pencilled in our catalogue when we stood admiringly before it. Blue background.

309. "Mrs. Holland, Maid of Honour to Queen Elizabeth," signed and dated, "Anno. Dni. 1593. Ætatis sue 26." Blue ground.

360. "Lord Keeper Coventry (died 1640), ascribed to Nicholas Hilliard." This miniature, lent by Mr. Wm. H. Pole Carow, of Antony, in Cornwall, will not stand the test of dates. Hilliard, to whom it is given, died in 1619, and Coventry was not lord keeper in Hilliard's lifetime. The Latin inscription on the portrait seems genuine.

632. Nicholas Hilliard, the miniature painter, by himself, 1547-1619; signed and dated, "N. H. 1550." To this we say, very early ripe, Master Hilliard; here is a miniature by Hilliard, limned by a precocious boy of only three years old. Lent by Mr. Hollingworth Magniac, as is—

651. Lady Arabella Stuart (very fine), from Lord Wilmington's collection, and from the Strawberry Hill collection.

805. Queen Elizabeth, in a very richly-jewelled dress and lace ruff; from the Strawberry Hill collection. Lent by Mr. John Jones.

* Covetable.

1,009. Lady Arabella Stuart. Oval; very fine; blue background. Lent by Mr. William Maskell.

1,175. Nicholas Hilliard, miniature painter, died 1619; a copy by G. F. Harding, of the Penhurst miniature engraved in Walpole's Works; but more satisfactorily in Dallaway's Walpole.

1,485. Elizabeth Spencer, Lady Hunsdon, wife of George, second Lord Hunsdon. Oval, in fluted gold frame; very fine. Lent by Lord Fitzhardinge.

1,578. Anne of Denmark, Queen of James I. Lent by Lord Wharcliffe. Card. Oval, genuine, and good.

1,596. Lady Shirley; represented with her falling.

1,602. The Protector Somerset, dated 1560. In 1560 Hilliard was only thirteen. Somerset

was beheaded in 1552. "Facts are stubborn things." "Pass this by," as auctioneers are at times obliged to say, "and bring on the next lot, No. 1,642."

1,642. Portrait of a young gentleman in a black dress and lace collar, his hair hanging loosely down on his left shoulder. Inscribed, "Anno. Dni. 1594. Ætatis sue 20." Oval, very fine; without even a motto, and therefore, unhappily, without any clue to identification.

1,645. Lord Hunsdon, cousin to Queen Elizabeth, who made him her Master of the Horse. Inscribed "Anno. Dni. 1605."

* * * Hallo! Committee of Council on Education, Mr. Sackville Bale (to whom this miniature belongs), and Mr. Samuel Redgrave: look at the 36 ft. high tomb of Queen Elizabeth's cousin Cary, Lord Hunsdon, in Westminster Abbey (chapel of St. John the Baptist), and there, as elsewhere, you will learn that Queen Elizabeth's cousin, Lord Hunsdon, died in 1596, nine years before the date on the miniature. Who that has ever seen, will readily forget the Sherborne Castle picture of Queen Elizabeth's procession to Hunsdon House?

1,652. Mary Stuart, Queen of Scots. Inscribed "Anno. Dni. 1579. M.R." When Mr. Albert Way has passed his judgment on this miniature of Fotheringay Mary, we will give our own.

1,715. "Sidney's sister, Pembroke's mother." Lent by the Rev. William Vernon Harcourt.

We should like to know the genealogy of this Hilliard.

1,814. Queen Elizabeth. Lent by the Earl of Derby. Oval and very fine; but seen to ill advantage in its modern and tasteless setting.

1,817. Sir Francis Drake. Inscribed "Ætatis sue 42, Anno. Dni. 1581." Lent by the Earl of Derby, and very fine. Same remark about the setting.

2,002. Lady Montagu, mother of Anne, wife of Dudley, fourth Lord North. Lent by Colonel North, M.P. Fine.

2,012. Dorothy, Lady North, mother of Dudley, third Lord North. Lent by Colonel North, M.P. Exquisite.

2,068. Portrait of a child in a richly-quilted dress, with the inscription "Anno Dni. 1578, etatis 5." Lent by the Earl of Shaftesbury.

2,070. Portrait of a gentleman in a richly-decorated gorget, with the inscription "Anno Dni. 1578, etatis 32." "This," Mr. Redgrave says, "is evidently the portrait of the father of the child No. 2,068." Lent by the Earl of Shaftesbury.

2,346. Mary Stuart, with her son James VI. of Scotland, with a view of Edinburgh in the background.—and

2,347. Henry VIII., with his son Edward VI. Both ascribed to Hilliard, and both lent by Miss Wilson.

2,565. Queen Elizabeth. Anno. Dni. 1564. Ætatis sue 25. Lent by Lady Sophia Dea Vaux. On this we remark; painted when Hilliard was 17. We must give a Lord Barleigh shake of the head against this being a genuine Hilliard of England's Elizabeth.

2,629. Mary Stuart, Queen of Scots. Lent by Mrs. Naylor Leyland. The catalogue gives a descent of this miniature from one of the maids of honour to Queen Mary down to the present time. Our belief is, that Hilliard never saw the beauteous Stuart, and that Mrs. Naylor Leyland's miniature is not a Nicholas Hilliard.

2,945. Portrait of a gentleman, inscribed, "Anno. Dni. 1628. Ætatis sue 41." This small oval the catalogue ascribes to Hilliard. It is beautiful, with a blue background in Hilliard's manner, and with much of his marvellous delicacy of finish. Lent by Mr. William Mosely.

The pedigree of Hilliard, given by Dallaway, from the archives of Herald's College, presents and records "Laurence Hilliard," living in 1634, as the only son of Nicholas Hilliard and his wife Alice, daughter of John Brandon, Chamberlain of London. For this Laurence Hilliard we had a search the other day in the Prerogative Will Office of Canterbury (off Doctors' Commons, in London). We were well repaid for our trouble.

Laurence Hilliard, of St. Bride's, Fleet-street, in London, made his will 21st February, 1640. Two bequests particularly struck our attention.

To his son Brandon Hilliard he bequeaths the Earl of Leicester's picture, in a jet box, drawn in his cloak, with a cap and feather.

To his son Thomas Hilliard, he bequeaths his grandfather's picture, in an ivory box, with a crystal over it.

To his daughter Laurence he bequeaths the excellent limned portrait of Mr. Hearne, "which I value at 20l."

He particularly mentions "a full-length of Queen Elizabeth in a jet box," his "own portrait when young," his lands in St. John of Jerusalem (Clerkenwell, of course), and his "pen of unicorn's horn" (some Scottish antiquary can doubtless tell us what such a fabulous treasure was like)—the pen with which he worked on aces of hearts and tens of diamonds.

So little is known of Nicholas Hilliard (the best connected account is in Mr. Wornum's edition of Walpole) that some new matter about so great a name in English art will, we are willing to think, find a foundling asylum in the columns of the Builder.

In the accounts of the Treasurer of the Chamber to King James I., Mr. Peter Cunningham discovered the following entries:—

"To Nicholas Hyllyard his Ma^{ty} Lymner upon the Council warrant dated at the Courte at Hampton Courte 28 December 1603 for his paynes and travell being appointed by direction to make certayne pictures of his Ma^{ty} w^{ch} were by his highnes gyven unto the Duke of Denmarkes Embassador.—xix^s x^d."

"To Nicholas Hilliarde upon the Lorde Chamberleynees warrant dated 31 January 1614 [15] for a picture of the Prince [afterwards Charles I.] in linnen drawn to the waste with a riche chrystall thereon and delivred to Mr. Murray his highnes Tutor.—vijij^s ii^d."

Among the Augmentation Records is a lease to Hilliard, for twenty-one years, of the Crown manor of Poyle, in Stanwell (Middlesex), "in consideration of his paines in engraving the Great Seal of England."

At Nutwell Court, near Exeter (Exeter was Hilliard's birthplace), is a miniature of Queen Elizabeth dated 1575, and two jewels exquisitely set in gold, presented by Queen Elizabeth to Sir Francis Drake. Did Hilliard, who was a goldsmith, ever work as a goldsmith?

The following extract from the accounts of the Treasurer of the Chambers to King James I., is here printed or referred to for the first time.

"To Laurence Hilliard His Ma^{ty} Lymner upon the Councils Warr^t. dated xvijth Apr 1624 for five pictures by him drawn as appeareth by a Bill of particulars.—xliij^s ii^d."

That is at 8l. a piece, so that his charges were the same as his father's.

In an Establishment Book of 1641, we were pleased to find preserved in the Lord Chamberlain's office, the king's "Lymners" are described as Laurence Hilliard and Peter Oliver.

The name of Laurence Hilliard, as a painter, is not to be found in any edition of Walpole. Here we must pause for a week.

THE HALF-TIME SYSTEM OF EDUCATION.

WORKING MEN'S CLUB MEETINGS.

At the fifth of these meetings, held on the 13th inst., Lord Brougham took the chair, and Lord Lyttelton, in introducing the subject of the evening, which was "The Extension of the Half-time System of Education to Classes of the Population to which it does not now apply," dwelt upon the real identity of interests which exists between masters and men, and which had been denied at a previous meeting. Were it otherwise, these meetings, which were intended to unite the different classes, would be useless. After paying a compliment to the veteran chairman, as having been the hardest "working man" in England, Lord Lyttelton proceeded to point out how the education which such men as Lord Brougham, who worked with their brain, received, enabled them to get through a vast amount of work, and contended that if those who worked with their hands were also better educated, it would be an immense advantage to them in every way. Now by the half-time system, which compelled every parent who chose to send his child to work, also to send him or her half the day to school, a very useful compromise had been effected between the demands of labour and education. He must, however, chiefly confine his remarks that evening to the question of the desirability of applying that system to the manufactories of Birmingham and Staffordshire. The inhabitants of Birmingham possessed, as they were, of many excellences, were not, however, remarkable, perhaps, for humility, and he believed they had something to learn respect-

* Accounts of the Treasurer of the Chamber to King James I.—Cunningham's "Revels at Court," 8vo, 1842, pp. xxiv, and xlv.

† MS. Accounts of the Treasurer of the Chamber.

ing the frightful ignorance of many of the youthful operative population, which was most dangerous and disgraceful to those who allowed its existence. The existing state of things had been the subject of a Parliamentary commission, which had published the results of its investigation in a "Blue Book," from which Lord Lyttelton then made several startling and interesting quotations. Among the cases adduced, was that of a boy eleven years old, who had never heard of either Scotland or America, and thought the Queen was the Prince of Wales. The hours and nature of the work of these children and young persons precluded all opportunity of learning. He gave an instance of a little girl engaged in a brickyard, near Birmingham, from six a.m. to eight p.m., only having fifteen minutes for breakfast, and thirty minutes for dinner, no time for tea, and during one day she would have to catch and throw to her neighbour 15 tons of bricks. Yet this poor child did not murmur, but said she was quite willing to work hard, and that she was looking forward to a time of rest when she should be an angel in heaven. The half-time system of education, as carried out in the manufacturing towns of Lancashire and Yorkshire, had resulted in the increased education, and consequent improved life and conduct, of their inhabitants, as had been manifested during the late cotton famine, and in many other ways. His lordship concluded by urging that it would be for the best interests of all other districts similarly circumstanced to follow their example, and to seek for an extension of the half-time system of education for themselves. Lord Brougham said that it was a great satisfaction to him to preside at one of these meetings, and then proceeded to observe that by means of the half-time system of education a great saving of time, labour, and of the faculties of both body and mind had been effected; inasmuch as five hours of education when the mind was fresh, or five hours of work when the body was fresh, were equal to ten hours of either education or work; if during the latter hours the body and mind were exhausted.

THE ELEVATION OF MANUAL LABOUR.

In the course of Mr. Chadwick's recent lectures on the Condition of the Wage Classes, he said:—In want of trustworthy educated men among the wage classes fitted to fill the many responsible situations which the management of machinery requires, it would be desirable that some of the salaried classes should overcome the prejudice against manual labour, and take those occupations which ought to be elevated in the social scale. Such positions, for instance, as those of a locomotive engineer, or the engineer of a steamship, on the proper discharge of whose duties many lives and a large amount of property depend, ought to rank so high that an ensign in the army, a clerk, or a poor curate should not feel himself degraded by taking the appointment. One of the effects of machinery and of the division of labour had been to render apprenticeships unnecessary. When a carpenter was required to do all kinds of work in wood, even to the construction of a circular staircase, there might have been some reason for a long apprenticeship; but now that his work is confined to two or three things, and so much is made by machinery, there was no longer any necessity for that. He animadverted also on the baneful effects of excessive labour in childhood and in manhood, which, in addition to overcrowding, had, he said, been the means of shortening the duration of life among the working classes nearly twenty years. The sanitary regulations that have been adopted to improve drainage, to establish dwellings for the poor, and to prevent overcrowding, had already produced an alleviating effect, and diminished the amount of disease one-third; and further improvements are being carried out which would add to the health and longevity of the wage classes in large towns. The effect of improved processes in agriculture will, in Mr. Chadwick's opinion, be even greater than it has been in manufactures. Comparing the general condition of the English wage classes with those of other nations, Mr. Chadwick said that their superiority might to some extent be attributed to race, Anglo-Saxons being able to do more work than most other races. He considered that two Englishmen could do the work of three Frenchmen; and to that concentration of force in the physical condition of the people he thought might be traced the cause of the power of this country. A difference in the physical and mental powers

is also to be observed in the inhabitants of different parts of England; those in the north being generally superior, both physically and intellectually, to the natives of the southern counties.

THE WASHING-DAY IN TENEMENTED HOUSES.

"Thump, thump, scold, scold,
Thump, thump, away;
There's little pleasure in the house,
Upon a washing-day."

MANY a poor man, with an aching heart and diseased mind, has with reason hummed the well-known song, of which we give the chorus, in most homes of the working classes. When this needful sanitary operation is attended to once a week, it is a time of discomfort and unpleasantness; but in most of the tenemented dwellings, especially in the metropolis, there is a washing on almost every day of the week, and in more ways than so far as the mere inconvenience is concerned,—the women are put to shifts in consequence of the present ill arrangements. We will very briefly jot down a few of these, as they have been given to us by a respectable woman who has been exposed to much painful experience.

Quarrels arise amongst the numerous inhabitants of a house respecting the day on which they can have the use of the copper, and about the lines and drying apparatus in the space which is often far too small and very inconvenient. It is by no means an uncommon, though a bad practice, in order to save fuel, time, and so on, for one woman to leave the hot dirty water in which her clothes have been washed for the use of another family: the mischief of this in cases where skin and other disorders are prevalent is evident. It is not unusual for the clothes in which the sick have lain, or in which persons have died, to be kept waiting for the washing-day in the rooms in which families live, or in the wash-house, which is accessible to every person (old and young) from the various apartments.

There is also a frequent scarcity of water, owing to the causes to which we have so often before had reason to refer. There is, however, one point to which we must direct especial attention, viz., the practice, which is far too common, of the person who rents the house and sublets the chief part, taking in large washings from two, three, and even more families. Sometimes others in a house imitate the example which is set: this causes the water-supply to be soon exhausted, even if care has been taken to provide butts of sufficient size.

Notwithstanding the various appliances which modern chemists have placed at hand for the use of washers of family clothes to save time, and, to a considerable extent, prevent the wear and tear to which many articles are subjected by some women, the old fashion is still persisted in, and they rub and scrub away, chattering, or what is worse, fighting, while the neglected children are roaring in some part of the premises, or exposed to the unprotected fires of the rooms, or turned upon the street, where the danger of contamination, or of being run over by some of the numerous carriages, and other risks, await them.

With one kind of muddle and another, the washing of a family, where there are four or five children, usually occupies the chief part of a day, when all is properly provided, without taking into account the drying, ironing, and mangling. At one of the public baths and washhouses, the same number of articles could be thoroughly washed and dried in two hours. The cost of hot-water steam drying-apparatus would amount to 3d., and so on at the rate of 1½d. per hour. Here a woman, shut up in the box which she has chosen, can proceed with her work without interruption; but so much have persons been accustomed to the old method, that we fear that the isolation which most people would consider an advantage, is one of the objections made to the public washhouses. But it is unfortunately the case, that many have no opportunity of testing the advantages of these establishments. In the great parish of Islington there is nothing of this kind. From various quarters we hear of the pecuniary success of baths and washhouses, if placed in well-selected situations, properly but economically arranged in the first instance, and left to stand with their own good and frugal management, without being saddled with the large expenses which were incurred, in a variety of ways, by some so-

cieties that have been formed. We have always believed, and are still of the same opinion, that baths and washhouses, if rightly managed, would pay a satisfactory amount of expenses; but it seems to be the duty of the parish authorities to set up those establishments; and we would strongly recommend the matter to the parochial authorities of Islington. Let them gather with great care all the particulars of the washhouses which are at present in existence in the metropolitan districts and elsewhere,—let them fairly take the charges of construction, the working expenses, and the amount of income,—the latter will show an increase as the advantages become known; and, independently of the benefit arising to families by removing the washing from their homes, it will be seen that there will be eventually the advantage of money profit.

In the above brief notes we have said nothing about the annoyance of the smoke, the unpleasant effect of the steam rising into apartments when the washhouse is connected with the lower part of the premises, and the tumbling down of the plaster-work owing to the bad description of material which has been used.

SANITARY MATTERS.

THE *Gazette* announces the appointment of Messrs. R. Rawlinson, J. T. Harrison, and J. T. Way to be her Majesty's Commissioners,—

"For the purpose of inquiring how far the present use of rivers or running waters in England for the purpose of carrying off the sewage of towns and populous places, and the refuse arising from industrial processes and manufactures, can be prevented without risk to the public health or serious injury to such processes and manufactures, and how far such sewage and refuse can be utilised or got rid of otherwise than by discharge into rivers or running waters, or rendered harmless before reaching them; and also for the purpose of inquiring into the effect on the drainage of lands and inhabited places, of obstructions to the natural flow of rivers or streams caused by mills, weirs, locks, and other navigation works, and into the best means of remedying any evils thence arising."

Fever is raging in parts of Bristol. One of the scenes is thus described:—"In a wretched-looking court in Old Broad-street, named Butter-alley, on the bare floor of a room 11 ft. long by 8 ft. wide, lay seven human beings stricken with typhus fever. They comprised a mother and six children, the family of a labourer, who had only left the fever hospital, and was unable to work. A few bits of clothing had been placed by the mother underneath her children, who endeavoured to cover themselves with the rest of their clothes and a portion of their mother's underclothes, while the poor woman herself had only one of her skirts to partially cover her. There was not a single article of furniture in the room."

A report of a paper, by Dr. Clouston, on an outbreak of dysentery in the Cumberland and Westmorland Asylum (of which he is medical superintendent), caused by the effluvia from a field irrigated by sewage, has been given in the *Medical Times*. The facts are thus summed up:—"The majority of the patients attacked were inmates of the wards on the ground-floor of the asylum, showing that the sewage effluvia is most concentrated near the ground. Little or no wind and a high barometrical pressure would seem to be the most favourable conditions for the injurious effects of the poison to manifest themselves. It would seem to be unsafe to apply sewage in any form to land with a stiff clay subsoil within 350 yards of human habitations. Diarrhea in its ordinary form may also be caused by sewage exhalations. There are strong reasons for believing that the sewage effluvia which caused dysentery and diarrhoea in some persons may have caused typhoid fever in others. The sewage poison had a period of incubation in most cases before the dysentery appeared: the length of this period was probably from three to five days. The dysentery was of a very fatal character."

It is a remarkable circumstance that since a sanitary corps was organised at New Orleans, where yellow fever has hitherto been apparently indigenous to the locality, and therefore certain to make its appearance at the accustomed season, the summers of 1863 and 1864, and part of 1865, have passed without its reappearance. The sanitary corps on its appointment effectually dealt with the open sewers, the filthy streets, the undrained marshes, and the slimy mud deposits, so prevalent at New Orleans; and the consequent result seems to have been the extinction of the perennial pestilence which has so long made it notorious for its unhealthiness.

NO WATER ON SUNDAY.

THE medical officer of health of the parish of Marylebone, speaking of the centre of Lisson-grove, where a very poor and densely crowded population reside, says,—"The houses for the most part are exceedingly small and badly constructed, whilst provisions for a proper water supply have obviously been but little thought of or cared for. Generally speaking, a family occupies but one room, and it is not unusual to find a house, with only six rooms, inhabited by thirty or thirty-five persons. The cistern, if there be one, is ridiculously small, and generally placed in the worst spot that could be selected, viz., over a filthy water-closet; or if the water receptacle chance to be a wooden butt, it is not unusually rotten and worm-eaten, without a cover, and in close proximity to the dust-bin. At no period of the week can the inhabitants be said to have a sufficient water-supply; but on Sundays, for a long time past, they have been altogether without this necessary element of health and cleanliness; and, to use their own words, 'have been running about in all directions begging for water to cook their Sunday's dinner.' I represented these facts to the secretary of the West Middlesex Water Company, who kindly gave to the subject his immediate attention, and I have very great satisfaction in stating that my request for an additional service, late on Saturday evening, has been most promptly and liberally complied with, for which these poor people express themselves exceedingly grateful." In Marylebone, at any rate, therefore, a step towards the supply of a want we have for years pointed out has been taken. Dr. Whitmore rightly adds,—"By the 67th section of the Act (25th & 26th Vic. cap. 102) vestries and district boards have the power to compel a supply of water to every house, not exceeding thirty gallons per day for each person; and in the interest of those who are compelled to live in these crowded habitations, and with whom an ample water-supply becomes an absolute sanitary requirement, the law should be practically and strictly carried into effect."

THE ALBERT CLOCK-TOWER FOR BELFAST.

SEVENTY-SIX designs were sent in competition, from which a sub-committee selected four, and recommended them to the general committee, in the following order:—

- 1st. "Veritas," Mr. Barre.
- 2nd. "Palmar," &c., Messrs. Lanyon, Lynde, & Lanyon.
- 3rd. Highly commended, — "Bloody Hand," Mr. Linklater.

4th. Commended,—"If so—well," Mr. Barre. They did not open the letters accompanying the designs, though we have placed the names against the mottoes. The general committee, after discussion, placed No. 2 first.

The following is a description of the selected design:—

"The main features of the design consist of a pedestal, shaft and clock stage, square on plan, surmounted by an octagonal belfry, with spiral termination.

The pedestal is about 21 ft. square (not including the projections at angles), and 23 ft. in height; divided into three minor stages; the plinth being about 5 ft. high, while a moulded string-course divides the remaining portion about equally. Drinking-fountains are placed on three sides of the pedestal, the fourth being occupied by the door giving access to the interior of the building. At the angles of the base pedestals are placed to receive figures. These, however, it is stated, are not essential to the design, and may be added hereafter. Immediately over the recess for drinking fountain, on the side facing High-street, is placed a canopied niche and corbelled pedestal, which may be made complete by the addition of a figure of the late Prince, so as to more particularly identify the structure with its especial purpose as a memorial. In the meantime suitable inscriptions may serve this purpose.

The shaft is of very plain and inexpensive character—a treatment which, by contrast, very much enhances the richness of effect in the upper portion of the design, while the vertical lines formed by the pilasters lead the eye upwards to the clock face. The mean horizontal section of shaft is about 16 ft. square, the height about 70 ft. Each side is divided by angle and central pilasters, of slight projection, into two recessed bays, which are worked out into the full square at top by small corbel arches. The recessed portions between pilasters are pierced at intervals by small lancet openings, which admit light to the interior.

A dwarf stage, about 6 ft. in height, formed by an open arcade on each of the four sides, intervenes between the shaft and clock. At the angles of this stage are placed slightly-detached shafts, supported on angle corbels. The capitals of shafts carry figures in relief, which are placed under canopied niches at angles of clock stage.

The clock stage shows on each side a square of 16 ft., the angles being played to a slight extent, to accommodate the figures and niches at angles. The clock-face is formed by a perforated stone shield about 11 ft. in dia-

meter, containing an outer ring of twelve quatrefoil openings to receive the numerals, the centre being a large cusped opening, the cusps corresponding in number with the outer perforations. The angle niches and figures have been introduced for the purpose of giving greater width of outline to the structure at this level, so as to arrest the eye as much as possible at the most important point of the building. The centre of the clock stage is about 108 ft. above the street level. This stage is finished at the top by an open-work parapet, stopped at each end by a canopied pinnacle. From this level rises the belfry, octagonal on plan, having coupled pointed arches on each side; the gabled hood-mouldings, over which, embracing each pair of openings, are carried up through a small perforated parapet, which latter is stopped at each angle of the octagon by a small pinnacle. The top of this parapet is about 12 ft. above that of the clock stage. The belfry is covered by a spiral roof enriched by pinnacled dormers, and surmounted by a small single-bell cot with projecting gallery of iron, which, with its pointed spire and ornamental iron vane, terminates the structure, the whole reaching to a height of 160 ft."

PARIS.

For some days past considerable attention has been directed to the submarine infernal machine invented by Vice-Admiral De Chabannes, and tried lately at Toulon. The subject was brought before the Chamber of Deputies by M. de Kervégan, who stated that an iron-plated ship of war, costing years of labour and immense sums of money to complete, could in a few minutes be annihilated by one of these torpedoes, so *four-dragons* were the results of the experiments. The commissary of Government, M. Dupuy de Lome replied, that although these engines were not new and had been in use for many years, it was impossible to deny the importance of all machinery of war of that class, yet that activity in the construction of iron-coated vessels should not in consequence be diminished.

The celebrated tenor, Duprez, is to re-appear on the stage at the Paris Opera-house, in September next, in an opera of his own composition, entitled, "Samson." He is to have it all to himself, the direction of the *mise en scène*, the choice of the artistes, and the conducting of the rehearsals.

The municipal administration of Paris has purchased the property on which the source of the River Seine is situated, with a view of erecting an appropriate and durable monument, which is being designed in the form of an ornamental grotto. It was the Parisian *nautes*, a powerful corporation of river merchants of the Seine who laid the foundation of the municipal body of Paris. The source of the river is not at Saint-Seine, as is commonly supposed, but near Chauceaux, a small village in the Côte d'Or, situated on the high road from Paris to Dijon. Turning to the right into the interior of the country, after about an hour's walk, a charming valley is reached, between two mountains forming a portion of the Côte d'Or, in which a stream rises, and, descending rapidly, unites with other rivulets. This is the Seine, which, after a race of 497 miles, all through French soil, throws itself into the sea. In 1763, at the source of the Seine, was discovered a small bronze galley, now preserved in the Dijon museum. The president Ruffey, an archaeologist, fancied he recognised in this relic an *ex-voto* anciently placed in a small temple elevated in honour of the Seine. Search was instituted, and excavations, as we some time ago mentioned, proved his conjectures to be a certainty, by the discovery of statues, shafts of columns, and a great number of Roman medals. The name Seine, or as it is anciently written *Sena, Segwana*, is said to have been derived from the Celtic *Sin-an*, or *Sogh-an* (gentle river, peaceful water).

The drivers of the Paris *voitures de place*, or hackney coaches, struck for higher and more regular wages on the 16th instant, to the great inconvenience of the population. As the *Compagnie Impériale des Voitures de Place* is a monopoly private enterprises cannot interfere and offer accommodation. The number of coaches circulating through the town has, however, been on the increase these few days past. Among the considerations upon which *Messieurs les cochers* base their demand, they set forth in the first place the amounts retained from their daily wages:—Cleaning the horse, 25 c.; washing the coach during the night, 25 c.; accident relay for those occasioned by the drivers, 10 c.; fund during the day, 15 c.; unharnessing the horses on re-entering, 15 c.; damage, and wear and tear, 20 c.; garçons at the cab ranks, 10 c.; daily stoppage for clothes, fines, &c., 50 c.; total, 1 fr. 50 c. Among the ten articles specified in the circular issued by the drivers,

the principal seems to be that demanding a fixed clear salary, and no deductions, of 6 francs per day of fourteen hours, and 2 francs additional for every night passed at balls, soirées, or under other orders.

BRITISH ARCHEOLOGICAL ASSOCIATION.

At the meeting, June 14th, Mr. J. R. Planché, Rouge Croix, in the chair, Lord Boston exhibited miniatures of Charles I., and James, Duke of Monmouth, formerly in the possession of Cardinal York; and Mr. Geo. Vere Irving produced rubbings of the chair of Cardinal Beaton, which has recently passed into the hands of Mr. Sim, a member of the Association. Mr. J. T. Irvine sent a coloured drawing of the Roman pavement found at Bath in 1864; also sketches of further architectural remains from the Church of Bradford-on-Avon, consisting of portions of Saxon crosses, richly sculptured with interlaced strap-work and bases, and capitals of Norman columns; also a sepulchral slab of the fourteenth century, and a sketch of the north aisle of the church, with thirteenth-century work.

Mr. Cuming read some notes on "Ancient Bone Spear-heads," with illustrations from his own collection and those of Mr. Gunston and the Rev. Mr. Simpson.

Various other exhibitions having been made, an elaborate paper, by Mr. F. J. Baigent, of Winchester, was read, detailing the various wall-paintings found during the restorations of the Hospital of St. Cross. Upwards of thirty beautiful drawings illustrated this communication, and will be published by the Association. This occupied the remainder of the evening, when the chairman adjourned the meeting to November next, reminding the members of the congress to be held at Durham in August.

PHOTOGRAPHY IN PRINTING INK.

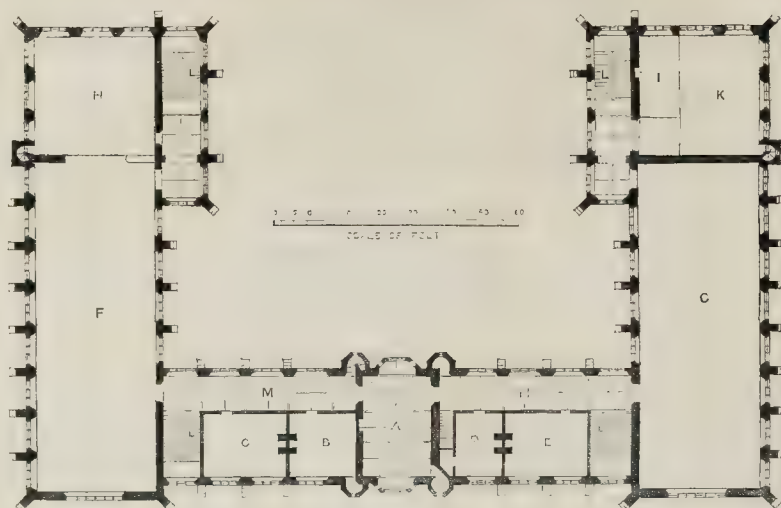
MR. JOHN POUNCEY, the well-known photographer, of Dorchester, was specially invited by Professor Dawson to give a series of experiments in his newly-patented process of printing photographs, direct from the negative, in printer's ink, before a select party of eminent professors, at King's College, London. Among those present were Professor Dawson; Dr. Miller, F.R.S.; Dr. Wallich; and Messrs. G. Hadow, F.R.S.; Benjamin Ferrey; G. Coles; G. R. W. Thomas; J. Sandford; &c. The whole manipulation of the process was successfully carried out by Mr. Pouncey, showing the ease with which the pictures produced from the ink could be transferred either to paper or any other substance. The rationale of the process appears to be that the light hardens the ink on the surface of the paper, just in proportion as it passes through the negative, the part not acted upon by the rays remaining soluble, and being easily removed by washing with turpentine. The company present expressed themselves highly satisfied with the results, and a vote of thanks was accorded to Mr. Pouncey. He also exhibited specimens of photography in ceramic colours for transfer to bisquit wares, which were much admired. The fact of Mr. Pouncey having been awarded the silver medal and 400 francs from the Photographic Society of France, and the silver medal of the Photographic Society of Scotland, is a sufficient testimony in favour of a process which we have before this occasionally brought under the notice of our readers, and which appears to be one of much value, as advancing the permanency of architectural representation.

MALVERN COLLEGE.

IN accordance with the intimation that accompanied the view and account lately given in our columns of Malvern Proprietary College, built from the designs of Mr. Hansom,* we publish in this number an enlarged view of the entrance-tower, and plans of the two principal floors of the building. The College, it will be remembered, is to accommodate 600 boys. The architect, in laying down his plans, appears to have taken as a *modus 5 ft.*, and to have confined himself to various multiples of that throughout.

* See pp. 46, 47, ante.

MALVERN PROPRIETARY COLLEGE.



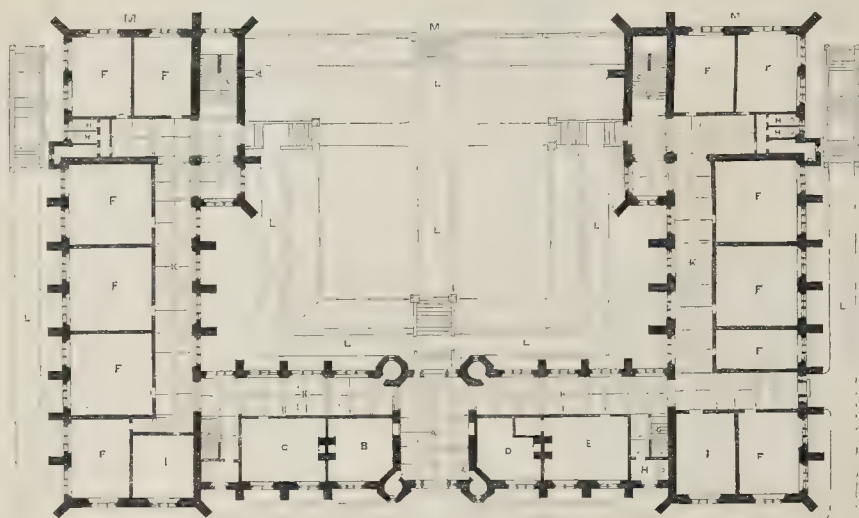
FIRST-FLOOR PLAN.

REFERENCES.

- A. Library and Board-room.
B. Head Master.
C. Head Master's Class.
D. Second Master.

- E. Second Master's Class.
F. Classical School.
G. Modern School.
H. Drawing and Modelling.

- I. Lecture-rooms.
K. Laboratory.
L. Staircase.
M. Corridors.



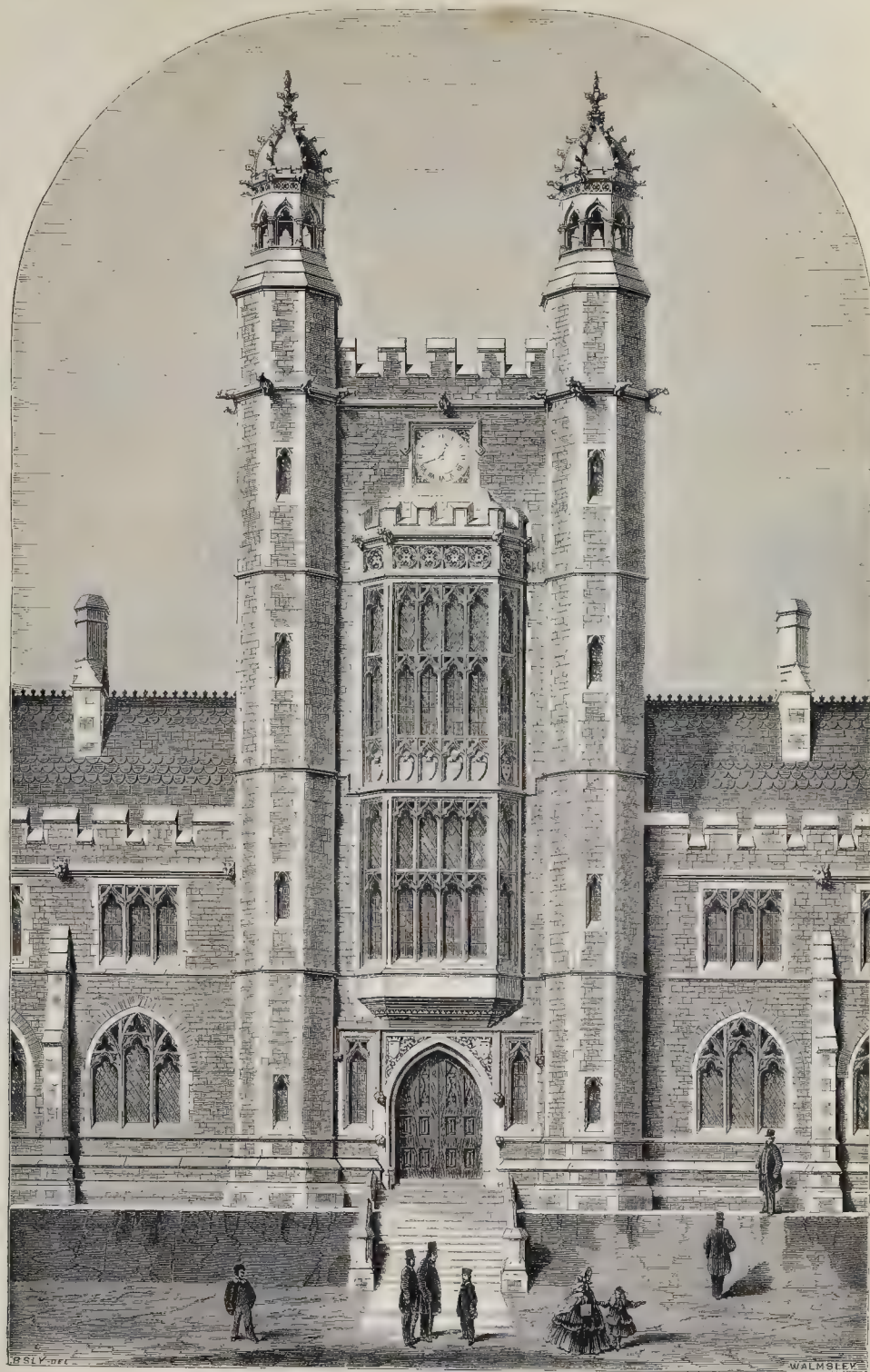
GROUND PLAN.

REFERENCES.

- A. Entrance-hall.
B. Waiting-room.
C. Master's Room.
D. Clerk's Room.

- E. Secretary's Room.
F. Class-rooms.
G. Staircases.
H. W.-C. and Urinals.

- I. Cloak-room.
K. Cloisters.
L. Walks.
M. Lower Terrace.



MALVERN PROPRIETARY COLLEGE.—MR. C. F. HANSON, ARCHITECT.

WAR WITH FRANCE.

In the improvement of our cities,—in the advancement of the social conditions of the people,—in the extension of our manufacturing and other industries,—the spread of artistic knowledge and good taste amongst the multitude, and even in the plans for the better rearing of animals for the purposes of sport or the food of mankind, we are well pleased to keep in a state of warfare with our neighbours the French, and to be led by the defeats which we suffer to make renewed exertions in ways where our failure—for instance, in the matter of horse-breeding, at the recent Derby race—should cause us to consider the reasons which have led to our defeat and the loss of laurels in a department in which we have so long felt sure of victory. Our long success has rendered us careless; and while in England we have in the racing-stable been, to a considerable extent, resting from our exertions, in France, a *pépil* of our own, as it were, in this respect, no well-directed labour nor the most lavish expense has been spared.

As regards art and taste, our news from France is of a more satisfactory description. In the French Chamber, on the 20th of May, in a debate on the subject, M. Michel Chevalier advocated increased exertions in France. This gentleman remarked that he had been in London three years since as a member of the jury for the International Exhibition. The names of his colleagues on that occasion were MM. le Baron Gros, Merimée, and Dumas, who were present in the Chamber. The fact which particularly struck the French jury was the considerable progress made by foreigners in the art of design, in connexion with industry: "it inspired us with admiration for the efforts made by foreigners; but it likewise inspired us with a fear that we might be outdone. We were impressed and frightened by the marked progress which the English had notably made in good taste." The speaker remarked that up to a recent time, although the English had some celebrated artists, they had not been remarkable for taste. Good taste was especially wanting in their industry. The great portion of designs used in the printed cotton manufactures at Manchester and Liverpool came from designers established in Paris. M. Chevalier said that the English had understood that during this industrial competition with the different foreign nations it was necessary to make great efforts; and they had made them: a museum had been established at South Kensington for the purpose of educating teachers, who were afterwards sent throughout the manufacturing towns of the country propagating good taste. A real revolution had been effected, and the jury were so much surprised at the progress which had been made, that when their report had to be made up, M. Merimée treated this point especially. This, remarked M. Chevalier, is "one of the most curious and best written pages of the six volumes which comprise the general report of the French jury." The following is a quotation from this paper:—"The school at South Kensington has been open for ten years. The corresponding provincial schools (and others which might have been added, to which masters have been sent) numbered ninety; the number of students trained throughout the United Kingdom was 91,386." M. Merimée said that these numbers were for 1862, and must have now greatly increased. M. Michel Chevalier continued,—"With respect to the influence exercised in so short a period by this great institution, we admit freely the assistance rendered to us by our colleagues in the English jury. In answer to our question as to the cause to which the progress so remarkable that year in their manufactures was attributed, they replied, 'The new resources opened to industry by the schools at South Kensington.' I conclude by quoting that 'the study of drawing and of mathematics is the foundation of the instruction which should be given to our students.'"

When we look around and notice the marked improvement which,—during the last five or six years especially,—has been made in many branches of our ornamental industry, and hear such favourable accounts from the French jurists, offered with so much candour, and in such a friendly manner, we cannot sufficiently express the surprise which we feel at the niggardly way in which the supplies for the promotion of art and advancement of the national taste are granted by the House of Commons. Year after year, millions are voted, with scarcely a grumble, for the pur-

poses of that warfare which causes such a vast destruction of life, and which is generally attended with very unsatisfactory results; but, if money be needed for purposes in connexion with the advancement of art, on which the actual welfare of the country as materially depends, the amounts are looked at with suspicion, and given in an ungracious and sometimes in even an offensive manner. It would be well if we could get the chief body of our legislators to understand and to act upon the fact, that notwithstanding the immense natural resources of Great Britain, and the energy of the people, if we do not keep a-head in matters of artistic taste and skill, the actual money loss which will fall on the whole community cannot be rightly or sufficiently estimated. The evidence of this liberally-minded French jury, we hope, will be without use in certain quarters.

WAGES AND STRIKES.

London.—A numerously attended meeting of delegates from the operative carpenters and joiners of London, was lately held at Cambridge Hall, Newman-street, Oxford-street, to consider the propriety of adopting a memorial to the master builders of the metropolis, requesting an advance on the present rate of wages, 3s. per week, or 7d. per hour. About 100 delegates were present, representing the various carpenters' societies and the principal shops and jobs in the trade. A memorial, embodying the reasons for asking the advance was submitted, discussed, and adopted, and ordered to be presented to the masters forthwith. The house painters have also requested an advance of wages to 7d. an hour.

Sheffield.—In February last, the operative carpenters and joiners of Sheffield gave notice to their employers that, at the expiration of four months from that date, they should require an advance in their wages of 3s. per week in the summer, and 1s. in the winter; and, in addition to this, some alteration in the hours of labour was required. The employers, after some delay, expressed their willingness to meet a deputation from the operatives to discuss the matters; and, accordingly, on the 1st of June, deputations from both parties met, and a long discussion ensued. An adjournment for a week was agreed upon, and it was decided that the employers should be prepared at the adjourned meeting with a proposal to submit to the operatives. Unfortunately, this adjourned meeting was not held, for the operatives, as we are informed, required the masters' proposal to be submitted to them before their deputation could be allowed to again meet the employers. This the latter refused to accede to. The operatives met, to determine what steps should be taken: the attendance was very large, and after a long discussion it was unanimously resolved:—"That at all shops where the advance asked is not acceded to, the men cease work after to-morrow, as no terms have been come to with the employers."

Forfar.—A deputation, who were appointed by the operative masons to meet with the masters on the question of wages, have done so. The masters have agreed to give the small advance required. The masons' wages will now be 5d. per hour.

The strikes of the English operatives, as remarked by a contemporary, are already beginning to bear their bitter fruit. On the very day that a French horse won the Derby, a French locomotive was on its way to England. Even so: in our very strongest branch of industry we have been beaten by the foreigner. The tender of Messrs. Schneider, of Crement, France, for the supply of locomotives to the Great Eastern Railway, has been accepted, to the astonishment and alarm of many of our engineering firms. It speaks volumes respecting the rapid advance of our Gallic neighbours, and affords a hint which our working men will do well not to despise. The success of the French manufacturers is indirectly due to the great number of strikes which have taken place from time to time in this country, and of which the French artisans, ever watchful, have eagerly availed themselves. A letter in the *Times* states that the French can supply rails of better quality than those supplied by the makers in South Wales; that the French locomotives are better than ours; that French sleepers compete with those from the Baltic; and that a Northamptonshire railway is laid with Belgian rails.

WAGES MOVEMENT IN THE LONDON BUILDING TRADES.

Sir,—No doubt the majority of your readers were as much surprised as myself on learning that the building trade, after its short respite from excitement, was again to be agitated. I read a short notice in the *Beehive* of the 10th instant, and here and there one of the workmen had heard something of the rumour in the firm I am working at; but as I could not get any precise information, I waited for the next issue of the *Beehive* to learn the result of the meeting at Cambridge Hall, Newman-street. In the mean time, I sounded my metes as to what they thought of it, and not one of them was in favour of the agitation: some opposed it most determinedly, and others said, such a proposition required a careful consideration. One or two said it was bad policy, as the trade was in a better state as to pay and time than most other trades, and for some time, at least, they ought to be satisfied. I read the account of the proceedings at Cambridge Hall, and I find the old tale, that the delegates have made up their minds for an advance. No secondary considerations as to the propriety of the movement are to be thought of. Immediate action, and no surrender. "The present flourishing state of the trade, the high price of provisions and household, justify our present action." I believe this movement to be in all respects opposed to the interests of the men, and as ill-timed and as much to be deplored as the Midland masters' "discharge-note." In opposition to that note, quotations were freely given from Smith's "Wealth of Nations." As we have not heard anything as yet about what Adam Smith states on workmen's combination, it will be well to give an extract from the same chapter as was used against the masters:—

"Workmen sometimes, without provocation of any kind, combine to raise the price of their labour. Their usual pretences are sometimes the high price of provisions, sometimes the great profit which their masters make by their work. In order to bring the point to a speedy decision, they have recourse to the loudest clamour, and sometimes to the most shocking violence and outrage. The workmen, accordingly, seldom derive any advantage from these combinations, partly from the superior steadiness of the masters, partly from the necessity which the greater part of the workmen are under of submitting for the sake of present subsistence."

The above extract is applicable to the present movement. The reasons put forth by the delegates are similar to it: trade is brisk, provisions high, masters' profits large; but if such pleas are good, and the masters grant the advance, it will at once change the usual course of the trade. The present rule is, that let work be plentiful or scarce, winter or summer, wages always remain the same, and this fact every workman and master in the trade recognise; but if the rule be broken by the operative, the employer will be justified in reducing the wages twopence per hour in winter, and at any other time when trade is dull, and every honest workman will applaud the master for doing it. It is something wonderful that all the shops said to be represented were unanimous for the advance, whilst I, unfortunately, I suppose, have not come across one man that justifies it, or is at all anxious about the matter, and other workmen I have spoken to, outside the trade, say that the operative builders are going on too fast, and are preparing a rod for their own backs.

There is no doubt but that the primary movers in this affair are those whose interest and business it is to keep up agitation and promote strikes, as strike time is their harvest. They then thrive and fatten on the follies of their fellow men, and, of course, if all others are satisfied, their game is to create dissatisfaction. It is an old saying, when rogues fall out, honest men hear of things which are for their benefit; and I think something is to be learned from the recent charges and recriminations of Odgers, Potter, Applegarth, Cremer, and others. The question which now ought to be apperpetrated in the minds of independent and intelligent workmen, is,—Shall the great bulk of the metropolitan building operatives be any longer dictated to by the few who live by strikes, and are always on the look-out for the weekly levies of their dupes? I should think many well recollect the doing out the 1s. or 2s. 6d. a week in the lock-out strike,—how they were snubbed by the great men in that affair, who used to sit swelling in chairs, smoking cigars, and sipping brandy-and-water, whilst the worse than pauper recipients of the miserable pittance had broken up their homes, and starved their wives and children at the bidding of those who took care that their bread should

be buttered on both sides. I was for two years or more in difficulties through that affair, and others have recently stated to me they have not yet recovered the losses resulting from that suicidal movement. There is a difference in the statement of the number of workmen said to be represented at the Newman-street meeting. One paper states 2,000, another 3,000; but there is no doubt both statements are exaggerated. If the shops who sent delegates are unanimous, it must be evident that many of the men are doubly represented through the societies' delegates. But suppose 2,500 carpenters agree to agitate for an advance of wages when they have not one just plea for doing it, are the 20,000 outside to stand looking on until their silence involves them in the strike which is sure to ensue? I think it is the duty of those who disapprove of the affair to at once protest against it; and, if that is not sufficient, to oppose it outright by a direct organized opposition; and let the workmen in other trades and the general public know that the great majority of building operatives has neither part nor lot in the professional strike agitators' movement. The painters and masons, it seems, are also making a stir. I heard it publicly stated a short time ago by one who knows, that the painters' societies do not number 2,000 members out of 14,000; and yet the few pretend to speak in the name of the whole.

AN OPERATIVE.

*** The writer, who adds a long list of reasons against the threatened agitation, for which we are not able to find space, forwards his name and address.

CONSUMPTION OF SMOKE.

In your last impression "W.H." writes respecting the smoke nuisance. He must not compare a cooking apparatus to a boiler or any other description of furnace. Passing the smoke over a red-hot fire is the most effective way for consuming smoke. Let your correspondent feed a furnace, with a clear fire at the bridge and fire just over the dead plate, and then let a portion of cold air over the fire; he will not see a minute after the furnace is once hot. I have applied this plan to boilers, brewers' coppers, &c., and it has given the greatest satisfaction, not by consuming the smoke alone, but saving a vast amount of fuel.

W. MAY, JUN.

THE ARCHITECTURAL ASSOCIATION AND THE INSTITUTE LECTURES.

SIR,—In your notice of the last meeting of the Architectural Association, I am reported to have made use of rather strong language in reference to the Institute. I must beg to state, that if the remarks I then made had been fully reported, a very different impression would be given than that which now appears in reading the report. In reply to the question as to why more members did not attend the lectures given by the Institute, I stated, that "I knew from some of our members, that they had come a considerable distance for the express purpose of hearing the lectures, and on two or three occasions found either that there was an Institute meeting, or that there were not sufficient present to warrant the delivery of the lecture, and were obliged to return home, having wasted their evening. Under these circumstances men could hardly be expected to come, to (I might almost say) be made fools of."

I do not know how it could have been gathered from my remarks that I believed the lectures would have been better attended if the Institute had held out greater inducements to the Association. The only inducements they could offer would have been to make the lectures of a more practical character, which would have been of equal advantage to non-members attending them.

I trust your sense of fairness will allow my publication of this letter, as on my own part and on that of the Association of whom I have the honour of being an officer, I should deeply regret it being felt that I had acted in any way ungentlemanly, and especially to a body of gentlemen whose age and position demand my respect.

J. DOUGLASS MATHEWS.

*** We do not find much material difference between our reporter's statement and that now forwarded.

MANCHESTER SOCIETY OF ARCHITECTS.

A NUMBER of the leading architects of Manchester have formed themselves into a society, to be called the "Manchester Society of Architects," having for its object the promotion of good feeling between members of the profession, and the establishment and maintenance of a recognised code of professional charges and practice, &c. At the first general meeting, held on the 20th inst., the following gentlemen were elected to serve on the council for the ensuing year:—Mr. Isaac Holden, president; Mr. A. Waterhouse, vice-president; Mr. W. Mangnall, Mr. W. R. Corson, Mr. J. Charlesworth, Mr. E. Salomons, Mr. J. Stevens; Mr. J. Murgatroyd, honorary secretary.

As there is already an Architectural Association in Manchester, we wait to hear something more of the differences in their constitution that render two bodies necessary.

PAYMENT FOR "QUANTITIES."

SIR,—You will greatly oblige if you can refer me to any settled case that will apply to the following, viz. I—I was the architect engaged in a certain work, and supplied quantities. The builder refuses to pay me for the quantities, on the ground that there was no mention on the face of them that they had to be paid for; the fact being that I had omitted to write at the foot, "so much per cent. for quantities." I have been in the habit of making this omission when I intended to charge 14 per cent., taking it for granted that, when no amount was named, that was understood.

The case has been tried once, and the verdict given against me; and I am on the eve of trying it again.

The same builder has frequently had quantities from me with the same omission, and always paid for them. Your own opinion, in the absence of a case, will be valued.

ARCHITECT.

*** There is no settled case, so far as we know, that will apply. An opinion would be worthless without further inquiry, for which we have not time. If the builder did not include charge for quantities in the amount of his tender, it would probably be said that the proprietor, from whose representative they came, should pay for taking them out.

COMPETITIONS.

THE directors of the Sheffield and Rotherham Banking Company having determined to erect a new bank in Church-street, Sheffield, adjoining the Cutlers' Hall, invited Messrs. Flockton & Abbott, with Mr. Weightman, resident architects, to furnish designs for the proposed new building, and at their meeting last week accepted the designs of Messrs. Flockton & Abbott, and gave orders to those gentlemen to proceed at once with the work.

MIDDLESBOROUGH EXCHANGE COMPETITION.

SIR,—For the last five weeks I have been expecting to see something in the *Builder* referring to the Middlesborough Exchange competition. Surely every competitor is not in the same position with regard to it as myself, or before this we should have heard more complaints than that which emanated from "A Poor Draughtsman." What I complain of is that, although nearly six months have elapsed since the designs were sent in, and although I have written three letters of inquiry with regard to them, I have not had my plans returned, and have not received any answer to my letters.

I have heard that, although the instructions contained no statement of the committee's prejudices against the Gothic style of architecture, yet all designs in that style were excluded from the competition. My design was certainly in the Gothic style, but I am unconscious of having given any reason for such neglect in any other way, and I should be thankful, sir, if you or any of your correspondents could inform me whether the rest of the designs have been returned.

A COMPETITOR.

HINTS IN CONNEXION WITH LOCAL INDUSTRIAL EXHIBITIONS.

SIR,—In your last impression, under the above heading, you make reference to the drawings which contained the imitation Bank of England notes, &c. As the producer of one of these drawings, now exhibited at the West London Exhibition (No. 511 in catalogue), I trust that in justice to myself and fellow-workmen, you will kindly insert this letter.

In the course of your remarks you stated that

the execution of these drawings seems to be one of much greater difficulty than it is, and that by means of tracing or transfer paper, &c., a neat and steady-handed person, without artistic ability, might readily produce that which many persons would consider wonderful.

I do not doubt this; but allow me to state that my drawing, or Chinese imitation (as you call it) was not executed by any such means. It was intended as a drawing-study as well as a picture, and was for the most part free-hand, my only aid being drawing instruments.

I have not, as stated, received a prize for this work, as no adjudication has yet been made.

J. J. PICKWORTH.

TO MAKE STONE IMPERVIOUS.

IN reply to "W.B.'s" inquiry "How to make stone impervious," dissolve $\frac{1}{2}$ of an oz. of bees-wax in a quart of raw linseed oil over a very gentle fire, taking care not to heat the mixture more than just sufficiently to melt the wax. Apply the mixture while warm to the surface of the stone with a painter's brush, during long-continued dry weather and hot summer days, the intention being that the stone should be dried and warmed as much as possible by the sun previously to the mixture being applied to it. The greater quantity the stone can be made to absorb the more successful will be the result. The surface should be well cleaned, and all soot, dirt, or other loose matter should be removed with a moderately hard brush and bellows before the oil and wax are applied. Any discolouration occasioned by the above treatment will almost entirely disappear in the course of a few months.

P. G. SMITH.

WE may repeat a prescription which has been given more than once in our pages:—Take three-quarters of a pound of best mottled soap, and dissolve the same in one gallon of boiling water: spread this hot solution steadily with a large flat brush over the outer surface of the wall, taking care that it does not *lather*. This must be allowed to dry for twenty-four hours, when a solution formed of a quarter of a pound of alum, dissolved in two gallons of water, is to be applied in a similar manner over the coating of soap. The soap and alum mutually decompose each other, and form an insoluble varnish which the rain is unable to penetrate. It should be done in dry settled weather.

The effectiveness of this process has been testified to.

THE CROSBY SEWERAGE.

As additional information to that published in the *Builder* last week respecting the Crosby sewerage, will you kindly state that the result of the inquiry before Mr. Morgan, the Government inspector, was to restrain the Board from fouling the shore, forcing them to adopt an inland route (which we may say is intended to be parallel with the one proposed in our scheme), as also to reduce the cost of the work to the amount of our estimate.

As the Board was forced to go inland, much against their wishes, they naturally, with their supporters, preferred their surveyor carrying out a plan of their own. Hence arise the modifications adopted. The plan has yet to receive Government sanction.

READE & GOODISON.

METROPOLITAN BOARD OF WORKS.

At a special meeting last week, the clerk read a letter from Mr. Austin, of the Foreign Office, stating that Earl Russell had to renew his complaints of the stench arising from the Thames Embankment works. The letter was referred to the engineer, with instructions to take steps to abate the nuisance, and report thereon to the Board. The Board then further considered a letter from the Board of Trade as to the material used for filling in behind the Thames Embankment wall, &c. The clerk read a letter that he had written to the Board of Trade, stating that the Metropolitan Board "are of opinion that the immediate backing of the embankment wall should be formed of material wholly obtained from the land, and the remainder of the filling in supplied from the land and from the river, in such proportion as, in the judgment of their engineer, may be best adapted to form a solid embankment, and to complete the work within

the time specified in the contract." In reply, a letter from the Board of Trade recalled the fact that two engineers, mutually appointed by the two Boards, had given it as their decided opinion that the materials dredged by the conservators from the Thames are excellent materials for the embankment. Ultimately a resolution was moved:—"That so long as the material raised from the river opposite the embankment works continues to be, in the opinion of the engineer, suitable for the purpose of the embankment, the engineer be instructed to allow no other material to come into the embankment works, except for the backing of the embankment wall, the cross dams, the material required for puddling, and other necessary purposes." This resolution was carried by a majority of 11 to 3. It was then resolved that a deputation should wait upon the Right Hon. Milner Gibson upon the subject.

CASES UNDER THE BUILDING ACT.

At the Clerkenwell Police Court, Mr. Albert W. Bryett, builder, of 116, St. James-road, Holloway, was summoned by Mr. John Turner, district surveyor of the eastern division of Islington, for not having carried up the chimneys of two houses he is erecting on the north side of the Grove-road, Holloway, 3 ft. above the highest part of the roof adjoining thereto as required by the statute. Mr. Bryett, Jan., attended, and stated that the chimneys were in course of alteration. Mr. Turner said he found them being altered as he came to the court; but that Mr. Bryett had had notice on two occasions to alter them, and to which he had paid no attention. There were four other houses besides those for which he had taken out the summonses.

Mr. Barker fined Mr. Bryett 20s. and costs of summonses in each case, and awarded Mr. Turner 21s. expenses in each case.

Messrs. Glenn, builders, of Liverpool-road, were also summoned by the same district surveyor for not having given notice, as required, before commencement of works. Those gentlemen not having attended, the hearing was adjourned to the 23rd instant.

RAILWAY MATTERS.

It is singular that a fearful railway smash, such as that on the Great Western the other day, is often followed by others almost similar in character, and arising from an almost precisely similar cause. The slaughter in the Clayton Tunnel, some four years ago, arising from neglect in working the signals, was followed, in nine days after, by the collision on the North London system, at Kentish Town, through which fourteen people were killed. Here, again, the non-hoisting of the danger-signal was the cause. We have just had two terrific railway accidents, and both are attributed to the state of the rails. At the inquest on the bodies of the sufferers by the accident at Rednal, the jury found a verdict of accidental death, but they appended to it a series of censures,—first, on the Great Western Company, for not providing better rolling stock and taking greater care of the way; next, upon the engine-drivers, for neglecting signals and driving at too great speed; and, lastly, on the platelayers, for neglect in the manner in which they did their work.

The repairs of lines are necessarily always going on, and should be under eyes attentive to their bearing on the safety of the traffic, and not left to workmen with other business in their heads, and perhaps with brains as fatigued as their hands. The most important signalling is entrusted to these workmen or their gang-leader, and performed in the most slovenly, not to say careless, way,—a flag stuck at the distance the circumstances require according to their notions, necessarily very imperfect, of what is requisite for the safety of the traffic. The London and North-Western Railway Company, we are glad to learn, contemplate appointing a responsible officer over the plate-layers.

If a break could be invented strong enough to stop a train instantaneously, the disasters such a sudden stoppage would occasion would be quite equal to those which might be caused by collision. In an able paper on the subject, in *Cosmos*, M. Flammarion calculates that if a common train, going at the rate of 40 kilometres per hour, or 12 yards per second, were stopped instantaneously, the passengers would experience a concussion equal to that of a body falling from a height of 19 ft.: they would be hurled against the sides of the carriage with a force

equal to that they would be exposed to in falling from a window on the second floor of a house. If the train were moving at the rate of 50 kilometres per hour, they might as well fall from a height of three pairs of stairs; and an express train would, in point of fact, make them fall from a fourth story. Instantaneous breaks are, therefore, not to be thought of, and, fortunately, have not been invented, the impetus of a train, even at half-speed, being much too great for any mechanical means of instant stoppage. A break, though instantaneous in stopping wheels, will still leave the train to go forward a little as a projectile, so that there is no fear of any break ever to be invented, perhaps, being too instantaneous in imminent danger. M. Achard, a civil engineer, according to *Galignani*, has invented an electric break, which simply consists in keeping the break or shoes which lie opposite the wheels away from them by means of an electric current: as soon as the latter is interrupted, the break falls upon the wheels, and the speed of the train is slackened in consequence. All the engine-driver has to do is to put his hand on a small interrupter, having much the appearance of a door-handle, and this takes him less time than giving the alarm by means of the whistle. Two small Bunsen's elements are employed to produce the current—they are kept in a wooden box, and the shaking of the train when in motion contributes to maintain their activity. This system has been tried on the Paris and Strasburg Railway, it is said, with success.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 3rd of June, on 11,916 miles, to 706,217l., and for the corresponding week of last year, on 11,605 miles, to 632,172l., showing an increase of 341 miles, and of 74,045l.

PROVINCIAL NEWS.

Worthing.—The foundation-stone of new water-works, baths, and assembly-rooms, was laid last week, at West Worthing, in Sussex.

Walsall (Staffordshire).—At a special meeting of the council, the common seal of the borough has been affixed to a contract with Mr. C. Burckett, of Wolverhampton, for the erection of the new town-hall and other works, for the sum of 5,083l., being an increase of 350l. upon the sum mentioned in his tender, on account of an error in calculation, proved to be so to the satisfaction of the town-hall committee, and being an allowance of such tender of 50l., in consideration of the dressings above the plinth being executed in Attleborough stone instead of Hollington stone.

Penarth (Cardiff).—The Penarth Dock, near Cardiff, has been opened.

Liverpool.—The town council have resolved to expend 810l. in alterations necessary to make the robing and dining rooms at St. George's Hall more convenient for the use of the members of the bar.

Maldon.—Mr. Bentall's chimney, an elevated shaft at Heybridge, which is visible for miles round the country, has been finished. The chimney is 116 ft. high, contains 75,000 bricks, and has been built for the purpose of working a new nut-making factory, which will be extensive. The shaft was plumbed, and it was found the central deviation did not amount to half an inch.

Gorton (Manchester).—The chief stone of new offices for the Gorton Local Board of health has been laid. Messrs. Whyatt & Redford, of Manchester and Heywood, architects, prepared the designs. The building is to be erected upon a plot of ground at the corner of Hyde-road and Kirkmanshulme-lane. The main material to be employed is common bricks, set in old English bond, with dressings of Grinshill stone. The principal exterior decoration is the filling in to the spandrels of the upper windows in different coloured tiles; the arches being formed with ornamental brickwork, parti-coloured. A "Ringhiera," or balcony, is introduced to the board-room, from which constituents can be addressed at election times, and broad steps have also been placed at the entrance for a like purpose. In the centre of the building is placed an octagonal clock-tower. The offices will be situated on the ground-story; and a hall will contain stone steps leading to the board-room on the first floor. This room will be 32 ft. by 18 ft., having an open-timbered roof, and adjoining it will be a waiting-room. The structure is an adaptation of the style in which, during the thirteenth century, were built the "Bioletti," or town-halls of the Lombardic cities, as Monza, Como, &c. Mr. T. Clay, of Audenshaw, has

undertaken the contract for the sum of 1,443l., exclusive of fittings. The probable cost of the building, when completed, will be about 2,000l.

Endcliffe (Sheffield).—We are asked to add to our notice of Mr. John Brown's mansion, at Endcliffe, Sheffield, that in addition to the sliding iron shutters described, nineteen or twenty of Messrs. Clark & Co.'s patent self-colling shutters, in one sheet of steel, were fitted to windows.

Harrogate.—The new Post-office buildings have been opened for business, though scarcely completed. They are situated in one of the most frequented of the roads diverging from and within about 170 yards of the railway station, and occupy a position exactly central in the district. The new building has been erected by the Victoria Park Company, and forms a very prominent feature on the angle of James-street and Princes-street, presenting at the angle a portico-entrance to the post-office, money-order office, savings bank, and postmaster's residence. It forms part of a pile of new buildings, having a facade towards James-street of about 300 ft. in length, and towards Princes-street of 100 ft. The style is Italian, treated so as to show to advantage the building stone of the locality, which, being capable of being quarried in large and massive blocks, offers unusual facilities for producing effects of light and shade. Red bricks have also been introduced. The principal room of the Post-office,—size about 30 ft. by 20 ft.,—is lighted towards James-street by three semi-circular-headed windows, divided by stone columns with carved capitals. The adjacent new buildings are of similar design. The arched windows of the Post-office are repeated the whole length of James-street and Princes-street; the James-street consisting of a series of shops with dwelling-houses attached; the whole mass of buildings terminating with a projecting stone cornice and parapet continued along both streets. The architect of the Victoria Park Company is Mr. J. Hirst, a Yorkshireman, now resident at Bristol; and Mr. R. Ellis, the contractor.

North Shields.—The foundation stone of an Oddfellows' hall has been laid here. The edifice is to be built on the north side of Saville-street West. The material will be brick. There will be several shops on the ground-floor, and a large hall and other rooms above. Mr. T. Forrest is the architect.

CHURCH-BUILDING NEWS.

Great Salting (Essex).—The church of Great Salting has been re-opened after restoration. The roof has been constructed of new open timbers, in place of lath and plaster. The walls and windows have been restored, the tower cleaned, and the stone-work repointed: there is also a new chancel window, below which is a stone reredos; and the pavements throughout are all new encaustic: the benches in the chancel and over the nave are of deal, stained and varnished. A spire was to surmount the tower, but for the present has been abandoned. The works have cost upwards of 1,000l., raised partly by rate. The church now contains 360 sittings, partly free. The architect was Mr. R. J. Withers, and the building works have been done by Messrs. Parmenter & Son, of Braintree.

Cuckfield (Sussex).—The new church of St. Wilfrid, at Hayward's Heath, has been consecrated. Mr. W. Sergison, of Cuckfield Park, gave the site; and the Misses Deatly headed the subscription list with 1,000l. (the late Miss Ann Deatly also bequeathed 500l.). The building stands upon high ground, in the middle of Sussex. The architect was Mr. Bodley; and the builder, Mr. J. Fabian, of Brighton.

Northampton.—St. Katharine's Church, which has for some time past been undergoing several improvements and renovations, has been re-opened for divine service. The principal portion of the work has been confined to the interior. A stained-glass window in the chancel, as an inscription beneath states, "was erected by subscriptions, collected principally in small sums, by twelve ladies of the congregation." The window was made by Mr. Wailes, of Newcastle, and the subjects are, our Saviour in the centre, with the four evangelists on the sides. In the lower compartment are figures of John the Baptist, Peter, Paul, James, and Jude, and the upper compartment is filled with figures of angels. Over the window are the words, "Glory to God in the highest, and on the earth peace." The heads of the side windows it is intended to fill in with ornamental glass, but this work is

not yet completed. The whole of the ceiling has been stencilled. The chancel ceiling has been painted in blue and gold, and the two figures on each side of the chancel arch have been gratuitously gilt by Mr. H. J. Atkins. The whole of the ornamental work in the ceiling and over the windows, we understand, has been done at the expense of the incumbent, the Rev. R. C. King. A portion of the walls has been coloured grey, and between the line of colour and paint there is a running stencilled border. The whole of the seats on the ground-floor have been taken down, and new seats, lower, with sloping backs, and tracery heads in the panels, have been substituted. The contractors for the woodwork were Messrs. Clark & Heap; for the painting work, Mr. Buswell; and for the colouring, Mr. Banks; and the whole of the work has been carried out under the superintendence of Mr. Ingman, of Northampton.

Eydon (Northants).—The church of Eydon has been re-opened. The work of restoration commenced about eleven months ago, and has been carried out by Mr. Watson, of Napton, under the superintendence of Mr. R. C. Hussey. The high inconvenient pews have all been removed, and their places supplied by low open seats. The tower arch, which was also blocked up by a gallery, has been thrown open, and the belfry floor levelled. Two new windows have been placed under the north aisle, a vestry has been erected at the east end of it, and a new roof has been placed on the chancel. The south aisle and porch are new. The pulpit and lectern are both new. The windows in the chancel and on the west end of the tower, are all to be filled with stained glass.

Cold Ash (Thatcham, Berks).—The new church here has been consecrated. The edifice is situated on a high hill. Mr. C. N. Beazley, of London, furnished the design. The tender of Mr. Hollis, of Windsor, to erect the building for 1,760*l.*, was accepted. The building, which is dedicated to St. Mark, is in the Early English style, and composed of grey and red brick and stone, and red tiles with ridge crests. It has a double bell-turret, with two bells by Mears, under which is a south porch, with stone cross at top. There is a large west tracery window, with smaller ones in the north and south sides. The chancel terminates in an apse with three windows. There is a vestry on the north side. The internal arrangements are as follows:—The roof is an open-timbered one, with the exception of the chancel, which is boarded. The walls are unplastered and bare, and the church is so arranged as to admit of future enlargement. The floor is of Minton's pavement, of a richer design in the chancel. The seats are of polished pitch pine and deal, and will accommodate 224 persons. The seats for the choir in the chancel have carved poppy-heads. The pulpit is of stone, with alabaster incised in different coloured cements. The baptismal font is of Bath stone, with carved oak cover, surmounted by a wrought-iron cross. The church is heated by Perrett's warm air apparatus. The ironwork to doors, &c., has been made from the design of the architect, by Mr. Weaver, of Maidenhead. The glazing was by Mr. Reynolds, of Thatcham.

Oxford.—The Radcliffe Infirmary Chapel, dedicated to St. Luko, which has been erected at the sole cost of Mr. Thomas Combe, and presented by him to the Radcliffe Infirmary, has been consecrated by the Bishop of Oxford. It is understood that the cost of the chapel was about 2,000*l.* The old Norman church of Fritwell, having undergone a complete restoration, principally at the expense of the Rev. Samuel Yorke, rector, has been re-opened.

Fladbury (Worcestershire).—The parish church, after a restoration of the chancel, which has been carried out at the joint expense of the rector, the Rev. J. Haviland, and Mr. J. Cartwright, of Craycombe House, has been re-opened. The walls of the chancel have been cleansed and made good; the roof renewed so far as necessary; an Early English piscina, having two scroll-headed arches divided by a shaft, and a trefoil opening above, has been restored; and new sedilia and credence-table provided. The credos is of alabaster, having in the centre a creek cross, inlaid with glass mosaic and balls of light glass at the extremity of each limb of the cross, as also in the centre. The reredos is the work of Mr. Bolton, of Worcester. Minton's encaustic tiles, in blue, white, green, and brown, have been laid on the chancel floor. The east window, which has been rebuilt, has five lights—giving a copy from the old one—and for head and feet a quatrefoil in centre and trefoil on each

side. It has been filled with stained glass by Mr. J. Cartwright, of Craycombe House, at a cost of 250*l.*, the artist being Mr. Preedy, who was also the architect employed for the chancel and the new schools. The central subject in the east window is the risen Saviour, with the Roman soldiers and the women coming to the sepulchre; this occupies three lights. The other two contain the marriage in Cana and Christ appearing to his disciples at the sea of Galilee after his resurrection. Above is the coming of the Holy Ghost at Pentecost, and in trefoils are angels playing musical instruments. On the south side of the chancel is a small window to the memory of the late Rev. F. Gauntlett. It contains the figures of Christ, as "Behold the Lamb of God," "Come unto me," "The Good Samaritan," and St. John holding the cross, with the label, "Repent ye."

A vestry, on the north side of the chancel, has been added. Mr. Espley, of Evesham, was the contractor for the restoration of the roof, and also furnished the stalls in the chancel; and Mr. Hearn, of Worcester, as sub-contractor, executed the masonry. Externally, the soil has been lowered round the east end of the church, and footpaths made, in which work Mr. R. Preedy, the churchwarden, has rendered assistance. The churchyard being too small for the requirements of the parish, and being inconveniently crowded, a large strip of ground on the north side, containing 1,282 square yards, has been added thereto, being the gift of the rector, and a new boundary-wall has been erected.

Rocheford (Worcestershire).—The parish church of Rocheford, near Tenbury, is about to be re-opened, after having undergone a process of restoration, enlargement, and refitting. It was a remarkably small Norman structure, and in order to afford additional accommodation, an extension of the nave westward has been made. The nave roof has been repaired, and the timbers exposed to view internally. The chancel roof has been boarded underneath the timbers. Several new windows have been inserted, and the new east window filled with stained glass, the work of Messrs. Morris, Marshall, & Co. There is also a small Norman window, by Messrs. Heaton, Butler, & Bayne. The fittings internally are generally of deal, stained and varnished. There is a new memorial font, with sculptured panel. The pulpit is enriched by some carving by the hand of the rector. A new open-timbered porch of oak has been erected against the south doorway, and at the west end is a new timber bell-turret for two bells, surmounted by a shingled spirelet. The church now accommodates 166 persons. Mr. Henry Curzon was the architect employed.

Horsepoole (Gloucestershire).—Horsepoole chapel-of-ease has been consecrated. The site is about 50 yards beyond the residence of Mr. S. Bowly, and the ground for the chapel and burial-ground was given by the lord of the manor, Mr. T. M. Croomie. The chapel, though in the parish of Painwick, is on the borders of five parishes: Mr. Dankes, of London, formerly of Gloucester, was the architect; and the builders were Messrs. King & Godwin, of Gloucester. The style is Early Decorated, before the development of window tracery. The edifice consists of chancel, nave, and north aisle, and bell-tower and porch on the south side. It is large enough to accommodate 200 persons, and all the seats are free. The architect has reduced the usual height of the roofs and of the spire, in consequence of the exposed position of the building. There is a three-light window at the east end, with three quatrefoils, and a two-light window at the west end, with trefoil. The font, which in design accords with the building, is the gift of the Rev. F. T. J. Bayly. The seats are of stained deal. The rafters supporting the roof are interlaced and stained, the panels being coloured a deep blue. A ribbon of pale colour is carried around the arches. The chancel is fitted with seats for chorists. The pulpit is of stone. The inscriptions in the chancel and porch are in illuminated characters, and have been executed by Mr. Hyett, of Gloucester, under the direction of Mr. J. D. P. Niblett.

Hardisland (Herefordshire).—The parish church has almost been entirely re-built, except the chancel. The architect was Mr. H. Curzon, of London, and the builders were Messrs. Pearson & Son, of Ross. Three iron ties had been placed right across the nave to hold the walls together, for in some parts of both the south and north walls they had bulged out of the perpendicular about 18 inches. The walls have been partially rebuilt, and a new roof put on with a higher pitch, which follows in the line of the existing chancel

roof. The same treatment has also been adopted with regard to the porch. The only new window is that on the right of the porch, which, to match the one on its left, is of the wall-flower pattern. The chancel is yet unfinished. The roof has been made secure, but the interior work will come under another contract. The stone used has been obtained from Lucton. The windows have all been re-glazed, and the floor laid with Godwin's encaustic tiles. New arches have been put in at each end of the nave, the Bath stone with which they are faced contrasting with the dark native stone from the neighbouring quarries of Lucton. The tower has been made good up to the floor of the belfry. The original contract for the restoration of the nave, porch, and lower part of the tower was 1,600*l.*; and the contract for the chancel, 150*l.*

Penarth (South Wales).—The old church at Penarth has long been felt to be too small and unsightly for the rising town; and now, at the cost of the Baroness Windsor, a new church is about to be erected on the site of the old building; or rather the new one will encircle the old one, which will not be raised until it is absolutely necessary to do so for the purpose of completing the new structure. A design has been furnished by Mr. W. Butterfield, of London. The church will be built in the Gothic style, and will have a tower, nave, aisle, transepts, and chancel. It will accommodate 700 persons. The cost will be about 7,000*l.* The foundation stone has been laid.

Bellingham (Northumberland).—The parish church of Bellingham, after being closed for nine months for restorative purposes, has been re-opened. On cleaning the decayed plastering from the walls, there appeared in each corner of the nave a semicircular respond pillar, with cap and base of Early English date, against which the present side walls have been built up; and the chancel arch, and north and east walls of the chancel, are probably of the same date. Tradition says that this church was burnt by the Scots, and the evidence from the building tends to confirm the belief. The wall above the chancel arch appears to have been subjected to the action of fire, and the construction of the present nave and transept, which is, it is believed, unique, indicates that in re-building the church, it has been desired to prevent the recurrence of a similar catastrophe. The chancel and sacarium have been floored with tiles, the latter being ornamental in character, and provided from a private source. The old nave and transept seats have had to be refixed, but it is hoped that some day funds may be available for suitably reseating the church. The walls have all been repointed outwardly, and provision made for removing the rain-fall from the building. The windows have all been re-glazed. Mr. Johnson, of the firm of Austin & Johnson, was the architect employed to superintend the works, which have been carried out by Messrs. Welton, Mr. Martinson, and others.

Sacriston.—The foundation-stone of the new church of St. Peter, Sacriston, has been laid in that village. The church, which will be of the Pointed Gothic style of architecture, will be erected from designs by Mr. T. C. Ebdy, of Durham, and, when finished, will consist of a nave, a chancel, aisle, porch, and vestry, the nave and chancel being sufficient for present requirements. The stone of which it will be built will be taken from quarries in the vicinity, and will be given by the Dean and Chapter of Durham. The windows in each side will be stained, and the west end, which faces Sacriston and Edmondsley, will be furnished with a bell-turret, with a Catherine window. Surmounting these windows are others. The total accommodation afforded by the church will be for 464 persons. The builder is Mr. J. Johnston, of Durham. The edifice will cost about 1,700*l.*

DISSENTING CHURCH-BUILDING NEWS.

Bow.—The New Union Church, Grove-road, Bow, the foundation-stone of which was lately laid by Mr. Benjamin Scott, F.R.S. (chamberlain of the City of London), is built upon a plot of land at the junction of the Grove and Esmond Roads, Bow, and consists of nave, aisles, whole length of nave, chancel and chancel-aisles for singers' chamber, organ, and vestry. There is an attached tower, standing out from the church, at the corner of the roads, surmounted by an octagonal slated spire, the whole height being about 110 ft. The total length of the church, internally, will be 84 ft., and the width 56 ft.

6 in. The width of nave is 24 ft., and the chancel 20 ft., and the height from floor to ridge 50 ft. The nave will be separated from the aisles by arcades of four arches each. The chancel will have a similar arcade of two arches on each side. The interior of the church will be faced with white Suffolk bricks, and red and black bricks in bands and devices. The arches will be of ornamental and coloured bricks. The exterior will be of malm bricks, with red and black bands, &c., and Hollington stone dressings. The aisle-walls will be pierced with three-light windows with tracery heads, and the chancel-aisles with two-light windows. The chancel and west windows will be of four lights each, with an extra double and two single light windows to Esmond-road front. The tower, of four stages, contains the principal entrance. The baptistery will be in the chancel. The roofs will be open-timbered and boarded. The seats are to be open, and the whole of the woodwork stained and varnished. The cost of the church, with schools, &c., adjoining, will be upwards of 6,000l. The architect is Mr. W. Wigginton, of London, and the builder Mr. T. Ennor, also of London.

Southend.—The chief stone of a new Congregational chapel has been laid at Southend. The new building will be erected on a suitable plot of ground presented for the purpose by the Cliff Town Building Association, and the total cost is estimated at 2,532l., the greater part of which has already been raised. Mr. Dixon, of Kentish Town, is the architect; and Mr. Mann, of London, the builder.

Folkestone.—The foundation-stone of a new Wesleyan chapel has been laid here. The site selected is on the brow of the ascent on the rampside road leading from Dover, at the junction of East-place with Rendevous-street and Grace-hill. The new building will be in the Early English style, with a spire. The ground-floor will be occupied by school-rooms, and the body of the chapel, measuring about 50 ft. by 90 ft., will be furnished with pews. Galleries will be suspended on three sides, and accommodation will be provided for 900 persons. The walls will be of Kentish ragstone, having the windows, doors, &c. faced with Bath stone; the steeple, also, if erected (a point at present in abeyance), will be entirely of the latter material. The cost of the new edifice itself, independent of the site, will be 3,500l.; including the purchase of the land it will amount to 4,000l. Mr. J. Gardner is the architect.

Luton.—The foundation stone of a new Congregational church has been laid here. The proposed building will be situated in King-street, and it is to be in the Gothic style, with a spire. When completed, the chapel will accommodate 1,200 persons; and a school-room beneath the building is to be arranged so as to hold 1,200 children. The architect is Mr. John Tarring, of London; and the builders are Messrs. Smart, of Luton. The cost of the church, including the price of ground, is 6,000l.

Oundle.—A newly-erected Independent chapel has been formally opened. The chapel is in the Early Decorated style, the walls being of cut stone, with Bath stone facings. The roof is covered with slate, and there are two entrance porches. The main timbers of the roof are visible, and, with the rest of the wood-work, stained and varnished. There is an end gallery facing the pulpit, and two side galleries are contemplated. A school-room and vestry are erected at the back. The area is 35 ft. by 63 ft., and will at present accommodate 500 persons. The entire cost was 1,620l. Mr. Poulton, of Reading, was the architect.

Ipswich.—The chief stone of the new Congregational chapel has been laid in Crown-street, High-street. The contract for the building is 2,040l. The site cost 750l.; but old materials yielded 250l.

Cherrytree (Ecclesall).—A new Wesleyan chapel has been commenced at Cherrytree. The site selected is at the junction of Oakdale-road with Brincliffe-road, a short distance beyond Ecclesall Union Workhouse, and in a line with the building which the New Connexion has erected in the same road. Messrs. Wilson & Crosland are the architects, and they have prepared plans for a chapel with schools beneath it. The chapel will be in the Decorated style. There will be accommodation for nearly 500 persons, and the schools will form the basement. The cost of the building will be about 1,800l.

Liverpool.—The foundation stone of a new Congregational chapel has been laid in Church-street, Waterloo. The architect is Mr. C. O.

Ellison, of Liverpool, whose design was selected out of three or four sent in for competition by local architects; and the builder is Mr. J. Westmoreland, of Islington, in this town. The interior dimensions of the chapel will be—Length, 67 ft.; breadth, 48 ft.; and height, 40 ft. The height from the ground to the top of the spire will be 90 ft.; and to the apex of the roof, 60 ft. Behind the chapel will be vestries and lecture-rooms of considerable size, with entrances from the side street, and communication with the chapel. Provision is also made for tea boilers, heating-apparatus rooms, and other conveniences. The cost of the building will be 4,000l. The building will accommodate about 800 people.—The foundation stone of a United Presbyterian church has been laid in Prince's-road.

The church, which is to consist of a nave, transepts, and a lofty campanile, is to be built almost entirely of brick, stone being used very sparingly. The walls are to be of red patent brick, enriched by ornamented bands of black brick, and light-coloured stone. The arches of the windows and doors are to be worked in moulded red and black brick, and the jambs are to be finished in square brick. The tracery of the windows, columns, and tympani of the doors is to be of stone. There will be a tower 135 ft. high. Behind the church will be a lecture-hall, to seat 350 persons, vestries, &c. The architects are Messrs. W. & G. Audley; and the builders are Messrs. Haigh & Co.—The large church which has been erected by the United Presbyterian body, at the junction of the Breck-road and Queen's-road, Everton, has been formally opened for public worship. The edifice is a prominent feature amidst the numerous and still increasing buildings around it. The style is Perpendicular. The building is cruciform, having a nave about 74 ft. by 63 ft., with transept 15 ft. by 19 ft. The edifice is nearly square, the main frontages being in Breck-road and Queen's-road. The tower, at the corner of Breck and Queen's roads, is octagonal, with a square base of 21 ft. in extent, and rises to an elevation of 70 ft. It is surmounted by crocketed finials at each octagonal angle, and at the east, west, and north sides of the tower it is intended to place a clock. From the summit of the tower a spire ascends to an additional height of 63 ft.; the entire elevation from the tower basement to the pinnacle of the spire being 133 ft. The spire tapers rapidly. It was the architect's desire to have carried it to an additional height of from 25 ft. to 30 ft. The area of the tower is large enough for a complete peal of bells. The interior of the edifice is plain. The windows on the north, south, and west sides of the edifice are uniform. They are of the large triplet character, all being filled in with stained glass, as well as four smaller windows on the east side. Including the gallery at the west side, the edifice will accommodate about 850 persons. All the seats are open benches, in stained oak, being, in this respect, uniform with the pulpit, or rather platform, at the east side of the interior, which is 4½ yards in length by 2½ yards in depth. The 15,000l. which it is calculated will be required to carry out the plans of the architects in their integrity, about 8,000l. have already been subscribed.

Lock Bank (Derbyshire).—The foundation stone of a new Congregational chapel has been laid here. The new building is estimated to cost, exclusive of a proposed tower, 2,100l., towards which about half the money has been paid or promised. The intended edifice is from a design prepared by Mr. Hull, of Northampton, architect; and the contractor is Mr. Francis, of Cromford. Mr. Witkings taking the stonework under him. The chapel will accommodate 140 persons on the ground floor, and 100 in the gallery, with provision for additional galleries when required. The site has been contributed by Mr. Stevens, one of the deacons.

Books Received.

Transactions of the Royal Institute of Scotland.

THE work just now issued under this head for the session 1863-4, is a thin folio of "Illustrations of Scottish Buildings." The buildings are Elgin Cathedral and Roslin Chapel. The first is set forth as measured and drawn by John Ogilvie, revised, and drawn in lithography by E. F. C. Clarke; the second as drawn in lithography by E. F. C. Clarke. The work will, doubtless, be acceptable to the members; and if it had been issued by the gentlemen who made the drawings, would have met with no depreciatory comment on our part. Whether or not, however, it is such an illustration of Scottish buildings as the architects of Scotland as a body should be content to send forth in their names, is a question to which we do not feel ourselves in a position to reply in the affirmative.

Miscellaneous.

INSTITUTE OF PAINTERS IN WATER COLOURS.—The Prince of Wales and the Princesses Helena and Louise visited the Institute of Painters in Water Colours this (Thursday) morning.

THE NATIONAL GALLERY ENLARGEMENT.—The House of Commons have voted 20,000l. out of a maximum sum of 100,000l. for the purchase of the site for the enlargement of the Gallery.

ROYAL ITALIAN OPERA.—*Linda di Chamouni*, revived for Mdlle. A. Patti, was received with great favour by a good house on Monday evening. Both as actress and singer Patti was admirable. Mdlle. Scarsella made a good impression as the faithful Savoyard boy. *Eva Diavolo* is underlined for Saturday next.

THE HANDEL FESTIVAL.—We would briefly say, out of our desire to assist in rendering the approaching Festival at the Crystal Palace as great a success for the Company as we feel persuaded the Company have ensured it being for the music-loving public, that on (this) Friday, the 23rd, the full Rehearsal will take place, commencing at one o'clock, and will include the most important parts of the works that are to be given completely during the following week, commencing on Monday with *Messiah*.

THE REMOVAL OF TEMPLE-BAR.—A correspondent, "G. E.," writes:—Having read that Temple-bar will be taken down, for the purpose of widening the approaches to the contemplated improvements in the Strand; and thinking it pity that the old landmark should be either demolished or lost sight of, I take the liberty of suggesting the propriety of placing it in one of the parks. Perhaps the entrance to the ornamental enclosure opposite the Horse Guards would be a good place as, as it would harmonize very well with the building in front of it, and show with good effect from the entrance in Parliament street.

WATER SUPPLY.—At Bolton there is already scarcity of water. The *Bolton Chronicle* draw attention to the urgent necessity of economising the use of it as far as possible, alike for domestic and manufacturing purposes. At the council meeting it was stated that at present there are 58,000,000 gallons loss in storage than at the time last year. The quantity of water in the lodges is 139,000,000 gallons, or only two months' supply; and, with dry weather such as the present, the supply must further diminish.—The engineers of the Sheffield Water Company, resuming work at the Agden embankment, which was partially completed before the Bradford inundation. Immediately after the bursting of the Dale Dyke, the directors of the company stopped the works at Agden. The directors obtain the advice and services of Mr. Hawksley, engineer, instead of Mr. J. T. Leather. Mr. Hawksley immediately requested that Mr. Gunson would continue to act as the resident engineer. It is expected that the Agden dam will be completed in about two years. Mr. Strides dam will shortly be completed. It is said that the embankment at Bradford is repaired so as to admit of the storage of a comparatively small quantity of water for the supply of the mills in the valley below; and that a large reservoir will be constructed at a point high up the stream.

TELEGRAPHIC.—A new submarine cable has just been laid between Sicily and Algeria. Italy will thus be directly connected with Africa by two telegraphic lines, establishing immediate communication with Tunis and Algeria. These lines pass over the island of Favognana.

FATAL COLLIERY EXPLOSION.—Twenty-seven men have been killed by another of these frequent explosions. The occurrence took place at Beddely pit, Tredegar. There were two hundred men in the pit at the time, who escaped from the after-damp by retreating to the bottom of the pit.

THE DUBLIN EXHIBITION BUILDING.—We understand that some discussion has prevailed in Dublin with reference to the use to which the exhibition building should be put after the close of the Exhibition. The suggestion which has been most in favour is, that the greater portion of the building should be devoted to the purposes of a winter garden, while that portion now used as the machinery department should be converted into a gymnasium. The building belongs to a Company.

THE LIVERPOOL CONSULTING SURVEYORSHIP.—At the last meeting of the town council, a letter was read from Mr. Weightman, intimating his intention to retire from the office of consulting surveyor on the 1st of October next, and expressing grateful feelings towards the members of the council for the consideration and kindness he had ever received. A general desire was expressed that, if it was consistent with Mr. Weightman's health and future arrangements, they should still retain some portion of his services. The letter was referred to the finance committee.

THE NEW COURTS OF JUSTICE.—A sum of £30,000. has been voted by the Commons for the purchase of the site. For the year ending 31st March, 1866, the sum of £20,000. will be required on this account. The House of Lords have agreed not to insist on their amendments to the Building Bill. They have also agreed to the alteration, by the Commons, of Lord Redesdale's amendment of the Site Bill, that the action should not be begun until the site was obtained and the plan approved of by Parliament. The delays have caused a proprietor of fifteen of the freehold houses to complain, by petition to Parliament, that she has lost all the rents and profits of these properties for the last six years.

NORTHAMPTONSHIRE ARCHITECTURAL SOCIETY.—The annual spring meeting of this society was held at Brackley. The meeting was not so large as it generally has been for the last few years. On the course of the excursion several churches, which well repaid the visit, were examined and described. Sir Henry Dryden, bart., paid several preliminary visits to them, and made himself thoroughly conversant with all their details and peculiarities. All the churches were described by Sir Henry. The meeting opened at a museum, which was held in the town-hall. The great majority of the contents of the museum were contributed by Sir Henry and his sons, and by Mr. Samuel Sharp, of Dallington. In the course of the meeting, papers were read, by Mr. Sharp on Forgeries (of flints, money, &c.); and A. Plea for Drapery (in churches), by the Rev. G. A. Poole.

SCIENCE AND ART DEPARTMENT.—The Committee of Council on Education have just published their twelfth report of the Science and Art Department. Under the present system of the Science and Art Department, the number of students in science schools and classes inaugurated by the Department in June, 1859, there have been six annual examinations for certificates as science scholars, and four general examinations of students. The following statistics show the results:—

1859. 1860. 1861. 1862. 1863. 1864.
Candidates... 57... 69... 103... 125... 109... 115
Passed certificates... 43... 75... 97... 112... 95... 98
Students there are now 91 classes, containing 66 students. The number examined last year was 2,070. The number of prizes awarded, 18. The largest number of candidates are in chemistry; 851 having been examined in inorganic, and 142 in organic chemistry. The subjects embraced are very numerous—geometry, mechanical drawing, acoustics, electricity, geology, mineralogy, animal physiology, botany, nautical navigation, naval architecture, &c. Altogether there are now 114 classes and 5,054 students in them.

ACCIDENTS.—At the Calls, Leeds, a portion of the western gable fell outwards at the top of the seven-story warehouse of Mr. J. T. Pearson, agricultural chemist and corn merchant. The occurrence arose from a fracture of the roof-beam, caused by a defect in the timber. There were from 8,000 to 10,000 quarters of wheat stored in the warehouse, but in the top story only 520 quarters of grain were deposited, while on each of the other floors there were 1,500 quarters.

NEW BATTERSEA BRIDGE.—The Albert Bridge Company having obtained power to construct a bridge over the Thames to connect Chelsea with Battersea, the several points being Cheyne-walk on one side and Prince Albert-road on the other, are inviting applications for 9,000 shares of 10l. each, representing a capital of 90,000l. for that purpose. They have power also to borrow 30,000l. The bridge, of which we have given illustrations, is to be partly on the suspension principle, and a responsible contractor has undertaken to complete it ready for traffic in eighteen months for 82,000l., taking part payment in paid-up shares. Arrangements have also been made for the purchase of Battersea Bridge for a rent-charge of 3,000l. per annum, the tolls on which, in 1862, were 6,153l. A clear income of 9 per cent. is anticipated.

THE ELM-TREE.

The Elm-tree grew
In the distance blue,
For the hammer, and nail, and plane;
For the dust of those
Who need repose,
Whom the arrow of death hath slain.
The Bell was cast
To chime the last
Farewell homage that can be shown
To the friends we grieve,
Whom Heav'n receive,
And the angels make their own.
For God's deep care
Is every where,
And His love is ever thorough,
When the Elm-tree grows
In the wild hedge-rows
To be seen for us to-morrow.

A. H.

PROJECTED RAILWAY THROUGH THE THAMES TUNNEL.—A prospectus has been issued of a new metropolitan railway, to complete the system recommended by the Parliamentary Committee of 1864. It is to be called the East London Railway, with a capital of 1,400,000l., in shares of 100l. Its entire length will be about 8 miles, and it will run from junctions with the North Kent, Brighton, and South-Western lines in the New-cross district, south of London, to the Great Eastern Railway at Fenchurch-street (passing through the Thames Tunnel), and thence to a station at Liverpool-street, near the Bank, where it will connect with the Metropolitan district line. The work is undertaken by Messrs. Brassey, Lucas, & Wythe, and the cost per mile, it is stated, will be less than that of any other metropolitan railway. A return of 14 per cent. is anticipated.

STONEHENGE.—At a recent meeting of the Ethnological Society, the paper read was "On Stonehenge," by Professor Nielson. His views were, that Stonehenge was a temple of early fire-worshippers, and of pre-Druidical origin, and belonging to the "Bronze Period" of the northern archaeologists. The remains of Stonehenge, he remarked are placed, not on the summit, but on the declivity of a hill surrounded by numerous barrows, from which bronze articles have been exhumed with others of flint, but never any of iron. He considers that fire-worshippers preceded Druids in Britain and Gaul, and gives what he considers as numerous proofs of the building of such stone open temples by colonies of Phoenicians. Circles of large stones exactly identical in description with those called Celtic or Druidical, he continued, are found in countries where neither Celts nor Druids ever existed; but how does he know that? and who knows at what time the ancient religion of this country may be truly said to have been pre-Druidical or pre-Celtic in its principles? From various considerations the author of the paper thinks there may be sufficient reason to regard the remains of Stonehenge as Phœnician, and connected with the rites of Baal, like their congeners at Tyre and in the valley of Bethel.

POWDER.—The *Western Morning News* states that Mr. Gale, electrician, of Plymouth, has discovered a process by which powder can be rendered non-explosive, and its combustible properties restored when required. The cost is very small, and has the advantage of being readily applied. In five minutes a barrel of powder can be made non-explosive, and in another five minutes it can be restored to its original condition. If a shell burst in a store filled with the prepared powder, it would not fire!

IMPROVED TRAVELLING CRANE.—Mr. T. B. Barnett, of Mount Vernon, New York, has invented an improved travelling crane. The gearing by which the weights are raised is similar to that on ordinary cranes, and the hoisting chain is led up over a boom, which is jointed at the bottom, so that it can be raised or lowered. The rigging is composed of heavy iron bars, and there is a counterbalance box behind the crane. When the crane has been loaded, and is ready to be transferred from the point where it is at work, the labourers apply themselves to handles which act on gearing below the platform on the front axle. By means of a small pinion meshing into this gear, they are enabled to remove any weight that can be raised by the crane to any point on the truck.

AMALGAMATED SOCIETY OF ENGINEERS.—The fourteenth annual report of this society, for the year ending December, 1864, has just appeared. It is a voluminous compilation. The expenditure during the year was from all sources 51,518l. 12s. 6d.; and, at the close of 1864, the accumulated fund amounted to 86,947l. 15s. In 1863 the amount paid to members out of work was 32,653l. 6s. 10½d.; but in 1864 the sum under the same head was only 16,425l. 9s. 6½d., which, added to 13,612l. 4s. 7½d. sick benefit, 3,902l. 6s. 7d. superannuations, 3,924l. 0s. 11½d. funerals, and 1,100l. benefit in cases of accident, shows members to have received under the various heads 38,964l. 0s. 8½d. during twelve months. The accumulated fund of the society now averages 3l. 0s. 6d. per member.

THE EXPLORATIONS AT KEISS.—A notion seems to be entertained that the human beings of what is called the stone period, were specimens of Nature's mere apprentice hand, and that their organization had not then reached the comparatively high order of development since attained. A discovery recently made at Keiss, in the north of Scotland, will help to explode this opinion; and, strange to say, the evidence is that of a woman, heretofore so rare of the stone period, that it is a wonder sticklers for matter-of-fact evidence have not doubted whether women especially then existed! The cranium of this witness "shows that in the amount of space for the brain, it not only considerably exceeds in its capacity that of the skulls of women of modern savage races, but is on a par with, or even somewhat in excess of, the average cranial capacity of the women of our own island at the present day." The ridges on the bones for the attachment of muscles "possess no great prominence: hence it may be concluded that the woman was not required to lead a life compelling any great amount of muscular exertion." The thigh bones were elegantly formed. The stature was probably not more than 5 ft. 4 in.

THE FOUNDATION OF THE MANSION HOUSE, LONDON.—At the last meeting of the Court of Common Council, a report was brought up by Mr. H. Haines, relative to the state of the foundations of the Mansion House, and for authority to expend 500l. in part restoration of the same. The ground having been opened in George-street to examine the state of a sewer that ran from east and west of the Mansion House, they endeavoured to ascertain, if possible, the cause of the settlement that had taken place at that part, and they found it was built on a wooden foundation which showed very strong symptoms of decay, and which was, in several places where the ground had been opened, completely rotten. The city architect had been communicated with, and had made an examination, and was of opinion that steps should be taken at once to make secure the foundation in those places, which he estimated at a cost of about 500l. Mr. Haines explained to the Court that it might not be the only sum which would be wanted, as perhaps, when a further examination took place, it might be found that the whole of the foundation was in the same state, and it would in that case become necessary to pin the walls up all round. The report was agreed to.

GAS IN THE CITY.—The several petitions against the present quality and price of gas having been referred to a special committee, the committee, in reply, recommend that an effort should be made to obtain some alteration of the Gas Act of 1860; but, as this solution of the matter seems unsatisfactory, a motion has been put before the Court of Common Council to return the report to the committee, with instructions to obtain power for the Corporation either to contract for the supply of gas or to manufacture the gas, as is done by the corporations of Manchester and other towns.

GREAT RISE IN THE VALUE OF PROPERTY IN LONDON-ROAD, LIVERPOOL.—Two blocks of buildings in the locality have been sold at the rooms of the Law Association in Cook-street. The premises are on the north side of London-road, between Norton-street and Stafford-street, and a little below the monument. They consist of eight tenements, six being shops, and two public-houses. The property is leasehold under the Corporation of Liverpool, for an unexpired term of fifty-four years, and was sold under an order from the Court of Chancery. The property has been valued by Messrs. Culshaw & Griffiths at 8,540l., the rentals averaging about 80l. per annum for each tenement. The total amount for which the property was sold was 16,430l.

THE MORNING DRIVES OF CHILDREN.—Often when the sun has been shining brightly on the hills of Highgate and Hampstead, and in other parts of the metropolitan suburbs, and the air there has been dry and healthy, in some districts the mists have been lying thick, and the humid atmosphere has rendered the vicinity of the parks, and several of the valleys, most unhealthy for the siring of young children or persons of delicate and sickly constitution. Nevertheless, we have hundreds of times noticed in the fashionable drives and walks about the Serpentine, St. James's Park, &c., young children of the higher classes, who should be in the care of those who are better advised, exposed to a most damp and unwholesome atmosphere.

THE EXCAVATIONS AT KEYNSHAM ABBEY.—A correspondent of a Bristol paper writes as follows in reference to the excavations at Keynsam Abbey:—"It is with regret that upon my visit this day to the above interesting remains of the Middle Ages I found that a large portion of the earliest tile pavement had been taken away, evidently by visitors. All antiquarians must regret this act, as the portion removed was, I believe, the only Norman tiles remaining on the site. I trust all persons will refrain from removing even the smallest portion of the relics, as the proprietor of the land, who is clearing the soil and rubbish, is endeavouring to retain as much of the remains as possible *in situ*; and I feel sure he would much regret being compelled to close the site to the public, or to carry out his determination to prosecute any person that may be discovered taking away any portion of the antiquities."

PNEUMATIC RAILWAY UNDER THE THAMES.—The recent experiment at the Crystal Palace has led to the idea of carrying out a short line to connect the Waterloo Station of the London and South-Western Railway with Whitehall, passing in a troughed iron bridge, or surface tunnel, under the Thames. Three piers will be built below the bed of the river, by means of iron caissons. When these piers have been brought up to within a few feet of the bed of the river, the upper portions of the caissons will be taken off, and the bed of the river between the line of piers dredged down to the level of the upper course of the masonry of the piers, and in the trough thus formed the iron tube will be made. The tube will be lowered in four separate sections. When down, these will be kept securely in their place by cramps, and will be covered with a thick bed of concrete. The internal diameter of the tube will be 12 ft. The portion of the line between Whitehall and up to the river front of the Thames Embankment will be built in brickwork; and on the Surrey side the line will also be continued in brickwork under College-street and Vine-street, close to the Waterloo Station of the South-Western Railway, with which it will communicate by a flight of steps from the York-road side of the station. The steepest gradient throughout will not be more than 1 in 30, which is nearly one-half more favourable than the ascent of Holborn-hill, or that of the experimental line at the Crystal Palace.

THORNLEY CHURCH.—The parishioners of Thornley have resolved to place a stained glass window in Thornley Church, in memory of the late H. J. Spearman, who represented the city of Durham from 1847 until the general election in 1852.

STAMFORD.—The (R.C.) church of "Our Ladye and St. Augustine," although used for worship for some months past, was not solemnly opened until lately. The building, which is in the geometrical style, occupies a site in Broad-street. The nave has a wide span, and terminates in an apsidal recess, within which stands the altar. An apse to the right of the altar is appropriated as the Lady Chapel, and in this has just been placed a statue of the Madonna. On the left of the nave there is an aisle, the altar for which has not yet been obtained. The church will accommodate about 400 people. A residence for the priest adjoins the church. The architect was Mr. Goldie, of London.

THE COAL TAR COLOURS.—At the Royal Institution, lately, Mr. F. Field delivered a lecture on "Magenta and its derivative Colours obtained from Coal Tar," in course of which he stated that one of the recent discoveries of these colours was that of Hoffin's violet, a mass of which was placed on the lecture-table; and this material, though derived from a mere refuse product, is five or six times the value of its weight in silver, the mass on the table being estimated to be worth 700l. A great many experiments were exhibited, showing the production of various colours from the same agent, in which many substances were dyed. Mr. Field mentioned as an instance of the great intensity of the colour of magenta, that when the *Great Eastern* was disabled and lying in the trough of the sea, considerable alarm was entertained on account of the blood-colour of the water extending for a great distance round the ship. It was afterwards discovered that this effect was produced by the breaking of a vessel containing a quantity of concentrated magenta. Much has been hitherto discovered respecting the nature of coal-tar dyes, a good deal yet remains to be found out, among which may be included the discovery of the means of imparting some of the dyes to woollen material as easily as silk.

DRY SOIL CLOSETS.—A Galashiels correspondent, Mr. James Kerr, says he has since last year been using with satisfaction a simple apparatus, by which the deposits are at once deodorized by coal ashes or earth, and thus thrown out into a shoot or iron bin for removal by the dustman's cart or for garden use. The mechanical action of this "earth closet," he says, is very simple, the whole process being effected by opening and closing the lid, to which is affixed the lever cranks. He wishes to call the attention of landed proprietors, architects, builders, and others to the use of such earth closets in many situations where it would be preferable to a water-closet, viz., where there is a deficient water supply or want of proper drainage, and the immediate deodorizing of offensive matter ought to be effected at once, instead of running it into festering cess-pools or ill-constructed drains. By the admixture of ashes or earth with the night soil, also, the ammonia and other fertilizing properties are at once absorbed and retained for the field or garden. Mr. Kerr is not the originator of dry soil closets, but his plan may be an improvement on others. The Royal Scottish Society of Arts are said to have recommended it to the consideration of their prize committee for the simplicity of its mechanical action.

TENDERS

For building ten almshouses, with reading-room and small museum, at Ramsgate, for Sir Moses Montefiore, bart.
Newman & Mann £5,440 0 0
Macaers 6,383 0 0
Myers & Sons 6,961 0 0
Sill & Richardson 6,969 0 0
Newby 5,620 0 0
Sawyer 5,610 0 0
Matthews 5,124 15 0
Eiger (accepted) 5,100 0 0

For forming an extension of the sea-wall and terrace, at Aberystwyth. Mr. H. D. Davis, surveyor to the corporation:—
Moore £2,967 0 0
Jones (accepted) 1,998 0 0

For alterations and additions to 7, Castle-street, City. Mr. Herbert Ford, architect:—
Hostell £720 0 0
Rawlins 738 0 0
Palmer & Son 637 0 0

For painting, &c., at Christ Church, Rotherhithe:—
West & Morse £283 10 0
Ward & Nicholls 231 15 0
Kent 199 10 0
East & Co. 160 13 4
Smith 182 6 0
Day 192 0 0
Dunn 181 0 0
Pocle 189 0 0
Wilkinson & Co. 178 19 0
Boyce 175 5 0
Nightingale 161 0 0
Minly 155 0 0
Richards 150 0 0
Norris & Son 155 0 0
Johnson 136 0 0
Thorp 160 0 0
Dowling (accepted) 123 5 0
Mahoney 118 0 0

For pianoforte warehouse, for the London Pianoforte Company (limited). Mr. Septimus Hoskins, architect:—
Manley & Rogers £2,467 0 0
Mann 2,156 0 0
Lamble 2,138 0 0
Walton 2,049 0 0

For finishing a pair of villas, at Wood-green, for Mr. Varley. Mr. T. W. Bosc, architect:—
Lamble £293 0 0
Sale 589 0 0
Jones 535 0 0
Green 525 0 0

For dwelling-house, in Bath-street, Sheffield, for Mr. J. Wragge, Messrs. Flockton & Abbott, architects:—
Lambert £2,680 0 0
Robertson 655 0 0
Harrison (accepted) 600 0 0

For alterations and additions, at the Cutlers' Hall, Sheffield. Messrs. Flockton & Abbott, architects:—
Neill £5,840 0 0
Messrs. Craven 6,535 0 0
Bradbury 6,715 0 0
Wade (accepted) 6,715 0 0

For re-building and restoring Saville House, Leicestershire square. Messrs. Nelson & Innes, architects:—
Mansfield £13,110 0 0
Myers 12,916 0 0
Mace 11,485 0 0
Carter 11,467 0 0
Jackson 11,400 0 0
Simpson 11,340 0 0
Howard 11,111 0 0
Malay 10,555 0 0
Barlow & Rigby 9,930 0 0

For the erection of two houses, in Drummond-road, Bermondsey, for Mr. Daniel Martin:—
West & Morse (accepted) £238 0 0
Stokely 525 0 0
Clark* 611 10 0
King* 610 0 0
* Too late.

For sundry alterations and repairs to the Ancient Briton, Long-lane, Bermondsey, for Mr. Chapman:—
Carter £113 0 0
Ridley 112 10 0
Kemp 108 0 0
West & Morse (accepted) 108 10 0

For new sewers in Rouel-road, for the Bermondsey Vestry. Mr. Elkington, surveyor:—
Kent £720 0 0
Parker 657 0 0
Parker 695 0 0

For alterations and additions to warehouse, No. 6, Castle-street, City, E.C., for Messrs. Knight, Wells, Braithwaite, & Co. Architects:—
Palmer & Son (accepted) £537 0 0

For Congregational Chapel, Sevenoaks. Mr. Tarri architect:—
General Estimates. Spire. Tot.
Newman & Mann £2,981 316 3,227
D. & J. Grover 2,944 211 3,215
Kilby 2,820 170 2,990
Simpson 2,785 200 2,985
Hoadley 2,713 220 2,933
Potter 2,280 160 2,440

For additions and alterations, at the Jews' Orphan Asylum, Goodman's-fields. Mr. N. S. Joseph, architect:—
Kilby £2,593 0 0
King & Sons 2,690 0 0
Conder 2,321 0 0
Colten (accepted) 1,900 0 0

For alterations to Congregation chapel, Hanwell. J. Scott, architect:—
Tyrell £240 0 0
Hanson 237 0 0
Gibson 222 0 0
Batley 221 0 0

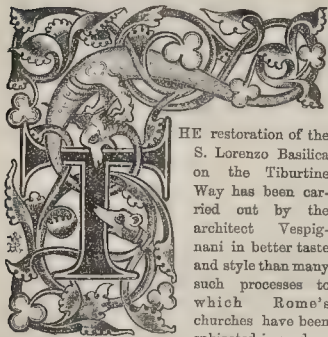
For alterations and additions to Mr. W. Tucker's misses, at Brackley, Northamptonshire. Mr. J. U. architect:—
Munday £610 0 0
Robinson 529 0 0
Hackett (accepted) 488 0 0

For rebuilding Rosebank, Fulham, for Col. McMichael, &c. &c. Mr. John T. Wimpey, architect. Estimates supplied:—
Foxley £2,538 0 0
Abbott & Sons 3,445 0 0
Nicholson 3,385 0 0
Carter & Sons 3,238 0 0
Fish 3,220 0 0
Slate 2,905 0 0
Moultrie 2,892 0 0
Hill & Sons 2,774 0 0

The Builder.

VOL. XXIII.—No. 1169.

Restoration of Churches in Rome.



THE restoration of the S. Lorenzo Basilica on the Tiburtine Way has been carried out by the architect Vespignani in better taste and style than many such processes to which Rome's churches have been subjected in modern

times, though not, indeed, without some prejudice to old details of interest. Absolutely Vandalic was one proceeding, that sacrificed a lateral porch with columns and mosaic decoration,—one of those beautiful monuments of the thirteenth century by the well-known Cosimati family (whose works are among the finest examples of the Medieval Gothic in Rome), this construction having been unscrupulously destroyed in order to form a sacristy in place of the lateral entrance it had so well adorned. We cannot commend the filling of the narrow-arched windows along the southern aisle, nor the opening of another row, much wider, though of similar form, along the lower part of the same walls; nor can we see without some regret the complete repainting of the curious series of frescoes carried, in two files, along the walls of the atrium, attributed to the Romano-Greek school of the thirteenth century, and illustrating the life and martyrdom of SS. Stephen and Laurence, besides other strangely romantic legends, as the contest between Demons and Angels for the soul of the Emperor Henry II.; the phantom High Mass, seen in this church at midnight by a pious sacristan of the Benedictine community, once occupying its cloisters; and the story (in several acts) of the transfer of St. Laurence's body from Constantinople to Rome in the year 557.

The history of S. Lorenzo is singular and complicated. It appears that two churches, both beautiful and famous in ancient times, existed on this site anterior to the conspicuous buildings of Honorius III., who added the present nave and aisles, with the portico and colonnade supporting a mosaic-inlaid architrave under a heavy pent-roof. One of these churches existed in the fifth century, when it was enriched by some donations from Pope Hilary. Another is spoken of as ancient in the eighth century; for we read in Anastasius that Hadrian I. constructed the major basilica to which it was annexed,—the writer in the sequel explaining what he here means by constructed—merely the renewal of the roofing, which had been quite ruinous. The church ascribed to Pelagius, and in which the body of St. Laurence was laid, is shown by notices in ancient writers to have been a building of earlier date, renewed and amplified by that pope in the seventh century; afterwards styled *speciosior-nova*, on account of the splendour with which Pelagius invested it. That "major" basilica which was newly roofed by Hadrian, and dedicated to the Blessed Virgin, was the edifice to which per-

tained the great triumphal arch (now adorned with the mosaics of the seventh century), which, from having terminated the nave of the original church, became the boundary between that compartment and the presbyterium, when the whole primitive structure was converted into the choir of the much larger basilica, brought to its present development under Honorius III., about A.D. 1216. This ancient portion (two churches, in fact) is on two levels,—the lower like a crypt, with its altar before the tomb of the martyrs Stephen and Laurence; the upper, an elevated choir, paved with rich marbles, with double colonnade of antique shafts, divided by a richly-chiselled architrave, and reached by several steps from the nave of Honorius's building. In the course of time (what period is uncertain), the crypt became in the greater part filled with soil; and the tomb-chapel consequently accessible but on one side,—that where stands its altar; the magnificent antique colonnade of fluted white marble, with Corinthian capitals, some beautifully adorned with military trophies amidst the acanthus leaves,—the spoils, no doubt, from some edifice of classic antiquity,—being still preserved, like a connecting link between the upper and lower churches. Those shafts rising high around the actual choir, their basements, at much lower level, are looked down upon from the parapet-walls enclosing that sanctuary. It is the restoration of this primitive crypt to its original state, and the dismembering of the sepulchral chapel under the high altar of Pelagius's church, so as to leave it accessible on every side, that constitute the most meritorious part of the project recently carried out by the architect of Pius IX. Before entering, we notice the bronze statue of St. Laurence leaning on the instrument of his martyrdom, that now stands on a column of red granite, with lofty pedestal and basement of marble; the statue about life-size, and therefore too small for effect at its high situation. The novelty that most strikes the eye on this church's front is the clothing of the whole upper façade, above the portico-roof, with frescoes in imitation of mosaic on a gold ground (to be ultimately executed in that more enduring art) by Caponari, a young artist, the pupil of Podesti, representing the colossal figures of the Emperor Constantine, and the Popes Honorius III., Pius IX., Sixtus III., and Hadrian I., the first two holding small models of this basilica. The figure of the present pontiff is at once a recognizable and speaking likeness; above, along a heavily-projecting frieze, half-lengths of the Saviour (who is blessing with uplifted hand), Saints Stephen and Lawrence, and four other saints, male and female,—the general composition good; but in the very vivid tints of the painting thus placed on trial, rather too jarringly contrasted with the venerable and sombre aspect that distinguishes the whole exterior. The same artist is now engaged on another series of colossal figures, in fresco, over the triumphal arch, on the side towards the nave, only two of several saints yet appearing in the group begun. Another work still in progress is the colouring of the hitherto bare rafters that support the triangular roof, in a rich diaper-work, blue, red, and yellow. The round-arched windows of the choir are tinted (and, we believe, all the rest are to be so eventually) with a commonplace geometric pattern, in red, yellow, and orange, whose effect one can by no means command,—glass-painting, in fact, being an art never carried to perfection, and to this day most rare in Rome. A very rich decoration, in diaper-colouring, of a lateral chapel, for the Holy Sacrament, would be more pleasing if the chapel itself were not utterly alien in style, and apparently cut off from the more ancient constructions. Descending into the crypt below that choir, the most finely characteristic portion of the whole interior, we may enter and walk

round the isolated chapel, where the two martyrs repose in an enormous sarcophagus of Phrygian veined marble, surrounded by grating; around this extending a graceful colonnade of grey marble, forming three aisles, under a low ceiling, divided into bays at the eastern side, between the altar and end walls; single files of half columns, set against pilasters, extending laterally to that tomb-chapel, the interior of which we can look into through several narrow arched windows, with gilt grating. There is a solemn simplicity, well adhered to by the restoration, in the character of this semi-subterranean compartment, and the dim light accords with its quiet but stately architecture. Beyond it the extremity of the tribune is supported from below by a transverse nave, with a small altar at each end, and three antique arched niches, in two of which are frescoes (unknown till brought to light in these works), covering the end wall and part of the sides, a series of curiously archaic character, conjectured by Di Rossi to be of the tenth century, and certainly of a period when art was well nigh at its total eclipse. In one niche we see a Madonna veiled in attitude of prayer, with outspread arms, between two saints; two other saints, male and female, on the lateral walls. Another Madonna all covered with jewelry, and the child on her lap; a saint, male and female, on each side of her, and four others, male and female, on each lateral wall, the latter figure of the Virgin, with distinct characteristics of the declining Byzantine school, the former still more rude in style and devoid of expression; in this last instance alone the subject being distinguished by letters of a name, ΜΡΘΥ. On the walls of the aisle, which is quite cut off from the rest of the church, are set four ancient epigraphs, on marble slabs, discovered in fragments during the recent works, and now restored so as to be read with easy intelligence, the most curious referring to the pontificate and relatives of that far from respectable Pope, John XII., with date 963. A finely venerable cloister, interesting for the character of its architecture, and dating from the eleventh century, has been left untouched in the restoring works, and happily preserving to this day all its severe and olden dignity. Capuchins have been placed here, after the long desertion of the convent, by Pius IX., and among the renewed celebrations at S. Lorenzo, we shall remember that we last attended here in the golden light of evening; multitudes of tapers burnt on the high altar, and in large chandeliers, pendent between the antique columns round the choir; no paltry decorations or draperies interfered with the details of architecture. A plain deep-toned chant of the "Litany of all Saints" was accompanied by subdued strains from an organ, during the exposition of the Host; and the whole service seemed in harmony with the character of the fine old edifice.

Since the discoveries made in the last winter by Mr. J. H. Parker, in the subterranean well known to exist, but long left unexplored, below S. Pudenziana, on the Viminal Hill, new interest has attached to that venerable church, said to be the most ancient in Rome, and occupying the site of the house of the Christian senator Pudens, who entertained St. Peter as his guest, A.D. 44, and to whose sainted daughter it is dedicated. Within this house were baths (*balnea*, not *thermae*), which, it seems, continued in use till later ages, known as the "Baths of Wonatus," from the name of one of that senator's sons; and we read in Baronius that considerable ruins of that building were erect in the sixteenth century; in the "Sacra Stazioni Romane," by Piazza, an archeologic as well as devotional work, that those remains were still conspicuous about the end of the century following. It is believed the house, or (as tradition states) the baths, were first consecrated for worship by Pope Pius I., about A.D. 145, on the prayer of

Praxedes, another daughter of Pudens, who survived till that date; that at this earliest stage of the local conditions two churches occupied this site, known as Titulus Pudentis and Titulus Pastoris, the latter dedicated to Pastor, a brother of the same Pope Pius.

These oratories (as they might be called in respect to size) were subsequently thrown together into a single sanctuary, as the church was rebuilt first by Adrian I. in the eighth century, afterwards by Gregory VII. in the eleventh, and by Innocent II. in the next; and, last of all, were effected the most injudicious restorations (or rather alterations) in a style announcing almost the worst period of Italian art by the titular Cardinal Gaetani, in 1597. In its present state, little of the ancient architecture remains except twelve columns of bigio marble, barbarously built up into heavy square pilasters along the nave, and two others flanking the portal; besides some quite plain mosaic pavement in one chapel and one aisle. But we recognise an early Christian period in the low reliefs on the lintel of the doorway, and representing the busts of SS. Pudens and Praxedes, and of two others, probably SS. Pudens and Pastor; the divine Lamb, supporting a cross, in the centre, and a graceful foliate ornament along the interstices. In the square campanile of brickwork (date probably about 1130, the period of the buildings of Innocent II.) we have one of the finest specimens of its description in Rome, with three stories of triple arcades divided by marble shafts, several bands of terracotta cornice moulding, and, on the upper part, inlaid disks and crosses in coloured stone. Reduced as the actual church is, by tasteless modern works, to a level with the many other uninteresting sacred structures of the sixteenth century in Rome, we may still trace the original plan dividing it into two sanctuaries; the larger corresponding to the present chancel, and perhaps also to the nave; the latter represented by a lateral chapel and narrow aisle, once the *titulus Pudentis*, in which a council was held under Pope Symmachus (486-514), and whose pavement is still a field of primitive mosaic, laid simply in cubes of white and gray marble, intermixed with porphyry and serpentine, placed in irregular pieces. In the same chapel is kept the most revered relic of this church, said to be a part of the wooden altar on which St. Peter here celebrated the Eucharist; also a tablet recording the memories of the spot, as more fully given in another very curious inscription in the nave, repeated in Latin and Italian.* One artistic treasure, of high value and antiquity, is still fortunately left in its place,—the mosaic of the *apse*, referred by Italian writers to the year 884, by Germans (*v. Beschreibung Roms*), supposed to be that ordered by Adrian I. in the eighth century;—at all events, a work of such merit that Poussin esteemed it the first among ancient Christian mosaics; and we see that Di Rossi, in his lately published "*Roma Cristiana*," agrees as to such claims. In conception and treatment this work is truly Classic. Seated on a rich throne, with gliding and red cushions, is the central figure of the Saviour, in vestments of gold tissue, extending one hand, and in the other holding a book that displays the words, "*Conservator Ecclesie* *Pudens*," laterally, the two sainted daughters of Pudens standing with leafy crowns in their hands; and below, the half-length figures of SS. Peter and Paul, with eight other persons, all males, of different ages and in amply-flowing costumes, antique Roman in fashion; beyond this group, a portico with arcades, divided by pilasters, and a pent roof, over which, in the distance, are seen several stately buildings with arched windows, arcades, and pilasters; one of these edifices in form a great rotunda; another near

it, an oblong structure, with gable front; the former we may suppose a baptistery, the latter a basilica, probably faithful transcripts of the architecture of the time, as are perhaps all the other buildings in this interesting representation. The absence of the nimbus to all the heads introduced in the sacred group, except the Saviour's, might confirm the conjecture hazarded by some writers who ascribe this mosaic to a date so early as the fourth century; since it is certain that till the latter years of that, or beginning of the next century, such a symbol of sanctity did not obtain its place in Christian art. Above the Saviour's figure rises a lofty cross, studded with precious stones; higher, as if hovering in air, are the four winged emblems of the Evangelists, one of which has been entirely, and another almost entirely, sacrificed, with incredible vandalism, to some heavy modern detail in the framework overarching the whole. It is certain that restorers have had much to do with this mosaic as now presented to us; the character of the Saviour's head has a severe solemnity; those of the apostles (who have no symbols) are nobly venerable; and the whole composition reminds us of the style distinguishing classic reliefs. Leaving the church, we observe (in a court on one side) the masonry of a primitive period,—perhaps that of the second century of our era, recognisable in a lateral wall of Roman brickwork, like that of the best ancient period, pierced by high arched windows (now built up), and supported by several constructive arches; elsewhere the additions of the fourth century, indicated in the square stone blocks set at intervals into the brickwork, a method practised under Constantine. Near one angle of these walls, we may enter through a gap rudely broken open, to descend into the subterranean, now in total darkness, and in great part filled up with soil, over different levels of which we must pursue an uneasy path; first, through a long interior under a sinco-covered vault, probably the nave of the primitive church; thence into some vaulted chambers with walls and roof alike stuccoed, in some parts painted in plain red bands that follow the lines of archways; elsewhere adorned in more decorative style with architectural subjects, reminding us of the Pompeian.

In one chamber is a fireplace with aperture filled by a wall, over which is a similar coating of stucco; and in another place we see a pavement in black and white mosaic, without any design, laid bare to but slight extent by the removal of the encumbering soil. It seems probable that these latter interiors belong to the baths, contiguous to which, but not so as to necessitate the sacrifice of their buildings, was formed that church within the senator's mansion. And these interiors, long left to oblivion, we know were once profaned for evil purposes; as it is on record how, in the time of Raphael, they were ordered to be filled up with soil, as recently were ordered to be a haunt of brigands. Mr. Parker, who well explained the conditions and went over the story of this church at a meeting of the English Archaeologic Society, has applied for permission to have the whole of its subterranean cleared out at his own expense, but, we are sorry to say, without success hitherto; and we see, in the destinies of this interesting edifice (the supposed primitive cathedral of the Papal metropolis), a striking example of the negligence, amidst much costly and ostentatious church restoration, to be charged against Rome's authorities in respect to the less conspicuous, however venerable, monuments of Christian antiquity.

The Minister of Public Works has issued a Report, addressed to the Pope, on the exports from these States for the Dublin Exhibition, this document containing a full catalogue of objects sent, in whose columns appear,—100 sculptures (statues, busts, reliefs); 41 pictures on canvass; 182 engravings from the *Chromatographia*; 10 coloured plates from the *Chromatographia* establishment in Rome; 25 medals struck under different pontiffs since the reign of Pius VII.; a large number of cameos on shells and *pietra dura*; objects in wrought marble, ivory, and wood; photographs, machinery; and, among natural history classifications, 110 specimens of the mineralogy of these provinces. Cardinal Antonelli exhibits a precious cameo, by Lanzi, of St. George on Horseback; Cardinal Altieri, a geologic map of the mountains of Tofa, executed by Ponzi, professor of geology at the Roman University. The ministers flatter themselves that the hall in the Dublin buildings

appropriated to the produce of these States, will deserve the name of "Pearl of the Exhibition." All the objects were embarked at Civita Vecchia, at the expense and risk of the Irish department, in the steamer sent by the directors at their own cost; and the nomination of Lord Talbot de Malahide as Pontific Commissary for the Exhibition has proved generally acceptable. We need not further enter into a report the subject-matter of which now pertains to the sphere of British, rather than Roman, intelligence.

A set of antique Christian glasses, adorned with sacred representations, figures of apostles, symbols, &c., in gold enamel, has been purchased here for the English Government, through the agency of a gentleman authorized first to offer 160*l.*, finally 220*l.*, for the whole, consisting of thirteen specimens, some in a fragmentary state. They found their way to Rome from Sicily, after the dispersion of the Recupero Museum; and are, we believe, the only such collection extant, except one of greater value in the Vatican Library.

NEW AND IMPROVED SCIENTIFIC INSTRUMENTS AND APPLIANCES.

THE armoury of science is enriched with new weapons only at long intervals. But so much application, so many experiments, and such a high degree of skill and scientific learning are required for the perfecting of every step in the invention of instruments, that we cannot be surprised that they are of rare occurrence. The improvers of new ones, ought to be accounted as the greatest benefactors of science: yet this is scarcely the case. The inventor gives the most indicative name he can coin to express the nature and object of his invention, and his own is scarcely heard. The Daguerreotypic apparatus was an exception to this rule; but to what extent is the photograph, telegraph, or stereoscope associated in the mind of the general public, with their inventors? With this slight indication of our sense of the recognition due to the men who, in the closet or the laboratory, quietly pursue ideas and carry on experiments, the result of which is to put into the hands of man instruments that set free facts that have hitherto been hidden, or disclose powers which we were heretofore in ignorance, or adapt which we have hitherto been wasted, we proceed to the mention of some recent inventions and a few improvements. Some of these may yet require subtraction of cumbersome details, or elaboration, or, perhaps, additions of exquisite simplicity before they can be put to remunerative use,—just as the magnesian light would seem to require some happy suggestion which, being adopted, would render it steady and continuous; for it often happens that men stand on the very brink of success for years before they, by some master-stroke, attain it. Thus, by the simple adjustment of a diagonal sun-glass to an equatorial by Mr. Cook, Professor Phillips has been able to see certain bodies on the sun, which may be either mountains or clouds: some equally simple and happy addition to that contrivance may so assist the vision that we shall learn as much, and perhaps more, of that glorious orb than we know of the moon.

The balloon ascents of Mr. Glaisher would be of very different value if there were no such things as scientific instruments. It is, principally, the delicacy and perfection of the instrument he takes with him into the "firmament on high" that make his observations so exceedingly desirable. This intrepid *savant* has expressed his approval of a new anemometer by Mr. C. Cator. The instrument hitherto used for ascertaining the pressure and velocity of wind was made by Mr. Osler. In Mr. Cator's anemometer the pressure of the wind is measured by two curved levers of equal length acting against each other, their motion being in a vertical plane. Mr. Osler had used springs—a light spring for a light air, and a strong spring for a gale. The pressure-plate, or surface upon which the wind acts, shows the greatest departure from previous forms. This is the base of a cone, the axis of which is horizontal and attached to a bar, by which it is moved backwards and forwards on friction-rollers. This much of the instrument must be out of doors; but a chain attached to the horizontal bar passes down a tube, and is connected with the rest of it within any building fixed upon. At one end of the upper of the two curved levers mentioned there is a fixed weight, and to the opposite end of the under one

* "In this church, more ancient than any other in Rome, formerly the house of Pudens, a senator, father of 88, Novatus, Timotheus, and the virgin saints Pudens and Praxedes, was the first residence of the holy Apostles Peter and Paul. Here those who became Christians used to assemble to attend mass and receive the holy communion: here are buried the bodies of 3,000 martyrs, and an immense quantity of martyrs' blood is collected. Those who visit this church every day obtain an indulgence of 3,000 years, with remission of the third part of their sins." Cardinal Wiseman, good authority as to a church from which he took his title in the Sacred College, assumes (*Febiola*, ch. x.) that St. Pudenziana was the principal place of Christian worship in Rome from the apostolic age; and that Pius I. only added another oratory, but did not first consecrate for religious uses the house of that senator, who is the identical Pudens mentioned by St. Paul in his Second Epistle to Timothy, and said to have suffered a martyr's death under Nero. His two daughters are represented, in the reliefs over the portal, with large vases in their hands, allusive to their care in collecting the blood of such witnesses to faith.

is attached the end of the connecting-chain. When there is a calm, the point of contact is at the fixed weight. When the wind blows against the pressure-plate outside, it causes the chain to lift up those levers, and then the point of contact moves to the other end; and as the pressure subsides, the levers readjust themselves. Attached to the under one is a string which draws a pencil to and fro along a cylinder in the direction of its length, which cylinder revolving on its axis by means of clock-work once in twenty-four hours, is covered with paper, on which the pencil-marks are made. The ground of Mr. Glaisher's approval of this instrument is the preference of curved levers over springs, as well as its inexpensive simplicity.

M. Soleil, a French observer, who, if there is anything in a name, should be an apt scholar in the department he has chosen for investigation, has invented an instrument to illustrate the invisibility of light, which he calls a tenebroscope. It is a tube blackened on the inside, having one end open and the other closed, with a wide opening in the course of its length, by which a strong light is admitted crossways through it. On applying the eye to the open end of the tube, this stream of light is perfectly invisible; but the raising of a small ivory ball into the course of its rays, by means of a trigger, reveals its existence by reflecting a portion of its light. After realising the fact of the invisibility of light by the optical demonstration thus afforded, we contemplate with a new interest the heavenly bodies set in the firmament "to give light upon the earth, and to rule over the day and over the night." M. Soleil has also invented a new micrometer, which the Abbé Moigno exhibited to the members of the Association for the Advancement of Science at their Congress at Newcastle-upon-Tyne. It consists of two Ramsden's eye-pieces,—one fixed near the object to be measured; the other moveable, to suit the vision of the observer, with a ruled glass micrometer-plate placed between them. The Abbé explained that the magnifying power of the eye-piece being ascertained by a comparison of the object as seen directly with the same object seen through the micrometer, it became, by certain adjustments, applicable to the telescope, microscope, and even to goniometry.

Mr. W. Symons has effected some improvements in marine and mountain barometers, and in maximum thermometers, with indices, which appear to be of value. Marine barometers, as before constructed, were liable to fracture from sudden concussions, such as the firing of a large gun. This is one of the disabilities Mr. Symons has removed by substituting an elastic support for the tube for its usual rigid fixture into the cistern. Mr. Symons has distributed a considerable number of his thermometers in which he has substituted a composition, the basis of which is clay, for the graphite generally used, which, owing to occasional impurities, sometimes corrodes the mercury and soils the tube, and has been rewarded for his numerous experiments by hearing of no failure. Two French *soovans* have also turned their attention to variations of these instruments. The Abbé Jeannon has devised a free-air barometer and thermometer of peculiar sensitiveness; and M. Naudet has constructed a metallic, or "holosteric," barometer.

The telegraph, like our railroad system, is looked upon by many as at a comparatively low stage of development to that it may eventually attain. Hence both theorists and practical men have turned their attention to this invention with much earnestness. The difficulty of transmitting messages across seas no longer existing, we can scarcely believe that there ever was one. We look forward to amplifications or simplifications that will enable the telegraph to print its message, and even to speak it. Morse's instrument requires four waves for each letter, and the dial seven; but Mr. D. E. Hughes has produced a telegraph that requires but one electric wave. It has twenty-eight keys, like those of a piano, each of which corresponds to a letter, or number, or stop. When one of these keys is depressed it brings a detent in contact with a pin corresponding to that letter on the circumference of a revolving type-wheel, stops it, and at the same time sends an electric wave to the distant station where an electro-magnet detaches a similar detent, and, after stopping the same letter, a revolving cane presses a slip of paper against the type and takes off an impression. The keys may be touched, one after the other, with this result, nearly as quickly as one would touch those of a piano, and would render four words per minute a length of 2,800

miles, or six words in the same time a distance of 2,000 miles, or ten words per minute 1,000 miles, or twenty-four words per minute a length of 500 miles. Bonelli's telegraph consists of two tables of cast iron placed inversely to each other at the corresponding station, each provided with a miniature railway, over which run two waggons, one containing the type-set message, the other the paper, and two combs formed by the extremities of the wires of the line, one of which touches the type at one station while the other passes over the prepared paper at the other. A spring catch to each of the waggons sets them free to move by the closing of an electrical current. Mr. W. Cook, who furnished particulars of this instrument to the Association for the Advancement of Science, asserted that a well-considered system of counter-currents had completely annihilated the inconveniences which, from the time of Bain to the present moment, had existed in electro-chemical telegraphy, and that no difficulty could be experienced in working it either on long or short distances. Mr. W. Ladd proposes to convey from station to station a musical note or sound which, divided into various lengths and combinations, would form a sound alphabet similar to the signals written by Morse's telegraph. This instrument consists of two pieces of apparatus, the one for transmitting the signal having a small mouth-piece. We may best describe them in his own words:—"On the right-hand side there is a finger-key, forming part of the circuit, and an electro-magnet, with a vibrating armature and binding-screw to connect with one of the line wires. Within a case, under a glass cover, is an elastic membrane, in the centre of which is fixed a platinum plate in connexion with the finger-key. A light piece of angular metal, resting on three pins, is so placed that the pin at the angle rests on the centre of the membrane, the other two resting in cups on its edge, so as to allow of free motion on the points. In the body of the receiver box is suspended a soft iron core, surrounded by a coil of silk-covered wire, one end of which is in connexion with the finger-key and the other with the binding-screw. The method of producing sound in the receiving instrument depends upon the fact that, at the moment of magnetizing or demagnetizing a piece of iron, there is an alteration in the arrangement of the particles, which gives rise to a slight ticking noise. Having connected the transmitter, by means of an insulated wire, with the receiver, and the binding screws having been brought in connexion with a battery of three or four elements, if the finger-key on the transmitter be pressed, the person at the receiving station hears the ticking noise." When a sound is made into the mouth-piece, the membrane vibrates and breaks contact between the pin and plate in its centre, causing the iron coil in the receiving instrument to be magnetized and demagnetized according to the number of vibrations with a musical sound. The production of exact *fac-similes* of pictures, or music, or writing, is another phase of this wondrous power. M. Caselli has elaborated Mr. Bakewell's principle by the contrivance of two cylinders moving at the two stations synchronously by mechanical means of his own invention. For the purpose of transmitting short-hand accounts of speeches at public meetings, or other news, this would appear to be likely to be useful.

Professor Chevallier has devised a little instrument for ascertaining the height of a cloud. This consists of two horizontal jointed rulers, graduated from the centre of the joint, the unit of gradation being the length of an upright sliding-piece, movable upon either of the rulers. To take the height of a cloud, one branch of the rulers is directed towards the shadow of a cloud, the horizontal distance of which shadow from the place of observation can be ascertained; and the other, with the vertical sliding-piece, is directed towards a vertical line drawn through the point of the cloud which casts the shadow. When the inner edge of the sliding-piece is made to touch the inner edge of the other horizontal ruler, an exact miniature representation of the known horizontal distance of the shadow from the observer is given on the ruler and sliding-piece, as well as the height of the cloud above the horizontal plane on which the shadow falls. Clouds, by-the-by, have been recently found to exercise a peculiar influence upon photographs of scenery. Views taken beneath the clouds do not reproduce distant details, such as the foliage and stones on hill-sides. The magnifying-glass applied to them reveals only a bare and hazy surface, or indistinctness. Those taken above

the clouds, on mountain tops, give the minutest details at the distance of miles. The photographs taken by Professor C. Piazzì Smyth, in Teneriffe, exhibit this fact markedly. Those taken at high elevations depict every little bush upon a hill-side four miles and a half distant from the camera.

Within the last few days, Mr. Alexander S. Herschel described, in the course of one of his lectures, delivered at the Royal Institution of Great Britain, upon meteorology and storm-warnings, a new marine fog-signal. This is proposed by its originator, Mr. H. T. Humphreys, to be placed on dangerous shoals and rocks out at sea, or upon headlands in great channels of communication subject to fogs. It consists of a large wrought-iron tank and a tall tower, furnished with such contrivances within that the action of the tide will cause it ever and anon to utter a loud shriek, such as is produced by the steam-whistle. These recurring screams, or warnings, made by the waves themselves, would acquaint mariners of their proximity to danger, both in fogs and in the dark. Mr. Herschel remarked, and we agree with him, that it was impossible to over-estimate the importance of such a contrivance to the maritime interests of the world. If we were only to count up the fine ships and brave crews that have gone down to the bottom of the deep on one spot—say the Goodwin Sands—for the want of a fog-signal, we should beat our breasts in horror of the apathy or penny that withheld it, were it ever so costly. Mr. Humphreys estimates that his Tide-shriek, or Clamor *Æstus*, would not exceed the sum of 8,000, or 9,000, in such a situation as that mentioned; and this does not appear to be extravagant, considering that it is self-acting, sounding all day and all night, week after week, year after year, requiring only the occasional removal of such seaweed as would find its way through gratings provided for its detention, or that became detached from its growth in the interior, to keep it in working order as long as it would hold together. It is proposed to form the whole edifice of plates, angle irons and rivets, upon a foundation made of screw piles, or otherwise according to the nature of the site, the whole being stayed and stratted from within by lattice girders, diaphragms, gusset plates, &c., to such an extent as would render it impregnable to the severest storms. The contents proposed are the apparatus to produce the noise, called the hammer-whistle, and gear to raise a body of water to a tank formed by the sides of the tower, by means of which, in times of slack water or when the tide gives out no power, the whistling would still go on uninterruptedly. Thus the tower is intended to serve a further purpose than merely to raise the whistle above the waves, or the densest strata of fog. Two reflectors duly shaped for the purpose into paraboloids of revolution would concentrate the sound, and reflect it to the circumference of a circle, the radius of which would be its greatest audible distance. Two turbines, provided with valves to regulate their action, would admit the tidal waters at the base of the tower, and drive pumps of lifting power proportional to the amount of available effect to be got out of them. These pumps, working alternately according as the outward or inward flow turbine was in motion, would fill the tank by means of ascending pipes. Thus the tidal waters in entering and leaving apertures in the base of the large tank, give out a certain quantity of power, which is taken up by these two turbines; and this power is applied to drive two pumps, which keep the smaller tank in the tower continually in the process of being filled. The power resident in this tank is abstracted to sound the whistle by the following means:—A pipe leads from the tank to another, but slightly smaller turbine, which is kept revolving in one direction. The shaft or axle of this turbine drives a pinion, which works into the teeth of a large wheel, and so drives a cam in continual revolution round its axis, which slowly raises and suddenly drops a heavy hammer block on to the piston of a small air chamber which is in communication, by means of a pipe, with a large steam whistle placed at the top of the tower. The hammer block thus allowed to fall on the piston of the whistle chamber strikes it with considerable accumulated force, and by the sudden compression of the contained air causes it to rush through the whistle in a strong and violent blast, which will make it shriek in a very marked and peculiar manner, strikingly distinguishable from and over and above other sounds heard at sea. We are glad to find attention has

been turned to this subject, as we so recently called attention to the inefficiency and scarcity of fog signals. The perils incurred by the approach and presence of fogs—dreamy, damp, and dread visitors—are surely capable of diminution.

Such are a few of the results of recent study of the possibility of extending our knowledge, and improving our appliances in certain directions. Astronomy, perhaps, more than any other department of science, is most dependent upon, as well as indebted to, modern improvements in instruments; but the beautiful contrivances now in use at Kew and elsewhere, by which the heavens are photographed and surveyed, the heavenly bodies catalogued, and space explored till this globe, with what we consider its interminable forests, inaccessible mountains, untraversed tracts, and un navigable oceans, yet closed to man, is dwarfed to a speck, require separate mention.

A DEATH MARCH IN INDIA.

If new instances were needed to show the want of sanitary knowledge, or, at any rate, of the use of this knowledge, amongst the officers of our army, the recent fatal march of a detachment of artillery from Mhow for Mahableshwar would be sufficient. It affords a fearful example of the want of knowledge of the laws of health which is shown by those who, in chief command, have charge of the lives and health of large numbers of their fellow men. As our readers may have seen, after three marches from Mhow, the ill-fated detachment arrived at Bulwara on the 15th of May, in good health (they left the first-named place on the 13th of May). At Bulwara the cholera broke out, and, day after day, cases became so numerous, that the detachment was sent back to Hursora, a village 3 miles from Mhow. Here the authorities had made every needful arrangement. Fresh tents were pitched, and all necessities were supplied; and then the mortality (so say the reports) ceased,—another instance of the certainty of the possibility of stopping this pestilence by means which can be easily obtained by those who are willing to use them.

At present the number of the detachment which was attacked by this deadly enemy is not exactly known; but it is said that the force did not count more than 120, and that, during this march, which occupied only seven or eight days, 21 men, 1 woman, and four children died,—in all, 26 deaths, or nearly a quarter of the detachment.

All past experience and well-directed inquiry show that the cholera, by the wise use of medicine and by the choice of good resting-places for troops, can be as surely kept in check as a well-trained horse can be by the skilled hand and the bridle, or the well-lined ship by the properly-hung rudder.

In connexion with this fatal march, we cannot but think of its increased terrors if 2,000 or 3,000 men and the camp attendants had been moved, instead of 120. In an army of 3,000 we should have had, perhaps, 700 deaths. In the notices of the Crimes, and, indeed, in all the accounts we have of modern warfare which have been written since the truths of sanitary science have become better understood, we see that the number of those who have been actually killed in the raging of the battles is but trifling in comparison with the deaths which occur from the want of clothing, food, medical treatment, the ill-chosen position of camps, and the abominable lodgings which are provided for both the healthy and the sick.

It is now several years since the black shadow of the coming of the war with Russia urged us to give notes of military preparation, after a long period of comparative peace. We went to Aldershot at the first formation of the camp there, chiefly for the purpose of gathering some notes for this journal, and the scene of confusion which met the eye would have struck any one except those who were biased by military ideas as most extraordinary. The operations which were going on would have seemed to any one possessed of common sense, ridiculous, and worse than useless. We had here in this locality no enemy to contend with except that natural one which would strike at the health, and even the lives, of those splendid regiments of picked men; and yet, although the distance from London by rail, and a short way by other conveyances, might have been managed in less than a couple of hours from the

Horse Guards, it would seem that no sufficient person had been sent, before the men were marched to this isolated locality, to look even for water. The sight of the staff, at the head of which there was a famous general who is now no more, looking for water, would have made a subject which our contemporary *Punch* might have treated in his most effectively serious vein. It was laughable, but it had also its tragic side, as was soon after shown, in those terrible losses and privations which took place in the front of Sebastopol. Scarcely a tithe of the soldiers whom we saw cast with so little judicious care on this wild moorland are, we fear, now living. At the head-quarters, there was no little difficulty in obtaining information, and facilities for making inquiries, or even a due amount of civility from officers who, in the usual course of the life to which they had been accustomed, would have felt it a pleasure to have aided those who were engaged in seeking for the truth in connexion with matters in which the public are deeply interested. On this first visit, we left the camp with feelings of thankfulness for the long peace, and praying that, if this might be judged as an example, these islands might long be spared from the effect of military discipline. As years have passed along, the ideas and fears which we expressed at its formation have unfortunately been realized, and we fear that the mischief of this camp is not yet at an end.

For the sake of our soldiers—for the sake of the country—we hope that the rising class of officers will, in many respects, be different from the generation which is passing away, and that they will not forget that the *Times* reporter stirred up the nation to the sad state of the Crimean army; that the firm of Sir M. Peto made the railway from Balaklava, made the railway which took food and the munitions of war to Sebastopol; and then, that the medical staff, the Sanitary Commission, and the nurses under Miss Nightingale's charge, were the means of giving us victory in the Crimea; for without those aids the untiring skill of the officers and the endurance and bravery of the men would not have been sufficient to have prevented the Russians from driving both French and English into the sea.

Surely the loss of lives which has recently occurred in India will form a subject for the most careful inquiry. It is said, that before the troops moved from Mhow it was telegraphed to head-quarters that the route had been attacked by cholera. *Is this really a fact?* Also, that no medical staff or medicine was forwarded. If this were the case, the persons who died were sent carelessly into death's mouth. Who is to blame for this? Surely, lest greater evil should happen, we should in this case undo the red tape and let it be known who is really responsible for those deaths.

THE OLD TOWN OF EDINBURGH.

BEFORE concluding our notice of the Old Town of Edinburgh, let us say a word or two on the few ecclesiastical buildings of the old time which it yet retains. They are easily enumerated: the Royal Chapel of Holyrood; Magdalen Chapel, in the Cowgate; the *Collegium Sacerdotum*, in the College Wind, to which we have already alluded; the collegiate Church of St. Giles; Queen Margaret's Chapel, on the Castle rock; and the beautiful Church of the Holy Trinity, whose stones now lie at the side of the Regent-road. They are the more valuable, that of all the churches erected since the Reformation, as was truly said by the late Dr. Mems, an eminent judge of such matters, there is scarcely one which is not a positive deformity.*

As St. Margaret's is undoubtedly the oldest building in Edinburgh, and probably the smallest, as well as the most ancient, chapel in Scotland: it merits priority of notice. It was dedicated to Margaret, the pious consort of Malcolm III., who died within the Castle, "which she had dignified by her residence and edified by her death," which took place in November, 1093. It is a small oblong building, on the south side of the High Battery, about 30 ft. in length, the walls being of equal height, and showing nothing of the division observed in the plan of the interior. Till very recently, this unique chapel was used as an ordnance lumber-room; to serve which purpose, the arch between the chancel and the apse had been bricked up. It has, however, of late years been restored, the blocked doorway

opened, and the windows filled with stained glass.

In the north wall, close to the western extremity, in accordance with a common arrangement in small Norman chapels,* there is a plain square-headed doorway. There is another very similar to this in the west wall, with a small semicircular window over it. There is another window of the same description in the south wall, while the rest are square-headed, and were originally extremely narrow.

The chapel consists of a chancel measuring 16 ft. 4 in. by 10 ft. 4 in., and of a semicircular apse 10 ft. 4 in. long by 9 ft. 7 in. wide.

The semicircular arch, which separates the chancel from the apse, is of beautifully-wrought Norman work, and consists of two zigzag or chevron-moulded orders, with a trigonal hood, finished on the intermediate face with a string of lozenge-shaped ornaments, the pattern of which is changed as it approaches the springs of the arch. Within the apse the arch presents but one order, and has no hood. Two pillars, most probably cylindrical, have originally supported the arch; but have long since disappeared. The capitals, however, still remain, and two of the bases. The former are scalloped, and are surmounted by heavy abaci, which are returned on both sides of the arch.

The roof of the chancel is modern. The apse has an alviced ceiling, devoid of ornamentation. The east window of the latter is a plain square-headed trefoil.

Undoubtedly one of the most interesting of the antiquities of Edinburgh is the little chapel whose antique battlemented tower and spire arrest the attention of the passer along George the Fourth's Bridge, and which was erected "to the praise and honour of Almighty God, and of his mother the blessed Virgin Mary, and of Mary Magdalen, and of the hail celestial court." The chapel, along with a hospital for the support of seven poor men, was left by the will of Janet Bynd, the widow of an opulent citizen, Michael Mognen, in trust to the Corporation of Hammermen. The charter is dated 1505, which gives us an approximation to the date of the building. The steeple, however, is of more recent times, for one of the tablets on the walls of the chapel records that "John Spens, Burgess of Edinburgh, bestowed a hundred lods of Westland time for building the steeple of this chapel, anno 1621," and the bell bears these two inscriptions round it in Roman letters: "God Bles The Hammermen of Magdalene Chapel," and "Soli Dei Gloria. Michael Burgerhius Me Feicit, Anno 1632."

Little can be seen of the exterior of the chapel beyond the north doorway, and the square tower and steeple which surmount it. The windows on either side of and above the doorway are restorations,—if, indeed, the word is admissible here,—in a style quite incongruous with the rest of the building. The tower is square, and divided into four stages by string-courses. Each side of the third and fourth stages has a square window, with good mouldings; and in the fifth there are pointed-arched windows filled with louvre boarding, and partially concealed by quaint-looking convex clock-faces. The upper part of the tower has a battlemented parapet resting on small but neat corbels, from which project curious cannon-shaped gargoyles. From within the parapet rises a graceful octagonal spire, finished with a weathercock. The angles of the octagon are ribbed, while a centre rib divides each of the eight faces.

In an ornamental stone tablet over the door are sculptured the crown and hammer, the armorial bearings of the incorporation of hammermen, with the date 1553. On the pediment above it is the date 1649, and at the sides are two quaintly-sculptured figures, the one with a hammer, and the other with a chisel.

The interior contains some fragments of the original painted glass, which by some fortunate chance escaped the iconoclastic destruction of the year 1559. Among these are a figure of St. Bartholomew, and the royal arms of Scotland, encircled in a wreath of thistles, those of the Queen Regent, Mary of Guise, within a laurel-wreath, and those of the fondness and her husband. With the exception of the Bartholomew, they retain all the brilliancy of colour which distinguished the work of the old glass painters. There is a number of mural tablets on the north and east walls, and at the east end is a sculptured slab, with an inscription round its border,

* The chapel in the castle of Craigmillar, situated a mile and a half to the south of Edinburgh, may be cited as an instance.

* "Edinburgh Literary Journal," vol. i. p. 25.

in old Gothic letters, which records the death of the foundress. Her armorial bearings, and those of her husband, impaled on one shield, occupy the centre of the slab. It is extremely probable that this is the top of an altar tomb, being level with a wooden platform, which has been erected in modern times.

This chapel is interesting from the fact that John Craig, a converted Dominican monk, who made his escape from the dungeons of the Inquisition at Rome, and was afterwards the colleague and successor of John Knox, and who refused to publish the banns of marriage between Queen Mary and Bothwell, preached in it for a considerable time in Latin, having, from his long absence from his native country, forgotten the use of his language.

The body of the Marquis of Argyle lay in this chapel for some days in 1661, while his head was affixed to one of the gables of the Tolbooth, until it was removed to the family sepulchre at Kilmar.

The chapel is situated on the south side of the Cowgate, and is now used as a place of worship by a congregation of Dissenters.

Come we now to the Collegiate Church of St. Giles:—

"Hear relic of the past, whose ancient spire
Climbs heavenward amid the crowded mart;
Keeping as 'twere within the city's heart
Old shrine, where reverend thoughts may yet retire;
And dreaming fancies, from the world apart,
Wander among old tales, of which thou art
Sole relic. Is it vain that we inquire
Somewhat of scenes where thou hast borne a part?
Mine own St. Giles! old fashions have gone by,
And superstitions,—even of the heart;—
Thyself hast changed some wrinkles for a smart
Gown suit of modern fashion. To my eye
The old one best becometh thee; yet the more
Cling I to what remains, the soul of yore."

In these beautiful lines, the poet not unaturally mourns sadly over the changes effected on this building, more particularly in the year 1829. The entire structure west of the central tower was then in a manner rebuilt; the most of the windows were restored in a mixture of bad Flamboyant and worse Third-Pointed; while the interior was impaired,—nay, all but ruined,—by the erection of unsightly galleries and pewing. The great eastern window is fortunately an exception to the bad taste displayed in these repairs, the tracery being an exact *fac-simile* of the original. The interior of the choir remains on the whole in a very perfect state of preservation; and the graceful open lantern, which forms so conspicuous an object to persons approaching the city, remains as it was rebuilt in 1648 on the model of the original tower. The greater number of the numerous altars and chapels, which pious people had founded within the church through successive ages, was destroyed by the blind zeal of the Reformers.

The main portion of St. Giles's was doubtless erected towards the close of David I.'s reign, or in that of his successor, Robert II. In 1466 James III. erected it by charter (it had been merely a parish church before) into a collegiate church for a provost, a curate, sixteen prebendaries, a sacrist, a bedel, a minister of the choir, and four choristers. About the same time, the choir was lengthened by the addition of the two eastmost arches, and had a clerestory added to it.

The church is cruciform in plan, with a tower at the intersection of the transepts by the choir and nave.

The choir is 88 ft. long by 26 ft. 7 in. wide, with north and south aisles, each about 20 ft. wide. The architecture is very pure Middle Pointed. The four piers on either side at the west end are plain octagons, with capitals consisting of one or two sharp-edged mouldings, surmounted by square-edged abaci. The two eastmost arches, those last erected, are wider and loftier than the others; the pillars, one of which is a respond, being formed of a cluster of eight large-pointed half-rounds, divided by triangular flutings. The capitals are ornamented with mouldings, many of which are cut out in an ogee curvature, and are decorated with cherubs' heads and blazoned shields, which project and hang down from the cardinal faces of the abaci. The north-east, or King's Pillar, as it is styled, bears on its east and west sides the royal arms of Scotland; on the north side, the arms of Mary of Gueldres impaled with the royal arms; and on the south those of France. On the pillar opposite are the city's arms, those of "the Good Bishop Kennedy," of Nicolson, and of Preston of Craigmillar. The pier arches are obtusely pointed, the two farthest east being loftier and set wider apart than the others. The bases of

these piers are fully spread, 3 ft. in height, and richly ornamented with foliated sculpture. The mouldings, among which the ogee prevails, follow the arrangement of the shafts of the column. The bases of the plain piers are concealed by the modern flooring.

The roof of the choir is beautifully groined, the ribs being tied at the intersections by a rich variety of bosses, some of which are very large. On the centre boss, at the division of the two eastmost compartments, is a large shield, with the monogram of Our Lord, I.H.S., and on that next it, round a carved centre, is the abbreviation: "Ave Gra. Pla. Dua. Tecu" (*Ave Maria, gratia plena, Dominus tecum*, the same legend as that we have mentioned in the Collegium Sacerdotum in the College Wynd). The suspended vaulting-shafts have floriated capitals and corbel or bracket terminations, and their semicircular rolls are banded together by a string-course, which runs along the clerestory beneath the windows.

The aisles have vaulted roofs, carrying plain chamfered transverse and diagonal ribs, with shields and foliage-knots at the intersections.

An additional aisle, of three arches, to the south of the choir, has a finely-groined roof. It is known as the Preston aisle, having been erected in 1454 by the city of Edinburgh, in gratitude to William Prestoun, of Gortoun, for having presented the city with the arm-bone of its patron saint,—St. Giles. The charter sets forth, "yat forsemeikle as William of Prestoun, the fadir, quham God assillie, made driblet labour & grete menis, be a he and mighty Prince, the King of France, & mony yir Lordis of France, for gettin of the arme bone of Saint Gele,—the quhilk bone he frely left to our mayir Kirk of Saint Gele of Edinburgh, withouthyn any condition makyn,—we, considrand ye grete labouris and costis yat he made for the gettyn yrof, we pmit as said is, yat within six or seven zere, in all the possible & gradelly haste we may, yat we sal big ane ile, furth fra our Lady Ile, quhare ye said William lyeis in the said ile, to be begunyin within a zere; in the quhilk ile yare sal be made a brase for his crest in bosit work; and above the brase a plate of brase, with a writ, specifand the bringin of yat relik be him in Scotland, with his armie; & his armie to be put, in hewn marbie, yir three parts of the ile."* The privilege was further granted to Preston's lineal descendants of carrying St. Giles's arm-bone in all public processions. This relic, as well as a wooden image of the saint, were held in high veneration, until the reformed faith began to take root. In 1553, Sir David Lindsay, of the Mount, whose satirical exposure of the vices of the clergy had no small share in the overthrow of the Roman Catholic religion in Scotland,† published his "Monarchie," in which he thus refers to the bearing of the image of St. Giles in public procession:—

"Of Edinburgh, the greit idolatrie,
And manifest abomination,
On this first day, all creature may see;
They ber ane said stok image through the town,
With taboure, trumpet, schalme, and clarioun;
Quhilk he bene seit mony ane yir bygone,
With priests, and freiris, into procession,
Sylkrie, as Bell was borne through Babyloone.
Fy on you, freiris! that usis for to preiche,
And dois assist to sik idolatrie:
Quhy do ye nocht the ignorant pepill teiche,
How ane deid image carrit of ane tre,
As it war haly, said nocht honourit be;
Nor borne on burges backis, up and down:
Bot, ye schaw planellie your hypocrisie,
Quhen ye pas forment in processionis.
Fy on you, fosteraris of idolatrie!
That till ane deid stok, dois sik reverence,
In preasent of the pepill publickie;
Feir ye nocht God, to commit sik offence?
I counsell you do yir yir diligence,
To gar suppress sik greit abominoun:
Do ye nocht sa, I dreid your recompence,
Sal be nocht clis, bot clene confusioun."

The "recompence" was not long of following. In 1558 the image was carried off from the church by the mob, who first drowned it in the North Loch as an adulterer (!) or encourager of idolatry, and then burned it as a heretic.‡ This occurred a few days before the 1st of September, the anniversary of St. Giles, on which day the image was wont to be borne through the town by the clergy in procession. A substitute, however, was obtained for "the auld St. Gele," the priests borrowing a small statue of the saint from the Grey Friars. This they secured with

iron clamps to the feriorie or shrine, in which it was borne aloft. On the 1^{ste} day, accordingly, this image was borne with great pomp through the streets of Edinburgh, a large assemblage of the clergy and the Queen Regent taking part in it. No sooner had the Queen left it, to go to dinner, than, as John Knox says, "some of them drew near to the idol, as willing to help to bear him up, and getting the feriorie upon their shoulders, begane to shudder, thinking thereby the idol should have fallen. But that chance was prevented by yron nails. Then began one to cry, 'Down with the Idol! down with it!' So, without delay, it was pulled down. The patrons of the priests made some brags at the first; but when the priests and friars saw the feebleness of their god, they fled faster than they did at Pinkie Cleugh. One of the professors, taking Saint Giles by the heels, and dadding his head to the causeway, left Dagon without head or hands, exclaiming, 'Fy on thee, young Saint Giles, thy father would not have been so used!' The friars fleeing, down go the crosses, off go the surplices, round caps and cornets with the crowns. The Grey Friars gaped, the Black Friars blew, the priests panted and fled, and happy was he that got first to the house, for such a sudden fray never came among the generation of antichrist within this realm before."§

The arm-bone of St. Giles was probably lost in this riot. At any rate, it is not heard of again.

There is one other incident connected with St. Giles and the establishment of the Presbyterian forms of worship, for which we must find a place. Charles I., who was bent upon the establishment of episcopacy in Scotland, erected Edinburgh into a diocese, and appointed St. Giles as its cathedral. On Sunday, the 23rd July, 1637, the dean, clothed in a surplice, ascended the reading-desk and opened the service-book. Immediately confusion and uproar ensued. The dean being quite non-plussed, his bishop called to him from the gallery to proceed to the collect of the day. The dean was about to do so, when an old green wife, Jenny Geddes by name, seizing the cutty-stool upon which she sat, and which is still preserved in the Antiquarian Society's Museum, hurled it at his head, exclaiming, "Colic! De'il colic the wame o' thee! Ont, thou false thief, dar'st thou say mass at my lug?"‡ The tumult became general, and the magistrates had great difficulty in clearing the church. The bishop was mobbed on the street, and narrowly escaped with his life, being rescued by the Earl of Wemyss, who sent a party of servants to his aid.

Among the so-called improvements of 1829 was the demolition of the Regent Murray's tomb, which stood on the west side of the south transept, which is generally styled the old church. Fortunately, it has been re-erected within the last few years. "The good Regent's" remains were, after his assassination at Linlithgow, deposited in this tomb on the 14th of February, 1570, when "John Knox, minister, made ane lamentable sermon touching the said murder," and drew tears from the eyes of all present. A brass plate on the front of the tomb has the figures of Justice and Faith engraved on it, and the following inscription, which is from the pen of the accomplished historian, Buchanan:—

"Jacobus Stovartus, Moravie Comit. Scotie Proregi;
Viro, saluti suae, longe optimo; ab inimicis,
Omnis memorie detestatus, ex insidiis extincto,
Ceo patri communi, patria meritis posuit."

To the left of this inscription is the motto, "*Pietas, sine vindicta, tuget;*" and on the right side, "*Jus exarmatum est;*" while above are sculptured his armorial bearings.

This part of the church was long an open lounge for idlers, as also a place appointed for the payment of bills. Dining with Duke Humphrey has become proverbially synonymous with not dining at all; and a similar jest was at one time in vogue about the Regent Murray. Thus Robert Sempiell says, in the poem already alluded to,—

"Then I knew na way how to fan' (struggle);
My guts rumbled like a Hurle-Barrow;
I din'd with saints and noble men,
E'en sweet Saint Giles and Earl of Murray."

To the east of this tomb is the sepulchre of the great Marquis of Montrose, whose scattered and mangled remains were re-interred there "very honourably and sumptuously" on the 7th of January, 1661.

* "Archæologia Scotica," vol. i., p. 375.

† "In fact, Sir David was more the reformer of Scotland than John Knox, for he had prepared the ground, and John only sowed the seed."—*Pinkerton*.

‡ Calderwood's History, vol. i., p. 344.

* Knox's History, p. 65.

† Carlyle's "Cromwell," vol. i., p. 137.

The rich groining and vaulting of the south aisle of the nave, together with its light and beautiful shafts, merit notice.

The beautiful open lantern, which surmounts the square central tower, has been much and deservedly admired. It resembles somewhat the lanterns of St. Nicholas, at Newcastle; King's College, at Aberdeen; the Tron at Glasgow; and Chambord, in France,—all of which, however, it is generally admitted to surpass in grace and beauty. These had merely been formed by two crossed arches springing from the corbels of the tower; but in St. Giles's there spring from within the gurgyle and open quatrefoiled parapet eight beautifully crocketed flying buttresses, converging towards one another, and supporting an octagonal pannelled piece of masonry, from which, amid a cluster of small pinnacles rising tier over tier, rises a small and graceful octagonal spire, terminating in a cone and weathercock. The parapet, which besides being pierced by quatrefoils, has cusps on the upper edge, rests upon corbels, from which project cannon-shaped gurgyles. Speaking of St. Giles's and the old Parliament House and Close, one has said,—

"A scene of grave yet busy life
Within the ancient city's very heart,
Teeming with old historic memories, rife
With a departed glory stood apart.
High o'er it rose St. Giles's ancient tower
Of curious fretwork, whence the shadow falls,—
As the pale moonbeams thro' its arches pour,—
Tracing a shadowy crown upon the walls."

We find allusion made to this crown in a ballad descriptive of Gavin Douglas's visit to St. Giles's altar immediately after the disastrous battle of Flodden Field, quoting a verse or two of which we shall take leave of this old collegiate church.

"— Douglas sought nigh the noon o' night
The altar o' gude Sanct Giles,
Up the haly quire, whar the glimmerand light
O' the Virgins' lamp gae the darkness night
To fill the eerie aisles.

Belye, as the boom o' the mid-mirk hour
Rang out wi' clang an' mane;
Clang, after clang, the Sanct Giles's tower,
Whar the fretted ribs like a bontree bowyer
Mak a royal crown o' stane.

Or the sound was tint—fore mortal ee
Ne'er saw sic sight, I trow;
Shimmering wi' light lik canny,
Pillar an' ribbed arch an' fretted key,
Wi' a wail unceasing low."

MR. FERGUSSON ON THE HOLY SEPULCHRE.

In your issue of the 3rd ult., a short notice appeared of Mr. Fergusson's new volume on the Holy Sepulchre and Temple of Jerusalem.

In the preface of this work, Mr. Fergusson complains of the treatment which it has received, and intimates that it is his desire that his theory should be carefully investigated, and that any arguments which can be adduced against it should be brought forward, in order that what is good in it may be established, and what is erroneous may be laid aside.

Most of our readers are probably aware that there exists at Jerusalem at the present day a church which is traditionally held to occupy the site, and to inclose the relic, of that sepulchre in which our Lord was laid, and which is also generally believed to be built on the same spot on which stood the basilica which Constantine erected in Jerusalem on the discovery of the Cross and tomb by the Empress Helena, his mother.

This, however, is not the opinion of Mr. Fergusson, for there is also at the present day, on the opposite side of the city, a large level space or inclosure, measuring about 900 ft. from east to west, and 1,500 ft. from north to south, in the centre of which, on a slightly-elevated platform, is an octagonal building with a magnificent dome, generally supposed to have been erected by the Caliph Omar in the seventy-second year of the Hejira, and which has received, from the extraordinary excavated stone or rock in the middle of the drum, the name of the "Kubbet Es Saeerah," or Dome of the Rock. Now this mosque, placed in the centre of an inclosure which is traditionally supposed to have been occupied in the time of our Lord by the magnificent temple of Herod, Mr. Fergusson supposes to be the very building which Constantine erected over the site of the Holy Sepulchre.

The opinion of so eminent an architect must, of course, be of great weight in treating of such a subject; but the theory is in itself so

extraordinary and unexpected, that I would ask your permission to make a few remarks concerning it.

The first argument which Mr. Fergusson brings forward to prove the identity of this Mosque of Omar and the church of Constantine, is the date of the style of the former. He gives us the latest buildings previously to the time of Constantine, and shows us what style prevailed at that date. The arch had begun to supersede the horizontal entablature, and the arched and flat styles were struggling together. In the one instance which he gives, the palace of Diocletian at Spalatro, built towards the close of the third or at the commencement of the fourth century, the entablature remains above the pillars, but the architrave is rounded into arches supporting a horizontal cornice, while in another part of the building the whole entablature rises into an arch over the principal gate. The pillars found in this building are of the Corinthian order, and are mounted on "stools" or square blocks of stone.

Mr. Fergusson next gives an example of what style had become in the early part of the sixth century, and shows how an arch which in its ornamentation and moulding approaches nearer to the work of more modern times, had superseded the entablature, and was supported by a pillar no longer classic, but crowned with a bulging capital, contrasting greatly with the hollowed form of the Corinthian, which is covered with rich mouldings of conventional foliage. Between these two epochs Mr. Fergusson informs us that no example of style is to be found; but he infers a gradual change from the horizontal to the arched style, which must have been going on between the fourth and sixth centuries.

Mr. Fergusson next turns his attention to the style of the Mosque of Omar and to that of the Golden Gateway, a closed portal on the eastern side of the great inclosure.

In the first of these buildings he finds a style which he supposes to be transitional between the two before mentioned. Pillars, of Corinthian order, but of apparently late date, standing on "stools" like those of the time of Diocletian, support a horizontal entablature, of which the architrave, owing to the wide intercolumniation of the pillars, is only represented by square blocks of stone over each column, upon which stands a wooden cornice, the frieze being omitted. From this entablature, or, rather, from this cornice, spring regular semicircular arches, highly ornamented with Saracenic arabesques; and this structure of a horizontal cornice supporting an arch, Mr. Fergusson considers to be a natural transition from the first arching of the entablature to the formation of a regular arch.

On the exterior side of the Golden Gateway, which is the next building that he mentions, a style of architecture is found which would appear to be of the time of Diocletian, namely, an architrave bent into the form of two regular arches, supporting a horizontal cornice; and this circumstance would seem to indicate the date of the Golden Gate as not later than the commencement of the fourth century, or about the same date as the Mosque of Omar. On the interior side of the gate-chamber Mr. Fergusson finds an order which he considers may be attributed to the same date. The closed entrance has on either side a pilaster, which supports a horizontal entablature, surmounted by an arch which is in the form of the arc of a circle, and on the opposite side of the chamber is a similar entablature and arch, while above the two rise flat domes with pendentives. The pillars in this building are of the Corinthian order, and the entablature is not structural, but merely ornamental, of which style of building no examples are found later than the fourth century, though they abound before that date; and hence, and from the similarity of structure between the Golden Gate and the Mosque of Omar, Mr. Fergusson concludes that both buildings may be attributed to the commencement of the fourth century, the date of the Emperor Constantine.

He next compares these buildings to the various octagonal edifices erected by that monarch in Europe, about the time that he built the Basilica of Jerusalem, and describes them as bearing a great resemblance to one another.

Thus Mr. Fergusson concludes that the Mosque of Omar and the Golden Gate are works of Constantine. The answer to this argument does not appear to be very difficult, for, first, there is some doubt concerning the contemporary date of the two buildings; and, secondly, there is some doubt whether either can be attributed to the time of Constantine.

1. If the order of the Golden Gate be compared with that of the Mosque of Omar, it will soon be evident how different they are. In the Dome of the Rock a pillar, which Dr. Richardson considers not to be truly classic, standing on one block of stone and supporting another, has for its capital one covered with deeply-indented leaves, from which the volutes rise with a graceful curve. In the Golden Gateway a pilaster which, far from standing on any stool, appears to have no base of any kind, is crowned with a capital of clumsily-worked leaves, ungraceful and ungraceful, shorn of volutes, and with no architrave block above it. In the first building a screen (or entablature, as Mr. Fergusson calls it), made of wood, runs from pillar to pillar, unsupported by the wall, and is covered with mouldings, which, especially in the case of the graceful arabesque running along the centre, approach nearer to the Saracenic than to any classic style. In the Golden Gateway, a whole entablature, of which the modillions, dentils, and other mouldings are all classic, is built against the wall, and supports an unornamented arch in the form of the arc of a circle; while the arches of the Dome of the Rock are semicircular, or, according to Dr. Richardson, slightly pointed. Mr. Fergusson himself admits that, judging from style alone, the two would not be supposed to be of the same date, and gives as an answer that the temples which were built in Rome a century after the Flavian amphitheatre would, judging from style alone, be thought to be even earlier; but in the present argument, style alone is being considered, and if it differs, the conclusions drawn from it cannot be certain.

2. The second question which arises is, whether or no the style of the Mosque of Omar is really transitional; for although nothing could be more natural than that when the arch replaced the horizontal beam, a style more in accordance with circular work should replace the architrave, frieze, and cornice; yet that this should be affected by a transition from an arched architrave to a horizontal entablature supporting an arch, and thence to a regular arch, is, to say the least, not natural.

3. Mr. Fergusson himself points out the difference between the architecture of the Mosque of Aksah, of the seventh century, on the southern side of the inclosure, and that of the time of Constantine; yet in this building, and in the fourth building he mentions, namely, the Dome of the Chain, close to the Mosque of Omar, of which it is said to have been the pattern, we find other instances of the peculiar structure alluded to before, namely, a wooden beam or cornice over the pillars, supporting arches.

It may also be doubted whether or no this beam in the Mosque of Omar is entitled to the name of an entablature, for it is not natural that a stone architrave should support a wooden cornice belonging to the same entablature; and, again, it is doubtful whether the blocks above the pillars do really represent the remains of the architrave, for in the Saracenic architecture of Spain, even later than the seventh century, we find such blocks over apparently Corinthian pillars supporting arches only, and without cornice of any kind.

Again, it must be remarked, that this screen does not support the more important part of the building, for the dome, the drum, and the part without the screen, are of Saracenic architecture, such as is found in Egypt or Syria, as also are the pointed arches round the sacred stone and the graceful arabesques which cover the interior of the whole dome.

4. The fourth remark touches on the real style of the time of Constantine. There exists at Bethlehem, at the present day, a basilica, built, according to tradition, by that emperor, and mentioned by Eusebius and other writers as having been executed by his orders and completed during his reign. This has been proved in an apparently satisfactory manner by M. Vogüé, who has also shown that this building escaped the general wreck in which so many of the Christian churches perished. Surely to this building we should turn for an example of the style of the time of Constantine, especially considering that Eusebius states it to have been similar to the basilica of Jerusalem; but here we find a style which, though somewhat similar to that of the buildings of Constantine in Europe, is unlike that of the Golden Gate and the Mosque of Omar.

Again, although Mr. Fergusson affirms that no traces of the basilica are found in the present church, yet Mr. Vogüé has discovered there several remains which, from their style, he

attributes to the time of Constantine, and from them he has made a restoration of the church and basilica fitting with the conformation of the ground and with the description of Eusebius, and forming a single edifice similar to that of Bethlehem. M. Vogù has also proved that only one building existed in the time of Constantine, and that afterwards it was replaced by the four churches described by Areluphus.

5. Finally, if the buildings of Constantine in Europe are compared with the Mosque of Omar, they will be found to differ from it materially; for instance, in the tomb of the emperor himself, instead of pillar, cornice, and arch, we find a row of pillars supporting a light frieze and cornice surmounted by a second order of pillars, the only resemblance being in the octagonal form of the building. This structure is nearer to that of the basilica of Bethlehem than to the Mosque of Omar.

Such is the answer to Mr. Ferguson's first proof of the identity of the Mosque of Omar and the holy sepulchre of Our Lord.

C. R. C.

DECORATIONS FOR DINNER TABLES.

ROYAL HORTICULTURAL SOCIETY.

It will be remembered that Sir Wentworth Dilke, some time ago, offered three prizes for the best floral decorations for dinner-tables, or rather for the dinner-tables best decorated florally. Beautiful arrangement was the object sought, valuable fruit or flowers or china not being required. On Saturday last, the competition took place, and the judges made the following award,—

First prize, 10l. 10s., Messrs. W. P. & G. Phillips, 155, New Bond-street.

Second prize, 7l. 7s., Mrs. Dalton, the Haven, Ealing.

Third prize, 3l. 3s., Mr. A. D. Chapman, 22, Norfolk-street, Park-lane.

Commended: Mrs. Naylor, 7, Princes-street, Cavendish-square.

The following prizes offered by the proprietors of the *Gardener's Chronicle*, for flowers grown in a room, were awarded as follows, viz. —

Lady Doneraile, 9, Grosvenor-place, for a fine foliage plant, 10l.

Miss A. M. Williams, Sutton House, Highgate, for an orchid, 10l.

Spite of gallantry, the judges being ladies, we must dissent from their decision. The only table of the three rewarded that exhibited any originality and a right knowledge of how a dinner-table should be decorated, was Mrs. Dalton's, and to this the first prize was certainly due. The flowers, in small receptacles, quite flat, formed patterns on the table, and there was nothing whatever to interrupt the view. The colours of the flowers might have been better harmonised, but the thing was done on the right principle. The table to which the third prize was given (displaying some very well chosen flowers) had a heap of greenery in the centre that would render general conversation impossible. The same objection, in rather a less degree, applies to the first prize-table. We take the credit of having led in some quarters to a reform of our dinner-table in this respect, and have the more regret, therefore, that the judges did not keep it strictly in view. The only result of the present competition will be to advertise the wares of an already well-known and esteemed firm.

CONSUMPTION OF SMOKE IN FRANCE.

By a ministerial decree published in January last, in France, it is enacted that "All furnaces of boilers, of whatsoever class they be, are to consume their own smoke. Six months' delay is accorded to manufacturers to whom no notice was given at the time of authorisation to execute these last dispositions." Consequently, all attention has been directed to smoke-consuming apparatus, especially those of Beaufumé, Palazot, and Thierry; but none of these have yet offered a practical solution to the problem. Meanwhile, M. Alfred de Pindray, civil engineer at Novion-Porcien (Ardennes), has invented a system of furnace which has been for several months successfully at work in the large factories at Sedan and the neighbourhood. The firms of Chénery, de Labrosse Frères, E. de Montagnac et Fils, Bérthéche, Baudoux, Chénon et C^{ie}, Collette,

Villette, J. B. Vilain, &c., all first-class manufacturers, have borne testimony to the practical working of this invention, and to the economy of about 20 per cent. upon the old system of fire-grate. The absence of smoke is almost complete: we say, almost, because when fresh coal is put on there is a burst of smoke, lasting, however, only for 30 seconds. Mr. C. A. Castagne, spinner, at Wé, near Carignan, and consul of America in France, has certified to a saving of 35 per cent. by the use of this furnace. It is constructed, as usual, of refractory bricks: the sides are carried up vertically from the bottom of the ash-pit. Where there are two or more cylindrical boilers attached, the sides of the furnace are in line with the centres of the two outside boilers, and carried up as far as 4 in. below the bottom of the boilers. From this point the masonry contours the boilers as far as the junction with the main boiler, preserving a distance of 2½ in. between the bricks and the boilers. If there be only one boiler, the sides of the furnace are carried up, so that if produced they would pass 3 in. within the width of the boiler at each side, and are turned off at 4 in. from the bottom of the boiler to contour it, as in the first case, leaving always the space of 2½ in. all round. The combustible is placed at a distance from the boilers, in order to avoid the sudden bursts of heat to which they are liable when iron is placed too near the burning fuel. The ash-pit is rounded at the bottom, at the back of the grate, where it forms a quadrant to facilitate the passage of draught through the bars. M. de Pindray narrows in his furnaces for the following reasons:—He only requires 38½ square in. of fire-grate per horse power; he utilises the radiation by approaching the sides of the furnace to those of the boilers; he augments in length what he diminishes in width; in given extra length to the grate, he utilises all the heat by giving time to the gases in front of the fire to dilate and become heated, so as to be inflamed when they arrive at the end of the grate, where they become in the highest degree incandescent and strike vertically against the boilers.

The grate-bars are inclined towards the back as follows: for a grate 16 in. long, 4½ in. fall; for 15 in. long, 6 in. inclination; for lengths of from 3 ft. to 8 ft. 6 in., 8 in. fall; and above those lengths, 10 in. The bars extend, in all cases, throughout the whole length of the fire-grate, and are of one single piece; their depth at the middle will be, for a grate whose length of bar is from 16 in. to 20 in., 8½ in., from 21½ in. to 3 ft. 3 in., 1 ft.; and from 4 ft. 11 in. to the greatest length, 14 in. The width of the bars varies, according to the required rapidity of combustion and the draught, and the space between the bars depends upon the quality and nature of the fuel supplied. For feeding this furnace, when the door is opened, a damper must be shut to within half an inch of closing it; and before putting on fresh coal, care must be taken to cover every part of the grate with a pretty uniform thickness of burning coals, otherwise the fire will go out. As soon as the fuel is supplied the doors should be closed, and five minutes afterwards the damper opened one-half its width; after the lapse of another five minutes it may be opened to its usual working extent. The licence for the use of this patent is 4l. per horse-power. One payment only.

THE HANDEL FESTIVAL, CRYSTAL PALACE.

THE festival, so far as it has proceeded, has proved most successful, and has given delight to thousands. As our publication will be in the hands of many readers in time for a word of advice to be of avail, we say go, this Friday, June 30th, and hear "Israel in Egypt" with its mighty choruses, and in which Mlle. Patti, Madame Lemmens-Sherrington, Mr. Santley, and Mr. Sims Reeves, besides others, will sing. The sight alone of the vast orchestra filled with its thousands of exccutants, other thousands expectant in front, is a thing not to be forgotten. It may be true, in fact it is so, that the refinements of a solo singer can be better appreciated and enjoyed in an ordinary concert-room, such as Exeter Hall, than in the Crystal Palace, though few who heard Mlle. Patti, on Wednesday, sing "Let the bright Seraphim," Mr. Sims Reeves, "Sound an Alarm," or Mr. Santley, "O Rudder than the Cherry" will recollect hearing them with greater delight; but in respect of the concerted music, nothing like it has ever been done elsewhere, and no such effects can be

heard on any other occasions. Speaking still of the Selection performed on Wednesday, the first chorus (from "Saul") "How excellent Thy Name, O Lord," the closing chorus from the same oratorio, "Envy! eldest-born of Hell!" and the "Coronation Anthem," could not be listened to without the deepest emotion, and will long vibrate in the memory of many who listened. The previous pains taken to insure such a result must have been enormous, and for these, thanks are due to Mr. Costa and those who assisted in that direction; while for the arrangements which enabled such masses of people easily and pleasantly to come and go, and find their seats without difficulty, Mr. Bowley and Mr. George Grove, working unseen, deserve applause. The "Book" is well annotated by Mr. W. H. Husk, the Honorary Librarian of the Sacred Harmonic Society.

PARIS NEWS.

Mons. E. JANICOT, architect, has submitted to the Imperial Commission of the Universal Exhibition (1867) of Paris, a projected plan of a construction to serve as a permanent circular building, also as a covered field for military evolutions. He proposes a system of wrought-iron ties, solidly attached to the summit of a column or central tower, and fastened at the circumference of the building to a circular walling, so as to bind it together like an arch. By this means he proposes to unite to the stability of rigid bridges the indefinite span of suspension bridges, and to shelter under one roof the exhibition of 1867, 20 hectares (about 50 acres), half the extent of the Champ de Mars, without any obstacle or any other support but the central tower and the circular walling.

This tower is to be entirely of open work, and will consist of several stories, with exterior balconies, from which visitors can embrace a *coup d'œil* of the whole area. The walling of the circumference is proposed to be double, the space between the walls being, on the ground-floor, laid out in offices, staircases, &c., and on the upper story, in a circular gallery, 25 metres wide, for objects requiring special lighting, such as painting and sculpture. There are to be four principal entrances and eight secondary doors. M. A. Oudry, engineer-in-chief of the Ponts et Chaussées, who constructed the iron bridge at Brest, has intimated his readiness to apply to this building, conjointly with M. Janicot, his system of rigid suspension with steel, as applied with success in his non-oscillating suspension bridges.

The assembly-hall of the municipal council of Paris at the Hôtel de Ville is to be decorated with four vast works by M. Yvon, the celebrated French military painter, representing memorable episodes in the history of the city. In chronological order the subjects will be,—The entry in state of Clovis, clad in Roman purple, into the capital; Philip Augustus, at the moment of leaving for the Holy Land, placing his children under the protection of the municipal body of Paris; François I., laying the first stone of the Hôtel de Ville; and the Emperor Napoleon III. signing the decree annexing the suburban communes to Paris.

As the present mains for the distribution of water through Paris have been insufficient, in consequence of the increased supply, larger conduits are being laid down in the Boulevard de Sebastopol, and other great thoroughfares of the capital, and the exchange will be continued until all the principal routes are provided with pipes of the increased calibre. These are placed in the *égouts* in two manners; those of the larger diameter are laid upon cast-iron pillars or supports, while the smaller tubes are supported on brackets let into the side walls of the sewers, with collars to retain the pipes in place.

Radiating from the centre of the Place de l'Etoile, at the upper end of the Champs Elysées, there are four grand avenues intersecting in the form of a cross, and eight secondary ones. The principal thoroughfares are the Avenues des Champs Elysées, Du Roi de Rome, De la Grande Armée, in line with that of the Champs Elysées, and the Avenue de Wagram, a continuation of that of the Roi de Rome. Between the first and second there are the Avenues Josephine and Jena, reaching through Chaillot to the river, at the Quai de Billy; between the second and third, the Avenues d'Eylau and De l'Impératrice communicating with the Portes de la Muette and Dauphine of the Bois de Boulogne; and between the first and fourth, the Avenues de la Reine Hortense and Fridland. All the above

* See the *Builder*, vol. xliii., p. 104.

have been pierced through and laid out. It only remains to complete the group, to open out the Avenues d'Esling and Du Prince Jerome, between the Avenues de la Grande Armée and De Wagram, for which the demolitions are to be commenced at once. The Avenue d'Esling starting from the Arc de Triomphe, will cross the Avenue des Ternes (or Boulevard Eugénie), at the Place Ferdinand, and join in with the Rue de Villers at its junction with the Boulevard Pereire, which lines the circular railway. The Avenue du Prince Jerome will start from the same point, and intersecting the Avenue des Ternes at the corner of the Rue des Acacias, will abut at the intersection of the Route de Courcelles with the Boulevard Pereire.

On the 19th ult. the justice of the peace was formally installed in the new Mairie of the seventh arrondissement, in the splendid mansion known as the Hôtel de Forbin-Janson, in the Rue de Grenelle St. Germain. This building, situated between a spacious court and a garden, has been successively occupied by several branches of the public service, and is well adapted for its new employment.

On the same day, the Association of Dramatic Artists of Paris held its general annual meeting, in the theatre of the Imperial Conservatory of Music, under the presidency of Baron Taylor. In course of the report read by M. Omer, it was stated that the society includes 2,641 members, and that the sums in hand amounted to 2,317,955 francs (92,718l.), the interest of which is, in the state funds, 58,500 francs yearly (2,340l.). There are twelve orphans provided for by the association. Besides the liberal contributions of all artists of every grade, one of the most important sources of revenue for the Actors' Association is the Bal de l'Opéra-Comique, under the patronage of the emperor and empress. Most of the actresses did not appear at the ball, but had, nevertheless, purchased or transferred tickets for various amounts, varying from 900 francs to 20 francs. The emperor paid 1,000 francs for his *loge*, and Prince Murat and the Duchesse de Marmier, after having contributed also handsome sums, abandoned their seats for the benefit of the treasury.

At the iron works of Holmberg & Co., at Lund, a new invention has been applied, by which tubes of iron can be cast by centrifugal force. The machine is of very simple construction: it is composed of a cylinder, which can be opened and closed, and into which molten metal is poured. A rapid rotary motion being imparted to the cylinder, the liquid mass is pressed against the sides, and the result is the formation of a perfectly uniform and straight tube. The first trials of this machine, invented by a young workman named Auguste Larson, have been completely successful.

RIGA FIR IN FRANCE.

THE introduction of the growth of Riga fir in France has lately occupied the attention of timber cultivators in that country. Some short time ago the French consul at Riga consigned a large quantity of these seeds to Paris for the benefit of societies of acclimatization who might wish to make an experiment of the growth of the tree. Of all forest trees those of a resinous nature are the least difficult in the choice of a soil; they are therefore eminently suitable for stocking barren hills and chalky wastes on which nothing else will grow. Most of the trees of this sort in France are cultivated for their resinous produce, and furnish timber of an inferior quality, whereas the Riga fir yields timber of a quality at any rate equal to either that of Memel, Dantzic, or Sweden, and can be always depended upon whenever durability and strength are requisite.*

Several doubts have been raised as to its probable success in France; but theoretically, considering that height in elevation above the sea compensates for the loss of a northern latitude, and that the flora of the high mountains of France and Savoy are identical with those of the Swedish and Siberian plains, a zone of land can easily be procured of an altitude of 120 metres above the sea corresponding to the wooded plains of Lithuania and Courland. Besides this argument, direct experiment has been tried in the Department of the Eure, as far back as 1810, by the sowing of some seeds of Riga fir

in the Harcourt domain. These sprang up in due time, and are now tolerably good specimens, having averaged, in 1860, 82 ft. in height and 4 ft. 3 in. in girth.

The ground suited for Riga fir is, firstly, that of a siliceous nature (sandy, argillaceous sands, slates, granites, &c.); secondly, calcareous soil, especially that containing sand or argil. The Société d'Acclimatation, in assigning the post of importance to Riga fir, has not neglected other resinous trees of various qualities, such as the Corsican and Calabrian pines, delighting in a siliceous soil; the black Austrian pine, partial to calcareous regions and the towering *mdleze* or larch.

M. Bequerel presented, on the 15th ult., to the Academy of Sciences, a memoir on the influence of forests on climate, in which he discusses the statistics of forest clearing in France, and the resulting influence on water-courses and springs. He urges the immediate replanting of the hills as of the first necessity, in order to preserve the ground; stating that Great Britain, which has only 2 per cent. of wooded surface, and Spain, with only 3 per cent., are obliged to draw upon foreign markets for timber necessary for industrial purposes, while France has 16·7 per cent. of wood and forest. He warns the inhabitants of France to take steps at once, lest they be reduced to the same straits as England or Spain. The replanting of mountain lands and sandy plains, or even a portion of them, with resinous trees, is truly a sage measure; but it is, after all, an inadequate compensation for the loss of oak forests by clearing. The acclimating of the Riga fir, if successful, will no doubt go far towards remedying the evil done.

MASONIC MUSINGS.

THE GENIUS OF THE GREEK.

AGATE to hallow'd haunts return'd,
Bright with names we all adore,
Where those hero souls that burn'd
Sanctified the soil of yore.
By the classic streams and meadows,
By each sunny shore and creek,
Draped with never-ending shadows,
Rich in genius of the Greek.

Pure unselfish love of labour,
Warm impulses, noble aims,
Back, when shepherd's crook and tabor
Hung on branches by the streams;
Where the olive and acanthus
Grew to grace that art antique,
In the fabled far Atlantis,
Rich in genius of the Greek.

Oh, ye bright inspiring fountains,
Springs of primal art and taste,
Rainbow, arch'd upon the mountains,
Sentinel of pure and chaste,
Apotrophised, in ruin scatter'd,
By lorn pool, and heathen'd peak,
Old mighty marble shrines shatter'd,
Rich in genius of the Greek.

From out of ruins grand and solemn,
Streak'd with glaze of reptile slime,
Above each frieze and fluted column,
Clogg'd with damp decay of time,
Swelling from porch and portal
Immortal echoes break,
Redolent of life immortal,
Rich in genius of the Greek.

Land of old heroic spirit,
Rise thine halo-wreathed head;
Names like thine for aye inherit
Glory from their mighty dead;
Heirs of art still unexampled,
Athens from your torpor speak,
Lo! he comes, the Goth who trampled,
Rich in spoil robb'd from the Greek.

Lamp of pristine Architecture,
Beacon in all distant time,
In your radiant restructure,
Souls again will soar sublime.
Virgin art and beauty vernal,
Pointing heavenward ye bespeak
Triumphs matchless and eternal,
Crown'd in genius of the Greek.

CLINTON HOEX.

THE BELFAST ALBERT MEMORIAL COMPETITION.

THE general committee, instead of acting on the resolution to which they had come, as mentioned in our last, resolved at a meeting, on Monday last, to refer the four selected designs to the president and council of the Institute of British Architects, or any one deputed by them—the decision to be binding on the committee. It was suggested that each of the competing architects should be requested to send a statement through the committee to the arbitrators. But the competitors were to hold no direct communication with those gentlemen.

THE O'CONNELL MONUMENT COMPETITION.

THE committee, after rejecting the whole of the designs first submitted to them, are seeking to induce artists to waste more time and send in other designs with equally vague expectations. One of the competitors on being so applied to, in declining to submit a fresh design, wrote thus:—

"It is evident that, in the first instance, the committee did not know what they required; but, when their request was complied with by about sixty architects, they gleaned from the designs and reports what they really wished to have as regards style, size, height, and material; whereas they should, in the first instance, have availed themselves of professional assistance, to enable them properly to state their views; and, having failed to do so, it would have been but fair and honourable to have awarded the three prizes to those designs coming nearest to the views and requirements of the committee (in the first instance), however they might have failed in their instructions and positive ideas.

Having done this, they should have asked the three successful competitors to compete against themselves, to the more explicit and realised ideas of the committee gained by the first competition, and awarded the execution of the work to one of the successful three."

THE SALISBURY GRAMMAR-SCHOOL COMPETITION.

AFTER publicly inviting and receiving a number of designs from architects in competition, the town council have coolly returned them to the competitors, with the information that for a certain reason the scheme has been abandoned. By the offer of a prize they induce a number of horses to run, and, when the race is over, announce that they intend to give no prize. A correspondent says, with reason,—"Under the circumstances, I think the competitors are all entitled to some amount by way of remuneration for being thus misled."

It would not be amiss for the competitors to place the circumstances carefully before a lawyer, and learn what redress, if any, is obtainable. If the town council act as is described, they will to all intents and purposes commit a robbery, whatever their legal position may be.

LECTURES TO THE VOLUNTARY EXAMINATION STUDENTS.

WE are requested by some members of the Institute, who see the mistake made by their governing body, to state that the next lecture of the series will be given at 9, Conduit-street, by Professor Kerr, on Monday evening next, the 3rd of July, at eight o'clock, on the subject of "Constructive Science." Mr. Bell, Professor Hayter Lewis, and other gentlemen will follow, weekly, to complete the course. It is understood that these lectures are open free to young men of the profession generally. Up to this time, if we may judge from statements publicly made, these lectures, in consequence of the unfortunate hole-and-corner policy pursued, have not been so satisfactory as they might have been either to the lecturers or the lectured. Publicity is needed to obtain an audience, and induce regularity in arrangements.

THE SALISBURY HOTEL, FLEET STREET.

THE hotel erected in quiet Salisbury-square, Fleet-street, with a view mainly to the accommodation of the agricultural interest, especially the Farmers' Club, has been opened, and seems likely to be amongst the most successful of the fine edifices of the sort which all at once have sprung up about us. It contains nearly 100 bed-rooms, besides private sitting-rooms, private dining-rooms, and ladies' coffee-room, on the upper floors. On the ground floor are hotel coffee-room, 50 ft. long by 25 ft. wide; three rooms for the purposes of the Farmers' Club, the largest being nearly 40 ft. long by 20 ft. wide; a smoking-room; besides the ordinary managers' room, bar, service, &c. There is also, on this floor, a large dining-room or hall for public dinners, meetings, &c., 70 ft. long by 30 ft. wide, and above 20 ft. high: this can be used either for the hotel purposes, or let separately. The basement contains capacious kitchens and offices, the fish, meat, and other larders being lined entirely with white tiles, giving a very clean appearance. The cellars also are large, and apparently prepared for a very large consumption. Beneath this basement there is a sub-basement, containing cellars in connexion with

* "The Engineers' and Architects' Pocket-Book" (Lockwood), p. 128, says that Memel is best for size, Riga for quality, Dantzic for strength, and Swedish for toughness.

a tap and offices, which are intended to be let off. The architect is Mr. John Giles: the builders, as well as furnishers, are Messrs. Trollope & Sons, of Parliament-street.

ARCHITECTURE AND THE PARIS EXHIBITION COMMISSION.

SOME discontent is felt, and not unnaturally, in respect of the position of architecture and the Royal Commissioners recently appointed to take charge of English interests and honour in the forthcoming International Exhibition to be held in Paris. When the commission was issued, Professor Donaldson was President of the Institute of Architects, and her Majesty's advisers saw that in placing on the commission "The President of the Institute," they were providing Architecture with a fitting professional representative. Immediately afterwards, however, the Institute thought fit to elect to the office an esteemed and accomplished gentleman, well informed as to architecture, but not an architect. Painting is represented in the commission by painters, but at the present time architecture is not represented by an architect. In the eyes of our neighbours, this would seem ridiculous: they would not recognise the authority of an amateur; and some movement should at once be made, either by a memorial from the Institute, or, failing that, from some other body, to add to the Commission a properly-qualified architect of right standing. The President of the Institute would of course remain, his name being in the commission (and we are glad to have it there), but it will be a slur upon the profession, and there will be a weakness in the commission, if the addition we ask for be not made.

FIRES AND DISTRICT SURVEYORS.

ON Tuesday, at a meeting of the City Commissioners of Sewers, the circumstance of two bodies having lain for five days in the ruins of the Poulterers Arms Tavern, Leadenhall-market, which was destroyed by fire on the morning of Thursday week, was brought under special consideration. The General Purposes Committee of the commission had been directed to inquire into the circumstances attending the fire, especially as to whose duty it was to report it to the district surveyor or other authorities, and whether any neglect or unnecessary delay had occurred in taking the requisite measures in the case. Yesterday the committee reported that they had carefully investigated the circumstances, and had been attended by Mr. J. Young, the district surveyor, and Mr. Lightfoot, his clerk. Having considered statements, and examined the facts, the committee reported that it was certainly not the duty of the district surveyor in such cases to employ men to dig for the remains of persons supposed to have been buried in the ruins of a fire; but that the ruins in such cases were the property of the owner, or of the assurance company, if assured, who, if there were salvage to claim, would undoubtedly prevent any one but their own servants from so interfering. They were of opinion that the firemen, who, being on the spot, had the earliest knowledge of dangers arising from the condition of ruins, should in all such cases immediately communicate with the district surveyor, that the proper steps might be taken to secure them.

THE ARCHITECTURAL ASSOCIATION.

THE usual meeting of members was held on Friday evening (the 28rd ult.), at the House in Conduit-street.

The chair was occupied by Mr. J. H. Christian, the president of the Association.

Mr. Montagu Davenport, of Lower Belgrave-place, Pimlico, was elected a member of the Association.

Mr. J. D. Mathews, honorary secretary, reported that since the last meeting several members of the Association had paid a visit to Montagu House, Whitehall, built under the direction of Mr. Burn, for the Duke of Buccleuch, and were much gratified on the occasion.

A vote of thanks to Mr. Burn and to Mr. Collings, for their courtesy in the matter, was accorded.

Mr. Murphy brought under notice a letter from Mr. Mathews, which had appeared in the *Builder*, taking exception to the accuracy of the

report of some observations made by him at the last meeting. According to the version in the *Builder*, Mr. Mathews was made to state, that when the Institute announced a lecture to be delivered on a certain day, and no lecture was delivered, it was "very like making fools of them" (the members of the Association). Mr. Mathews contended, that what he did say was, that "under these circumstances men could hardly be expected to come to (?), I might almost say, to be made fools of." This ungrammatical distinction without a substantial difference was pointed out and commented upon.

The Chairman said, he was glad to hear that the visit to Montagu House had been numerously attended, as such visits of inspection to buildings in progress were well calculated to give architectural students a practical knowledge of work. He hoped, too, that the voluntary examination class would direct its attention especially to this subject, so that as many students as possible might go up for examination next year. While upon this topic, he wished to state that the members of the Association who were deputed to meet the sub-committee of the Institute on the subject of the examinations, and especially in reference to the points set forth in the memorial of the Association, had been received in a frank and courteous manner. Every one of the items in the memorial was considered, and five of them were answered without doubt, while others were so thoroughly discussed that he was persuaded the Association had not only no fair ground of complaint against the Institute, but that it had many good friends on the sub-committee. Everything that was urged upon the part of the Association was listened to in a straightforward and conciliatory spirit, and nearly every requirement of the Association was acquiesced in without demur. On the whole, he might say, that the interview was most satisfactory, and the deputation could not arrive at any other conclusion than that every member of the sub-committee of the Institute was a friend of the Association. Under these circumstances he had taken upon himself to thank the Institute on behalf of the Association for the manner in which it had acted in the matter.

Mr. L. W. Ridge observed that, under these circumstances, the least the Association could do would be to show a disposition to meet the Institute by sending up as many candidates as possible for examination next year. He hoped that everything that could be reasonably done in this way would be done.

Mr. C. H. F. Lewes called attention to the necessity of getting up a practical knowledge of work, as it was owing to a deficiency in this respect that many failed on examination. This might perhaps be accounted for by the circumstance that in many offices the learning was more of a theoretical than a practical character.

The Chairman apprehended that this was too often the fault of the students themselves, who ought to avail themselves of every opportunity to inspect whatever buildings might be in progress in their offices in order to obtain that practical information which could not be acquired except upon the spot. He hoped the Association would now bestir itself so as to send up as many candidates as possible next year for examination, for otherwise the Institute might well say, "What is the use of our making concessions if you, on your side, do not avail yourselves of them." Moreover, if gentlemen did not go up, all prospect would be lost of inducing the Institute to make any further concessions that might be desirable.

Mr. Lemon suggested that if students would confine themselves to an attentive inspection of one building from its commencement to its completion, and study each detail of work as it arose, much practical knowledge might be obtained.

The Chairman said he quite agreed in the practical utility of the observation made by Mr. Lemon. He could see nothing derogatory in a student of architecture becoming temporarily a "clerk of the works." There was nothing in it to be ashamed of, and they might depend upon it the solid information to be acquired was well worth two years' application in that character.

Mr. Plimbe advocated the desirability of attending the voluntary examination class, and added that he himself was indebted to it for much valuable information which he might not otherwise have acquired. He quite agreed with the Chairman and other speakers as to the advisability of gentlemen going up for examination next year, and suggested that as the minimum number to insure examination was five, it might

not be well for five members of the Association to communicate with each other in order to go up together.

The Chairman next called attention to Mr. Tide's prize for the best design for a railway-station suitable to a small town. As he was himself obliged to travel a good deal by rail, he could speak feelingly on this subject, as his experience led him to know that there were a great many railway-stations very defective in their construction, and very unlike what they ought to be.

Mr. J. D. Mathews called attention to the announcement that the drawings for the prize were to be sent in by the 30th of September, and the essays by the 31st of August next.

Some formal business having been disposed of, including the election of the class of design (of which Mr. E. J. Tarver was chosen president),

Mr. Ridge moved a cordial vote of thanks to Mr. J. H. Christian, the president of the Association, on his retirement from office.

Mr. Christian in acknowledging the compliment, stated that his desire had been similar to that which he was sure had animated his predecessor in office, namely, to advance to the best of his ability the interests of the Association. He believed that they were now in an excellent position to make progress, and he hoped they would continue to prosper.

The following gentlemen were then elected office-bearers of the Association for the session 1865-66:—

President—Robert W. Edis.
Vice-President—B. O. Harris.
Committee—J. H. Christian, E. Ferrey, H. L. Florence, F. Judge, J. Lemon, C. H. F. Lewes, Lacy W. Ridge, T. Roger Smith, E. J. Tarver, and J. Webber.
Honorary Treasurer—J. Douglas Mathews.
Honorary Solicitor—Francis Russett.
Auditors—G. B. New and C. B. Arding.
Curators and Librarians—F. Judge and L. C. Riddett.
Honorary Secretaries—J. Douglas Mathews and Rowland Plimbe.

Mr. E. J. Tarver subsequently read a paper upon organ building and cases, and after a short discussion the session of 1864-65 was brought to a close.

SURVEYOR TO THE CORDWAINERS' COMPANY.

THE candidates were—Messrs. Cobbett, Clarke, Emmerson, Knightley, Matthews, and Harry Oliver. The election took place on the 28th ult., when the voting was mainly for Mr. Clarke and Mr. Oliver. The votes being taken ultimately as between these two, Mr. Clarke was elected.

LEEDS SCHOOL OF MEDICINE.

THE contemplated removal of the Leeds General Infirmary to a new site has induced the Council of the Leeds School of Medicine to erect a building near to the new hospital, planned to meet, as far as possible, the requirements of modern medical teaching. The building, plans of which we publish to-day, has been erected from the designs of Mr. George Corson, architect, of Leeds.

The new building comprises a lecture-room; museums of human and comparative anatomy, pathology, and materia medica; laboratories for the use of students and lecturers, furnished with all necessary apparatus for the study of the elements of chemistry, as well as of the more elaborate processes of chemical analysis (a collection of specimens illustrative of mineral and organic chemistry); a library and reading-room; and a complete suite of rooms for the prosecution of practical anatomy.

In the arrangement of the plan the great object aimed at has been to place all the working departments on one level, and to group them round the theatre. Each department will thus have easy access to the platform of that room, but will remain separate and complete in itself.

With this object the theatre is placed in the centre, and occupies both the principal and the upper floor, so that the space necessary for raised semicircular seating may be obtained. At the upper part it communicates with the first-floor by doors, for the admittance of students to the benches. Below, the platform, which is on the level of the principal floor, communicates on one side with the anatomical department, and on the other with the chemical.

The platform is lighted by a horizontal roof light, and is the only part of a room brightly illuminated—an arrangement by which it is hoped that diagrams, specimens, &c., will be exhibited in the best possible manner.



CARVED REREDOS, SHIREOAKS CHURCH.—MESSRS. HINE & EVANS, ARCHITECTS; MR. T. EARP, SCULPTOR.

The anatomical department will consist of three rooms,—a receiving-room; a lecturer's private dissecting-room; a student's dissecting-room, 40 ft. by 20 ft. In the latter great care has been taken to secure good drainage. An open ventilator runs the whole length of the roof.

The north side of the roof is constructed of glass from end to end, and there are two windows in the north wall. A macerating-room, lavatories, &c., are attached to this department.

Adjoining this department is the museum of anatomy, physiology, and pathology, 40 ft. square. This museum is lighted from the roof, and by two windows in the east wall. The windows are so placed as not to interfere with the specimen cases on the floor, and the room is of such a height as to admit of a gallery and second series of cases above.

The chemical department consists of a student's laboratory 25 ft. square, lighted on three sides and from the roof, a private laboratory for the use of the lecturer, and a room for chemical apparatus.

The library floor of the building is appropriated to resident curator's rooms and library.

The library, 40 ft. by 20 ft., is a handsome room with an open timber roof, lighted by three double windows in front and dormers at back.

REFERENCES TO PLANS.

PRINCIPAL FLOOR.

- A. Platform of Theatre.
- B. Students' Laboratory.
- C. Lecturers' Do.
- D. Balance-room.
- E. Students' Dissecting-room.
- F. Private Do.
- G. Injecting-room.
- H. Museums, Pathological and Physiological.
- I. Do. Materia Medica.
- M. Council-room.
- N. Porters' Living-room.
- O. Do. Scullery.
- P. Do. Pantry.
- Q. Do. Porch.
- R. Corridors.
- S. Macerating-room.
- W. Heating Apparatus, &c.
- Z. Stair to Do.
- U. Lumber under Theatre Gallery.
- X. Stair down from Hall.
- T. Water-closets.
- Y. Lavatories.

LIBRARY FLOOR.

- A. Lecture Theatre.
- B. Library.
- C. Curator's room.
- D. Entrance Hall.
- E. Closet.
- R. Corridor.
- S. Stair up to Bed-rooms.
- W. Stair up from Hall.
- V. Stair down to Principal Floor.

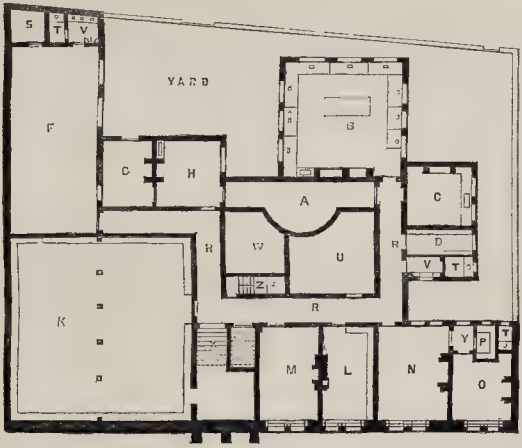
CARVED REREDOS IN SHIREOAKS CHURCH.

Our engraving represents the reredos which forms part of a memorial, in Shireoaks Church, of the late Duke of Newcastle, comprising credence table, sedilia, and panelling round the apse of the new church lately erected. The reredos itself is executed in alabaster, inlaid with Italian marbles and Derbyshire spar. The sedilia, credence-table, and panelling being also of the same materials.

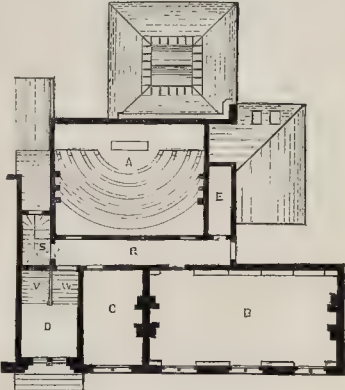
The reredos is divided into three compartments, surmounted by canopies supported on slender pillars, richly capped. The centre division contains, in *basso relievo*, the Crucifixion of Our Saviour; and the other two show Saints and Martyrs in Adoration. In the niches dividing the subjects are the figures of the four evangelists; and below, in quadrifolds, are their emblems. On the pedestals above these are represented angels, in attitudes of praise and adoration. The spandrels in the canopies are in Derbyshire spar and Italian marble, whilst the canopies of the figures are inlaid with mosaic work. This reredos is nearly completed, and much of it is on its way to its destination. It was designed by Messrs. Hine & Evans, architects; and executed by Mr. T. Earp, sculptor.



C.C. del. LEEDS SCHOOL OF MEDICINE + G. CORSON ARCHITECT W.E. HOSKIN



PLAN OF PRINCIPAL FLOOR



PLAN OF LIBRARY FLOOR

FEET 10 9 8 7 6 5 4 3 2 1 0

THE REPAIR OF ST. NICHOLAS'S STEEPLE, NEWCASTLE-UPON-TYNE.

Our readers will have some recollection of the dispute between the Newcastle corporation and the vestry of St. Nicholas's as to the repair of the steeple; and that there was, as we remarked, some risk of the steeple falling in the midst of the dispute. We are glad to notice, however, that there is now a prospect of the repairs being carried out at all events, although the dispute seems to be as far from being settled as ever. The corporation having offered to head a subscription-list with 500*l.* if the vestry would also subscribe, a vestry meeting has been held, and it has been unanimously resolved,—“That the churchwardens be authorised to subscribe a sum not exceeding 200*l.* out of any funds that may come into their hands, except charitable funds, and the rents of property vested in them and the overseers, in aid of a subscription to be set on foot for the preservation and thorough repair of the tower and steeple of the church of St. Nicholas; provided the corporation of Newcastle will head the subscription list with 500*l.*”

A committee has been appointed, composed of the Vicar of Newcastle, churchwardens, and overseers, with “such members of the corporation as may be by them nominated.”

HOLY TRINITY CHURCH, WORCESTER.

The Church of Holy Trinity, Shrub-hill, Worcester, has been consecrated. The edifice has been built from a design by Mr. W. J. Hopkins, of Worcester, and will accommodate 850 persons, all but 200 free. Mr. Nelson, of Dudley, was the builder. A new quarry, near Hadley, was opened expressly for the stone of which the new church is built: it is a grey and red sandstone mixed. Bath stone is used for the tracery of the windows. The building consists of apsidal chancel, north and south transepts with eastern chapels to each, nave and south aisle; principal entrance at west end, with three other doorways, one at west of south aisle, another west of north transept, and the third at the north-east angle of the chapel in the same transept.

The building stands on an elevation by the side of the new road leading from Lowesmoor to the railway station. It has a steep-pitched roof, with pyramidal bell-cot at the intersection of the roofs. The cot is mounted on ornamental wrought-iron, supporting a shingle roof. Buttresses, with gabled offsets, are fixed between the apse windows, and bands of various coloured stone run beneath the windows.

In the interior, over the nave, are the remnants of the roof of the Guesten Hall, unfortunately destroyed some two or three years ago. Having been curtailed 4 ft. in width, the construction has been much altered and the lateral thrust lessened. The old timbers contrast with the lighter colour of the new boarding rafters. The principals of the nave roof rest on dwarf wood shafts, supported by carved stone corbels—heads of apostles and prophets—the gift of Mr. Bolton, of Worcester. Bands of ornamental coloured stone run round the interior beneath the windows and below the wall plate. The south aisle is separated from the nave by three pointed arches, resting on circular columns with stilted square bases. The arches and piers have alternate courses of red and grey stone. There is no clerestory, for the arches reach nearly to the wall plate. In the north wall of the nave are four Decorated windows, two of which are copies of some in the late Guesten Hall, and the others are original designs by the architect. These windows are some 14 ft. above the ground. Also, in the west wall, is a Pointed rose window at a great height from the floor. This window is an original design by the architect. The rose, or wheel, has radiating mullions terminating in cinquefoils, and in the centre is a triple tau, as an emblem of the Trinity. A double doorway underneath this west window forms the principal entrance. The length of the nave is 98 ft. 6 in.; height of nave, 54 ft. to ridge of roof; breadth of nave, 30 ft. 6 in.; ditto, aisle, 16 ft. 6 in. The length of the chancel is 43 ft.; ditto width, 23 ft. 6 in. Across the transepts, 75 ft. 6 in. Total internal length, 140 ft. 4 in. The style is Decorated. The roofs are of one height, except the wooden vaulted crossing between the transepts, which is slightly lower, having diagonal groining of the same material. The chancel roof is of open timber work, shaped to suit the apsidal end, de-

corated in polychrome. There are five three-light decorated windows round the apse, and in the east wall is a canopied recess, containing a carving by Bolton, the subject being the “Last Supper.” The north transept has two two-light Decorated windows. In the south transept there is a five-light window with Geometric tracery. All the carvings in the chancel were given by the rector, who also presented the corona and one-half the painting of the roof, the other half being done gratuitously by Mr. Wells, the decorator.

The seats are open, of varnished deal. The pulpit stands at the north-west angle of the chancel by the north transept. It was the gift of Messrs. Wood & Son, and was carved by Mr. Bolton, from a design by the architect. The cost of the new building, site, &c., will be something under 7,000*l.*; and 2,000*l.* are wanted for the tower and spire.

IMMANUEL CHURCH, STREATHAM COMMON.

The old church, erected about ten years since, consisted of a nave and aisle (deeply galleried), a small communion recess, and an octagonal bell-turret. Little now remains of this structure: a new south aisle, with a spacious chancel, a massive tower, an arcaded baptistery at the end of the nave, a north porch and stair-turret, and a lofty canopied drinking-fountain have been added. The thin metal columns and arches internally have given place to an ornamental stone arcade on each side of the nave, the shafts being of red Mansfield stone, with foliated caps. The chancel, built wholly at the expense of Mr. William Leaf, is paved with handsome encaustic tiles, and seated with richly-carved oak stalls. On the north side stands the organ-chamber, containing a large and powerful organ, built by Hill. The pulpit stands at the south side of the chancel arch, and is hexagonal, of Caen stone, supported by marble pillars, and having carved medallions of different design to each of its sides; the lectern and reading-desk being opposite. The baptistery is at the end of the nave, and is lined throughout with red brick. Scriptural texts, formed with glazed tiles, being banded round it at intervals. The font is the gift of Mr. Horsman Coles. Advantage has been taken of the irregular shape of the ground to make this portion architecturally effective, both externally and internally, and the somewhat novel feature of a drinking-fountain (forming part of the principal façade of the church) has been adopted. The tower contains four bells, by Warner (part of a future peal of eight bells), and has a lofty stair-turret at its south-east angle. The large chancel window is about to be filled with painted glass. The two baptistery windows are by Messrs. Lavers & Barrand. The cost of the entire alterations and additions exceed 6,000*l.*, independent of gifts to the church. The architect is Mr. Ferrey, F.S.A.; and Messrs. Dove, Brothers, are the contractors. The brasswork is by Hart & Son, and the carving is executed by Mr. Williamson and Mr. Robinson.

The church was consecrated and re-opened by the Bishop of Winchester, on Saturday, the 17th ult.

ON THE ECONOMY OF WATER-SUPPLY AND UTILIZATION OF RAIN-FALL.

The continued rains of the spring of 1860 and the drought of 1864 should lead us to inquire whether the conservation of rain-water has received due consideration. An excess of moisture demands attention to drainage: a deficiency requires irrigation. As the necessity for observing these almost reciprocal conditions is variable, and not unfrequently local, it is as imperative to conserve and diffuse the water-supply and rain-fall with discrimination as it is to store the surplus sequence in grain, fodder, or animal food.

Man is the steward of Nature: he must not allow her profusion to run to waste, and then repine at her occasional parsimony, from which he should learn frugality. In fact, prodigality in nature is prophetic of, and provident for, deficiency—the seven years of plenty provided for the seven years of famine in Egypt during Joseph's government.

As population increases, the demand for pure water becomes more emergent, while a greater volume of water is rendered impure through the admixture of an increased amount of excre-

tions. Even if our rivers and water-courses are redeemed from the condition of open sewers and direct receptacles for excrement and filth of all kinds, they cannot be much improved by the filtration of fluid from pastures irrigated and saturated with the sewage of towns, the solid portion of which would naturally subside on the surface of the soil.

For wholesome water, then, we shall have to refer to the clouds, to mountain tarns, to high-land lakes; and there is little doubt but that aqueducts deriving their supply from such sources would prove the most economical mode of distributing water in their progress from a greater to a less altitude, the gravitation of that fluid on a declining gradient being its own conveyance. The adoption of such sources would also insure purity of quality, as no permeation of impure fluids, which does occur to wells, could affect water derived from an altitude.

By a system of interception and collection admitting of diffusion at pleasure, the desiderata of irrigation and drainage may be attained. The natural proclivity of water may be arrested by transverse cuttings. Alternately opposed curvilinear canals will diffuse water throughout a large area, and also aid pneumatic navigation, or vessels propelled by sails. Witness meandering rivers, and the advantages of a “reach” in aiding sailing-vessels to “tack,” or “make a board.”

If every house-roof was a rain-tank, the contents would contribute something towards the water-demand. Waste-pipes could be fitted to allow the excess from the loftier houses to find its way to the lower ones; and the excess would, after performing some salutary office, perhaps, reach the sewers. This roof-cistern system would also be auxiliary in case of fire.

Farm-buildings should be so constructed as to save the largest possible quantity of rain-water by means of roof-cisterns or gutters, and troughs for the reception of the surplus from waste-pipes or eaves. There would then be little necessity for man or beast resorting to the liquid drainage concentrated in the “pond,” situated, necessarily, at the lowest part of the farm.

THE NATIONAL GALLERY AND ROYAL ACADEMY.

I VENTURED to propose, some few months back, and to submit to the members of the Royal Academy, a plan for a new National Gallery, in which, and connected with it, I ventured to suggest that the Royal Academy should have provided for them rooms for their annual exhibition of pictures, and space for their schools and library. This plan has been thought so well of by individual members of the Academy, that I cannot help asking you for permission to urge it somewhat more publicly now that it has been determined finally by the House of Commons that the Gallery of National Pictures shall not be moved from its present site, and, as a necessary consequence (*at the time*), that the Academy should find a home elsewhere. To me it seems a subject of the first importance and interest, and may help either to further or retard the progress of art in no slight degree; and—which makes me feel especial interest in it—it involves the acceptance or rejection of the principle as to whether or not a museum or gallery of pictures shall be regarded as a school and consequent inspiration to those who study in it, or merely a record or storehouse of the works of those who have passed away and left specimens of their art-power for us merely to look at,—i.e., a book, as it were, of the history of fine art and painting. I will be as short as I possibly can.

First, then, I will—if, for the sake of clearness, you will permit it—indicate in a few lines what I have ventured to propose to the council of the Royal Academy, and to the Chief Commissioner of Public Works, for combining the two great institutions, the Gallery and Academy. I propose to leave the present gallery as it now is, without any alteration whatever, to do its duty as a receptacle for the whole collection of national oil paintings;—the workhouse and schools of Archbishop Tennison, immediately behind it, to serve, with as little done to them as possible, as space for water-colours, engravings, photographs, &c.;—the two buildings, viz., the chapel and baths, as further space for sculpture and architectural details; a temporary communication being made in each case between these now separate buildings. The Royal Academy would then occupy temporarily the barrack buildings (for a more inconvenient place for

soldiers and military work cannot be conceived), for the purpose of its annual exhibition, and to be also united to the buildings just named, so that during the Academy Exhibition a clear communication through all these galleries may exist, thus to give the public opportunity for seeing with comfort the real state of modern painting as a progressive art action consequent on the study of the older art. The power of doing this, and the attractiveness of the larger space, would, I feel no doubt, double the number of visitors to the Academy Exhibition. All this would be done at simply the cost of the existing buildings, the existing rooms of them being no more inconvenient than were the old rooms of Somerset House or Montagu House. Thus the Royal Academy would form, as I think it ought, a part of the idea of a national gallery of the fine arts. The first new building for the Royal Academy I suggested should be a circular domed hall, to be built in the centre of the present Barrack-yard; and the first section of the future National Gallery built on the site of the houses immediately adjoining the present gallery, the future gallery forming a square;—a somewhat, I fear, startling and peculiarly alarming notion; but—and it shows what fine art is worth in the public estimation—it may be borne in mind, as a contrast, that no sooner did the public convenience ask for a way from the Underground Railway to the other side of the river, than no less a sum than four millions were found to accomplish the work, while Mr. Cowper is now asking timidly but for twenty thousand for a room or two more for pictures that cannot now be seen for the want of space to put them in. Both are alarming, but may fairly claim the merit of indicating as an art thermometer the force and pressure of fine art on the public mind! Artists have but little to boast of in these days.

I must ask pardon for so much explanation, but I could not say what I want without. It is the need there is, as I conceive, for a greater liberty of art action than now anywhere exists, and a change from the present fine-art monopoly, art protection, as it may well be called, to a free-trade action and policy in art. This seems to me the one urgent question of the time, for it is, indeed, to do for art and labour or work what has already been accomplished so magnificently for trade and commerce. Mr. Cobden, to whom society owes so deep a debt, said but a few days—nay, hours—before his death, that what was now needed to be done, was to agitate for a free trade in labour; and I took the liberty of explaining to him, as far as I could, what art labour meant and is, and to ask him to consider a subject so entirely new and hitherto unthought of. The political economists seem to have passed it completely by; and yet it really is not until fine art, in some form or other, has touched and moulded the rough and unformed materials that human labour, as an expression of the powers of the hand and mind, can be said to have an existence as a final pleasurable result. I ask your attention to this great principle. It requires a little thought, and is worth a little trouble to come at; but is worth having when got; for the labour of the ancient Greek was, as I urged on Mr. Cobden, a fine mental fine-art result always, whether in a building or a water-put, and bore the impress of his time and race, while our labour now does neither the one nor the other. The Greek wrote his name on every thing he made: we merely scribble unmeaning marks, or try—always to fail—to copy, by a process of manufacture, the writing of other men as far off as dead. Art has, if we will consider it in these modern days, not yet begun, if this idea has any truth or value. How necessary, therefore, it would seem to be to urge the reform of the only institution in England which ever affords specimens and proofs of the genuine art handwriting of its members; and how can the public be asked, through the House of Commons, to do more for their own benefit than by affording it space to work in. Two things are requisite,—fairness, on the part of the Academy, and interest, on the part of the public.

The Royal Academy is now the narrowest and most protective body remaining in this materially great country; but its vocation, as I think, is before all others; but it can only carry out that vocation worthily by exchanging its protective for a free policy, and by making itself worthy of public help. I think it should form a part of, and be, in itself, a national institution, and should lead and guide to the creation of a finer and nobler order of labour. It needs, further, only that the public be interested; for monopolies such as the Academy now is,—and it is one of the

worst that ever existed, even in Lord Bacon's day,—can only be broken down by public opinion and public discussion.

I have ventured to trouble you with these few thoughts, in the hope that some little interest may be excited on the subject of them before the Royal Academy is finally transported to the wretched site to which its own narrowness only has condemned it, or can yet condemn it.

C. BRUCE ALLEN.

METROPOLITAN BELLS AND BELFRIES.

APPEAL FOR A NEW PEAL FOR ST. BARTHOLOMEW'S.

THE steeple-keeper of St. Martin's-in-the-Fields, Mr. George Morris, whose sensible and interesting enough though not very literary production, as to metropolitan belfries and bells, we put into shape for the *Builder*, in June, 1864, now writes to thank us for doing so, and to state farther that, having been ringing-steeple-keeper also of St. Bartholomew's the Great, Smithfield, for the last ten years, he has long wished for an alteration in the bells, as the present five bells are very old, and have lost their tone; so he laid the matter before the rector, and Messrs. Jackson & Poole, churchwardens, who have all approved of his proposals, "as the promoter of a new peal of bells" and Mr. Jackson has agreed to become treasurer, and Mr. Morris himself (No. 5, Long-court, Leicester-square) will be a collector of subscriptions, which Mr. Jackson (No. 22, Bartholomew's-close, W.C.), will also receive, for the new peal, which will be in memory of Prince Albert. Mr. Morris evidently expects us to add that, "with our friend's great undertakings, we wish him every success, with God speed;" and that we do, although this is not quite the way in which we would have said so.

Mr. Morris expresses his gratification to observe, from the *Builder*, that so many new churches have of late been supplied with new peals of bells, but he very naturally says,—“As so much is being done to our new churches, I think our old ancient London church bells ought not to be forgotten which our fourfathers built,” and, as to the state of the metropolitan belfries, he adds:—“My last publication came before the Lord Bishop of London; and, in a letter to me, his lordship's chaplain, of August 2nd, 1864, says:—‘Sir, the Lord Bishop of London has made some inquiries as to the matter brought before him in your letter of 8th ult., and hopes that any neglect in keeping the steeples and bells in good order which may exist will be remedied. I am, Sir, yours faithfully,—W. H. FREEMANTLE, Chaplain.’”

UNFAIR DEALING WITH ESTIMATES IN SHEFFIELD.

THE town-council of Sheffield have sanctioned proceedings of their Watch Committee, with respect to the estimates for their new police offices and prison-cells, which one of their own members characterized as “very wrong,” and another admitted to be inconsistent with “professional etiquette,” and which we consider to be unfair dealing, not only towards the building tenderers, but towards the ratepayers themselves, whose pecuniary interest the council professed to consult.

An advertisement appeared in the Sheffield newspapers and in the *Builder*, inviting tenders for the new police offices, &c., and the following tenders were accordingly sent to the watch committee:—

Byron	£8,690 0 0
Comersall	8,675 0 0
Wade	8,470 0 0
Craven, Brothers	8,430 0 0
Neill	6,940 0 0

The Watch Committee accepted the tender of Mr. Neill, it being the lowest; but, after the amounts of the tenders had been advertised, Mr. Neill asserted that he had made an error, and sent in a second tender 727l. higher than his first one. The committee at once saw the impropriety and unfairness to the other contractors of such a proceeding, and unanimously resolved to accept the next lowest tender, which was the only fair course they could take. Mr. Neill, however, subsequently had an interview with the committee, who thereupon accepted his second tender, although Mr. Neill said that, rather than lose the contract, he would complete it in a workmanlike and satisfactory manner for his original tender. The council have since adopted the procedure of their committee.

The local master builders have publicly complained of this departure from all tradesmanlike custom, and ask the council to re-consider the question, so that an example so pernicious to trade should not have the highest official authority of the town. As they remark, “The custom of the trade is to let every tender stand on its own merits; and, if any contractor is not prepared to accept the work on his tender as sent in, it is considered withdrawn, and the next tender accepted. It is not the first time (they continue) that a contractor has found out a mistake when it has transpired that his tender was considerably lower than that of his competitors. Such a circumstance occurred in Sheffield a few years ago, in connexion with the Brightside Bierlow Cemetery, and the error was found out, as in this case, when the estimates had been published in the *Builder*, and not before. The Burial Board, however, at once set aside the amended tender, and the next lowest tender was accepted.” Other cases of a similar kind occurring at Sheffield are quoted, so that the trade practice is as well known there as everywhere else.

A correspondent of a local paper asks, “Who in the first instance accepted Mr. Neill's tender? By what authority was it declined? and, how came it to pass that Messrs. Craven were communicated with? by whose sanction and orders did they commence the work? and, after commencing and continuing upwards of a week, how were they stopped?”

SOCIETY FOR IMPROVING THE CONDITION OF THE LABOURING CLASSES.

THE twenty-first annual meeting of this society was held on Tuesday, at Willis's Rooms, King-street, St. James's; the Earl of Shaftesbury presiding. The object of the society is to improve the dwellings of the labouring classes. In carrying out this, the report states that the society have renovated old houses and erected new buildings. The first scene of their operations was Pentonville, where they have set up model dwellings for the accommodation of 23 families and 30 single women. In Charles-street, Drury-lane, they have three lodging-houses, affording superior accommodation, at low rents, to 82 men. In George-street, Bloomsbury, they have a model lodging-house capable of accommodating 104 men. In Hatton-garden they have also a building for single men. In Stratham-street, Bloomsbury, they have erected a building to accommodate 54 families. In Port-pool-lane they have a building for 20 families and 128 single women. To this building a wash-house is attached, and during the year, up to last December, there have been 20,766 washings. Several houses have been renovated by the society in Wild-court, Drury-lane, and 11 houses have been renovated in Clark's-buildings, Broad-street, St. Giles's. In Tyndal's-buildings, also, several houses have been repaired and put into tenable condition. With regard to the funds, the sum received in the year ending the 31st of December, 1864, from all sources, for the general purposes of the society, was 6,399l. 17s. 9d., which, with the balance in hand at that time (being 294l. 10s. 4d.), made a total amount to be accounted for of 6,694l. 8s. 13d. Against this was to be charged for current expenses of all the lodging-houses, including repairs, painting, &c., 3,431l. 8s. 2d.; loans repaid and other claims and interest, 2,298l. 10s. 2d.; rent of offices, salaries, managers' commission, printing, plans, and other incidentals, 677l. 9s. 9d., making a total of outgoings of 6,407l. 8s. 1d., and leaving a balance of 287l. 0s. 9d. The real property, &c., of the society (valued at cost) is estimated at 44,561l. 9s. 11d., and the general liabilities are set at 21,789l. 6s. 5d., leaving assets amounting to 22,772l. 3s. 6d.

Various addresses having been made,—Lord Shaftesbury, in returning thanks for a complimentary vote, said it should never be forgotten that the society was merely a model society, and not one intended to do good on an extensive scale, but rather to show what was possible to be done provided sufficient capital were embarked in the work. In some cases they had built houses, in others they had only renovated old ones; but in every instance their experiment had been successful. It had proved that the people, on being transferred from bad to better dwellings, were improved in morals; and it also established a fact which some persons had questioned, that the people were themselves desirous of living in better dwellings. But

experience had also proved that these better sorts of dwellings could not be built to realize a profit of more than 5 per cent., and as individual builders expected to make at least 10 per cent. on their outlay, it was obvious that no such houses as were contemplated by the society could be built for the use of the working classes, except by a body possessing a large amount of capital. As to bringing the present houses under public inspection, he had made the attempt twice in Parliament, but had hitherto failed; still, it was an object to be constantly kept in mind.

THE OPERATIVE PAINTERS OF LONDON.

The operative House painters have asked the masters, as we mentioned last week, for an advance of wages to 7d. an hour, on the following grounds:—"1. The high price of animal food; 2. The present increased house-rent; 3. Believing that our labour is as remunerative as other branches of the building trade."

In forwarding to us a copy of their memorial the secretary says,—

"We have been for years in the receipt of less wages than other branches of the building trades, the wages of painters being only 6s. per day, and our employment far more precarious, whilst the pernicious character is well known, seriously affecting in many cases the health of ourselves and families; whilst, in point of intelligence, honesty, and respectability, we are, as a body, second to none. Allow me, sir, to inform you we are acting quite independent of any other branch of the building trade; also that there is not one man upon the committee, or acting with us, who has ever before been concerned, directly or indirectly, in getting up memorials, strikes, or any other agitation likely to destroy the good feeling that should exist between employers and the employed."

A skilled painter should be able to command as much as a skilled bricklayer; but, if every man who can take a pound brush and slobber over a wall or iron railing is to be regarded as a painter entitled to ask for the regulation wages, masters will, of course, refuse to make the advance required, because the supply of such labour is unlimited, and much overpasses the demand.

THE FEMALE SCHOOL OF ART.

The prizes to the successful pupils of this school have been distributed in the theatre of the Geological Museum, Jermyn-street, by the Right Hon. H. Bruce, M.P., the Vice-president of the Committee of Council on Education. The school has now been established some time, and has been conducted with considerable success. The present number of pupils is 117, as against 80 only at this time last year. At the last competition for local medals at South Kensington the school sent 105 drawings and paintings for the competition, and to the large proportion of twenty-five of them medals were awarded, and three obtained the reward of honourable mention. Of the successful drawings eleven were selected for the national competition, and three of the students were so far successful as to obtain the national medallions. At the Government inspection, on 27th March, when the annual examination for the second grade took place, forty-nine students presented themselves for examination on the four subjects of freehand, geometry, perspective, and model drawing, when twenty-one obtained cards for having passed, and to sixteen prizes were awarded for having, in addition, obtained the mark "excellent" for their papers. The bazaar, in June of last year, at which the Princess of Wales presided, produced 2,412*l.*, a portion of which had been appropriated to the completion of the final purchase of the premises. The principal class-room of the building, now completed, is 47 ft. long by 27 ft. wide, and the building affords ample space for the reception of 200 pupils. Her majesty has promised 10*l.* a year towards the establishment of a Queen's scholarship.

THE WORKMEN'S CLUB AND INSTITUTE UNION.

That the objects and plans advocated by this excellent society can be practically worked out with most beneficial results, is now, it seems, amply proved in Croydon, Leeds, Canterbury, Winchester, Newcastle, Hull, York, Rotherham, Bolton, Derby, Brighton, Faringdon, Manchester, Preston, Bristol, Devizes, Shoreditch, Chelsea, Camden Town, Holloway, Southwark, Westminster, Nottingham, and other places, making a total of about 165 clubs, twenty-eight of which are in the metropolitan districts, and above 100 of which have been formed under the auspices of

this union in the course of little more than two years. The applications at the office for advice and information, personally and by letter, average about sixty weekly; and the secretary has attended, by request, upwards of 250 meetings in different parts of the country. Several clubs are now being formed in various localities by the impulse, and under the guidance, of the union. But, if the council are to continue their labours, they must receive largely increased support. They complain of the low condition of their finances. The work has been performed principally by the help of donations: the whole annual income of the union is only about 350*l.*, and the total cost of all its operations during two years and a quarter, including salaries, printing, travelling, public meetings, &c., has only been about 1,700*l.* Yet, with this small amount, in the course of twenty-seven months, it has been mainly instrumental in gathering above 25,000 working men into these clubs, and away from the ruinous public-houses. Sir George Grey has authorised the enrolment of working men's clubs and institutes under the Friendly Societies' Act. An annual subscription of 1*l.*, or a donation of 10*l.*, constitutes the contributor a member of the union.

PRIZES FOR ART-WORKMANSHIP.

ACTING on the invitation of the Society of Arts, the Worshipful Company of Plasterers, London, offer (subject to the general conditions of the Society of Arts), a prize of 10*l.* for the best floriated bracket or truss in the Italian Renaissance style—dimensions, 14 in. on the beam, 12 in. on the wall, and 8 in. on the face—to be designed and modelled by the competitor; or the designer and modeller may co-operate in the production, when 5*l.* will be awarded to each.

Five pounds will be given for the next best model, or 2*l.* 10*s.* each to designer and modeller.

Artisans' apprentices and students may compete for these prizes, but not master tradesmen, Masters in Schools of Art, or those training for Masters in the Central School of the Department of Art.

ANCIENT MORTARS.

THE composition of ancient mortars has been examined by Dr. Wallace, and the results given in the *Chemical News*. The first specimen was from the Great Pyramid, and presented the appearance of a mixture of plaster, of a slight pinkish colour, with gypsum. It did not appear to contain any sand, the place of which was taken by coarsely-ground gypsum. Large quantities of this material and of alabaster are stated, by Professor Smyth, to be found in the vicinity. Analysis showed this mortar to contain 82 per cent. of hydrated sulphate of lime, and 9½ per cent. of carbonate of lime, besides smaller quantities of other bodies. A very ancient mortar, supposed to be the most ancient in existence, was obtained from the ruins of a temple near Larnaca, in Cyprus. The temple is now wholly below the ground, still the mortar was exceedingly hard and firm, and appeared to have been made of a mixture of burnt lime, sharp sand, and gravel. This mortar contained chiefly 26¼ per cent. of lime, 20·2 of carbonic acid, 16·2 of silica, and nearly 29 per cent. of small stones, the lime being almost completely carbonated. Ancient Greek mortars showed somewhat the same composition. Ancient Roman mortars differed, however, being evidently prepared by mixing with burnt lime, not sand, but puzzolana, or what is commonly, although improperly, called volcanic ash. From his analyses, Dr. Wallace deduces the following conclusions:—That in the course of time the lime in plasters and mortars becomes completely carbonated; that where the mortar is freely exposed to the weather, a certain proportion of alkaline or earthy silica is formed, which probably confers hardness, as those mortars are the hardest which have been long below ground. It is known that those walls are strongest which are built during the rainy season, as then a small proportion of silicate of lime is formed, which not only makes the mortar itself harder, but causes it to unite more firmly with the stone. The mortar which is probably the most ancient is by far the hardest, appearing like concrete. Its excellence seems to indicate that a large-grained sand is best for building purposes; and that even small gravel may, in certain cases, be used with advantage.

TO MAKE STONE IMPERVIOUS.

At page 437, a correspondent wants to know what will make stone impervious to rain. Having had some forty years' experience in these matters, as to stone, stucco, and cement, I write to say, for his information, that there is nothing better than paint and sand to keep out wet. Give the parts required to be done two good coats of the best white-lead paint, mixed with raw linseed oil (only). After that is dry put on a very thick coat of the colour required to match stone: when the paint is wet dredge it with fine white sand until the surface is thickly covered over. H. H.

RAVAGES OF PLAGUE IN THE LEVANT.

NOTWITHSTANDING the sad loss of life in Great Britain which might be prevented, we should feel thankful for being preserved from those terrible outbursts of pestilence which once scourged this land, and which in the East still pass like destructive whirlwinds over the country. The accounts of the Russian epidemic are not yet very clear or definite; but news of more certainly fatal results come recently from Medina and Mecca, where the raging of pestilence seems to be terrific. In Mecca the number of deaths has been frightful, and at both places the scourge seems to have taken the form of a combination of fever and cholera, these, in fact, as we are persuaded, being the hot and cold fits of that tremendous ague called the plague. On the eve of the Courban-Beiram and, says the *Levant Herald*, on the first and second days of the feast, the scourge carried off 40,000 victims amongst the pilgrims. The plague has to some extent lessened, but the deaths are still enormous, so that it is likely that the disease has partly declined rather from the want of materials for it to act upon than from the diminution of its violence. Still multitudes continue to perish. The inhabitants have fled, and the streets, on June 7th, were still filled with corpses.

We hope that the angel of death which has passed over this region may have spared some one who has knowledge of sanitary matters and may tell us of the over-crowding, the filthy conditions, and unwholesome food, which, no doubt, brought about this terrible calamity.

To us in Britain, a somewhat more seriously alarming circumstance is the news which has just been announced in *Galignani's Messenger*, that virulent cholera has broken out, and is rapidly on the increase, in Alexandria. The daily deaths in a week rose from 3 to 61. The present summer with ourselves has hitherto been rather a close one: we have had but one rattling thunder-storm over London. The cholera seasons in this country, we have noted, always followed close and oppressive summers. Let us hope to have soon a good thunder-storm or two to clear the air and sweeten the ground.

STATISTICS OF LIFE.

DR. W. FARR, of the General Register-office, has completed his supplementary volume on the mortality of England in the ten years 1851-60, the census of 1851 and of 1861 furnishing the means of comparing the population with the deaths. Some years ago Dr. Granville collected statistics of the history of 400 mothers, married women who applied to the Westminster General Dispensary; and he found that though 272 of them had had only live children, the other 128 had in the previous ten years borne 556 live children and 305 dead embryos, the latter most frequently in their earlier months, just as the mortality in the first year of breathing life increases rapidly as we proceed backwards from the twelfth to the third, second, and first month. In the 26 years 1838-63 there were registered in England the deaths of no less than 2,374,379 infants born alive but not living for a single year! At this present time 100,000 infants of less than a year old die every year in England.

Passing on to the higher ages, we find the rate of mortality declining with every year of life up to 12 or 13, when it is at its lowest. Between 10 and 15 years of age less than five boys in a thousand die in the year. Twenty years later in life the mortality is doubled, and it goes on increasing to the close. At all ages the variation in the rate in different districts is shown to be very striking. The mortality of men in

towns demands a careful investigation. At 45-55 the mortality of London men is not far from double that of men in the healthy districts of the country. It is much higher at every age than the mortality of women in London. Ill-ventilated workshops have something to do with this, and so has indulgence in spirits and other stimulants. The workmen in all large towns suffer as much as the workmen of London, and often more. For instance, at the age of 25-35, and again at the age 35-45, and again at the age 45-55, the workmen of Liverpool, Manchester, Bristol, and Newcastle-upon-Tyne die at a still greater rate than the men of London. In the ten years 1851-60 the deaths in thirty large town-districts of England, with an aggregate mean population of 2,541,630, comprising seven London districts and the principal provincial town districts, averaged 71,194 a year, while the deaths at the rate in healthy country districts would have been only 38,459,—an annual loss of above 32,000 lives in much less than a seventh of the population. If the mortality of all England be arranged in five great groups, the following result appears:—Where the mortality was 14, 15, or 16 per 1,000 persons living, the population was only 36 to the square mile; where the mortality was 17, 18, or 19, the population was 172 to the square mile; where 20, 21, or 22, 255; where 23, 24, or 25, 1,128; and where 26 and upwards, 3,399. Yet there can now be no doubt that mere proximity of dwellings does not necessarily involve a high rate of mortality. If an adequate water-supply and sufficient arrangements for ventilation, drainage, and cleansing be secured, the evils which make dense districts so fatal will, to a certainty, be mitigated. It is remarkable that some of the dense districts of cities are already comparatively salubrious.

GAS IN THE CITY OF LONDON.

The Lord Mayor, at the request of nearly 1,000 City gas consumers, many of them of eminent firms, has convened a public meeting, in the Council Chamber, Guildhall, on Monday, the 8th of July, at one for two o'clock, to take steps to secure a reduction in the price of gas from 4s. 6d. to 2s. 9d. per 1,000 cubic feet, and to consider the propriety of petitioning Parliament for the repeal of the Metropolitan Gas Act, 1860, which deprived the public of the benefits of competition.

The gas movement in the metropolis is also being well supported by the Sewers Commission and the Court of Aldermen; at a recent meeting of the latter of whom, Mr. Haines (chairman of the General Purposes Committee) brought up the report on the several petitions relating to the supply of gas to the City. The Committee generally expressed their opinion in favour of the recommendation and resolution come to by the Court of Sewers, and of the course which the Commissioners recommend should be taken under the circumstances; and Mr. Haines moved the Court "To agree with the Committee in their report."

Mr. E. Dresser Rogers then moved the following amendment, of which he had given notice:—

"That the report be referred back to the said Committee with instructions to confer with the Law, Parliamentary, and City Courts Committee to consider as to the best method of proceeding, at the earliest possible period, with an application to Parliament for an Act to empower the Corporation either to purchase the existing mains, plant, and works in, or supplying, the City of London; and to contract for the supply of gas into those mains, or to erect works, and enter into the manufacture and distribution of gas to the consumers, as is now so successfully carried on by the Corporation of Manchester and other towns."

Mr. Rogers said he did not intend to insinuate that the Commissioners of Sewers, as well as their officers, had not done their duty in this matter, but his object was to obtain for the citizens what they had a right to demand—namely, a better and cheaper supply of that most necessary article of consumption, gas. There was no necessity to prove the high price or the bad quality of the gas.

Mr. Rudkin, after complimenting the mover of the amendment on his able address, seconded the amendment, which was unanimously carried amidst loud cheers.

Thus at length the Londoners seem to be in earnest in their determination to cast off the incubus which has hitherto paralyzed all their endeavours to carry out a thorough gas reform in the metropolis; to which reform they were first and for long urged by the *Builder*, who often adduced the example of Manchester for their consideration and adoption.

CASES UNDER METROPOLITAN BUILDING ACT.

Roof Coverings.—At Marlborough-street, Mr. John Dabbs, builder, of Hackney-wick, was summoned before Mr. Mansfield by Mr. Jennings, district surveyor of South Marylebone, for omitting to cover the roof, flat, gutters, and lantern-light of a building situated in Black Horse-yard, Ratchbone-place, with slates, tiles, metal, or other incombustible material, and to render fire-proof the flues, and to carry up the chimney in brick or stone work to the height provided by the Building Act.

Mr. Hooper appeared for the defendant. Mr. Jennings said he surveyed the work in Black Horse-yard during its progress, and he found that the roof was being covered with what he had no doubt was asphalt. The Seyssel Asphalt Company admitted that more than 10 per cent. of the composition was tar. He had tried if asphalt would burn, and he found that it was combustible. He could not say at what temperature the asphalt with which the roof was covered would melt.

Mr. Mansfield remarked that it was not the question of melting, but of igniting, that was to be decided.

The surveyor said the roof of this building was composed of wooden joists, and then filled in with concrete, which was afterwards covered with asphalt. Other buildings with asphalt on the roofs had been allowed by him; but in most of them they were first covered with tiles, and the asphalt only added to keep out the wet. In the present case he thought there was absolute risk; the roof had wooden and not iron rafters, and was, therefore, not incombustible.

Mr. Dabbs stated that he had been extensively engaged in building. When zinc or lead was used, the roof was combustible. In the present instance concrete and Portland cement were used, and above them asphalt with sand and silicate. There was originally only 10 per cent. of combustible matter in the asphalt, but, by the addition of sand and silicate, the percentage was considerably reduced. Lead would melt at a lower temperature than the asphalt used for roofing.

Mr. Mansfield would not pretend to say whether asphalt roofs were combustible or not; and, from the evidence, the fact remained in a very uncertain state. Nothing had been shown before him to prove that asphalt roofs were combustible. If materials less combustible than those named in the Act were put upon a roof, he could not bring himself to say that the roof was so constructed as to be an infringement of the Act. He should refuse to make an order on that point, as the matter was so uncertain; but, with respect to the other two points, he should make an order against the defendant, with a specified amount of costs.

COMPENSATION CASES.

THE HOLBORN VALLEY.

At the Sheriff's Court, Red Lion-square, the first case for compensation for property in Middlesex required for Holborn Valley Improvements, "Darke, Committee of Henry Bryan, an Innatic, and Mauran, trustees of W. B. Blackwell, v. The Corporation of London" was heard last week, before Mr. Under-Sheriff Burchell, and a special jury, where a claim was made for nearly 25,000l. for thirteen houses in Ely-place, required for the formation of the new street from the corner of Hatton-garden to the Farringdon station, in a slanting direction.

The case was opened by Mr. Bovill.—Ely-place belonged to the two parties before the court, each taking a moiety. It was once a fashionable lounge, and noted for its strawberry beds: it was then considered "out of town," and resorted to by the grandees of the City. Subsequently it became the residence of the Bishop of Ely. Latterly solicitors resided there, and it became extra-parochial. Solicitors were giving way to wholesale silversmiths and watch manufacturers, and now a portion was required for the City improvements.

Several witnesses were called to substantiate claim to nearly 25,000l.

Mr. Fuller, surveyor, put 3,000l. for the depreciation of the houses left after the others were removed.

Mr. Hawkins ridiculed the idea that the improvements could depreciate the property left, but, on the contrary, they would increase the value. All property in the City and contiguous

thereto had increased in value, and Ely-place and the neighbourhood would be greatly improved when the contemplated alterations were carried out.

The case occupied several hours, and eventually the parties agreed to a verdict for 18,000l., each party taking 9,000l.

Bartrum & Co. v. The Corporation of London.—The *Holborn Valuer*.—This was a compensation claim of nearly 40,000l., made by Messrs. Bartrum, Harvey & Co. woolen warehousemen on Holborn-hill, for their premises and the loss on their trade. The claim was 7,000l. for the leasehold premises, and 32,000l. on account of their business. The premises were required for the Holborn Valley Improvements.

The case, which occupied the Court until a late hour, disclosed some remarkable features. In 1832, Messrs. Bartrum and Harvey were assistants to Mr. Bardwell, who carried on the business; and in 1837 they became partners. The business had since greatly increased. In 1845 the takings were 53,322l., and last year they had reached 163,432l. The stock was worth 30,000l. New premises had been taken in Gresham-street, at a cost of 18,000l.; a premium of 15,000l. was paid for the premises. Several witnesses were called in support of the claim, which was placed before the jury at 39,964l.

Mr. Lloyd claimed a general compensation for the loss of Messrs. Bartrum & Harvey. The public would gain by the contemplated improvements, and there should be no loss sustained.

Mr. Hawkins addressed the jury to "cut down" the compensation. He called no witnesses on the part of the City.

The Recorder placed the case before the jury, and said the evidence showed that the claimants had made a profit of more than 9,500l. a year.

The jury retired, and, after consulting one hour, assessed the compensation at 29,000l.

The Crown Assurance Company.—A claim was made in the case of the *Crown Assurance Company v. The London, Chatham, and Dover Railway*, for premises in New Bridge-street. New premises were being built in Fleet-street, near St. Dunstan's Church. After a long investigation, a verdict of 10,500l. was agreed upon.

PROVINCIAL NEWS.

Leicester.—Among the many private and public edifices lately built in this improving town, and various others now in contemplation, is a new warehouse and factory now being erected for Messrs. N. Corah & Sons. The building, which is of Classic design, will be four stories high, on a Derbyshire stone basement, the face of the walls being of small red bricks, with stone architraves round the windows, quoins to the angles, and a cantilever stone cornice, the whole surmounted by a colossal figure of "Commerce" in Box Bath stone. The factory and engine-house will, in architectural character, correspond. The engine chimney, 16 ft. square at the base, will be brought from a rectangle to an octagon; and, when carried up to a height of 124 ft., will finish with an ornamental stone cap of about 20 tons in weight. The engine bed, which is to be of red Mansfield stone, will contain upwards of 9,000 cubic ft. The whole of the buildings, including recreation grounds for the work-people, will occupy a space of four acres. Mr. W. F. Mowbray, formerly of Salt Aire, near Bradford, is the engineer; Mr. H. T. Porter is the stonemason and bricklayer for the factory and engine-house; and Messrs. Osborne, Brothers, are the stonemasons and bricklayers for the warehouse. The present warehouse of the Messrs. Corah, in Granby-street, it is understood, has been purchased by the Government for the purpose of converting it into a post-office, the present post-office being far too small and inconvenient for the rapidly-increasing trade and population of the town.

CHURCH-BUILDING NEWS.

Bournemouth.—The first stone of a chapel at the side of the Sanatorium has been laid by Mr. C. W. Facke, M.P. Mr. Street, of London, is the architect of the building, which, in its style, will much resemble St. Peter's church, Bournemouth; and Mr. J. W. K. Nethercote is the builder. The chapel will be 52 ft. in length, by 17 ft. 6 in. in width (12 ft. being taken up for the altar), and it will be capable of seating 100 persons. The flooring will be of oak, and along the centre aisle will be laid encaustic tiles. The pews will be of modern construction each seat being capable of holding four persons, and the windows will be seven in number. There will be a bell turret. The bell, altar, gasfittings, and encaustic tiles, are not included in the estimate of 1,000l. The slate for the roof will be worked in pattern, and the building will be erected with the Swanage stone, except the corners, which will be of Bath

stone. It is intended to heat the building by means of hot-water, and to erect a covered passage of glass connecting it with the Sanatorium. In consequence of the limited space of ground at disposal, the chapel will necessarily be built north and south, instead of east and west, as usual.

Rochester.—The cemetery for the united parishes of St. Margaret and St. Peter, together with its chapels, tower, board-room, &c., have been completed, and consecrated. The buildings consist of two large chapels, one for Episcopalians and the other for Nonconformists. These are accessed by a couple of light arcades, which give access to the chapels, whilst in the centre stands a tower surmounted by a spire, the whole rising to a height of about 100 ft. The design of the group of buildings is in the Early English style, by Mr. Bulmer, architect. The whole is constructed of Kentish rag, with freestone dressings. The contractor for the erection of the tower, chapels, &c., was Mr. S. Jennings, and the amount of the contract, 3,770*l*. The cemetery occupies a space of six acres of ground, the land having been purchased of the bridgeworkers for the sum of 1,080*l*.

Ogbourne St. George.—The restoration of the parish church of Ogbourne St. George having been effected, the re-opening for public worship has taken place. The edifice has been restored and beautified, at a cost of 1,800*l*, by Messrs. Marquis & Munro, of Bristol, under the superintendence of Mr. W. E. Bayvelstock, architect. Mr. Wynne. Of this sum 1,100*l* have been raised by rate and voluntary contributions, leaving a debt of about 200*l*.

Anst. (Gloucestershire).—The Rev. J. H. Way, vicar of Henbury, of which parish Anst. is a chapelry, publishes in the *Guardian* an appeal on behalf of the proposed restoration of the ancient church of Anst. The sum of 1,200*l*. is required to effect the restoration in a manner becoming the honoured memory of Wycliffe. Of this amount 1,000*l* have been raised.

Wells.—A new bell has been hoisted to the roof of the central tower of the cathedral. A petition has been signed and presented to the dean and chapter of Wells, praying that the bell may be hung in the centre of the tower, instead of in the corner, where the old one was surrounded by masonry so as to encompass the sound. The bell, we understand, weighs 18 cwt., and the tone is E flat.

Eyam (Derbyshire).—It is rather strangely proposed to restore the parish church of Eyam, "as a memorial of the removal of the plague from that village in 1666." The restoration is also to commemorate, after the lapse of precisely 200 years, the virtues and labours of the Rev. Mr. Mompesson, the then rector of the parish. Have there been none worth commemorating since then? The inference is not very complimentary.

Oldham (Lancashire).—The foundation-stone of a new school-church at Oldham has been laid. The building will stand at directly east and west as the irregular nature of the ground will allow, and will consist of a nave 53 ft. by 35 ft., and a chancel 9 ft. by 15 ft., semi-octagonal in form, which will be used for school purposes during the week and for divine service on Sundays. The whole of the seating, &c., will be moveable. In the basement will be a room 26 ft. by 25 ft., which will be used as vestry, class-room, tea-room, and for general purposes. Adjoining this are the heating-chamber, 9 ft. 9 in. by 8 ft., and boiler-room, 15 ft. 6 in. by 8 ft. The height of the basement will be about 9 ft. The porch floor stands 8 ft. above the Middleton-road, and is approached by steps and an asphalted slope running along the north wall of the building, and inclosed by iron palisading. The style is Early Gothic. The walls will be built of Platt's red bricks, and the arches, bands, and patterns will be of black bricks. The walls internally will be faced with picked bricks, and whitewashed; patterns in bricks slightly projecting will be left red. The chancel arch will be formed of moulded bricks. The church will accommodate about 300 persons. The total height from the floor of the basement to the top of the ornamental bell-turret, which saddles the main roof at the west end, will be about 60 ft. The slates of the roof will be of two colours, green and blue, laid in broad bands. The cost of the building will be about 1,000*l*. Mr. W. Dawes, of Manchester, is the architect; and Mr. Wrigley, of Oldham, is the contractor.

Swinton (Yorkshire).—A school-church is being built in the Old-lane, Swinton. The foundation-stone has been laid. The building is designed

to seat a congregation of nearly 300. It is being built of brick in two colours, and covered with a steep-pitched slated roof. At the eastern end a quasi-chancel is screened off, rising by four steps to the altar, above which in the east wall is a three-light tracery window. Over the arched principal, which marks off internally the chancel from the nave, there will rise from the roof an open belfry for two bells covered with a four-sided spirelet. The contract has been taken at 514*l*. by Mr. J. Grundy, of Pendleton, who works under the direction of the architect, Mr. J. M. Taylor, of Manchester.

Carlisle.—St. Stephen's Church, erected at the sole cost of Miss Burdett Coutts, has been opened and consecrated. According to the designs at first submitted, the cost of the building would have been some 4,000*l*.; but additions and improvements have suggested themselves, and under the hands of the donor the work has increased in cost. Embellishments have been made, a peal of bells has been added, and the total cost will not be less than 6,000*l*. The foundation-stone was laid in March, last year, by Miss Coutts, as noted by us at the time. Red sandstone is the principal material used, the stones being rock-faced and laid in thin courses; while the quoins and traceries are of white Prudham stone. The general style is Geometric.

The entire length of the building is 110 ft., and its breadth, including the two wings, is 62 ft. The height from the ground to the ridge is 48 ft.; the height to the top of the wings being 24 ft.; and above these runs a clerestory. A chief feature is the square tower at the James-street end, from the top of which an octagonal spire rises, terminating in a gilt cross. At each corner of the square tower there is a buttress, that at one corner containing the staircase to the belfry. The tower is finished by a cornice 2 ft. deep, from which the spire is broached in a distance of a few feet, and then gradually tapered, its apex being 130 ft. from the ground. There are two two-light windows on each side of the tower, and a single-light window filled with tracery on four sides of the spire, projecting from the spire about 2 ft. at the top, coped with white, and finished in a finial. On the east side of the tower there is a door into the bell-ringers' room. All the windows in the church are ornamented with label mouldings in white Prudham stone, ending some in carved heads, and others in foliage. Additional effect is obtained by introducing, above these white stone carved arches, a relieving arch of alternate red and white. All the carving has been done by Mr. Edwin Stirling, of Liverpool, from drawings furnished by the architect. Mr. Scott, of Newcastle-upon-Tyne, was the sole contractor, but sublet the joiner's work to Messrs. Lowry, of Newcastle-upon-Tyne; the painter's and glazier's work to Mr. Gibson, also of Newcastle; the plumber's work to Mrs. Thompson, of Carlisle; and the plasterer's work to Messrs. Johnston, Brothers, of Carlisle. The clerk of the works was Mr. Beckett, of Liverpool. Mr. James Nelson, jun., of Carlisle, was the architect.

Cockermouth (Cumberland).—Christ Church, Cockermouth, has been consecrated by the Bishop of Carlisle. The church has been erected mainly by the means, and entirely through the exertions, of the Rev. Herbert Puxley, now incumbent of All Saints', Cockermouth, and some circumstances connected with the undertaking give it more than local interest. During the five years that he held the appointment of curate to the late Rev. E. Fawcett, of All Saints', Mr. Puxley laboured among the parishioners in a manner which met with their approbation; and, feeling convinced a necessity existed for a new church for the working classes, he set about collecting subscriptions among his friends for the erection of one. He met with much success, the interest the reverend gentleman had manifested in the schools and the charities in his district having made him very popular, and the building of Christ Church was commenced. There was a general understanding amongst the parishioners and many of the principal subscribers that Mr. Puxley was to be the first incumbent. Eventually, however, a stranger in the district, the Rev. W. Williams, was appointed to the incumbency. The ratepayers and inhabitants held an "indignation meeting," and it was resolved that a testimonial should be presented to Mr. Puxley; who, instead of ceasing to take an interest in the work, however, completed the church, at a cost of 900*l*. out of his own resources. Meanwhile, the incumbency of All Saints' fell vacant by the death of Mr. Fawcett, and to that Mr. Puxley was appointed by Lord

Lonsdale. The edifice is built from plans executed by Mr. Bruce, of Whitehaven, architect, the contractors being Messrs. Hepworth & Cape. The style is a mixture of the Gothic and Early English, and the construction is of white freestone from Tallentire quarries. The interior is simply arranged, the galleries, sittings, pulpit, and reading-desk being stained pine, which are relieved by blue and gold pillars supporting the gallery. The church is constructed to seat 900, two-thirds free.

DISSENTING CHURCH-BUILDING NEWS.

Castleford (Yorkshire).—The foundation stone of a new chapel for the Primitive Methodists in the rising town of Castleford has been laid. The building will stand upon a plot of land in the centre of the town, and, when completed, will afford accommodation for about 550 persons, at a cost of about 1,000*l*., inclusive of school and class-rooms attached. It will be erected from the designs of Mr. H. Fippard, of York, architect, under whose direction the work will be executed.

Middlesbro'.—The new Presbyterian Church has been opened. The church, which is in the Early English style of architecture, and has cost 1,700*l*., is the design of Mr. W. H. Blesley, of Middlesbro'. It is 53 ft. by 42 ft., and will accommodate 700 persons. Behind it there is a school-room, play-ground, and a master's house.

Rhyhope (Sunderland).—The new Wesleyan Chapel at Rhyhope has been opened. It is situated near the Colliery Schools, and was built by Mr. Myers, from a design by Mr. J. Tillman, the site and a quantity of stone, lime, and other materials being supplied by the owners of the colliery. The building is fitted out with open benches, and will seat about 200 people; while a small vestry is attached for ministerial use, the whole having a gravelled front and white brick dressings. The entire cost incurred is about 340*l*.

Sunningdale.—The memorial stone of a new Congregational church has been laid at Sunningdale, by Mr. J. R. Mills, M.P. The design is Early Decorated. The turret at the angle is 56 ft. from the ground to the top of the finial. The building will be 25 ft. 6 in. wide, and 74 ft. 10 in. long, internally, exclusive of two transepts, each 15 ft. 10 in. by 6 ft. 8 in., and an apse at the end, 13 ft. by 6 ft. 6 in. The materials of construction are brick, with Bath stone dressings. The accommodation is for about 240 persons on the ground-floor. The ceiling of the church will be below the roof line, and will be divided into panels. All the internal woodwork and fittings will be stained and varnished. The contract is being carried out by Mr. Oades, of Egham, at the sum of 1,016*l*. Mr. W. F. Ponilton, of Reading, is the architect. The total cost will probably be about 1,200*l*., towards which 800*l* have already been promised.

Derby.—The Baptist Chapel, St. Mary's Gate, Derby, has been re-opened, after having been repaired, cleaned, and ventilated. The ventilation has been fixed by Mr. Watson, of Halifax. The heating apparatus has been planned and fixed by Mr. William Abell, of Derby. The woodwork alterations have been executed by Mr. Dunsauty; the gas-fittings relacquered and fixed by Mr. Longdon; and the painting and decoration by Mr. Basford, all of Derby. The ceiling has been divided into panels; the flats being white with a French grey border and an ornamental line of vermillion. The rafters are coloured buff, with a mauve ornament on each side. At each angle are gold bosses.

Birmingham.—The new Wesleyan Chapel, which has for some time past been in course of erection at Aston Villa, Lozells, has been opened for Divine service. The new chapel, which has been erected from designs by Mr. J. G. Bland, of Birmingham, will cost 4,000*l*., of which about 3,000*l* have been raised. It is of the Gothic style of architecture, after the order common in France about the thirteenth century, modified to suit the materials used, viz., red and blue brick, finished with Bath stone dressings. The building consists of a nave of five bays, and north and south aisles. At the eastern end of the interior is a chancel, of shallow depth, opening into the nave, with a lofty arch of brickwork and incised stone. At the north angle of the chancel is the vestry, with a chamber over it opening into the north gallery. The galleries extend the whole length and breadth of the aisles, and are supported with iron columns with floriated capitals. The roof is high and open,

and contains provision for ventilation. The pews, which are without doors, are constructed of deal, stained and varnished, and afford sitting accommodation for 1,100 persons. The western end of the chapel is lighted by two windows of two lights and cuspated arch, over which is a St. Katherine's window. All of these are filled in with stained glass, the workmanship of Messrs. Heaton, Butler, & Bayne. All the other windows are glazed with toned glass in pattern. The western end, facing George-street, is the only part completely exposed to view, and shows a gable rising to a height of 70 ft. To the north of the gable stand the tower and spire, rising 130 ft. high, and dividing the new chapel from the old, which is in future to be used as a school-room in connexion with the new chapel. The works have been carried out by Mr. Partridge, builder. The heating apparatus has been executed by Mr. Taylor, the staining by Mr. Naughtin, and the carving by Mr. Allen.

Dudley.—The Methodist New Connexion Chapel, after being some months closed for extension and alteration, has been re-opened. By the alterations the chapel is extended 24 ft. in length, and two side wings are added, the chapel thus being considerably widened, and a separate entrance to the galleries obtained, together with additional lobby room. The chapel is now 80 ft. long and 46 ft. wide. The windows are fitted with modern casements, and Mr. Millward has, at his own expense, fitted each of the thirty with a double row of stained glass. By night the chapel is lighted from the roof by a starlight pendant of 132 jets, manufactured by Messrs. Winfield & Co., of Birmingham; and under the galleries are nine smaller pendants, corresponding with the larger ones. The organ has been enlarged and improved by Messrs. Helmsshaw & Sons, of Birmingham. The architect employed was Mr. E. Marsh; the builder, Mr. Millward; and the decorator, Mr. Wyther.

Swindon.—A new Independent chapel is to be erected at the top of Victoria-street, Swindon. The foundations are being prepared. The chapel will be in the Lombardic style, with a square tower at the south corner. It will be built of Swindon stone, with Bath stone dressings. At the entrance there will be Pennant stone columns, with carved free stone caps. The roof will be covered with patent tiles, made to a special pattern. There will be no gallery inside. The seats will be open. The edifice will be constructed to accommodate 500 persons, and will cost about 2,000l. Mr. John Phillips is the contractor for the erection of the building, Mr. Pontin, of Warminster, carrying out the masons' work. Mr. Stent, of Warminster, who prepared the plans, will superintend the works. This, with the Corn Exchange, which is progressing, will cause a considerable number of men to be employed in the town.

STAINED GLASS.

St. Margaret's Church, Lynn.—In the east end of the chancel of this church, remarks the *Norfolk Chronicle*, is a window of doubtful antiquity and peculiar form, its principal feature being a large circular opening with what may be called inverted open spandrels beneath, forming altogether a round-headed arch, though at first sight the idea is suggested of a hoop standing on a flat base. The hoop itself is filled in with a poor kind of Perpendicular tracery, devoid of taste, and suggestive of the "Churchwarden's Gothic" period of architecture. The poverty of this window has now been somewhat mitigated by the insertion of painted glass, by Messrs. Ward & Hughes, of London. The new window is the gift of Capt. S. G. Cresswell, R.N., and is a memorial of his late father, Mr. Francis Cresswell. Each of the numerous lights contains a figure, the three central ones being those of the Saviour, the Virgin Mary, and St. Margaret; and the others attendant angels.

St. John's Church, Eton.—The erection of a new east window in St. John's Church, Eton, has now been completed. The general treatment adopted by the artist is founded on that of fourteenth century work. There are eight main subjects in the window, each inclosed within a flowing stem, fruit, and foliage of "the vine," after the example of the ancient "Jesse" windows, the foliage being all relieved upon a groundwork of grisaille glass, introduced for the purpose of giving breadth of effect to the whole as a composition. At the base of the window the groups have reference exclusively to our Lord's Passion. They consist of the pro-

cession to Calvary, with Christ bearing the cross, the weeping women following; the Crucifixion; the descent from the cross; and the dead body of our Lord borne to the sepulchre. Above these lower groups, and on a greatly increased scale of size of figures, are three subjects, in harmony with each other, of our Saviour's appearance after His resurrection, each subject occupying the greater portion of two lights. First, our Lord's appearance to St. Mary Magdalene ("Touch me not," &c.) Second, the appearance of the Holy Women returning from the sepulchre. The third and next prominent group, occupying the centre lights, is the Saviour's appearance to St. John (to whom the church is dedicated), St. Peter, and the other disciples at the Sea of Tiberias. The whole of the figures in these three subjects are nearly the size of life. The tracery in the upper portion of the window consists of a series of openings, and they have been made available for the treatment of one subject, that is, "The Resurrection of the Dead, blessed in the Lord." In the top opening, our Redeemer is represented glorified in heaven, inclosed in an aureole of light, with outstretched arms; all the other openings containing figures of "The Just made perfect," ascending and borne by angels. The entire window is the design and work of the Messrs. O'Connor, of London. The insertion of the stained glass was done by Mr. Harrison, the surveyor to Eton College. The window, which has been erected by general subscription, at a cost of nearly 500l., is intended as a memorial of the many benefactors of the parish of Eton, and particularly his Royal Highness the late Prince Consort, who laid the foundation-stone of the church, and who contributed in so many ways to the welfare of the poor of Eton. The inscription, not yet inserted, will run thus:—"The pious memory of his Royal Highness the Prince Consort, the founder of this church, and of the Benefactors of this Parish."

Gloucester Cathedral.—The window memorial of Dr. Jenner in this cathedral has now been completed by the artists, Messrs. Clayton & Bell. The window, remarks the local *Chronicle*, consists of five lights, in each of which are represented three of the miracles of healing performed by our Lord, the centre and chief representation being that of the Raising of Lazarus. The five lower subjects, from left to right, are, Healing the Blind, Healing the Woman with the Issue of Blood, Curing the Deaf, Healing the Man Sick of the Palsy, and the Impotent Man at the Pool of Bethesda. In the second tier, the objects are, the Raising of Jairus's Daughter, of the Son of the Widow of Nain, and of Lazarus; Healing the Centurion's Servant, and Cure of the Deaf. In the upper row are, Healing the Lame in the Tomb, the Leper, the Dumb, and the Lame. In the tracery lights are angels bearing crowns, and scrolls with "Alleluia." The memorial of the late Mr. J. Elliott will also be forthwith erected. The window selected is the westernmost of the south aisle. The whole of the windows at the west end of the cathedral will then have been filled with painted glass. The windows in the south and west walks of the cloisters, which have been for many years bricked and plastered up, are to be opened. Three of the windows in the south walk have been filled with enriched glass. A gentleman of the city has proposed to fill two of these windows yearly until all are restored.

Blockley Church (Worcestershire).—In Blockley Church, near Moreton-in-Marsh, a five-light stained glass memorial east window has been completed. The glass has been designed and executed by Mr. Holland, of Warwick. It contains, in medallions, the Nativity, Baptism, Crucifixion, Resurrection, and Ascension of our Lord; the Charge to Peter and Conversion of St. Paul being introduced in the outside openings, Peter and Paul being the patron saints. The background is of the vine and passion-flower pattern. There are also small medallion heads of the twelve apostles, emblems, &c. &c. The tracery contains Gothic ornament, emblems, I.H.S., &c. The window was erected by Sir Charles Rushout, bart., and his children, as a memorial of the Hon. Mrs. Grieve.

Coston Church, near Birmingham.—A stained-glass memorial window has been placed in this church by Mr. J. S. Stock, as a memorial of his two children. It contains three openings filled with the one subject of Christ Blessing Little Children, under a floriated canopy, in which are introduced the Lamb and Pelican, angels in tracery, bearing scrolls, &c. The work was executed by Mr. Holland, of Warwick.

SCHOOL-BUILDING NEWS.

Southminster (Chelmsford).—The Southminster New National Schools have been opened. These schools have recently been erected at a cost of 1,500l., the greater part of which has already been raised by subscriptions in the parish, assisted by the Corporation of the Charterhouse. The new building has been erected from designs by Mr. G. E. Pritchett, the builder being Mr. Stammers, of Southminster, and the bricklayer Mr. Cook, of the same place. The building is of the late period of English architecture, with open roof, the main room being 65 ft. by 20 ft., with a class-room of similar width, forming, as it were, a continuation of the school, with a raised platform for class purposes. There are two separate lobbies, with distinct yards, in the rear, with a dwelling-house for the master.

Finchingfield.—The new school and lecture room in connexion with the Independent chapel, at Finchingfield, have been opened. The building is on the east side of the chapel, and is of red brick, in the mixed Gothic and Byzantine style, with black facings and stone dressings. The area of the main room is 45 ft. by 25 ft., the height being 13 ft. to the plate, and 14 ft. more to the ridge, having an open trussed roof stained as oak, with perforated quatrefoil ventilators; the windows, quarry glass, of Hartley's patent. The entrance from the front is by a Gothic porch, paved with Minton's encaustic tiles. The south end of the ridge of the roof is terminated by a finial. There is at the north end of the building a class-room, 18 ft. by 12 ft., and a small cloak-room.

Elmswell (Suffolk).—The first stone of new national schools has been laid here. They will be built of red brick, and will contain a school-room, 45 ft. 6 in. by 17 ft.; a class-room, 16 ft. by 12 ft.; and various other offices. The roof will be open, high-pitched, and stained and varnished. The plans and specifications were furnished by Mr. A. Andrews, of Bury, builder, who has engaged to build the school. Sir George Seymour, bart., gave the land for the site, and the total cost will be about 500l., the larger portion of which will be raised by subscription.

Madbury.—The old school, it seems, was greatly deficient in accommodation, dilapidated, and otherwise inconvenient, in consequence of which a subscription was set on foot; but as the estimated cost was nearly 900l., the whole amount has not yet been raised, although the school has been built and opened. The architect was Mr. F. Freedy, of London, and formerly of Worcester; builder, Mr. Griffiths, of Eldersfield; and the site is near the church. The school, which has a residence for the master and mistress attached to it, consists of one large apartment, 51 ft. 6 in. by 19 ft., and will accommodate 112 children. The building is of brick, with tiled roof, steeply pitched, open wood-work internally, and small bell turret. At the north end is a window of five lights, with stone mullions, and a quatrefoil opening above; and in the west side wall are two similar but smaller windows, with a fire-place under each, the two flues meeting in the wall between the windows. The facings and masonry of the windows are of freestone, and in the walls externally are bands of blue brick along the centre and at the base. A porch, with open roof, completes the building. There is a large inclosed play-ground.

Wincle.—The foundation stone of a new school and school-house, in connexion with Wincle church, has been laid, according to the *Macclesfield Courier*. The new school will be built on the site of the old one, on ground adjoining the churchyard, given for the purpose by Mrs. T. R. Dainty. Mr. Sugden, of Leek, is the architect, and the building contract has been let to Mr. J. Naden, of Leek, who will use for the work stone obtained in the neighbourhood from Bennett's Hill Quarry.

Liverpool.—The foundation-stone of the Fairfield National Schools has been laid on a site of land presented by Mr. T. S. Gladstone, on the Old Swan-road. The buildings, when completed, will comprise boys', girls', and infants' schools, with class-rooms, and a residence for the master; and they will afford accommodation for about 500 scholars. The plain Early English style of architecture has been followed in the designs, which were prepared by Mr. T. J. Kilpin, architect.

Sheffield.—The foundation stone of the schools which the Wesleyans are about to erect in Ellesmere-road has been laid. The site is on the right of Ellesmere-road, which has been laid out

below the old Grimesthorpe-road. The district contains a large and rapidly-increasing population. The schools will be a part of a larger scheme, which includes a chapel; and the total cost would be about 6,000*l.*, of which one-third will be devoted to the erection of the schools. The character of the architecture is Gothic, and the building will be two-storied, with school-rooms for children of both sexes, and a number of class-rooms. The designs have been prepared by Messrs. Wilson & Crossland, architects.

Kenton (Newcastle-upon-Tyne).—A new Free Methodist Chapel has been opened at Kenton. The chapel has been erected from designs furnished by Mr. George Snaith, of Newcastle, and under whose superintendence it has been carried out. The style of the building is Gothic, and it has been designed to hold 200 persons, all on the ground floor, with vestry and other conveniences behind. The pews are open, with ornamental bench ends. The whole of the internal fittings are stained and varnished. The cost of the building (exclusive of the site) will be about 3,000*l.* Mr. E. Brewis, Low Friar-street, Newcastle, was the principal contractor, Messrs. Bellwood & Son, Russell, Montgomery, Dawber, and Richardson being the sub-contractors for the mason work, plumbing, plastering, slating, and painting respectively. The stained glass spandrels in the two lancet windows in the west end of the chapel were presented to the trustees by Mr. G. Cooper, Clayton-street, Newcastle.

RECENT PATENTS CONNECTED WITH BUILDING.*

PREVENTING DAMP, INSECTS, AND VERMIN, FROM ENTERING DWELLING-HOUSES, &c.—*F. Reichinger*. Dated 22nd August, 1864.—In erecting a house or building according to this invention, a sheet of glass, either plate or other glass of any suitable size, is fixed by cement or mortar against the interior of the walls, running the entire length of the building; in fact, every apartment has a glass wall, which can be ornamented or papered as may be required. In the case of a house already built, the glass is bent and inserted at the top of the room, meeting the glass which is inserted from the room above, and overlapping each other. By this means there is no possible entry or escape either into the apartment or from the apartment.

KILNS FOR BURNING QUARRIES, TILES, BRICKS, &c.—*T. Bennett*. Dated 29th September, 1864.—For the purposes of this invention the exterior of a kiln is built of a similar form to that heretofore very commonly used of an oblong rectangular form. Fire-places are constructed on either side in such manner as to be below the bottom of the kiln. Each fire-place is arched or covered over, openings being, however, left for the heat and products of combustion to rise up through the roof of each of the fire-places into narrow spaces between pairs of walls, by which the interior of the kiln is divided into separate longitudinal compartments. It is, however, preferred that a kiln should be thus divided longitudinally into five compartments, but this number may be varied. The fronts of the fire-places are capable of being closed, and have each a door at the upper part. The interior of the kiln is lined with a wall leaving a narrow space between the interior of the outer wall and the lining wall, and into this space the products of combustion of each of the fire-places pass by means of an opening through the arch or cover of each of the fire-places. At the inner ends of the fire-places there is a hollow longitudinal space which is divided longitudinally, and there are openings into this space at the inner end of each fire-place, so that the heat may get freely under this part of the bottom of the kiln, and consequently, below the bottom of the central compartment, by which the lower part of such central compartment is heated. Near the upper parts of the pairs of walls, and between them, there are horizontal tiles across the open space, and a little below these there are inclined bricks, or tiles fixed across the narrow spaces, by which the products of combustion may fairly rise up, while dust will be prevented descending between the spaces on either side of each fire-place, but will, by the inclined tiles or bricks, be caused to descend to the openings into the fire-places. The quarries, tiles, or other articles, are piled within the longitudinal chambers, and when they are all they are covered over with tiles and then with sand, in such manner as to prevent

the flame, dust, and smoke entering the chambers. Over this covering, and over the pairs of walls and spaces between them, bricks or other articles are piled, which, from their nature, do not require to be burned in closed chambers. By thus arranging the fire-places at right angles to the pairs of walls which divide the kiln longitudinally, and by forming the ends of fire-places with openings into the spaces under the central part of the bottom of the kiln, the heat and products of combustion rising from the several fire-places become very uniformly diffused, and all the chambers are very equally heated.

CAISSONS.—*G. Furness and L. G. Moore*. Dated 31st August, 1864.—For the purposes of this invention it is preferred to employ caissons of an elliptical horizontal section, but other forms may be resorted to when carrying out the invention. Each caisson is constructed as heretofore of a series of short lengths or rings, which are connected horizontally by flanges and screw-bolts and nuts as heretofore; but in addition to the horizontal joints, each short length or ring is formed of two halves or parts, which, by upright flanges, are fastened by screw-bolts and nuts, so that while a caisson consists of a series of short lengths or rings connected horizontally together, as heretofore, the two parts or halves of each short length or ring are connected vertically, so that when a series of caissons have been sunk to a given depth, and parts of the foundation have been formed therein to the height where the caissons are to form permanent parts of the work, the inner halves or parts of the caissons which are above the permanent structure may be removed, while the outer halves or parts are allowed to remain in order to present an arched coffer-dam to prevent the water from getting to the interior while the work is being carried up, more or less resting on the foundation, or parts of the foundation, formed by and in the lower and permanent parts of the caisson.

CONSTRUCTION OF CHIMNEYS AND FLUES FOR HOUSES, &c.—*W. H. Kelsea*. Dated 14th October, 1864.—The patentee claims, first, the construction of chimney breasts in houses and other buildings with a single flue for one series of fire-places throughout the several floors, as described. Secondly, the adaptation and application to a chimney or flue of a register capable of being adjusted, in the manner described, by means of a rack or by other suitable means, for the purpose of putting the fire-place on each floor into communication with the common flue, as required; and also, for regulating the draught from the fire-place into the flue. And, lastly, the adaptation and application of a movable soot-door to the bottom of the chimney, as described.

Books Received.

The British Workman for July 1st has a powerful portrait of Abraham Lincoln, and a memoir of that very able and true-hearted man; besides an excellent engraving of a rural scene, after Birket Foster; and all for a penny!—"Sketches of the Sanitary and Social Condition of Greenock," by Walter Gunn, Missionary. Greenock: Black. Mr. Gunn is a missionary of the right sort: he is not only a religious and moral missionary, but a sanitary and social one. He not only recommends tracts and Bibles, but mops and lime-white pails and brushes; and his teachings not only tend to the promotion of religion and morality, but of sanitary truths, such as the evils of overcrowding and close apartments, and the healthfulness of fresh air and cleanliness. And a fine field he has at Greenock, one of the nastiest and most unhealthy towns in Scotland, where fever has of late been probably far more prevalent and deadly than anywhere else in the north. Mr. Gunn's pamphlet is a sensible production, useful to those he visits, and to others, as a sanitary and social tract, and interesting to all concerned in such subjects.—"The Railway's Construction Facilities Act, 1864, with Notes and Abstract of Nineteen general Statutes incorporated therewith; and the Act for giving additional powers to existing Railway Companies. By C. Wordsworth, Q.C., and Counsel to the Institution of Civil Engineers." Mr. Wordsworth's reliability in editing a volume like this is too well known to need any certificate from us. The Railway's Facilities Act, 1864, is a very important statute, which virtually takes the place of a special Act of Parliament, where all parties concerned consent to the requisite procedure in carrying out new railway works, and obtain a licence or certificate from the Board of Trade.

Miscellaneous.

THE STATUE OF THE LATE SIR CHARLES BARRY.—The statue of Sir Charles Barry, in the Inner Hall of the New Palace of Westminster, will be uncovered on (this) Saturday, July 1, at twelve o'clock noon.

INAUGURATION OF THE ALBERT MEMORIAL, ABINGDON.—The memorial of the late Prince Consort, designed by Mr. Gibbs, of Oxford, and erected on an elevated situation in the recreation-ground, henceforth to be known as the Albert Park, Abingdon, has been inaugurated by the Earl of Abingdon. We have already given a description of this memorial, with an engraved view of it, in the *Builder*.

MONUMENTAL.—A marble statue, by Noble, of the late Mr. J. F. Foster, chairman of the Salford Hundred Sessions, has been presented to the magistrates of the Manchester division of the Salford Hundred, by Mr. J. F. Bateman, civil engineer, and placed in the hall of the Assize Courts. The statue represents the learned gentleman in his wig and robes, and is placed at the east end of the hall.—The monument at Logierait, to the late Duke of Athole, is to take the form of a Celtic cross, and with the pediment, will reach to a height of 59 ft.

BELGRAVE MANSIONS.—A limited company is being formed for the erection of "maisons neuvielles" at Grosvenor-gardens, Grosvenor-place. Messrs. Trollope & Sons having become the lessees from the Marquis of Westminster of a large portion of the land comprised in the "Pimlico Improvements," the opportunity has been taken for the erection of an establishment of this kind, without the enormous cost involved in clearing ground for the purpose. The site lies between the bottom of Grosvenor-place and Victoria Station. It will be in future known as Grosvenor-gardens. The elevation of the proposed buildings, as well as of all the adjoining buildings, has been designed by Mr. T. Cundy, jun., the architect of the Marquis of Westminster, who has also laid out the garden inclosures in front of the houses. The ground-floor and basement of the building, as in Paris, will be let off in shops, and a portion of the ground-floor will be let for a restaurant, the proprietor being bound to supply the residents in the apartments. The upper part of the building will be the "maisons neuvielles," and will comprise about 200 rooms. These will be so arranged that any number may be let off as a separate "apartment," and as there will be several entrances direct from the street, a tenant taking any considerable number of rooms might have the sole use of one of such entrances, thereby securing entire privacy. Messrs. Trollope have entered into a contract with the company, for a sum not exceeding 105,000*l.*, to deliver up the building furnished complete on 25th March, 1867.

THE METROPOLITAN FREE DRINKING-FOUNTAINS ASSOCIATION.—The annual meeting of this body has been held in Willis's Rooms, but was very thinly attended. Mr. Samuel Gurney, M.P., occupied the chair. The report stated that several drinking-fountains and troughs for dogs had been erected by the society since last report, but the great value of space in the metropolis had rendered them unable to provide larger troughs for cattle except in a few places. Between thirty and forty fountains had been given by private individuals. In addition to eighteen new fountains and one cattle-trough erected by the Association, and the seven private fountains given during the past fifteen months, arrangements were made for three other fountains. The cost of one to be placed near the Houses of Parliament would be defrayed by Mr. Charles Buxton, M.P.; and amongst the donors' names were those of Earl Russell, the late Cardinal Wiseman, and the Rev. Newman Hall. The amount guaranteed was far less than was required to carry on the work; and unless increased aid were given, there was danger of the benefits of the Association being stopped. Six years ago there were no fountains in London. The Society had since erected ninety-one. Many of those given by private individuals, and which were under parochial control, had fallen out of repair, and unfortunately the discredit of the circumstance was erroneously given to the society, whose desire it was to have those fountains within their management. The income required was, however, 1,000*l.* a year, and all the annual subscriptions did not at present amount to half that sum.

* Selected from the *Engineer's* lists.

The Builder.

VOL. XXIII.—No. 1170.



Dwellings, and the
Union
Chargeability.

It is sometimes difficult to say in the case of a particular measure of reform that is an instalment only, whether it should, with a view to progress, be accepted or rejected. We felt in this position during the discussion in both Houses of Parliament, of the Union Chargeability Bill, which, before our number appears, will have become law. Meant to aid in the correction of the inequality that exists between the demand for places of residence of the least expensive sort, and the supply of them, as well as in the amelioration in other ways of the condition of the humbler classes of the people, it is a measure the objects of which must necessarily interest us deeply. The difficulty we have referred to arises from experience of the delays, sometimes approaching a life-time, that separate the entire accomplishment of a work of social improvement in which legislation is required, from the period of general agreement as to the necessity of some measure; and which delays often appear to be caused by the confirmation given by an Act of Parliament to an original falling short in the grasp of the whole question. Of the whole desired reform in the system of chargeability of the poor, the Bill now passed is, we consider, but a very slight instalment. But the discussion of it has been the means of registering pledges of further reform, and of showing what are the points which yet require attention.

The object of the measure has been succinctly stated as to give the labourer a wider range, and a freer scope for making the most of his industry. Thus, that unfortunate state of things alluded to above, and a constant subject of comment and illustration in the *Builder*, by which the labourer is either domiciled worse than the cattle, or is compelled to waste his strength in daily walks of eight or twelve miles, it is hoped will be ameliorated. It is hoped that amongst the circumstances which involve the difficulty that the labourer has in procuring a dwelling not directly hurtful to him, or a dwelling of any kind, will not in future be found the particular deficiency that has resulted from the discouragement given by many landowners, to the building of cottages, under the apprehension of increased charge upon the rates.

During the discussions upon the Bill, it was contended that allegations respecting an actual destruction of cottages had no foundation, at least as regards the last few years; or that where cottages had been destroyed, they had been replaced by others. These last giving better accommodation than the equal number of cottages destroyed, it was argued, somewhat incautiously, that all that was necessary had been done. But, besides the provision for a greater number of persons, one of the improve-

ments needed has been that of the allotment of a greater number of rooms to each family. New cottages ought to be larger than the old, although to provide for the same number of persons. It would require much space to explain the discrepancy between certain statements, and some of those of the report of Dr. Hunter which was so often referred to in the debates; but it is not necessary to do so. It may, however, be mentioned in this place, that the figures of number of houses and increase of population were taken from the census returns. The report had not been intended to be quoted by Mr. Villiers in evidence of the condition of affairs which it was hoped to remedy. As to that condition, abundant other testimony was and had been adduced. It would, indeed, be quite sufficient to rest the case for some legislation, on the restricted statement that house-accommodation does not keep pace with the population, and upon evidence that where houses are not demolished, they are often allowed to fall down and are not rebuilt.

There are however parishes in which no new houses are allowed to be built; and there are certainly others in which houses have been pulled down. Surely, a more stupid and harsh system could not exist. If the object have been a pecuniary gain by driving paupers out of a parish, it is difficult to see how in the majority of instances, that has been attained, and therefore what exact improvement the change in the law has to effect in the direction referred to. The state of the law of settlement, even after the passing of the Union Chargeability Bill, remains unaltered. It is only promised, by Mr. Villiers, to be taken in hand shortly. The law is one with which no one except a parish-officer seems to profess acquaintance; indeed, we have heard the remark that no one but the late Mr. Baines knew much about it. It is worse than obscure: it is framed as though intended for cruel deception. This will appear in the sequel. Let us first explain further what the new Act aims at effecting.

The Union Chargeability Act is based on the principle that the area of rating for the poor, should coincide with the area of management. The union is taken as the unit of administration, instead of the parish. It is said that the Act will put an end to removal from parish to parish in the same union, and that the poor will be removable only from union to union.

The popular belief is that a settlement is obtained by residence of a certain number of years in a parish. On the other hand, the law is such that a person may reside any number of years in a parish, and not obtain a settlement in it. Yet Mr. Villiers is reported to have said on one occasion:—"The great source of settlement and charge in parishes, is the residence of the poor. The poor obtain a settlement by residence, and their families derive their settlement from them. Therefore, the great object, in order to keep down the poor, is to prevent them from residing in parishes." Now, mere residence did not, and does not yet, give a settlement. The residence must be connected with something else,—property, or renting, or what it is not within our speciality to be able to explain. Moreover, the children of a person who has resided for a number of years in a parish, without having obtained a settlement in it, may be removed, on becoming chargeable, to the place where their grandfather was bound apprentice, or to one where their great-grandfather was hired and served for a year. But though mere residence will not confer a settlement, it seems understood to confer what is called irremovability, if continued for the requisite time. This was not long ago five years; but in 1861, the period was reduced to three years; and it is now to be one year. The residence is said to confer the irremovability in fact, and always; but with our knowledge of a case to which we shall refer, we

do not see how this can be. However, it appears that whilst comparatively few paupers have gained a settlement, an important number have the irremovability. The maintenance of these last, without the Act just passed, has been chargeable on the common fund of the unions.

Thus, it has been pointed out by the *Pall Mall Gazette*, it is difficult to see that a landlord has been under any inducement to pull down cottages with the object so frequently referred to, or "how the introduction of union-chargeability will affect the matter." An employer would have gained nothing by the pulling down, unless he could have driven his labourers, not only out of the parish, but out of the union, for their residence. This might be possible indeed in many cases, as near the border of a union, where the labourers might be driven into a town in a different union. The writer in the *Gazette* reasonably enough asks why, since the poor will be chargeable to the unions, and will be practically speaking removable only from union to union, the principle of union-settlements should not at once be recognised. He would have added to Mr. Villiers's Bill a clause to this effect,—"Every person who is irremovable by reason of having resided three years in any union shall be settled in the parish from which he is irremovable,"—and says that thus nearly all the misery of the law of settlement would be swept away; since,—"It would realize the popular and perfectly just notion that there ought to be a substantial connexion between the pauper and his place of settlement, and it would enable a poor man to go out of the bounds of the union from which he is irremovable for some temporary purpose without thereby falling under the tender mercies of the law of settlement." It is desirable that the man should be unfettered in his efforts to get the best price for his labour; but the labourer feels he is not free, so long as he is unable to move where he pleases without danger of losing his right to relief.

In the Yorkshire manufacturing districts there is a deficiency of cottages; but it is said to arise from the circumstance that the demand has increased more quickly than it has been possible to build. Such a case as that of some agricultural districts, where there is increasing population, but decreasing house-accommodation, is not met with. Of these last, some of the worst cases are produced by the system of the parishes where there are large landed proprietors resident. Pattern-villages are built; but the cottages in them are restricted in number; so that the surplus of population goes to increase the crowding in villages four or five miles away, where there are no restrictions. Now the aim of the Yorkshire manufacturer is to supply his mills with labour; and his mode of effecting this is by having cottages in the vicinity of his mills. As cottage-building does not pay of itself, the landowner must be induced to look at the question in the same light as the other employer of labour. At present there is by no means an excess of labour in many districts; and some farmers have found an advantage in conveying their labourers, the four or five miles from their place of residence, on donkeys.

It is not surprising, therefore, that the employers, as distinct from landowners, and as represented by the Farmers' Club in the Blackfriars-road, were unanimously in favour of union-rating, and of the abolition of the law of parochial settlement. According to one statement from an attorney at Swindon, quoted by Mr. Villiers, the law has operated unfavourably upon the farmer, by diminishing the supply of labour; has led to the crowding of labourers into particular parishes to the exonerated of other parishes; and has worked against the employment of free labour and the best labour. The Rev. Mr. Huxtable has shown what are the

consequences when the wages of superior men are diminished, as in parishes where a certain amount of work has had to be distributed alike among all the labourers. He says, speaking of what we may now hope is a past state of things, "If a few did a much greater quantity of work, and thereby earned higher wages, there would be so much less employment for the rest, so that there is really no encouragement for the superior labourer in the parish, nor can he carry his skill to another market; where there is no fit residence for him, and no provision in sickness and old age under the present system." The Rev. Sir A. Henniker, incumbent of Thornham, Suffolk, also as quoted by Mr. Villiers, stated that he knew of places in which, having noticed the diminution of cottages, he was informed that "the village was supposed to look prettier with fewer cottages," and that "the labouring class of men came from the adjoining parish." The Hon. and Rev. Mr. Talbot, Chairman of Quarter Sessions in Staffordshire, has "frequently observed that when a man who lived near his work came to be about 50 or 60, he was still fresh and active, while a man who had to walk daily two miles to and from his employment was worn out by the time he attained that age. . . . He always found that the men who lived near their work preserved their strength for many years longer than those who resided two or three miles from it." In the debate on the late Mr. Baines's Bill, it had been said by Mr. Ker Seymour, that in consequence of the law, "for one man who left his settlement and was returned to it a pauper, 100 were prevented from leaving home in search of work." Some of the most important evidence adduced by Mr. Villiers was drawn from prize essays of the Royal Agricultural Society. It spoke of the practice of "clearing off cottages" as to be found in Somerset, of a system of depopulation as systematically carried on in some districts in Northamptonshire, of more cottages as wanted in numerous counties, of evils in health and morals from overcrowding, and of the useless wear and tear by long distances required to be traversed. Again and again is there some such observation, as that it "is the unfortunate policy of the settlement law to offer inducements to the demolishing cottages where they are urgently required, and to the congregating them where they are not."

We must leave to others explanation of the discrepancy which there would seem to be between "irremovability," or that which has been acquired by simple residence of three years, and the fact that a person can be removed from the neighbourhood of his friends, hundreds of miles away, to a parish with which he has had no relation except from having been born in it. But we happen to have the best reason to be acquainted with a case exceeding in the cruelty of it, any that we could have supposed possible under English law, and which shows that besides the cruelty, there is positive stupidity in the existing system.

Some three years ago, a youth, who held at the time a subordinate position with a certain architect, became insane. He was then resident, with his mother and younger brother, the latter an idiot, at a place where he had resided within a month or two of three years, in the suburbs of London, on the Surrey side of the Thames,—having previously resided for more than five years in one parish in the north of London, and before that in different quarters of the metropolis. His mother whom he had helped to support and console, when the malady broke out, having no other course, sought the authorities of the Lambeth workhouse, and having answered all questions truthfully (some might say too much so), was allowed to bring her son, who was shortly afterwards transferred to the County Asylum, where his mother was able from time to time to visit him. It is now necessary to state that the youth was born in Cornwall. The brother was born in Oxford. The mother's birthplace was in Devonshire; but she had resided in London for twenty years or more. The father's birthplace had been somewhere else. The youth remained at the Surrey Asylum for some months; but one day, the mother received a letter from the stewards' clerk of that institution, informing her that three days later her son would be removed to the Cornwall County Asylum at Bodmin. Her assent was not asked. At the time named, which happened to be over the period of three years from the date of taking up the residence in the parish in Surrey, her son actually was taken away, both in spite of her protest, and

in spite of the Commissioners in Lunacy, who were addressed without an hour's delay, and who immediately took up the matter. Were it not obvious that the influence of the affections would go to assist in a cure, or otherwise in alleviating the condition of the patient, and also that watchfulness on the part of relatives may be necessary to prevent ill-treatment even in county asylums, we could readily give evidence on those points from the reports themselves of the Commissioners. It seems that the original accident of birth in a place where the mother was living during only some weeks, led to a claim, many years afterwards, by the Surrey parish or union, against the Cornish one, and to the removal, which was the act of the latter. The mother has now not seen her son for three years; she has had no letter from him for that time, and has only learned that he is suffering from an old disease, which may have had something to do with the mental disorder, and as to which the information that she could give would be important. She has no means of earning a living in Cornwall, and has no hope of getting there to see her son, unless by the charity of friends, and for a very short visit. Now, how can such a state of things as this which we have described, be reconciled with "irremovability," or with Christian charity? Can it be reconciled with public policy and economy even? The youth's brother, if no other member of the family, may need treatment: thus, the remaining son would be deported to Oxford. Can anything in this country be more stupid and uneconomical, leaving the cruelty out of the question?

For all that the Union Chargeability Bill has become an Act, we believe that the case which we have described might be reproduced this very year. All we learn of the probability that the state of affairs will be eventually other-wise, is that Mr. Villiers is "favourable" to "the abolition of removal," that he "does not deny that it would be an immense advantage to get rid of this system of removal," and that he would be "glad to see the system of settlement abolished,"—the present measure being proposed "as an instalment," and as this alone can we accept it.

THE ROMAN CATACOMBS.*

The first impression, on descending into catacombs, when the light of day is suddenly lost, and the eye follows the dim perspective of corridors lined with tier above tier of funeral niches, partially shown by the glare of torch-light, is one that chills and repels. Imagination calls up what Reason rejects, and sports, as if fascinated, with ideas of danger—mysterious, undefinable—corrected, indeed, by the higher associations and reminiscences that naturally take possession of the mind in any degree acquainted with that past so replete with noble examples from the story of those who here—

" . . . in the hidden chambers of the dead,
Our guiding lamp with fire immortal fed."

We may, perhaps, descend into these abysses from some lonely spot in the Campagna, whence the Vatican cupola is distinctly visible; and certainly nothing could be more glorious, from the point of view of Roman Catholicism, than the confronting of such a monument to triumphant religion with the dark and rudely-adorned subterranean once serving as sanctuaries of the primitive church of this centre, subsequently raised into such proud ecclesiastical supremacy! Another thought, that may spring from this range of antiquarian study, and invest its objects with still deeper interest, is that of a promise for something higher than either Catholicism or Protestantism, in the Christianity of the future.

In their primitive mode of interment, the early Christians may be said to have taken, as their model, the sepulchre of the Redeemer,—a cavern, with entrance closed by a stone, in which usually but one body lay; and in the especially honoured tombs of martyrs, or other illustrious dead, the form called *arcosolium*, like an excavated sarcophagus, with arched niche above, supplied the norms for the later-adopted altar of solid stone (instead of the plain wooden table in earliest use), with relics inserted in a cavity under the mensa; the practice of consecrating the Eucharist over such martyr-tombs having passed into the universal discipline of the Latin church, through a decree of Pope Felix (269—275),

ordering that henceforth all masses should be celebrated over such burial-places of the holy dead.

"Alter quietem debitas
Prestat beatis ossibus."

as Prudentius testifies to this ancient usage. From the same poet ("Hymn on St. Hippolytus") we learn that these subterranean were not originally, as we now find them, in total darkness, but lighted, however dimly, by those shafts (*luminaria*) still seen in many parts piercing the soil above our heads, though no longer in every instance serving for that purpose. The circumstances under which catacombs have been rediscovered within modern times, at the several points where we now descend into them, form a sufficiently singular detail in the story of their vicissitudes; and it is remarkable that the period of the greatest religious conflict among Christian nations, was that which witnessed the revival of this long-forgotten testimony, conveyed in such striking monumental language, to the faith and practice of the primitive Church. Energetically as these hypogæes were explored in the sixteenth and seventeenth centuries, little had been accomplished, in comparison with the results attained within years quite recent, by any of those earlier undertakings; and much of the fruit long since secured was lost through Vandalic spoliation or inexcusable neglect. It was on the 10th of December, 1598, that the first exploration was commenced by Bosio, in company with Pompeo Ugolino and others; and subsequently, between that year and 1600, were explored by the former all the subterranean into which he could find access along the Appian, Salarian, Flaminian, Ostian, Latin, and Portuense Ways. In the library of the Oratorian fathers at Rome may be seen four large folio volumes of MS., entirely written by Bosio, and comprising the vast material for the work he did not live to produce. Another example of industry, in its results frustrated by fatal accident, was the compilation intended to comprise all the art-objects, epigraphs, and other details found in catacombs, on which Marangoni and Boldetti had been occupied for seventeen years, when the whole fell a prey to the flames in 1720; the few fragments saved being, however, turned to account by the former, whose energies proved dauntless even after that shock, and brought out as an appendix to his "Acta S. Victorini," Rome, 1740.

Bosio, in the course of his long labours, discovered only one group of sepulchres historically noted (in 1619); another such was found by Boldetti in 1720; and in 1845, Father Marchi had the merit of like discovery in regard to the tombs of the martyrs Probus and Hyacinthus. The catacombs called after the Christian matron Lucina, entered between the extramural basilicas of St. Paul and St. Sebastian, were discovered by the accidental sinking of the soil in 1688; and the opening of those of the scilicet in 1689; on the Latin Way, in the year previous, was alike due to mere accident. In 1849, the Cavalier di Rossi began his task of directing works in two catacombs, for the costs of which a monthly subvention was assigned by the pope. Soon afterwards Pius IX. appointed an "apostolic visitation," for ascertaining the condition of all the Roman catacombs; and a more practically important step that soon followed was the creation of a "committee of sacred antiquities," with charge and superintendence over all works and objects within that sphere, under whose direction the first excavations in catacombs were commenced in November, 1851; by this arrangement being superseded the appointment made by decree of Pope Clement XII., in 1672, for intrusting the care of all these hypogæes to the cardinal-vicar, under the authority of whom, and that of the papal sacristan (a prelate), all excavations used to proceed, immediately directed by *custodi* as official deputies. Even whilst that earlier organization continued in force with respect to such undertakings, the loss and destruction of monuments from catacombs reflects most unfavourably.

Marangoni (after long experiences as assistant *custode* with Boldetti) tells us that thousands of epigraphs were taken from these cemeteries to the church of S. Maria in Trastevere; seven cartfuls to S. Giovanni de Fiorentini; two cartfuls to another S. Giovanni, of this city; yet, at the present day, only about a score of epigraphs are seen in the portico of the former, not one in either of the two latter churches above named. Mazziolari ("Vie Sacre," Rome, 1779), describes what he had himself seen, the deliberate destruction of a corridor and *cubiculum* (sepulchral

* See p. 385, ante.

chapel) in the catacombs of St. Lawrence, almost immediately after the reopening of that section in the long inaccessible cemetery on the Tiburtine Way.

The works carried on in such subterranean near Rome within recent years have led to most interesting results. First of all may be classed, for importance, the discovery of the vast hypogee identified as that which took its name from St. Callixtus (pope, A.D. 218), though of origin still earlier; not founded, but enlarged, by that bishop; and in which all the popes were interred during the third century, the first mention of this as a Christian cemetery, whose possession was legally guaranteed to the church, occurring under the reign of Septimius Severus. About two miles beyond the Appian Gateway stands, on an elevated ground, an old brick edifice with apse and vaulted roof, long used as a gardener's store-house, now identified as the chapel raised for his own sepulchre by Pope St. Damasus. Near this were directed, in 1844, the researches that led to the opening of those long-unexplored catacombs at a short distance from the basilica of St. Sebastian, below which are entered other subterranean long erroneously supposed to be the real Callixtian cemetery. Some years previously had been found, near to this spot, a broken marble slab with the letters of an inscription—NELIUS MARTYR; and the discovery of the tomb of St. Cornelius (pope, A.D. 251), soon rewarded the labours here undertaken; the missing fragment, with the letters COR . . . EP(iscopos), being found within a cubitum dimly lighted from above, where we see both the empty grave and the image of Pope Cornelius, represented in juxta-position with St. Cyprian of Carthage, near the figures of two other saints: one distinguished by the written name "Sixtus," another martyred pope; the two first thus associated, not because here interred together, but because commemorated by the Church on the same day, having both suffered on the 10th of September, and in life-time held frequent correspondence. These four figures have the nimbus round the head: all show the same characteristics of style, individuality marked in the features, draperies well treated, and a period not later than the sixth or seventh century can be assigned to these, as to other paintings in the same subterranean,—that of St. Cecilia (in the chapel where she was interred), a large head of the Saviour near her full-length figure, and her contemporary Pope Urban.

At a glance we may go through the entire range of Scriptural subjects, from the Old and New Testaments, admitted in the art of the primitive Church. That circle is narrower in the paintings than in the sculptures, and obviously determined by traditions of religious propriety, from which the imaginative faculty was slow to emancipate itself. In considering the selection to which this art was so rigorously confined, we are struck by two predominant features,—the avoidance of all subjects invested with most awful sacredness, as the crucifixion, the resurrection, the ascension, the institution of the Eucharist, and the pervading mysticism which ever led to prefer such themes, in miracle, type, or historic incident, as suggest more than they represent; for, in fact, the more frequently-recurring subjects seen in catacombs and among the reliefs of Christian sarcophagi, always imply a truth or principle addressed to the moral sense of the believer, lying far too deep for the apprehension of the uninitiate. In sculptures this is more strikingly carried out, as indeed these (for the most part) later products exhibit the higher technical skill attained in those earlier ages. Nothing could be more judicious than the selecting and arranging of contents in the Christian Museum at the Lateran Palace, founded by Pius IX. Yet in the valuable series of sculptured sarcophagi there, we miss the finest specimen, that of Junius Bassus, prefect of Rome, who died a neophyte, A.D. 359, and was buried at St. Peter's, where his beautifully-chiselled tomb was rediscovered, after ages of oblivion, in the works for the building of the new basilica, but still to be left near its original place, within a corridor of the crypt below the high altar.

In freedom of design, in conception as well as execution, these reliefs surpass all others of the same epoch: five groups are ranged along an upper, and five along a lower file, divided by pilasters, the lower under canopies alternately circular and pointed; the subjects historic, except the principal one, that of the Saviour: here a beautiful youth seated between two apostles, with His feet upon the earth, personified as an old man just emerging from the ground

and holding over his head a canopy of draperies. The Sacrifice of Abraham; the Sufferings of Job; the Fall of Adam and Eve; Daniel in the Lions' Den; Christ entering Jerusalem seated on an Ass; again seen before Pilate, who is washing his hands; the Denial of St. Peter, and the Arrest of that apostle, are the representations ranged around; but more curious still are the groups of sheep, minutely represented on the flat space between the arches of the lower file, serving to attest both the simplicity and earnestness of the minds to which such art-treatment could be addressed: for we see those animals performing a series of acts from both the Old and New Testaments, thus being naively admitted to personify Moses, John the Baptist, and the Redeemer himself. A sheep strikes water from the rock; a sheep performs the miracle of multiplying loaves; a sheep gives baptism to another of its kind; a sheep touches a mummy-like figure with a wand to represent the raising of Lazarus. In the Lateran Museum, the most interesting and complete series of reliefs is a large sarcophagus brought from St. Paul's, on the Ostian Way, where it was probably placed at the time of the rebuilding of that basilica, late in the fourth century. The groups here seen form a valuable record of religious ideas, and of the interpretation of Scripture; but we are shocked to find the traditional reverence of earlier days so soon departed from in the admission, among the now larger art-range, of such a subject as the Supreme Being manifest alike in the Father, Son, and Holy Spirit, under the aspect of humanity, with identity of type, stern, strongly marked, and indicating middle age, in each of the co-equal Three! First, we see the creation of Eve out of Adam's side, by God the Son, in presence of the Father and Spirit; the former seated, and in the act of blessing the new-born woman; the latter standing behind the Father's throne; next are seen the Son awarding to Adam and Eve the symbols of labour, which was a part of their punishment,—a wheatsheaf to the man, a lamb (for spinning wool) to the woman; and it is remarkable that in this instance the Son appears under quite a different aspect, more youthful and beautiful than when associated with the Father—thus to announce the mystery of His Incarnation. Successively follow the miracles operated by our Lord upon wine, bread and wine, the Adoration of the Magi (the Virgin of a somewhat severe matronly type) with the Holy Spirit (again of human aspect), standing beside the chair of the Mother and Child; the restoring of Sight to the Blind; the Raising of Lazarus; St. Peter denying Christ; St. Peter between two Jews (his arrest, as probably intended); Moses striking the Rock; the Story of Jonas; Christ entering Jerusalem; Daniel between the Lions; and this last an instance of very original treatment, for, besides the figures essential to the story, appears the Holy Spirit, in the same form as previously; and Habakkuk carried by the hair of his head, bringing the bread he was desired by an angel to supply for the prophet's sustenance (another admitted type of the Eucharist), as narrated in the supplement to the Book of Daniel, rejected as apocryphal by Protestants. As to the selection from the miracles of our Lord (constantly repeated in other as in this series of reliefs), the mystic meanings, it is urged, are intended; thus they say, that the healing of the paralytic implies absolution from sin; the giving of sight to the blind, illumination through faith; the multiplication of loaves and fishes, as well as the change of water into wine, the Eucharist. Moses striking water from the rock is said to imply baptism; the raising of Lazarus, the general resurrection; the adoration of the wise men, the calling of the Gentiles to Christ; the trials of Job, his affliction who was the "man of sorrows," the story of Jonas, the resurrection of Christ; Elias carried up to Heaven, the ascension of Him whose last sufferings and triumphs upon earth are reverently shown, but under veils of symbolism. On two other sarcophagi in the same museum is seen the Labarum, guarded by soldiers, and with birds on the arms of the cross supporting the holy monogram. On another are very curious details of architecture, in two backgrounds, where we recognise a Christian basilica and baptistery, of circular form, no doubt, correct representations of the sacred buildings of Rome in the fourth or fifth century. Another of the finest examples of these funeral sculptures is in an almost dark chapel (no longer used for worship) off that of "La Pietà," at St. Peter's—the tomb of an illustrious wedded pair, Probus

Anicius, prætorian prefect, who died A.D. 395 and of his wife Proba, whose virtues are commemorated, with those of her husband, in a long poetic tribute, still extant. On the sarcophagus front is the Saviour, youthful and beardless, holding the book of the Gospels, and standing on a rock from which issue the four rivers of Paradise (a type of the Evangelists); beside Him stand SS. Peter and Paul; and behind, divided by twisted colonnettes, the other apostles, most of them in that attitude, with one uplifted hand, understood to express assent or reverential attention. Elsewhere in this city's churches, at St. Peter's and St. Maria Maggiore, are to be seen ancient Christian sarcophagi converted into altars, adorned by observable sculptures; and another collection of sacred antiquities in Rome, besides those of the Vatican and Lateran, containing numerous paintings from catacombs, is the *Custodia* of Relics, in the Apollinare Seminary, made public but one day in the year, shortly before Easter.

Besides those above named, there is another remarkable range of subjects serving to illustrate doctrine or religious usages; and the judgment of competent critics, who assign to certain catacomb paintings antiquity so high as the first or second century (see Northcote, "The Roman Catacombs," ch. iv.; Gournerie, "Rome Chrétienne;" Agincourt, "History of Art;") may enhance the interest of our studies in this walk. A figure kneeling before another, who seems to give absolution (Catacombs of Hermes) is supposed to record the story of some person *lapsed* during the period of persecution, or other notorious sinner publicly reconciled to the church before death. The Five Wise Virgins (Catacombs of St. Agnes) are represented with torches instead of lamps, conformably to Roman practice, but each carrying also a little vessel for oil. Also, in the same catacombs, we see the Virgin with the Child, not (strictly speaking) on her lap, but rather standing in front of her, whilst her arms are extended in attitude of prayer, the holy monogram on each side serving to determine the date of this perhaps earliest example of the perpetually-repeated "Madonna and Child" in art, as not prior to the end of the fourth or beginning of the fifth century, no certain example of such symbolic letters being found before the period of Constantine.* A group of the Saviour in the midst of the Twelve Apostles (Catacomb of SS. Nereus and Achilleus),—two only, SS. Peter and Paul, those nearest to Him, being seated, whilst the others stand—seems evidence to the idea of superiority alike shared by those co-founders of the Church in Rome. A banquet at which persons of different age and sex are assembled, waited upon by two allegorical personages, Peace and Love (Irene and Agape), whose names are written near (Catacomb of SS. Peter and Marcellinus), is a scene supposed to represent the joys of Paradise, as do the recumbent figures in rich vestments, holding goblets, on Etruscan tombs. A dignified person (perhaps bishop) seated on a chair with another (a deacon?), who gives a veil to a female; in the middle a taller female who stands in prayer; and opposite, another seated with a naked infant in her arms (Catacomb of St. Priscilla), is a group interpreted by Bosio as the ceremony of consecrating as a nun the daughter of St. Priscilla, by Pope Pius I., assisted by St. Pastor, before the mother herself, beside that holier presence the seated Madonna with the Divine Child. The Agape, frequently seen both in painting and among the reliefs of sarcophagi, is represented as a banquet at a crescent-formed table, the viands usually consisting of a lamb, or fish and bread, with wine. A group representing two persons, male and female, the latter with arms extended in prayer, beside a tripod-table on which are laid a fish and some loaves marked with the cross (Catacomb of St. Callixtus), is a strikingly-expressive illustration of the Eucharistic doctrine, with not only the proper substance of that sacrament in one kind, but also the mystic emblem of our Lord's person—the Divine Presence—associated with it; another sacramental subject, in the same catacomb, where we see a man pouring water over the head of a boy while both stand in a river, conveying proof that infant, or at least pedo-baptism, was the practice of the ancient Church. It is, indeed, in the aggregate, a grand and affecting ideal of primitive Christianity that this monumental series,

* Such, at least, is the general conclusion: though Bottari asserts this monogram to have been seen on the epigraphs of two martyrs who suffered under Hadrian and Antoninus; and by himself found, in mosaic and on terracotta, in examples he assumes to be of the earlier period.

painted, sculptured, and chiselled, presents to us—a moral picture of purity and peace, devotional earnestness without fanaticism,—mystic ordinances undegraded by superstition, the truly godlike manifest in the supreme sacrifice of the heart, the mind, and life. In the varied and mystic illustration of sacraments, in the selection from the evangelic history of such miracles as convey lessons of Divine goodness and love, or confirm belief in immortal life, it may be said that one subject dominates throughout the entire range, like a star throwing its hallowed light over the religious sphere, the person and office of the Redeemer, towards whom all hope and faith ever tend, from whom proceed all power, all strengthening and consoling virtue.

The idea of a headship over other apostles, vested in St. Peter, appears occasionally with most decided expression, though indeed tempered by other proofs of an admission to spiritual equality for those co-founders, Saints Peter and Paul. In the sculptures on sarcophagi (which in far the greater number may be referred to the fourth and fifth centuries) this idea of St. Peter's supremacy becomes more manifest, as natural at periods when the Roman bishopric was rapidly advancing in power and grandeur. Moses and the apostle constantly appear in the juxtaposition, the one striking the rock, the other standing between two Jews; the aspect of both absolutely identical; and the wand, symbolic of authority, is as often held by the apostle as by the lawgiver. In an enamel on glass this becomes an absolute interchange of offices,—St. Peter (designated by name) is striking water from the rock in place of Moses. In regard to that vast range of monuments, the epigraphy of the catacombs, we must turn for the best of guides and authorities to De Rossi's "Inscriptiones Christiane Urbis Romæ," an immense compilation, intended to comprise nearly 11,000 epigraphs, all collected by the writer during twenty-one years of assiduous research, and all to be eventually classified, under the same gentleman's direction, in the Christian Museum of the Lateran.

The first volume supplies fac-simile plates of 1,374 inscriptions, ranging in date from the earliest known to A.D. 376; the proposed limit to this series being the sixth century, here considered the final term of the Roman imperial period, and also that which the series of subterranean epitaphs ceases.

Di Rossi expresses the conviction that numerous decorative and art details, hitherto ascribed to the third century, are really much older, among proofs of which high antiquity, approaching even the Apostolic age, this writer points out the classic style manifest in various frescoes and decorations on stucco; also the constructed (not merely excavated) crypts, the chambers and corridors without sepulchral loculi, but provided instead with ample niches for sarcophagi; the numerous epitaphs wanting the usual Christian formulas, and with nomenclature quite classic—all particulars found in certain hypogæes. Till the latter years of the third century no spoliation had impaired any of these cemeteries, no intolerant edict had driven the faithful from their limits; but during the Diocletian persecution all places of Christian assemblage were burnt down or devastated, all ecclesiastical books given to the flames, the Roman see being left vacant for six (if not seven) years and six months. That tempest was finally stilled by the relenting policy of Maximian, A.D. 306; but the restitution of what the Church had lost did not ensue before 311.

The legalized possession of these cemeteries and (as naturally followed) that of their churches likewise, by the Christians under Pagan government, is one historic point clearly established, and, we believe, for the first time, by the arguments and proofs in Di Rossi's "Roma Christiana." Valerian, it is true, decreed that the followers of our religion could not even enter the cemeteries formed for their use; but Gallienus restored such sites by law to the bishops, implying the recognition of the aggregate claim. During the third century, at latest, that possession was generally and legally guaranteed. The Christians of Antioch applied to Aurelian, in order to compel a bishop deposed in council, the heretical Paul of Samosata, to evacuate "the house of the Church," and in the sequel the decree of a Catholic synod was enforced against that offender by a Pagan magistrate. It is an ingenious suggestion of De Rossi, that originally perhaps, it was under colour of associations for mutual aid and charitable interment that the

Christians obtained the first conceded tolerance gradually extending to their places of worship, as well as of sepulture.

The chronology of primitive Christian art, cannot, of course, be brought within bounds of distinct definition; and has been subject to various conjectures. Its earliest forms were purely symbolic: sacred emblems, the Lamb, the dove, the ship, the lyre, worn on rings or bracelets, or embroidered on vestments (vide Clement of Alexandria, second century); if any human figures were represented, no other save the Good Shepherd, mentioned by Tertullian (early in the third century) as sometimes seen, probably enamelled, on chalices, statues, and all attempts at portraiture, were prohibited till after the time of Constantine; and Mabillon concludes that ten centuries had passed before the church ever allowed images to take their place on the altar. From evidences of style, it is inferred that several paintings in the catacombs may be so ancient as the second century (?); that a much larger number, besides certain of the reliefs on sarcophagi, may be referred to the last years of the following; and Agincourt sees marks of superior skill in such subjects (among these reliefs) as the crossing of the Red Sea; Elias ascending to Heaven, and leaving his mantle to Elisha; the Samaritan woman; the bestowal of the keys on St. Peter, leading him to ascribe their execution to the artists of the first two centuries.

The beauty of the social picture presented by those ages of faith could indeed be little appreciated, were we only to regard ritual and æsthetic aspects apart from practical realities and the claims of duty. Charities under the Early Church were wisely regulated as well as most generously liberal: one-third of the aggregate ecclesiastical revenues went to the relief of the poor; another to the bishops and clergy; another to public worship and sacred edifices. Before the end of the fourth century, existed hospitals for the poor and aged, founding asylums, and *xenodachia* for travellers, all supported by the several churches, and mostly founded by bishops who were their local superiors. The Christian stranger was always at home among his fellow worshippers, and maintained gratuitously, if he brought letters of recommendation (*epistola formule*) from the bishop of his diocese. In the observance of fast-days, it was enjoined that the costs for ordinary meals should be saved for the relief of widows, orphans, or others in want (i.e. the "Pastor" of Hermas). The religious instruction of children was from an early period provided for on system. Proof how early was condemned by the Church, and, to the extent of her means, put down, that great social evil of Paganism, slavery, is supplied with striking force in the ancient Christian epigraphs. Among the entire number, about 11,000, belonging to the first six centuries, scarcely six inscriptions (and, as Mr. Northcote shows, two or three among these doubtful) contain any allusion, in their brief and simple language, to this fundamental division of ancient Roman society; whilst *alumni* (adopted foundlings) are named in a greater number of these Christian inscriptions than in the entire range of those from Pagan monuments,—a further proof of the prevailing beneficence, the new-born domestic virtues, to which so many outcast children owed their maintenance, and even life, as members of the Christian community.

In the nineteenth year of Diocletian, date of the persecuting edict, one clause in which enforced the destruction of all Christian churches, the new worship is said to have been celebrated in forty such sacred buildings within this city.

The officiating clergy were (till the end of this primitive period) attired in the classic white vestments common to Roman citizens, but distinguished by the long hair and beard of philosophers; and not till the Constantinian period did the bishops begin to wear purple; not till the ninth century was that costume entirely white (sometimes, indeed, slightly adorned in purple or gold) laid aside by the priesthood generally.

Di Rossi concludes that both pictures and sculptures had begun to appear, though not in very common use, among the ornaments of sacred buildings, at least so early as prior to the last persecution; that it was in consequence of the outrage inflicted on such sacred art-objects under Diocletian that the Council of Elvira, A.D. 303, passed the variously interpreted decree: "Ne quod colitur et adoratur in parietibus depingatur."

The actual number of catacombs has been

very differently reported. Aringhi, followed by many other writers, first raised it so high as sixty; but without proofs adduced from any personal experiences. Di Rossi now sets the question at rest by supplying a list in which are reckoned forty-two; not more than twenty-six being of vast extent, and five being cemeteries whose origin was subsequent to the peace secured for the church under Constantine,—all within a circle not more than three miles distant from the walls of Servius Tullius; though, indeed, other such hypogæes are known to have been formed beyond that radius. The name *ad catacumbas* was originally given to only one, that of St. Sebastian, on the Appian Way; and *catacumba* was the primitive title proper to a small oratory behind the extramural basilica of that saint, where is still extant a crypt chapel, built about the middle of the fourth century, for consecration of the spot on which (according to legend) the bodies of Saints Peter and Paul reposed for a time after the attempt, made shortly after their deaths, to remove those revered relics from the original places of sepulture to the East; a sacrifice thwarted (as the legend narrates) by a violent thunder-storm, which detained the emissaries from the East till certain Roman Christians arrived, who rescued the bodies, and here gave them interment. To the same spot, it is said, the body of St. Peter was a second time transported, in the fear of profanation, when a new circus, to extend on the Vatican hill above the site of the Christian cemetery, had been projected by Heliogabalus. About half below the level of the ground, behind St. Sebastiano, stands this ancient chapel, circular in form, and very inferior in masonry, with a plain altar in its centre, above the deposit in which the apostles' bodies are said to have lain* for a year and seven months, according to some writers; for not less than forty years, as one chronicler states. Round the walls are, at regular intervals, several *arcosolia*, apparently made to receive sarcophagi, once adorned with painted stucco in the style of a very early period, but now barbarously covered with whitewash. Another oratory, at higher level, is entered near this, in form and construction similar, where are still seen, though but dimly, on the low-vaulted ceiling, some frescoes, evidently of a Medieval period, described by Nibby as Greek works; the Saviour in the act of blessing; Saints Peter and Paul, and other figures; the Divine Master, also represented in a large head, of solemn expression, within a nimbus; a Crucifixion, not without merit as to design, however rude in execution.

PORTRAIT MINIATURES IN SOUTH KENSINGTON MUSEUM.†

ISAAC OLIVER, PETER OLIVER, ETC.

Of Isaac Oliver, a very great historical name (1555-1617) in the fascinating art of portrait-miniature in England, the South Kensington Museum exhibits on loan forty-two examples, the greatest number ever seen together in one exhibition.

Of Peter Oliver (1594-1648), "the eldest son of Isaac, and worthy of being compared with his father,"‡ the same collection contains twenty-two examples.

A like opportunity for studying so many works of two such masters "in little" will not recur in our time, and should not, therefore, be overlooked.

Forty-two Examples of Isaac Oliver.

Catalogue No. 298. William Herbert, third Earl of Pembroke (the supposed "Mr. W. H." of Shakespeare's Sonnets). Signed and dated, "I. O. 1610." Vellum. Lent by Mr. Anderson. What Mr. Anderson? This is a good miniature. Isaac Oliver, in the Blackfriars of London, lived at Baynard's Castle, on the left bank of the Thames, within arrow-shot of Lord Pembroke.

Lady Ayres, wishing to have a copy of the famous Lord Herbert of Cherbury's picture, to wear in her bosom, went "to Mr. Isaac, the

* This sepulchre, now concealed from view, is described by Mr. Northcote as square aperture, between 6 ft. and 7 ft. in length, breadth, and depth; lined in the lower part with marble, and divided into two equal compartments by a marble partition. The crypt chapel is supposed to have been begun by Pope Sixtus, and finished by Pope Damasus, a great restorer of cemeteries and martyrs' tombs.

† See p. 444, ante.

‡ Walpole.

painter, in Blackfriars, and desired him to draw it in little, after his manner." *

305. Dr. John Donne, Dean of St. Paul's (1573-1631). Signed and dated "I. O. 1610." Vellum. Lent by Mr. Samuel Addington.

482-486. Five miniatures, lent by the Hon. William Ashley, representing (1) Queen Elizabeth (2) Lady Arabella Stuart, (3) John Earl of Harrington, (4) Sir Nicholas Throgmorton, and (5) Erasmus. The Erasmus is, of course, a copy. The Earl of Harrington is Prince Henry's earl (of the Hampton Court and Wroxton pictures), and is very fine.

631. Elizabeth, Queen of Bohemia, daughter of James I., and mother of Prince Rupert and Prince Maurice.

"By beauty first, then choice a queen."

Sir Henry Wotton.

Signed "I. O." Card. Lent by Mr. Hollingworth Magniao.

693. Gaspar de Coligni, Admiral of France. Lent by the same well-informed collector.

702. Mary, Queen of Scots. A copy of the miniature, by Isaac Oliver, in the royal collection, formerly the property of Dr. Mead. Engraved by Houbraken, in Birch's "Illustrous Heads."

748. James I. Inscribed Ano. Dni. 1608. Ætatis suæ 42. On card. Lent by R. S. Holford, M.P. Oval and genuine.

868. Sir Philip Sidney. Lent by Mr. John Jones. The portraits of this great man bear little resemblance to each other. The unengraved Harleian miniature (now at Welbeck), is very characteristic. There is a good photograph of it by Caldesi.

871. Henry, Prince of Wales, eldest son of James I. Lent by Mr. John Jones. Among Prince Henry's expenses is a payment of thirty-three pounds to "Mr. Isaack for three pictures." Compare the reference to Isaac Oliver, in the Blackfriars, in Lord Herbert of Chesham's entertaining autobiography.

1,145. Sir Philip Sidney. Very like the Harleian miniature we have just referred to. On card. Lent by Mr. J. Heywood Hawkins.

1,340. Study for a portrait of a Man wrapped in a Cloak, chiefly executed in sepia. Lent by the Earl of Gosford.

1,364. Lady Rawlings. Vellum. Lent by same.

1,367. Sketch of a Lady. In bistre. From the collection of Sir Joshua Reynolds. Lent by same.

1,476. Portrait, called Queen Elizabeth, but most probably that of Anne of Denmark, Queen of James I. Lent by Lord Fitzhardinge. Oval; very fine.

1,483. Portrait of a Gentleman. Dated Ano. Dni. 1619. Clever, but then remember, Mr. Samuel Redgrave, that Isaac Oliver died in 1617.

1,579. Lady Hunsdon. Painted on a playing-card of the suit of hearts. Signed "I. O." Lent by Lord Wharncliffe. Oval; good.

1,580. Lady Arabella Stuart. Card. Lent by the same nobleman. Query, if properly named.

1,619. Sir John Clench. Signed and dated "I. O. 1583." Lent by the Duke of Buccleuch.

1,632. Lady Shirley. Vellum. Lent by the same nobleman. Oval; fine.

1,640. Shakspeare's Earl of Southampton. Signed and dated "I. O. 1616." Lent by Mr. Sackville Bala.

1,648. Portrait named Dr. Donne. Signed and dated "I. O. 1623." Lent by the same gentleman.

1,653. Richard Sackville, third Earl of Dorset. A large full-length miniature on thick card, 9½ in. by 6½ in. This is the husband of "Anne Pembroke, Dorset and Montgomery." The miniature fine, and signed in full "Isaac Oliverius, fecit, 1616." Very unusual; and more than possible not of Isaac's inscribing. From Jeremiah Harman's collection. Blue background; ebony frame. Lent by Mr. Sackville Bale.

1,811. Frances Howard, Countess of Essex and Somerset. Circle; very fine in old black frame. Lent by the Earl of Derby.

1,812. Elizabeth, Queen of Bohemia (daughter of James I.), when young, in an open lace ruff, over which her light aburn hair falls upon her shoulders and down to her waist. Oval; very fine. Probably in her bridal dress. Lent by the Earl of Derby.

1,818. Queen Elizabeth's Robert Devereux,

* See Lord Herbert of Chesham's "Autobiography," first printed by Horace Walpole. The Earl of Powis should have been asked for the loan of the large Isaac Oliver of Lord Herbert of Chesham, in armour, reclining in an enchanted forest, his horse and squire in the background. The engraving of it is well known.

Earl of Essex; unfinished miniature. Card, and good. Lent by the Earl of Derby.

2,091. Portrait of a Gentleman, "ascribed to" Isaac Oliver. Lent by the Earl of Shaftesbury.

2,095. Portrait of a Lady, with a black lace collar and richly-coloured dress. Lent by the same nobleman.

2,096. Portrait of a Gentleman, wearing the ribbon and badge of the Order of the Garter. Lent by the same nobleman.

2,169. Lady Arabella Stuart. Signed "I. O." From the Strawberry Hill collection. Lent by Mr. George Digby Wingfield Digby.

2,174. Lady Venetia Stanley, afterwards wife of Sir Kenelm Digby, immortalised by Ben Jonson and Vandyck. From the Strawberry Hill collection. Lent by the same gentleman, with other of the Digby miniatures that Walpole prized so highly.

2,178. Lady Lucy Percy, mother to Lady Venetia Digby. From the Strawberry Hill collection. Card. Isaac Oliver's name has been dropped by the editor, who, when he inserts it in a new edition of his labours, will probably add the following quotation from Walpole:—

"But the first (at least, the best preserved) of all his [Isaac Oliver's] works is in my possession: it is the head of Lady Lucy Percy, mother of Venetia, Lady Digby. She is in black, with a large hat of the same colour, and a very large ruff, the whole painted on a blue ground."—*Horace Walpole's "Anecdotes of Painters,"* ed. Wornum, p. 179.

2,543. Catherine Cary, Countess of Nottingham, daughter of Queen Elizabeth's cousin, Cary, Lord Hudson. Lent by Mr. I. F. Wadmore.

2,559. Anne of Denmark, Queen of James I. Small and exquisite. Lent by Lady Sophia des Voeux.

2,560. James I. of England. Lent by the same lady.

2,564. Lady Arabella Stuart, with a jewelled anchor as an ear-ring. Lent by the same lady.

2,709. Thomas, second Lord Arundel, of Wardour. Lent by Lord Arundel, of Wardour. Genuine, and very fine.

Of the prices paid to early miniature painters in England, our ordinary and extraordinary sources of intelligence (Walpole and his Editors) afford no kind of information. In a previous notice of this exhibition, we gave some hitherto unpublished prices from authentic sources touching Nicholas Hilliard: we have now, through the courtesy of one well read in English history (Mr. Everett Green), the pleasure of making known what Isaac Oliver, "of the parish of St. Anne, within the precinct of the Blackfriars, London, gentleman," (for thus he describes himself in his will), received for his labours. In the Privy Council Register of King James I. is the following hitherto unpublished entry:—

"1616, April 21.

A warrant to the Lo[r]d Stanhope to pay unto Isaac Oliver the summe of FORTY POUNDS for three pictures made by him and delivered to the Prince his Highnes, as appeared by a bill of the particulars signed by Mr. Thomas Murray."

Or something very little above thirteen pounds apiece of money of the reign of James I., or forty pounds apiece at least of the money of her Majesty Queen Victoria.

The payment just quoted was one of the last, if not the very last, Crown payment made to imitabile Isaac Oliver. On the 4th of June of the next year he made his will, and on the 30th of October of the same year his will was proved "by the oath of Elizabeth, the relic of the deceased."

Peter Oliver, the eldest son of Isaac, was the able son of a very able father, and by some has been thought superior to his father. This exhibition supplies a fair opportunity of comparison, and on the whole, to our thinking, Peter, in many points, is not fully up to his father's excellence, in "the art of limning in water-colours differing somewhat from oil-colours."†

Twenty-two Examples of Peter Oliver.

1,034. King Edward VI. Lent by the Duke of Devonshire. This, of course, is a make-up in little. Something after a picture of King Edward in Lord Yarborough's collection.

1,123. "Lord Wimbulton"—so catalogue (lent by Mr. William Meyrick). On card, signed "P. O." Collectors should not rely too much on "initials."

1,147. Henry Frederick Earl of Arundel (died 1632). Lent by Mr. Heywood Hawkins,—a judge from whom it is seldom safe to differ.

* "Wills from Doctors' Commons, printed for the Camden Society in 1863, p. 86.
† Sandersen's Graphici, fol. 1668, p. 52.

1,594. Lord Chancellor Bacon. Lent by the Duke of Buccleuch. Very doubtful.

1,687. Shakspeare's Earl of Southampton, of whom the catalogue tells us that "the earl wrote to Lord Ellesmere, then Chancellor, commending Shakspeare as deserving favour, and as his especial friend."

Which Lord Chancellor Ellesmere, my "Lord President of the Committee of Council on Education," never did, as far as proof produceable lies in living beings.

1,722. The Queen of James I. Lent by Mr. John Stewart, once the property of the Princess Charlotte of Wales.

1,724. Charles I., when young.

1,731. James VI. of Scotland and I. of England. Lent by Mr. John Stewart. Query.

1,834. Peter Oliver (himself). Small square black frame. Bought by our Homeric Earl of Derby at Strawberry Hill. Genuine and therefore valuable.

2,067. Portrait of a Gentleman in a ruff and black quilted dress, signed and dated "1619, P. O." Card. Lent by the Earl of Shaftesbury.

2,071. Ditto, much in the same manner. Surely the Earl of Shaftesbury can identify the likenesses or "characteristics" of some of his own "unfeathered ancestors." We quote Dryden in a mood of compliment.

2,088. Portrait of a lady, signed "P. O." Card. Lent by Lord Shaftesbury.

From Lots or Nos. 2,166 to 2,178, we come to Mr. George Digby Wingfield Digby's "loan," and in miniature and English biographical art it is a Rothschild Stock Exchange loan. Everards, Kenelm, and Venetia rise before us. Digbys and Stanleys look at us and we at them. This little "lot" was one of Horace Walpole's "pets" at Strawberry Hill. Mark and linger over—

"Pray come, not near,
For Dame Venetia Stanley lodgeth here." *

Consult John Aubrey and Sir Nicholas Harris Nicolas, cultivated visitor to South Kensington, and you will additionally appreciate these—not too well seen—miniatures.

Here, at 2,178,—with an anonymous painter of "Lady Lucy Percy, mother to Lady Venetia Digby," from the Strawberry Hill collection—insert "Isaac Oliver," artist, and consult our only text-book (unhappily) on such points, "Walpole," by Wornum, p. 179.

No. 2,209 is lent by one of the Bramtons, of Essex (men who called Lord Chancellor Clarendon friend). Take the catalogue's description of this Master Peter Oliver:—

"2,209. Portrait of a Young Man in a black dress and falling lace ruff. Signed and dated 'P. O. 1619.' Card. Mounted in a pendant gold case, enriched with dark-blue translucent enamel, of the same period as the miniature."

** Could not this miniature be shown to greater advantage?

2,593. Here is Henry Stuart, Prince of Wales, who (had he lived) would never have fallen into the follies of his younger brother and successor King Charles I. This is lent by Lady Sophia Des Voeux, who deserves to possess what she so well appreciates. Careful viewer, look at No. 2,568, called a Peter Oliver—but not so,—but fine. Ask Mr. Henry Shaw; ask Mr. Farrer.

Lastly, No. 2,972, a Willoughby D'Esceby, a Suffolk Brandon (lent by Mr. Emilins Clayton).

A few words more. The getting together of this "Student's Home" Portrait Exhibition of known names and hitherto imperfectly-known faces in English history, is one of the very best works that the Committee of Council on Education has attempted, and fairly accomplished; though to our thinking, were these miniatures arranged chronologically, the careful student would leave the exhibition better informed than he has to leave it now.

HEAT, VENTILATION, AND ORGANS.—A writer in the *Musical Standard*, draws attention to the effect produced on organs in churches, by unwise arrangements, for heating and lighting. The subject deserves more consideration than it has had.

* "About 1676 or 5, as I was walking through Newgate-street, I saw Dame Venetia's bust, standing at a stall at the Golden Crosse, a braiser's shop. I presently remembered it, but the fire had got off the guiding; but taking notice of it to one that was with me, I could never see it afterwards exposed to the street. They melted it down. How these curiosities would be quite forgot, did not such idle fellows as I am put them down." John Aubrey (Lives, ii. 333).

ON MOSAICS AND THEIR ADAPTABILITY.

At a meeting of the Leeds Philosophical Society not long since, Dr. Salviati, of whose works in mosaic in this country we have several times had occasion to speak, read a paper on Mosaics, and the superior Advantages and general Use of Enamel Mosaics. From this we take some passages:—

Doubtless mosaic was first used in the formation of pavement, and was made, in part, or wholly, of marbles and precious stones. Mosaic made of these materials was known either as *lithostratum*, or *opus tessellatum, vermiculatum, Alexandrinum*, accordingly as it was formed of large or small pieces, and of its representing figures or otherwise.

Lithostratum mosaic was made of tablets of marble, sometimes interspersed with precious stones, on which no figure at all was shown. Ciampini, in his work "Vetera Monumenta," affirms that the first example of such mosaic floors was in Persia. Against this opinion we have the statement of Abbot Hasselin, in his observations upon ancient mosaics, where he asserts that they had their origin in Egypt. M. Laborde states that the practice of embellishing pavements with rich and precious stones was followed in the Eastern countries before it made its appearance in Greece.

It would seem that the earliest *tessellatum* mosaic (formed of smaller pieces of marble) was made in Greece, and some authorities assert that its inventor was Sosus, of Pergamus, who executed that charming mosaic now in the museum of the Vatican, at Rome, of which Pliny wrote, "*celeberrimus fuit in hoc genere Sosus . . . mirabilis tibi columna videntis et aquam umbra capitis infusans.*" The historians assert, however, that the mosaic pavement of the temple of Olympia was executed at least two centuries before the time of Sosus of Pergamus; and much praise is due to Parnesus, who decorated with mosaic the temples of Jupiter at Olympia, and of Minerva at Elis.

The ancients well knew the advantage of colour, and the prominence that should be given to it in architectural decoration, and therefore, having used marbles of different colours, and painted substances, without being able to obtain the effect they desired, they became aware of the necessity of discovering some other material for the purpose of mosaic, in order to obtain those varieties of tints and shades which natural substances were unable to provide them with. Thence arose the use of coloured glass, first transparent, then opaque—that is enamel—as the fittest material by which to obtain the desired advantages, and also for its power of resistance to atmospheric injuries. Pliny calls this a new invention of his time, "*e vitro novitium et hoc inventum.*" (Lib. xxxvi. cap. 28.)

The next step in improvement was with the view of producing more striking and brilliant effects, and for this purpose the ancients thought of incorporating the precious metals; but, as this would be beyond measure expensive, a simple means of obtaining similar results was invented, and thus gold and silver enamels were introduced into mosaic works. These enamels are, in truth, made of the precious metals, but in such thin sheets that their use is comparatively inexpensive. The process is a difficult one, for to produce true gold and silver enamels, great knowledge and experience are necessary.

As few persons have a clear and distinct knowledge of the difference between coloured and gold and silver enamels, it may be well in this place to say a few words upon the subject.

Coloured enamels are made of a vitreous paste (paste being the generic term by which any glass works are familiarly known). The enamels are formed of the same siliceous and other materials of which common glass is composed, but to these materials are added other mineral substances, which, when properly prepared and fused together, impart to the paste its density and extreme hardness, and also its colour. By such means the requisite degree of opaqueness, purity, and solidity of the enamels is obtained, as also the beauty, softness, and great variety of their colours; and all these are partly dependent upon the quantity and quality of the mineral elements in union with those of common glass, and are partly dependent upon the degree and continuance of heat to which the whole composition is subjected in the process of fusion.

If the manufacture of the coloured enamels be imperfect, many inconveniences result, both as regards the appearance and durability of the mosaic work. If the paste be not well and care-

fully elaborated, or if it be improperly or insufficiently fused, if the mineral elements of the colours be not exactly proportioned, so that either the paste is transparent or some other defect ensues;—then it is utterly impossible for the enamels to render the effect of the painting, as the colouring is uncertain, weak, and almost lost through the transparency of the materials.

In this state of imperfect manufacture the mosaic is liable to be injured by damp, smoke, and all atmospheric changes; but if, on the other hand, the coloured enamels are well produced, then they can be made to give precisely the same effect as the painting. In many respects, a thoroughly successful mosaic work has advantages superior to a painting, on account of the greater brilliancy and transparency of its colours, as well as for the ease with which such a work can be washed or cleaned. Enamels are much more permanent than any other substance that has ever been used in the composition of mosaic, whether stone, marble, or clay, on account of their less porous and less dilatable body.*

Gold and silver enamels are the result of a very different operation. On a ground of thick glass or enamel, according as it is desired to render the gold enamel transparent or opaque, or to impart to it a warm or variegated colour, there is laid a leaf of gold or silver which is attached principally by the action of fire; then a film of the purest glass is spread over it, and this may either be perfectly colourless or of any tint that may be required. When well manufactured, these three layers, after being fused, become perfectly united with each other, and form a homogeneous body.

If the operation above described be perfectly successful, the metal will be for ever protected against all possibility of injury, either by atmospheric action, dust, gas, smoke, or insects, and in such a manner as not to lose aught of its brilliancy or splendour, even after many centuries of exposure. When this most delicate film of glass possesses the requisite thinness, fineness, and purity, and when the whole surface of the sheet exhibits no inequality of thickness, the metal appears in all its native beauty, and the glass with which it is covered is scarcely discernible.

Whence the reverse of this occurs, that is to say, when the metal remains as it were entombed between the upper and lower strata of glass, and does not present an even surface, then the eye becomes arrested by the glitter of the glass rather than the brilliancy of the metal, and the mosaic work has the utterly wrong appearance of being varnished over.

These explanations will show that the manufacture of enamels for mosaic is attended with very considerable difficulties and inconveniences; and that to obtain ease and certainty in their production, according to the purpose they are designed to serve in imparting to mosaic-work an effective and pictorial appearance, coupled with the utmost durability, not only is a knowledge of general principles in their manufacture necessary, but also long experience and continual and laborious experiments.

In speaking of coloured enamels, it should be remembered how very difficult it is to produce in an exceedingly hard and vitreous material so many beautiful and delicate shades of colour, as are required to impart to a mosaic work the identical effect which the painter obtains simply by the use of oil or water colours. How great, also, is the difference between the production by an inexperienced manufacturer of the various colours on the basis of general principles, and the production according to circumstances of precisely the exact tints or shades of colour which in a special case may be required as a very short notice! And, also, how little faith can we have in the durability of the enamels if their production be not very carefully, skilfully, and conscientiously watched and attended to!

With regard to gold and silver enamels, it must be remembered that the whole process has to undergo the action of fire, and that it is extremely difficult to protect the tender delicate gold-leaf from becoming disturbed, or torn, or crumpled, and to guard against the introduction between the glass and the metal of minute bubbles of air, the effect of which would be,

sooner or later, to separate the delicate film of glass from the metal; nor, finally, is it an easy matter to render the surface of the enamel tablets so smooth and even as is essentially requisite, with an entire absence of waving lines and sinuosities of any kind.

I trust I shall not be accused of being misled by a love for my native country, if I assert that Venice has, from the Middle Ages until last century, when her political and commercial decay happened, held the first place in the art of making mosaics, both as regards the manufacture of the material elements and the production of the finished works.

In order to make themselves thoroughly acquainted with the art, the Venetians sought the aid of Greek artists, and in the earliest age we find them enlisting the aid of Theophrastus of Constantinople, who came to Venice and opened a school, where mosaic designing and manufacture were taught; and I quite agree with our Muratori, who writes, "*Summa fuit Græcis in Musivis conficiendis peritia*;" but it is also true that the skill, patience, and love of the art increased so rapidly among the Venetians that they were soon able to improve upon the works of their teachers, and to accomplish within the boundaries of their own limited State a greater quantity, and, perhaps, more perfect mosaic works, than those possessed by any other nation; and they were even able to supply foreign people with enamel, as is the case now with Rome in regard to the primary colours. They also were able to send abroad their artists and mosaicists to execute many important works, and these, doubtless, became founders of schools in those lands to which they emigrated.

All writers on the subject, however, whether Venetian or otherwise, speak of the pre-eminence of my own city in the art of mosaic, and I will but record a sentence of Lanzi, in his "*Storia Pittorica della Toscana*," where, after having related the useless attempts of the Florentines to decorate worthily the chapel of St. Zenobi, he says, "It seems, indeed, that the glory of making mosaics has been reserved to Venice."[†]

It is impossible to set it down as mere chance that Venice succeeded in reaching so high a degree of perfection in the mosaic art; for more probable is it that it was a privilege afforded to her by peculiar and natural circumstances, arising out of her material and artistic position, her natural inclination, her skill, and her possession of the grandest examples for study and imitation. It is well known that in any art or artistic manufacture, the best elements of origin, development, improvement, and perfection, are firstly, instinctive feeling of the people; secondly, proper material means; thirdly, good schools of instruction; and fourthly, good examples to be placed continually before the eye and mind of the pupil and artist, so that his instinct and knowledge of detail may be constantly growing and improving.

Now, as regards the instinct, it is an undeniable fact that, as every race and people, like individuals, have some peculiar natural, artistic, or industrial basis, in addition to those general inclinations common to all humanity, we have ample evidence that the Venetians possess that instinct which is the primary element of the mosaic art, namely, a true appreciation of colour, and its proper adaptation.[‡]

As regards material elements, some countries have the privilege of producing one kind of material better and cheaper than others. This frequently depends less upon skill and often-repeated experiments than upon physical causes, lying either in the soil or the atmosphere.[§] It

* Andrea Tafi arrived in Venice A.D. 1141. He came from Florence for the purpose of studying the art of mosaic. In the fifteenth century Angelo Serotico, of Murano, became so famed for the production of enamels and stained glass, that Avellino, in his work "*De Architectura*" (translated into Latin by King Matthias Corvinus), tells us he was sent to Ferrara, Milan, Florence, Naples, and Constantinople, to introduce his productions and to teach the nature of his inventions and improvements. About the middle of the seventeenth century the Republic of Venice granted to Cosimo II., Grand Duke of Tuscany, as a most special favour, permission for the renowned Venetian mosaic artists Jacopo and Alvise Luni to visit and decorate Florence.

† This was, perhaps, the reason why the mighty Venetian school of painting, headed by Titian, Tintoretto, Cagliari, &c., has remained unrivalled for the strength and beauty of its colouring.

‡ It is well known, for example, that one country can produce the best colours in silk stuffs; and so far is this a privilege to it that other countries have in vain attempted to obtain the same result, even when using precisely similar material elements of the colouring, and by employing the same workmen. Nobody would certainly dare to assert that in China and Japan the art of painting is on the same level as in Europe; but nobody can deny the extraordinary vivacity, brilliancy, and peculiarity of the Chinese and Japanese colouring.

§ Those who may desire to obtain an exact idea of how far mosaic renders the effect of the painting, with the other advantages referred to, can, by visiting the South Kensington Museum, see the figure of Niccolò Pisano in mosaic on gold ground, which I lately delivered. It is placed on one of the walls of the New Court, and on the opposite wall is the original cartoon, painted by that accomplished artist Mr. F. Leighton.

would seem that, in regard to enamels, this advantage was given to Venice (that is, to its neighbouring island, Murano), for no other country has succeeded in producing in glass so great variety, brilliancy, and peculiar fineness of colour. It may so happen that this arises from atmospheric causes or from some other unknown reason; but to prove the truth of the statement, it is necessary only to mention the ancient Venetian glasses, which in our time are esteemed most precious and deserving to enrich the finest collections of works of art. So also I may name the yet living manufacture of beads, those little fragments of endless variegated coloured glass, which are sold all over the world, and give to Venice a monopoly in spite of all competition by foreign manufacturers. The same reason, perhaps mostly physical, which enables the Venetian manufacturers to produce the best and most variegated colours in their yet-unrivalled beads, are those which form the most efficient elements in the production of the best enamels; those most fitted to the requirements of the mosaicist.*

As regards the school of instruction. From the commencement of the practice of mosaic in Venice, down to the time of its decay, there were schools where every artist could be taught until he was capable of becoming himself a master. We know of schools of the twelfth and thirteenth centuries under Greek masters, and of many where Venetian teachers were famous for the magnificent works now extant. Among these masters I may mention the Zuccati, Bozza, and Bianchini.

There never have been wanting in Venice the very best examples to be studied by the pupil and the artist. Firstly, the city possessed the masterpieces of the Greek artists on the walls of their glorious cathedral; there and in other buildings were placed, in the course of about five centuries, the splendid mosaic works produced by the Venetian artists themselves, and these works have always been open to the view of the whole population, so that the artists of Venice have ever had the means of being taught by, and of becoming acquainted with, every kind, style, and manner of mosaics.

Even for Venice the age of glory and prosperity was not to be perpetual. By-and-by the Queen of the Adriatic declined, and the sunset of her political and industrial decay was also the time of the decadence of the mosaic art. At last the republic died, and the art which had taken such deep root there fell into lethargy.

But it was not dead, nor even was it forgotten. The elements of its existence and of its prosperity were not so much dependent on political changes as they were bound up with the nature and spirit of the people; so that they were capable of being awakened and directed towards a noble and successful purpose, until it aroused among civilized nations a warm and powerful agency in aid of art and true religion.

THE MARCH OF PESTILENCE.

ATTEMPTS have been made in certain quarters to deny the fact, but there can be little doubt that pestilence, which is said to present several varieties of form, is progressing through parts of Asia and Europe on a scale of great magnitude.

In some places the scourge presents the distinctive features of that terrible Asiatic cholera which has on comparatively recent occasions startled England; in others, the raging disorder is said to be a species of spotted typhus fever, or an intermittent fever; but all agree that pestilence, rising in the usual centres and moving by the customary ways, is destroying multitudes of lives, and, especially at its first onset, setting at defiance all the known appliances of medical science.

Thoughtful persons can see terrible warnings a long way off.

Time after time the grim visitor has called at

the same spots with remarkable regularity; and in Central Asia and other parts, he always finds everything prepared for his reception: for no other monarch could there be a more plentiful and tasteful banquet prepared than that which is sure to be ready to welcome King Cholera throughout the burning clime of India and other deadly regions, where the unwholesome conditions of nature are aggravated by the ignorance and neglect of man. The ravages often spare not a sufficient number of persons living to bury the dead; but in far too many instances it is usual for those who are able to fly from the devoted localities, leaving thousands of bodies putrefying under a tropical sun. Then, after a time, people who have been spared return to their accustomed homes, where all is tainted and poisoned, and the former conditions are rendered more dangerous by the neglected remains which the disease has left. The rivers have become more polluted; on the shores the remnants of decomposing human and other matters are laid, and throw off dangerous exhalations; the water sources have become poisoned; and the inhabitants, notwithstanding the fatal cautions they have received, have continued in exactly the same ways as formerly, seeming, in fact, to look upon it as a wickedness or an unrighteous dealing with the functions of the great Creator to put forth a hand for the purpose of effecting any change which might, which, in fact, would,—be the means of preserving much life, and rendering less serious the visitations of the pestilence. It is really distressing to read the accounts which come to us of the sanitary condition (and the usual results) of cities like Calcutta, Bombay, and of other places which are now entirely under British rule; let us hope, however, that a short time only will be allowed to pass before steps are taken in a sanitary direction. From the most ancient times tradition and such substantial history as we have show that, in the Eastern regions, all plagues and pestilence have been generated, and so passed step by step to other longitudes and latitudes.

We know that in England the visitation of cholera can as surely be prevented by the introduction of proper drainage, ventilation, cleanliness, attention to the general laws of health, and the timely application of preventive medicine, as we can regulate the working of a steam-engine, or stop the machinery of a watch. See, for instance, when the last outbreak of cholera took place at Newcastle-on-Tyne, when over the whole town deaths and sickness were rife, especially where sanitary care had not been taken. In the barracks, situated about half a mile to the north of the town, where there were many hundreds of men and their families, and where sanitary care had been taken, there was not a single death, or even a case of actual cholera, notwithstanding there were such premonitory symptoms as clearly showed that the distemper was in the air. Besides, in parts of the town approximate to the barracks, the cholera was especially fatal. Moreover, at North Shields, where on a former visit the disorder had been especially fatal; on the last occasion referred to, when Newcastle suffered so much, North Shields entirely escaped. We believe that not a single fatal case occurred. The North Shields people had taken timely warning and set their place in order, when they saw the threatening indications from abroad. We have before spoken of this, but it is needful for the present purpose to refer again especially to this point.

If in this little island of England we can show by actual demonstration that we can hold in check, and even prevent cholera, fever, and other complaints of this class, does it seem unreasonable to hope that the very centre and hot-bed of the pestilence may be in time so purified that it may be extirpated altogether? Till then it will, we trust, ere long pass over our land and leave it at least untouched. To a certain extent this has been already achieved.

Without inducing fear and panic, we ask for renewed care in these islands of Great Britain and Ireland. Let our readers take a map of the world in hand, and note how a deadly pestilence has passed across parts of Asia to the east shore of the Red Sea, and to Alexandria; let them look in another direction, and mark how a deadly sickness has passed through parts of Russia to St. Petersburg and Prussia. Let us consider the particulars of former attacks of epidemic sickness, and see how close in these days of rapid transit a plague is to our shores, and it must be evident that it will be a wise course to set our places in order.

THE STATUE OF THE LATE SIR CHARLES BARRY, R.A.

THOUGH more than five years have elapsed since the remains of the architect of the New Palace at Westminster were deposited in the neighbouring Abbey Church, and though measures were taken by his friends very soon after the event to commemorate his talent and professional services in the building with which his name and reputation are most intimately associated in the public mind, unforeseen causes of delay prevented, from time to time, the full consummation of their wishes till the noon of Saturday, the 1st inst., when (as we warned our readers in our last number) the portrait-statue in marble, which the well-known skill of Mr. Foley, R.A., has produced, was uncovered in the presence of many friends, personal and professional, whom a brief notice had called together in the Inner Hall of the building to witness the short but interesting ceremony.

The occasion, however, was not allowed to pass without some appropriate and impressive observation on the character and genius of Sir Charles Barry by his friends of very many years' standing—Sir Charles Eastlake, P.R.A., Sir Edward Cust, K.C.H., Mr. Tito, M.P., and Professor Donaldson—which were acknowledged in a most feeling manner by Mr. Charles Barry, who expressed the sense of the honour done to the memory of his late father entertained by Lady Barry and the family.

Mr. Foley has been most successful in producing both a truthful likeness and a work of art worthy of his own high reputation, and of a position, along with other notabilities of our land, in the Palace of the Legislature.

Some further improvements in the decoration of the wall space, forming the background, in addition to those already made, are contemplated, the whole of which, with the cost of the statue, pedestal, &c., will have been defrayed entirely from private sources; the public obtaining as a free gift a most valuable addition to the number of statues already in the edifice.

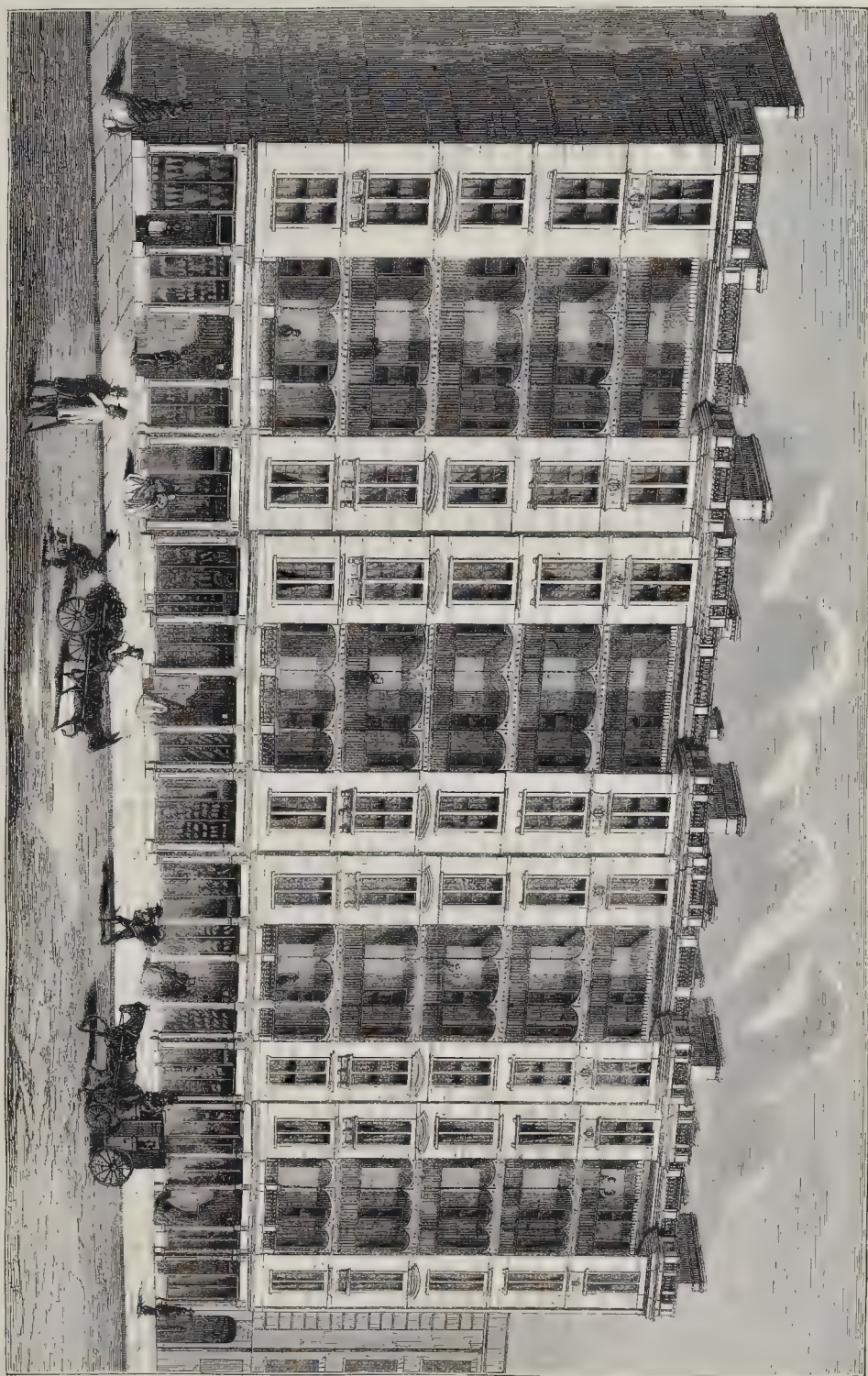
The subscription-list of the memorial contains the name of almost every architect of repute in the kingdom, besides those of many of the nobility, gentry, and private friends of Sir Charles Barry.

Of the five trustees of the fund—the Right Hon. W. Cowper, the Hon. Sir E. Cust, Sir Charles Eastlake, P.R.A., W. Tito, esq., M.P., and C. E. Cockerell, esq., R.A.—the last-named has not survived to witness the termination of the work; while of the other members of the working committee—Messrs. T. L. Donaldson, J. Gibson, G. Godwin, A. J. B. Beresford Hope, F.R.I.B.A., H. A. Hunt, Owen Jones, Hayter Lewis, Charles Lucas, J. R. McClean, P.I.C.E., D. Roberts, R.A., J. L. Wolfe, T. H. Wyatt, and the honorary secretaries, M. Digby Wyatt and Charles C. Nelson,—Mr. David Roberts has also recently been taken from among us.

SKILLED LABOUR.

At the annual general meeting of the Society of Arts, held on the 28th ult., Mr. T. H. Hartley said, that early in the session he called the attention of the Society to the subject of the scarcity of skilled labour in this country. The importance of that question was becoming more and more apparent from the great inconvenience which manufacturers were put to, and he thought it was a matter which should be discussed by the Society, and with that view he had sent a communication to the Society for the consideration of the Council. It was evident that if some means were taken to a greater extent than had yet been done to train the youth of this country to skilled occupations, our manufacturers would be obliged to depend mainly upon foreigners. It was the case that in his own branch of business—the working of marble—he was obliged to depend a good deal upon foreign workmen, from the great scarcity of native skilled labour. At the same time there were great numbers of youths now confined in prisons and reformatories, who, if turned out from thence as skilled workmen, would be of great service to the state, instead of being a constant burden upon it. He was not aware of any society which was so well adapted to take up this question as the Society of Arts, being one cognate to its objects in the encouragement of arts and manufactures. The present state of the law with regard to apprentices was such as to discourage masters from taking them, and thus the great source of supply of skilled

* In all branches of glass manufacture, where perfect production is more the result of careful and skilful manipulation than of the peculiarity of the material elements, the moral and industrial decay of the people brings with it the decadence and ultimate loss of the industry; as, for instance, the manufacture of looking-glasses, moulded crystals, lamps, &c., for which the island of Murano was formerly so famous, has now been surpassed by foreign manufacturers, and mostly by the English, Germans, French, and Belgians; but where the production is mainly dependent upon the physical nature of its material elements, and upon the peculiar possibility and ease of using them to obtain the result by means of colour, there Murano has ever kept its privilege; for this is a God's gift, and no competitor, although even more skilful or more civilized, can venture to touch it.



CORPORATION BUILDINGS, FARRINGTON ROAD, LONDON.—Mr. HORACE JONES, ARCHTCT.

MUSEUMS AND ART TRAINING FOR
THE PEOPLE.

This was the subject of the address made by Mr. A. H. Layard, M.P., at the last social meeting, in Exeter Hall, of the Working Men's Club Union, the Duke of Devonshire being in the chair.

Mr. Layard said.—The British Museum, wonderful and admirable a collection as it was, had outgrown its plan, and was now too much a mere unarranged collection of curiosities. He would only have two classes of objects in that museum.—1. Those which would form an historically classified art department; 2. Those which would make an historically classified archaeological department; and whatever could not be arranged under these heads might be removed to other parts of the metropolis, and form the basis or nucleus of a museum or exhibition illustrating the development of some other art and science. In such a collection of art as that contained in the British Museum, historical arrangement was of the greatest importance, both in giving to the articles their just value and to the student a correct impression. Thus a thing of art, standing alone, might be of very little value; but when in its proper place among a classified series, illustrating the historical development of art, it would be seen to be of the greatest value and use. Egyptian art, for example, was not of much value, but as a very early link in the chain it was indispensable. In the British Museum there was not room for carrying out this classification, and at present nearly all was a jumble. Too much had been crammed into it; for instance, there was a Natural History Department, indicating the history of the earth, and this required a separate building. Every nation should have a museum illustrating the present state of art as applied to, and expressed in, social, domestic, and practical life, and especially in manufactures; and he was prepared to say that no other nation possessed a collection equal to that in the South Kensington Museum; moreover, he was quite certain that this museum and the Exhibitions of 1851 and 1862 had caused a vast improvement in British manufactures, and so promoted the best interests of the nation. During the Exhibition of 1862, France had sent forty-two representatives of different branches of manufacture to examine and report upon the various corresponding branches exhibited therein, and they all had declared that England had vastly improved in all, but especially in the manufacturing of glass, porcelain, china, &c., and was likely to beat themselves out of the market. Mr. Layard did not agree with all the arrangements of the Kensington Museum, but he thought that the richness of its collection and the value of its results could not be too highly praised. As to the question of opening the British Museum, the National Gallery, and the South Kensington Museum at night to the working classes, he should say they should be opened if it could be done with safety. But the late Mr. Braidwood, and other very reliable authorities, had reported on the lighting of these places, and had shown that there was great danger of injuring the collections by the gas, or of destruction by fire. And it should be remembered these collections, if once destroyed, could never be restored. This nation was bound to preserve these treasures for the use of all nations and ages. He thought that if the idea of having local museums was carried out, the Ethnological Department might be taken from the British Museum and made the nucleus of a museum in the East-end of London, and might receive frequent additions from masters of ships returning from distant countries. And the Indian Museum, now at the back of Whitehall, might be removed south, and form an Oriental Museum for South London. Mr. Layard then observed that he thought the Industrial Exhibitions which had been or were being held were highly calculated to be of great use. 1st. They gave pleasant employment to the leisure hours of the working man, and kept him at home to employ them, and so tended to keep him from bad associations. 2nd. They showed him what he could and could not do. 3rd. They secured an intermingling of the working and the upper classes, not in the way of false patronage, but in a way honourable alike to both parties. He thought that these local exhibitions should be held every year, as a preparation for great exhibitions, held every ten years. From them the Government should purchase the best things in every department, to be kept as

an embodiment of the art and science of that year, and as a means of improvement for the future. Art training might be obtained in two ways:—1st, by attending schools of art; 2nd, by visiting museums. Only the latter, at present, was to be secured by the working classes. If the means of cultivating art were more accessible to them, it would be more sought after by the people, just as it had been with music. There had been great improvement, however, in their art-culture, as might be seen in the improved ornamentation of the homes of both the middle and the working classes, and much more remained to be done. Perhaps it was of greater importance to cultivate artistic tastes among the middle classes than even among the working classes, inasmuch as they possessed the means of purchasing what their tastes led them to seek, and what the working man produced. Besides, culture was sure to descend. He would, before concluding his remarks, just put the following questions to the meeting for discussion:—1. Should the British Museum be opened at nights and on Sundays? 2. Should the Natural History Department of the British Museum be taken away from the Art and Archaeological Departments? 3. Should local industrial exhibitions be annual or not? 4. Should the South Kensington Museum remain where it is and what it is, viz., a museum of art as applied to manufactures?

At the close, an interesting discussion took place, in which Mr. Hart, R.A., the Dean of Chichester, several working men, and a lady visitor, took part.

LAW LIFE ASSURANCE SOCIETY.

When the directors of a society can say, as the directors of the "Law Life" said at their last general meeting, that the invested assets exceed five millions and a quarter sterling, that the annual income is half a million sterling, and that at the six divisions of profit which have been made, bonuses amounting in the aggregate to 4,164,147l., have been added to the several policies, they need nothing more to be advanced in its favour. The progress of the society has been singularly steady. According to the chairman, the society commenced in 1823, and then there was paid up a capital of 100,000l. In 1833 we find that this 100,000l. had grown to three-quarters of a million; in 1840 to a million and three-quarters; in 1847 (the examination of the accounts and the declaration of bonus being then and until 1854 septennial) it had grown from a million and three-quarters to 3,200,000l.; in 1854 it was four millions and a third; in 1859, 4,800,000l.; and now, in 1864, it is five millions and a half; so that, not only has the success been large, but gradual and progressive; and, therefore, it gives the greatest promise that is capable of being given in any great commercial enterprise, that the future will reflect the past. The profits realized by the society during the past five years amount to 518,000l. The chairman said, he spoke the universal views of his colleagues when he attributed a great part of the success of this office, and the very satisfactory statement laid before them, to the constant and undeviating exertions which are made by Mr. W. S. Downes, the actuary, and the very able mind and large experience which he was able to bring to the performance of his duties. This was echoed by proprietors present.

LIMITED LIABILITY.

THE transitions of many kinds, especially the changes of the manner in which various trades are managed, and the enormous increase of manufacturing establishments, with the known profits which are derived from many of them, are amongst the most remarkable signs of the present times, and will afford curious matter in the history pages of this and other countries. Within the last quarter of a century, the peculiar genius of individuals and their aptness for business, have originated and carried to vast dimensions establishments for the execution of ship building, cotton works, printing and publishing businesses, engineering, and other concerns, which are so numerous that it would require a considerable amount of space to mention even some of those which have risen to much consequence.

In many cases, works commenced by individuals have risen to a degree of eminence and extent which the projectors never dreamt of,

but although the prospects were of the most satisfactory description, and the ultimate success and future large profit appeared certain, there arose difficulty in raising the money which was required for the purposes of extension, or allowing firms to avail themselves of suitable markets both for the purchase and sale of commodities, for the employment of labour on a scale sufficient to meet regular demands, and for other purposes. In times when money became of high price and panics set in, accommodation could not be had, and ruin fell on many houses, while the law of limited liability would have been the means of placing in permanent prosperity.

For long before the passing of the Limited Liability Act, the principle had been carried out privately to an extent far greater than was generally understood; and throughout England there were hundreds of firms which had a widely-spread reputation, and were supposed to be entirely in the possession of the one or two persons who were reputed to be the sole proprietors, and who might be supposed to be in the receipt of enormous incomes. There were, however, parties behind the scenes, who having in times of emergency advanced sums at a large and ruinous amount of interest, became in fact the secret proprietors, and reduced the original heads of the firm to the position of mere managers, who were often very inadequately paid. To remedy this evil, to enable those who had expended their time, intelligence, and capital, to hold fairly intact the property which they had created, and also provide the means of useful expansion, the law of limited liability was wisely made; and, looking at the results, they have been generally most satisfactory, and the system will eventually effect important changes in the industry of the country. By the new law, the possessor of 500l., 1000l., or 15000l. may invest it in schemes which promise success, and no doubt the principles will lead to the extension of co-operative principles amongst workmen.

In a recent account of the money market, we noticed that John Brown & Co. (Limited) of Sheffield, published their net yearly profit at 76,136l., equal to 24 per cent. on the subscribed capital. In these enormous profits the public generally, to a considerable extent, participate; first of all by providing capital, without which, on a large scale, no business can be remuneratively worked. Many other establishments might be mentioned, such as the Ilkley Works, founded by Sir William Armstrong; Charles Cammell & Co. (Limited), Sheffield; the Fairbairn Engineering Company; Mr. Marc's establishment at Blackwall; Bolckow & Wall; and a hundred other industrial establishments throughout the country.

THE PAYMENT OF BUILDING
ARTISANS IN LONDON.

For some weeks past, as our readers know, an agitation has been kept up by the masons, carpenters, joiners, and others connected with the building trades in the metropolis, in some cases attended by partial strikes. On Friday, the 30th ult., a meeting of many of the principal builders was held at the Freemasons' Tavern, and a resolution was carried to the effect that, on and after the 1st of January next, the wages of the skilled artificers engaged in the building trades, now generally paid at the rate of 7s. per hour, shall be increased to 7s. 6d. per hour.

A meeting has since been held by the men, whereat, after a long discussion, the following resolution was ultimately adopted unanimously:

"That the men in each shop shall, on Monday next, the 10th inst., wait upon their respective employers, and inform them that nothing less than three farthings per hour advance could be accepted; such advances to commence on the first week in August next; and that a definite reply should be requested from each employer on or before Saturday, the 15th inst., as to whether he was prepared to give such advance at the time stated. That the meeting stand adjourned for a fortnight, to receive the replies from the employers before taking any further action."

A correspondent writes as follows:—"Will you be good enough to state in your widely-circulated paper, for the benefit of those who wish to act justly without yielding to every demand, whether it is the acknowledged custom to pay mechanics time and a half after eight o'clock at night and one o'clock on Saturdays? Also, whether, under the hour system, one hour's notice and time to grind tools is not all that

joiners can rightly claim? I am not aware of any organisation of builders whose decision on these points has ever been accepted."

We have appealed to two large contractors, who say they pay their men "time and a half" and refreshments after nine o'clock at night until six o'clock next morning; but if the men work on Saturday afternoons, the usual pay only. They invariably give two and a half hours' notice for grinding tools.

COMPETITIONS.

The Holy Trinity Church, Kilburn.—In reply to the invitation from the committee to a selected number of architects, some nine or ten gentlemen submitted designs for the above church. The cost was to be about 6,000*l.*, and the church to seat 1,200 persons. After examination of the relative designs, the committee has given the execution of the work to Mr. W. Smith, of Kilburn; the first premium to Mr. F. Todd, of Norland-square; and the second premium to Mr. Tyne, of Gray's-inn.

Fuller's Almshouses at Tottenham.—The design selected is that of Mr. Caesar A. Long, of London.

COMPETITIONS IN MONTREAL.

SIR,—In your issue of the 13th of May, which I have just received, I see the notice of a new church now in course of erection in this city, by Mr. C. P. Thomas. Thereby hangs a little tale, which I propose to give you, in order that your readers on the other side of the Atlantic may see that we are endeavouring to follow in the steps of the profession at home, and to place competition on a better footing than it has been for some years past, a subject which I am glad to see from time to time you have strongly advocated, in the excellent remarks that have appeared in your paper.

In the spring of last year a limited number of six architects were invited to compete for the above church, receiving from the building committee written instructions of a very plain and positive character, which were "strictly" to be adhered to. One of these instructions was to the effect that the cost of the whole building was *on no account* to exceed the sum of 8,000*l.*, and the competitors were more than once informed by members of the committee, that should any selected plan be found to exceed that amount, it would be at once thrown aside, and the next in merit taken. Five of the designs sent in adhered closely to the instructions, and were capable of being carried out for the stipulated amount; but Mr. Thomas's was not in conformity with the instructions either as regards cost, number of drawings required, or as containing all the requisitions laid down by the committee. Nevertheless, on account of the highly decorative appearance of the design, his was chosen; the committee, however, stating at the time, that should the tenders for its execution exceed 8,000*l.* it would be rejected. Tenders were taken, and not only 8,000*l.*, but 10,000*l.* were exceeded. Still, "*Côte que Côte*," Mr. Thomas's plan "was so pretty," they must have it; one of the committee going so far as to say he would double his subscription (a large one) if the selected design were accepted! What was done, then? Mr. Thomas receives instructions to cut down this and that; to substitute wood and iron for stone, and make any alteration he could, until the cost was reduced to something near the original mark. This has been done, and the altered plan is now being carried out for 8,300*l.*, independently of heating,—an item which cannot, for so large a building, cost less than from 400*l.* to 500*l.* additional. More than one of the other plans sent in were accompanied by a builder's tender, engaging to do the whole of the work, including heating, for the sum specified.

I need say nothing to your readers by way of explaining the injustice of such proceedings, thus virtually destroying competition; but I may add that two of the competitors have refused the bonus offered by the committee to the authors of the unsuccessful designs, and a suit is now pending in the courts on the subject.

Whether the action be gained by the architects or not, it will at least have the effect of showing the public that if competitions are not to be fairly and honestly conducted, architects will not be found to run the risk of so much loss of time and labour as has in this instance been sustained, amongst others, by

A SUBSCRIBER AND CONSTANT READER.

Montreal, June 13th.

ARCHITECTURE AND ENGINEERING, UNIVERSITY COLLEGE.

THE following is a list of the prize men, and of those commended, in the two classes:—

Architecture. Professor Donaldson, Ph.D.—*Fine Arts, First Year's Course.*—Price—T. Batterbury, of London. Certificate.—2. E. M. Whitaker, of London. *Fine Arts, Second Year's Course.*—Price—Ralph Selden Wornum, of London. *Construction—First Year's Course.*—Prizes—(equal) Frederick Topham, of London; E. M. Whitaker, of London. Certificates.—2. George F. Hitt, of London; 3. R. C. Joy, of London; 4. George Stanley Rees, of London; 5. J. T. Hanson, of London. *Construction—Second Year's Course.*—Prize—Henry Thwaites, of Hampstead. Certificates.—2. Robert F. Wellock, of Peckham; 3. Ralph Selden Wornum, of London. *Civil Engineering.* Professor Pole, F.R.S.—*First Prize and First Certificate.*—Henry Thwaites, of Hampstead. Certificates.—2. George F. Hitt, of London; 3. equal, Lewis Solomon, of London; R. C. Joy, of London; W. P. Morison, of London.

THE BELFAST ALBERT MEMORIAL COMPETITION.

THE following letter has been addressed to the Institute of Architects by a competitor:—

I have seen in the *Belfast News Letter* newspaper of the 27th inst. a report of the proceedings of the Belfast Albert Memorial General Committee, from which I learn that the selection of the designs for premiums for the drawings lately submitted in competition, is now depending for decision upon the President and Council of the Royal Institute of British Architects. As one of the competitors, I beg leave to lay before the President and Council of the Institute some account of the proceedings of the Belfast Committee, believing that I attribute no intentional unfair, or dishonourable favouritism, partiality, or connivance to any member of the Committee, or to either Mr. Lanyon or Mr. Barre. It is the misfortune of the Committee, from ignorance of the inherent difficulties of the mode of proceeding they selected, to have placed themselves and these gentlemen in a position of odium from which now they evidently look to the Institute to rescue them.

In accordance with the invitation of the Belfast Committee, seventy-six designs for their Albert Memorial were submitted to them on the 1st of June. A sub-committee was then appointed, of whose acts all the subsequent proceedings of the committee have been made the subject of a history in the newspaper to which I have referred. Upon the assembling of the sub-committee, a discussion arose as to their authority, some holding that the selection of the designs rested absolutely with them, others contending that their power was only recommendatory. They finally resolved that they had the power of selection, and by ballot selected two designs marked "Veritas" and "Palman," assigning to "Veritas" the first premium, and to "Palman" the second. The discussion as to the authority of the sub-committee appears to have occurred at the meeting at which this selection was made, and the whole meeting occupied, Mr. Macnaughton says, four hours. I submit that no proper examination, such as Mr. Macnaughton claims to have made, of the seventy-six designs, can have been made in the time. My own drawings occupy four sheets,—probably an average of the whole, which would, therefore, give 304 sheets of drawings; there were eight gentlemen competing, or equal to one person examining between ten and eleven sheets in a minute. The impossibility of doing this is obvious. But, when we discover that Mr. Lanyon and Mr. Barre were the authors of the designs selected, it is equally obvious that many reasons would occur for fixing the attention of the sub-committee on their designs.

After the decision of the sub-committee, a general committee was held, and before them were laid the two selected designs. They did not regard the decision of the sub-committee, but proceeded to discuss the merits of the drawings; and Mr. Lanyon being a member of this committee, was present. Mr. Macnaughton spoke to him frequently, but is quite certain that Mr. Lanyon in no way influenced their acts. He acknowledges that Mr. Lanyon had been most useful and influential previously, and that to him the committee was indebted for arranging and drawing up the terms of the competition. The committee-meeting now in question, in Mr. Lanyon's presence, changed the decision of the sub-committee, and placed "Palman," Mr. Lanyon's design, first, and "Veritas," Mr. Barre's, second. Seeing this result, I imagine that no one of the committee will believe that Mr. Lanyon's reputation and well-earned influence in Belfast, together with his presence, did not so far settle the question.

The settlement, however, aroused a storm "out of doors." The general committee assembled again on the 28th of June, when the previous proceedings were publicly narrated; and, after a long discussion, it was resolved to seek the decision of the President and Council of the Royal Institute of British Architects. From the report in the press, it is not easy to discover exactly the point referred to the Institute; whether they are to have before them four, six, or seventy-six designs. I contend that no proper decision can be had upon either four or six selected designs.

I wish to urge upon the Institute, that Mr. Lanyon, having become a member of the committee, is totally ineligible, either in himself or his firm, as a competitor; and that, therefore, his design must be withdrawn. I think, in the next place, that the remaining seventy-five designs must then be adjudicated by the Institute.

I enclose the printed terms of the competition, forwarded to me by the secretary of the Belfast committee. It will be observed that, from the exclusion of Mr. Lanyon from the competitors now, by no means prevents his employment by the committee, as they are not obliged

to do more than give the premiums to the successful competitors. However inexpedient this course may seem to competitors, they cannot complain of what was from the first in the terms. I, for one, should not be displeased at seeing Mr. Lanyon, after all, engaged as architect to the memorial. It would have been a sensible course for the Belfast people to have employed at first, and without competition, so capable a man as Mr. Lanyon, who has had from the first the confidence of the committee, and in whose favour so powerful a bias has been felt; but having once chosen him as their confidential committee-man, it is quite unjustifiable that they should admit him as a competitor. Whether or not the Institute ought to decide when their decision may not be final, is for the consideration of the council.

GORDON M. HILLS.

CONGRESS OF THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE programme for the meeting to be held at Durham August 21st to 26th inclusive, runs thus:—Monday, August 21st—Reception at the Castle Durham; Inaugural Address; Antiquities of Durham; Public Dinner at the Castle; Rev. G. Ormsby on the Castle. Tuesday—Lamley Castle; Chester le Street; Lancaester; St. Cuthbert's College, Ushaw. Wednesday—Durham Cathedral and Monastic Buildings; Finchale Abbey; Soirée and Papers in the Castle, Durham. Thursday—Barnard Castle; Staindrop Church; Rabby Castle; Soirée and Papers in the Castle, Durham. Friday—Newcastle-on-Tyne.—Museum of Antiquities; Tyne-mouth Priory; Soirée in the Castle, Durham; and Saturday—Brancepeth Castle; Bishop Auckland; Darlington; and concluding Soirée in the New Town Hall, Durham.

Numerous papers are already promised.

ENGINEERS' CHARGES.

SCIENTIFIC EVIDENCE.

Symons v. Foxwell, in the Court of Queen's Bench. This was an action to recover remuneration for services rendered as a skilled or scientific witness in a cause. It was an action by Captain Symons, who of late years has practised as a civil engineer, as the surviving partner in the late firm of Richard Roberts & Co., to recover the sum of 124*l.* 15*s.* 6*d.*, the amount of their charges as consulting engineers, for services rendered to the now defendant in a suit by him in the Court of Chancery against Mr. Bos-tock, in which Mr. Foxwell sought to establish the validity of certain patents for sewing-machines. The particulars claimed that sum. The defendant paid into court 50*l.* and denied any further liability. The particulars were as follow:—

	£ s. d.
Jan. 18, 1864.—To receiving instructions in the case, and reading of specifications and other documents relating thereto	15 15 0
Jan. 20, 1864.—To travelling expenses from Wales to attend as witness	2 15 6
Jan. 20, 1864.—To charge for time and consulting with Mr. Hodge on arrival	10 10 0
Jan. 21, 1864.—To consultation with Mr. Hodge in the above case, and attending in court	10 10 0
Jan. 22, 1864.—To attendance in court	10 10 0
Jan. 26, 1864.—To ditto	10 10 0
Jan. 27, 1864.—To ditto	10 10 0
Jan. 28, 1864.—To ditto	10 10 0
Feb. 6, 1864.—To letter from Mr. Wickens, enclosing copy of Lord Chancellor's opinion in the above case, and reading same	10 10 0
Feb. 12, 1864.—To attending consultation at Mr. Wickens's office	10 10 0
Feb. 13, 1864.—Attendances in court	10 10 0
Feb. 13, 1864.—Hotel bill	8 15 0
Remaining in town in apartments from Jan. 28 to Feb. 28	13 10 0
	£124 15 6

It appeared that professional men, especially civil engineers, are often engaged in causes not only to consult and advise, but also to give evidence as skilled or scientific witnesses on matters rather of experience and opinion than on mere matters of fact. In such cases it appeared that they usually receive a fee for perusing the papers and making themselves generally masters of the case, and also at the rate of ten guineas a day for consultation and attendance in court. At all events, this appeared to be the rate of remuneration for gentlemen of eminence and experience in the profession, who would not be sufficiently remunerated by the ordinary allowance of three guineas a day as between party and party on taxation of costs.

Mr. Paul Hodge, Mr. Scott Russell, Mr. Fothergill, and Mr. Braithwaite, all eminent engineers, were called as witnesses in support of the claim. The first-named gentlemen being asked by counsel whether he had not been constantly "employed as a professional witness,"

The Lord Chief Justice observed,—"I don't like to hear that phrase, 'employed as a witness.'"

The Counsel said by means of being employed to advise and consult as an engineer. The duty of a scientific witness, he added, is not confined to giving evidence.

The Lord Chief Justice.—I wish it were. It would be well if there were a distinction between advising and assisting in a case, and giving evidence in it. Perhaps it was the mixing of the two characters,—of advocate or adviser, and of witness,—which tends to make what is called "scientific evidence" so much open to animadversion. The gentleman who is consulted is intended to be, and afterwards becomes, a witness in the case, and all his professional interest and personal bias are enlisted on the side of the party by whom he is called or "employed."

Mr. Scott Russell, in giving his evidence, said that the value of a man's opinion, of course, would depend upon his skill and experience, and that the time of a man of first-rate eminence and experience was worth a great deal, so that the rate of charge mentioned was quite reasonable and usual. He added that he quite concurred in what his lordship had said on the subject, and went on to say emphatically, I take it really as a kindness to my profession that his lordship should have spoken in reprobation of men who are in the habit of selling their opinions and calling it evidence. But there are men calling themselves civil engineers who in fact abuse the profession, and bring discredit upon it. I quite concur in what your lordship said as to the desirability of separating advice from evidence, and I wish that we were paid only for our professional advice and assistance, and not for our attendance as witnesses to give evidence."

The Lord Chief Justice observed that it was but reasonable that a respectable man should be paid for his loss of time, whether occasioned by attendance as a witness or otherwise; and of course this remuneration for loss of time should be in proportion to the value of the professional man's time. It would not abate the evil he alluded to merely to charge nothing for attendance as a witness, as the amount would probably be thrown on the charge for advice and assistance.

The case for the defence in substance was, that the charges were excessive; that *St. A.* day was enough for attendance in court or at consultation; that Mr. Roberts was ill, and hardly able to attend to the case; and that in point of fact, and, as it turned out, he was not actually examined, and his evidence was worthless; and that, for these and other reasons, the sum of 50*l.* paid into court was amply sufficient.

The Lord Chief Justice intimated his opinion that the plaintiff was not entitled to recover the charges in respect of his coming up from Wales, as his place of business was in London.

At the close of the case, the Lord Chief Justice, in summing up the case to the jury, said, in the absence of any evidence of special or express contract, the question would be, what was the ordinary rate of remuneration in such cases, a liability or contract for payment being admitted, and the dispute being only as to amount. It was entirely a question for the jury whether the charges were reasonable. Upon the general question as to the payment of remuneration for attendances in court as witnesses, a man, no doubt, ought not to be allowed to make a profit by a traffic in testimony; but, on the other hand, he was fairly entitled to remuneration for loss of time while waiting in court, and as to this the proper standard was, what he would probably make on an average in the ordinary exercise of his profession; and, if usage had established a certain rate or standard of remuneration, at so much a day, then it might be reasonable to have regard to it. The question was, on the whole, what charges were fair and reasonable—whether as to the items or heads of charge, or the amount of each charge—as to which the jury must form a judgment.

The jury, after a little consultation, went out of court to consider their verdict; and, after an absence of about an hour, they returned with a verdict for the plaintiff for the sum of 18*l.* 6*s.* beyond the sum paid into court, making altogether the sum of 68*l.* 6*s.*

HOW TO MAKE STONE IMPERVIOUS

I HAVE seen in your journal a letter under the above title, containing a request that some one would indicate a process by which stone would be rendered impervious to rain.

In reply thereto, I would beg to recommend Ransome's process, by which a solution of silicate of soda is injected into the pores of the stone, and, by means of a second solution of chloride of calcium, an insoluble silicate of lime is formed. I have tried this process upon Caen stone and brickwork in exposed situations with satisfactory results.

G. R. BRANELL.

RAILWAY COMPENSATION CASE.

At the Sheriff's Court, Red Lion-square, on June 27th, the case of Hickman and Others v. The North London Railway Company came on for hearing.

This was a compensation claim in respect of an interest in two freehold houses in the Holloway-road, belonging to a Miss Hickman, and which were let as shops. The claim was about 3,000*l.*, and the property, like all other metropolitan property, had gone up in value.

In this case evidence was given on both sides as to the value of the property in question, amounting to about 3,000*l.* for the share claimed. On the part of the company Mr. Pownall and other surveyors were called, and their valuation was 1,449*l.*

Mr. Under-Sheriff Borchell placed the case before the jury, and they assessed the compensation to Miss Hickman at 1,750*l.*

A correspondent wishes to know if Mr. Under-Sheriff Borchell has anything to do with the firm of Messrs. Borchell, of Westminster, largely engaged as solicitors for railway companies? Some other correspondent will perhaps enable us to reply.

DRINKING FOUNTAINS.

A GREAT deal has been done by the public press to support this important movement, by the liberal insertion of leading articles and correspondence, but by none more usefully than your interesting journal. At the commencement of every summer public attention is drawn to the subject, particularly by the Free Drinking-Fountain Association, which throws blame rather unfairly upon parish officers for the miserable condition in which some are kept. The complaint is somewhat qualified, and I venture to believe the parish of Kensington may be one of the few exceptions alluded to, inasmuch as those in operation are well adapted to, affording drink to man and animal, during the summer months, and, being carefully covered up in the winter, are not subject to abuse in that season.

It should be known and understood that the Association claims a right over those it erects, and that the water supply should be filtered through charcoal, which the Kensington vestry thought needless, and therefore erected them without aid from that institution. It may be true they possess no pretension to beauty or elegance, but they are by no means unsightly, and possess the simple element of perfect utility, with white earthenware drinking-cups that even the most fastidious person would consider unexceptionable (too frequently broken and misused, I must admit), but a very important element for public convenience; and the waste water for cattle passes through pipes into the road channels, which are slightly raised in places to form small pools accessible to them, without interfering with bipeds who use the fountain, whereas the small troughs under the fountains are not so accessible to dogs and other animals.

The metropolitan parishes may be blameable for not subscribing to the funds of the Association, but the latter is alone to blame for the condition of their fountains, which in the winter months have no covering or protection, and are therefore subject to the greatest abuse from disorderly people and mischievous children.

I admit there is a lamentable apathy in many of the middle classes in respect to the necessity of these fountains, and consequently great difficulty in finding sites for their erection. In 1859 the vestry of Kensington kindly voted for the erection of six, besides those given by private individuals. Two were prepared, but only one of these was erected, owing to this difficulty, which has never since been surmounted: it therefore remains on hand as well as four others, sanctioned but not made, which would doubtless be erected under any outward pressure or stronger feeling of necessity. It is very tiresome and disheartening to hear of the abuse of these useful gifts afforded to the service of humanity, but the vast number who properly appreciate them should not be neglected because the few misuse them: and as one of the public I sincerely thank you for your liberal advocacy on all occasions.

KENSINGTONIAN.

READING ALOUD.

RECENT gatherings of children and teachers at the Crystal Palace and elsewhere have shown to what extent the power of vocal melody has been acquired in the national schools; and thousands have been entranced by the multitudes of youthful voices which joined in the execution of those simple yet beautiful melodies which, both as regards the music and the poetry, may be classed amongst the original and pleasing features of the present age. Notwithstanding, it is painful to hear the style of reading which is generally acquired; and while we duly appreciate the value of music as an accomplishment, reading must, as a branch of useful education, be of far greater consequence. But it is not in connexion with the national schools alone that this fault has to be noticed, for in educational establishments of much higher pretensions, and in expensive schools, we have heard with pain the sing-song manner in which the rudiments are droned; and when the scholars begin to read verses of Scripture, the sounding of the whole in one key is indescribably unpleasant. No attention is paid to the emphasis of particular words; and speeches are spoken in a manner very different from that aimed at in the advice which Shakespeare puts into the mouth of Hamlet for the benefit of the players.

The effect of this kind of early teaching is evident in the general style of reading aloud prac-

tised when the scholars have arrived at manhood and womanhood. Amongst young females this failing is most distinctly to be observed; and there are many who can play admirably on the piano-forte, who cannot decently read a sentence from the newspaper, or from our household classics. In a chief measure this failing is to be attributed, as we have hinted, to the want of school-culture; but another important cause is the want of practice in reading at home after school; and we have often met with those who could read rapidly to themselves, who blundered and mispronounced words if made to read them aloud.

LINOLEUM.

THE substance so euphoniously named consists of the linseed oil of commerce, rendered solid by a process patented by a manufacturing company in Cannon-street, City. By this process the linseed oil is made to assume similar properties to those of india-rubber and gutta-percha, or becomes, in fact, what we long since suggested, that it might be made a sort of artificial india-rubber. It is said to be soft, flexible, and elastic, and adapted to many valuable purposes. In the manufacture of floor-cloth the linoleum is first reduced to the consistency of dough, and then intimately mixed with ground or powdered cork by machinery; and, being extremely adhesive, it combines so thoroughly as to form a substance almost like leather. By the joint action of heat and great pressure this material is rolled on to stout canvass, which is afterwards waterproofed, and the surface of the linoleum is then printed with appropriate designs. At the time when we suggested the formation of artificial india-rubber, a dealer in leather, it may be recollected, sent us a specimen of a material made from shreds of leather as the result of his rumination over our suggestion. The cementive matter, however, was merely bituminous; but with oxidized linseed oil waste leather might be used up to great advantage.

WINDOW GARDENING.

MORE and more is the pretty practice of decking with growing flowers the windows of the industrious and poorer classes coming into use, and in many a bye street and lane in the metropolis the care of the inhabitants produces a pleasant appearance such as has not been seen since the now urban and widely-surrounded part formed a suburban precinct. In a neighbourhood persons who perhaps come from the country see the example of flower-growing, which, like an epidemic, spreads with rapidity, notwithstanding the difficulties that are in the way, and which are mostly caused by the opposition of those who have not yet been smitten with the love of flower-growing. In tenemented houses the extent of unpleasant feeling which exists amongst neighbours is a matter causing surprise to strangers; but it is unfortunately a fact, that to manage a tenemented dwelling in peace is a difficult matter, and requires a skilful diplomacy to achieve. It is true that there are so many great matters of complaint that it leaves ground for persons addicted to fault-finding to make mischief. But to the especial subject of flower-growing. Many an angry quarrel is caused by the dripping of water from the window-sills on to the parts below. In London, where there is so much smoke, to contend with, water is especially needed to keep the sooty particles from the leaves, and in doing this the water falls from the upper windows and dirties those below, and still further descends to the premises of the "lady" who lives in the kitchen; who is an unpleasant person, perhaps, who does not like the trouble of flowers herself, and does not see why she should be annoyed by the water from the person above, so that quarrels long and lasting are the consequence. To say the truth, the water dripping in this way is not pleasant, but by a simple plan this may be remedied.

CLOSE OF THE MASONS' STRIKE AT BRADFORD. The masons' labourers who were out on strike at Bradford, have returned to work, the employers having yielded what they sought,—an advance of one shilling per week; making their wages 20*s.* per week.

FROM SCOTLAND.

Edinburgh.—The city council have agreed to a report of their Plans and Works Committee, recommending various minor improvements on the Calton-hill. They have also agreed to a report from the Streets and Buildings Committee, recommending the council to consent to the erection of a portico in the re-erection of the Theatre Royal. A new branch of the Sinclair Cooking Depot has been opened at Greenside-place, Leith Walk. The new branch is below Lady Glenorchy's Free Church, and is divided into three halls—store-room, pantry, and kitchen. The main hall, which is very suitably furnished, is about 100 ft. long by 18 ft. wide, and supplied with twenty-two tables, at which 250 people can dine at once. The second hall is 90 ft. long by 27 ft. broad, and the third 42 ft. long by 18 ft. broad. It is calculated that in the first hall a thousand persons will be served daily.

Dumbarton.—The foundation-stone of a new town-hall and burgh academy has been laid with Masonic honours, and amidst great demonstrations of rejoicing. The erection of a hall and a new burgh academy had been long talked of, and much needed. The town council took the matter in hand last summer, and the necessary funds (nearly 7,000*l.*) were soon subscribed.—Mr. Peter Denny, shipbuilder, and Provost M'Asland, each contributing the sum of 1,500*l.*; and Mr. White, of Overton, 1,000*l.* Operations, according to plans prepared by Messrs. Melvin & Lieper, of Glasgow, were commenced in the end of last autumn, and the mason-work is now in an advanced state, a portion of the building being roofed in.

Dumfries.—Designs for a new church, amounting to thirty-two in number, having been submitted to competition, the joint committees of the town-council and congregation have almost unanimously selected the design furnished by Mr. Starforth, architect, Edinburgh. The site occupied by the present church is the one on which it is proposed to erect the new edifice, and this site is surrounded on three sides by buildings, and limited in area. The plan shows that the nave of the church is about 65 ft. long and 30 ft. wide, the transepts being similar in breadth, and the aisles about 15 ft. in width. The aisles and transepts have galleries, which, with the area of the church, will accommodate about 1,350 persons. In order to gain space for the large school-room, vestry, and other requirements demanded by the committees, these departments are placed beneath the north end of the nave and transepts. The school-room contains an area of about 1,000 square feet. The pillars of the church, between the nave and aisles, are of cast-iron, clustered. The roof is open. The roof timbers, together with the seating and gallery fronts, will be of pine timber, stained and varnished. The principal front of the church is towards Church-place. The form is somewhat octagonal, having the tower in the centre, on each side of which is a circular staircase communicating with the galleries, and flanked by gables and pinnacles. The principal entrance to the church is by two large coupled doors in the tower, from which access is gained to the area of the church and the gallery stairs right and left. The tower is about 20 ft. square at the base, and, with the spire, will rise to about 90 ft. The windows below the galleries, and especially those to the principal front, are filled with tracery. The triple windows in the gables flanking the central tower are deeply recessed, the design is Early Decorated.

Langholm.—Premises in Market-square, for many years occupied as the King's Arms Inn, together with a house adjoining, having in whole a frontage of 67 ft., and extending backwards a distance of 150 ft., will be pulled down, and on the site thus obtained it is proposed to erect buildings which will embrace a temperance hotel, a working men's reading-room, a large bill-room for the volunteers, and a hall to be used for meetings and other public purposes. The plans have been prepared by Messrs. Haberton, Speding, & Brock, of London, and are in course of being estimated. The cost of the whole undertaking will probably exceed 3,000*l.* Among other works now going forward in Langholm is the erection of a new police-station, for which the plan was prepared by Mr. Fraser, architect, Dumfries.

Morebattle.—The foundation-stone of a new P. P. church at Morebattle has been laid. The edifice is to be erected from plans by Mr. Wilkinson, architect, Edinburgh, and will cost 3,000*l.*, the most of which, 950*l.*, has already

been raised by the congregation; Messrs. Scott, farmers in the district, having given 600*l.*

Forres.—The Forres Water Company have just completed a reservoir. The town has hitherto had its main supply from a spring about four miles from Forres, on the farm of Fernalley, Rafford, which is led by pipes into a large covered cistern 300 ft. above the High-street. In order to have command of a reserve in case of excessive drought, the company have had an embankment made at the lower end of "Glenbeg," about half a mile further up than the tank. The new reservoir accumulates water from several springs west of the farm of Cluny, and when full will contain about five millions of gallons.

FROM IRELAND.

Enniskillen.—The foundation-stone of a Wesleyan chapel has been laid by the Earl of Enniskillen. The chapel, which is in the Corinthian order of architecture, will be capable of accommodating about 600 people, in addition to a school-room under ground. The cost, including site, will be about 3,200*l.*, of which 2,600*l.* have already been subscribed. The architect is Mr. W. J. Darre, of Belfast; and the contractor, Mr. Wm. Campbell, of Enniskillen.

Bray, near Dublin.—A stained glass window is now completed, intended to be fixed in Bray Church, near Dublin, by Mr. Holland, of Warwick, containing four subjects, in medallions, of the Nativity, Adoration of the Magi, Presentation in the Temple, and Flight into Egypt, with angel in tracery. This window is the gift of the Countess of Meath.

Garrane.—The foundation stone of Trinity Church, Garrane, which will be situated just at the mouth of the Ballinacorra river, has been laid by the Bishop of Cork, Cloyne, and Ross. The plan was furnished by Mr. William Atkins, of Cork, architect, in the style of architecture prevailing in the early part of the fourteenth century. The church will consist of a nave 50 ft. by 22 ft., with tower and spire 75 ft. high, grouping with a semi-octagonal chancel, lighted by two-light windows, with large cinquefoil circles in the heads. The materials used in the walls will be red-coloured stone, with limestone dressings and bands. The interior of the church will be lined with bricks of different colours, varied with stone and tiles; and an arcade with marble shafts will be carried round the chancel, having carved stone-caps and bases. The roof will be open. Accommodation will be afforded in the church for about 150 people. The site was granted by Mr. R. W. G. Adams, Jamesbrook, and the erection of the church is in the hands of Mr. Devlin, the builder of the Cork Model Schools.

PROVINCIAL NEWS.

Oswestry.—The "Savin column," or shaft, in Oswestry, 150 ft. high, and which, with its abutments,—the Cambrian workshops,—will cost upwards of 100,000*l.*, has been completed, according to the *Shrewsbury Chronicle*. It will give future employment to some 400 or 500 skilled artisans, at an expenditure of 500*l.* a week, or 26,000*l.* a year. The Cambrian Railway Workshops, as the premises will be called, are 482 ft. long and 244 ft. wide, comprising large and lofty workshops, engine-fitting shops, carriage and wagon shops, engine-house, boiler-house, and a shaft 150 ft. high. A flag has been hoisted from the summit of the shaft, announcing that the "rearing" of these extensive works has been accomplished. Mr. Humphrey Roberts was the builder; Mr. Wilson, the engineer; and Mr. R. B. Jones, the architect. No serious accident has taken place during the construction.

CHURCH-BUILDING NEWS.

Leicester.—A font and carved cover have been placed in St. George's Church, as a memorial of the late Rev. Robert Barnaby, who for thirty-seven years was incumbent of this church. The necessary funds were raised by subscription. The font and cover are perpendicular in style, and designed to harmonise with the church. The font is of Caen stone, octagon in plan, and carved; the eight sides being panelled and the spandrels filled with foliage. The oak cover is 3 ft. high, and of spiral form, with numerous arches, buttresses, and pinnacles. The cover is suspended from the roof by a weight and chain,

and can thus be easily raised or lowered. The whole of the work has been carried out by Mr. John Firth, from the design and under the superintendence of Messrs. Goddard & Son, architects.

Wendy (Cambridgeshire).—The chief stone of a new church has been laid here. The old church (dedicated to All Saints) having been erected upon a defective foundation, gave way, and showed signs of falling; and at last it became so unsafe that the archidiaconal architect, Mr. R. R. Rowe, was requested to prepare plans for a new church, and Messrs. Bullock, of Cambridge, have contracted for its erection. It will consist of a nave, chancel, and vestry. The nave is to be covered with the oak roof now upon All Saints' old church, Cambridge, which has been secured for the purpose.

St. Alban's.—In March last, Mr. G. G. Scott, architect, made a survey of St. Michael's Church, and reported that it was in a most deplorable condition. He considered that a thorough and careful restoration of the whole church was necessary; and in consequence of this report strenuous efforts were made to obtain subscriptions, and the work of restoration has been commenced in earnest. The tower has not yet been touched, because there are not at present funds sufficient for that purpose. The contract has been taken by Mr. Young, builder, of this town, for the re-seating of the church, and the restoration of the nave, chancel, south chapel, and north aisle, at a cost of 1,500*l.* The process of demolition which precedes that of restoration has been gone through, and the old church now looks almost in ruins.

Croydon.—Steps have been taken to erect another place of worship in the parish of St. John. Sufficient was raised in a short time to justify the promoters in commencing the new edifice. The church, which stands on a piece of ground in the Addiscombe-road, will cost in round numbers 5,000*l.* Of this sum already 4,700*l.* have been promised. The work of preparing plans was entrusted to Mr. Arthur W. Blomfield, architect. The church is somewhat peculiar in plan, owing to the shape of ground on which it is to be built. The site, as originally contemplated, is unusually short from east to west; and although 15 ft. have now been added, this was not done until after the work was actually commenced, and when it was too late to modify the plans. The details partake of the Early French character. Mr. G. Pearson is superintending as clerk of the works. Messrs. Dove, Brothers, are the builders; and Mr. W. Greenfield, general foreman. The work is so far advanced that the foundation-stone has been laid. The length of the building internally is 97 ft., and one width 47 ft. It consists of a nave, a north and south aisle, with a transept, vestry, chancel, &c., and will seat about 600 persons. It is contemplated at some future period to extend the church westward and southward, ground having been purchased for the purpose. The wall at the south side is built somewhat temporarily, in order that any alteration may be effected with as little trouble as possible. It is calculated that by extending the church in the direction proposed, viz., 15 ft. at the west end, and about 10 ft. at the south side, additional accommodation will be provided for about 400 persons.

Wythop (Cumberland).—The foundation stone of a new church at Wythop, in the Lake district, has been laid by the Bishop of Carlisle. The church which this new edifice is intended to supersede is a decayed barn-like structure, with which there are some curious customs associated. It was built in 1673. Not many years ago nettles grew luxuriantly beneath the seats in the pews and along the middle of the passage. For some hundreds of years the inhabitants of the chapelry were in the habit of dividing it into four quarters, from each of which a representative was elected yearly; the functions of the four being set forth in a document dated 1623. They had to elect a parish minister or reader, who was generally the schoolmaster, a layman being eligible. They had to collect "devotion money," supervise the repairs of the fabric, and look after the parish school. The stipend of the minister was 10*l.* per Sunday, and was supplemented by "whittlegate," that is to say, the reader was boarded and lodged by the inhabitants of the four quarters in turn. The church furniture is of a most primitive kind. A narrow board on a moveable bracket constitutes the communion table, and the vessels employed in the celebration of the Lord's Supper are a cheese-plate and a pewter pot. There is no font provided for baptisms, nor is there any vestry-room attached to the building. This old church is to remain

as a curiosity. For the new one, a subscription of 700l. has been raised. The site, at the foot of the mountain, has been presented by Sir H. R. Vane, bart. Mr. Bruce, of Whitehaven, is the architect, and the builders are Messrs. Grave & Moor. The style is Early English; the nave roof having curved traces, crossed at the apices, and supported on stone corbels. The nave will be 40 ft. long by 21 ft. wide, and the chancel 19½ ft. long by 16 ft. wide. The building is intended to seat 120 persons, all free.

STAINED GLASS.

Romsey Abbey Church.—This building has received another enrichment (though of modest pretensions) in a coloured memorial window to the late Mrs. Berthon, the wife of the vicar. The window is inserted over what is known as "the nun's doorway," which now serves the purpose of a window, but is about to be restored to its original use. The artist of the stained glass was Mr. A. Gibbs. The figure in the centre represents Faith. Another head is said to be in process of painting to replace the existing one which is in the antique type. Considerable restorations are in progress in the outside stonework of this part of the building.

St. Helen's Church, Lancashire.—This church, after considerable alterations and improvements, has been re-opened. Some time since the organ had been moved from a loft above the altar to the side, and now the entire east end has been filled by a new window by Messrs. Pilkington, the gift of Mr. R. Fildes, of St. Helen's. The subjects, all medallions, comprise, in the right light, six incidents, manifesting the glory of the Son of God in the Son of Man. The six on the left illustrate the words, "He showed Himself alive after His passion." The centre light has three subjects,—the Burial; and above, the Appearances of Angels to the Women at the Sepulchre; the middle and main subject is the Ascension. A suitable inscription accompanies the subjects.

Kendal Parish Church.—A memorial window to Mr. John Yeates (first mayor of the reformed corporation of Kendal) and Margaretta his wife, with new masonry, has just been added to this church. Mr. Warrington, of London, was the artist. The new window is inserted in the south wall of the church (being the most westerly but one on that side) and consists of three main compartments, surrounded with tracery in six divisions, containing an Angelic host in the act of adoration, the apex of the window being occupied by a small ruby cross on a shield of argent. The window, besides the two principal subjects, contains numerous shields of arms belonging to the families of Yeates and Brettagh (from whom Mrs. Yeates was descended) and their several connexions. In the left hand compartment is depicted the Angel appearing to Cornelius, while in that on the right hand, the subject is the Centurion beseeching Christ to "come and heal" his servant.—Matt. viii. 5—13. Mr. William Atkinson, of this town, prepared the masonry.

G.A.S.

The Townyn people have resolved to construct gasworks, without delay. At a meeting held in the town-hall, it was proposed and carried, that Mr. W. E. Crane, C.E., of London, be the engineer of the works during the progress of erection; and that tenders for building, laying the mains, &c., be solicited, as soon as the plans and specifications are prepared. The company has been started by some of the neighbouring gentry and a few inhabitants of Townyn.—Mr. Malam, the proprietor of the gasworks at Lynn, has determined to reduce the price of gas to private consumers to 4s. per 1,000 cubic feet, by allowing 1s. per 1,000 discount from the price charged if paid within a month.—A very unusual case has occurred at Whitehaven, which tends to define the lowest limits of price under favourable circumstances. The Whitehaven gas company, who had been selling their gas at 2s. 6d. per 1,000 cubic feet, have felt obliged to raise the price again. Considering, however, that 2s. 9d. is a price which has been proved at Plymouth to be capable of yielding the highest allowable profit, we think the Whitehaven directors are probably erring now on the other hand in raising their price to 3s. 4d. to all consumers of less than 75,000 ft., and 8s. to all above that quantity. The two companies have combined to charge the same prices. Had there only been

one company, perhaps even 2s. 6d. might have been found sufficient.—The Hinckley gas-light and coke company's directors have reduced their price from 5s. 10d. to 5s.—The Wolverhampton gas company have commenced additions and improvements at their works. In addition to an enlargement of the retort-house and other improvements within the Stafford-road works, a new 24-inch main is being laid along the turnpike road.—A company for lighting Madrid with gas has been formed by some Franco-Spanish capitalists, through the medium of the Spanish Credit Mobilier. The company begins its operations on excellent conditions, as, from the opening throughout of the Northern of Spain Railway, the price of coal has experienced a notable fall at Madrid. The working of coal mines in Castile, which belong to the Mobilier Espagnol, is being developed, and presents good results.—The public meeting of ratepayers and gas consumers convened by the Lord Mayor of London, has been held, and resolutions unanimously passed to the effect that the supply of gas ought to be placed in the hands of local authorities, so that, after lighting the public lamps, the private consumer might get gas at cost price; and that the Gas Act of 1860 ought to be repealed. The meeting also urged the necessity of steps being taken towards that end, and approved of the measures adopted by the Corporation with the view of applying to Parliament for powers to make gas for the citizens.

Books Received.

Practical Specifications of Works executed in Architecture, Civil and Mechanical Engineering, &c. By JOHN BLENKARN, C.E. and Architect. E. & F. N. Spon, Bucklersbury. 1865.

In this volume Mr. Blenkarn gives the specifications for works executed mainly, as it would seem, under his own direction, including road-making, drains, cottages, villa residences, wells, and bridges. The author says in his preface:—

"If the writer had consulted his own pleasure and convenience, either he would not have written at all, or on a subject more congenial to his taste; but, from long and constant practice, he has witnessed so much ignorance and inaptitude on the part of young men in these particulars studying for the profession, and, indeed, after their studies should have been concluded, and fitted them for useful assistants, that, with the advice of his publishers, he has selected in the form now presented a series of specifications, forms of contract, agreements, bills of quantities, schedules of prices, and reports, all bearing on practical subjects, and of words expressed, not intended to apply to very extensive undertakings or to works of any special character, but to such as are likely to come within the scope of general practice particularly of the young architect and surveyor; and in choosing this path the writer is not aware that he has trespassed on pre-occupied ground, either as to the expense of the book or the questions treated of in it. An attempt has been made to introduce a variety of subjects, and as these are classified under the divisions given in the index, a more detailed account seemed scarcely necessary in a work of such limited extent."

The drawings are added for some of the works, and the cost of execution; serving to make the book complete so far as it goes. The cost, by the way, of some of the buildings—as, for example, the two-story villa residences at East Cowes, one 1,951l. and the other 1,115l.—seems to us large. One of the specifications provides that the clerk of the works is to be appointed and paid by the contractor—an unusual and not good arrangement. Nor have we any particular fancy for the stipulation that the contractor is to pay the architect three guineas for a copy of the specification.

Mr. Blenkarn's book will be found useful by those who do not possess, and object to the larger expenditure required to obtain, Professor Donaldson's more complete work on the same subject.

VARIORUM.

"ON Radiation: The 'Rede' Lecture at Cambridge, May, 1865. By John Tyndall, F.R.S." London: Longman & Co. Some of the results of recent inquiries in the interesting domain of radiation are here recorded by Professor Tyndall. To his theoretical views we need not here revert. The lecture is much less a theoretical than a practical one. Nevertheless the author rightly upholds the importance of a free culture and exercise of the imagination in the study of experimental science. "Throughout the greater part of this discourse," he remarks, "we have been sustained by this faculty. We have been picturing atoms, and molecules, and vibrations, and waves, which eye has never seen nor ear heard, and which can only be discerned by the

exercise of imagination. This, in fact, is the faculty which enables us to transcend the boundaries of sense, and connect the phenomena of our visible world with those of an invisible one. Without imagination we never could have risen to the conceptions which have occupied us here to-day. . . . We are led irresistibly to inquire what is light? and what is heat? and these questions lead us at once out of the region of sense into that of imagination."—"The Amateur's Manual of Photography," edited by Richard Kingham." London: Thomas Kingham, Strand. Although the publisher's name here is suspicious as to motives for publication, this, so far as we have seen, appears to be a manual of general utility to amateur photographers, and does not smelt offensively of "the shop," as not a few do.—"Inconsistencies of the English Census of 1861, with the Registrar General's Reports; and Deficiencies in the Local Registry of Births." By W. L. Sargent." This is a reprint of a paper read before the Statistical Society in January last, and published in the Society's Journal. We have already drawn attention to the subject of this paper. It is an important one, and calls for careful inquiry. Mr. Sargent believes that the population is far more numerous than it appears by the census to be. One hurried counting, in a single day, he regards as quite insufficient to secure anything like accuracy. The deficiency is considered to be far greater in some districts than in others, and inquiry might be in the first place restricted to the most suspected districts as a test. Liver pool and Hull are ranked as the worst in respect to the registration of births, with London, Cheltenham, Plymouth, and Portsmouth following in order of demerit.—"The Sewage Committee of 1864, and its Report as to the Purification of River Water from Town Sewage." By Thomas Spencer, F.C.S., &c. E. Stanford, Charing Cross." Anything written by the discoverer of electrolysis merits respectful consideration. Mr. Spencer's chief purpose in this pamphlet is to recall the public attention to the merits of his method of purifying foul water by means of the magnetic oxide of iron. We have more than once spoken of this method as a promising one. Mr. Spencer's explanation of its *modus operandi* is that it ozonizes, or polarizes, oxygen, which then oxidizes the carbonaceous foulness of the water. Ozone may now be said to be ascertained to be Nature's great scavenger. Whatever be the precise nature of the change which oxygen undergoes when it becomes ozone, it at all events acquires a powerful activity which induces it to act vigorously on decaying organic substances, converting them into carbonic acid gas, which gentle acid is what gives water its value as a pleasant drink. Oxygen is ozonized naturally in various ways, as by lightning in thunder-storms; and indeed, ozone has been regarded simply as oxygen excited by electricity into an active state. There are also influences at work in the strata of the earth which are believed to ozonize oxygen and so to purify water containing it while filtering through the strata. Doubtless the well-known deodorizing and disinfecting power of earth itself over sewage is attributable to the same cause; and above all other earths Mr. Spencer maintains the protoxide, or magnetic oxide, of iron, which, widely diffused, to be the best for such a purpose. There is something exceedingly feasible in this idea, and it may involve a discovery of vastly greater public importance than even the electrolysis.—"The Popular Science Review" for July sustains the interest of this excellent periodical. The leading paper is one by Mr. Glaisher, on "Balloon Ascents, and their Scientific Importance."—"A Dictionary of Science, Literature, and Art." Edited by W. T. Brand D.C.L., &c., the Rev. G. W. Cox, M.A., &c. others. London: Longman & Co. Part I. Mr. Brande is a high chemical authority, and this dictionary contains evidence of the value his helping hand in it. The list of contributors, too, is a powerful one, containing such names as Frankland, Owen, Lindley, Ansted, &c. The work, however, is intermixed with matter of inferior value.—"Theodolites, Levels, Drawing Instruments, &c." Archbutt & Sons. Manchester, 1865. Our purpose in placing this catalogue among "Books received" is not to criticise the merits of the manufacturer, but merely for behoof of those, especially country readers, who may wish to look over some such catalogues. Messrs. Archbutt's have the advantage of being illustrated by numerous engravings of the instruments referred to.

The Life Boat; or, (quarterly threepenny) Journal of the National Life Boat Institution, Vol. v., No. 57, for July quarter, contains a very good paper on "Our Lights and Lighthouses," with illustrative diagrams.

Miscellaneous.

THE LATE MR. MANNS, C.E.—Died, on Thursday, June 29th, aged 52 years, at his residence, Popper's Hill, St. Helen's, Mr. John M. Manns, C.E., Surveyor to the St. Helen's Improvement Commissioners, which office he held for many years previously to his death. He was formerly Surveyor to the Ormskirk local Board of Health. He has left a widow and eight children quite unprovided for.

LEEDS BOROUGH SURVEYORSHIP.—Mr. Alfred Fowler, for some time past borough surveyor of Rochdale, was, at a special meeting of the town council, appointed borough surveyor of Leeds, at a salary of 300*l.* per annum. Before he obtained his appointment at Rochdale, Mr. Fowler was for several years in the office of the borough surveyor at Leeds. His local knowledge and experience were greatly in his favour in the consideration of his claims; and though forty-eight candidates applied for the appointment, it was unanimously conferred upon him by the council.

THE PARIS EXHIBITION.—Our correspondent writes,—Nothing has been yet decided as to the plan or the site of the new exhibition building, though it is very likely that the Champ Mars will be the spot, and that M. Horeau's plan will be adopted. The spirited offer of the titled companies of Parent, Shacken, Caillet, & Co., to erect a temporary structure for 92,000*l.*, or a permanent one for 560,000*l.*, includes every contingency that can arise from any undertaking which is meant to surpass predecessors.

THE FIRE AT MARLBOROUGH HOUSE.—The dangerous fire at Marlborough House, of which every one must have heard, and at which the Prince of Wales displayed an energy and spirit beyond all praise, appears to have been the result of extreme negligence on the part of those who altered the interior of the building some years since. Ventilating-shafts run perpendicularly from the bottom of the building to the top; and within these, in several of the passages, gas-lights, for the purpose of increasing the draught of foul air. Each gas-light is easily reached by means of a small glass door, through which a little light shines. This would have been all very well, and ventilation would have been safely attained, had the builder cased the interior of the shaft with sheet-iron; but wood was used; and, as the brackets for the lights are made to swing in all directions, instead of being rigidly fixed, so that the flame of gas could be in the centre of the shaft, it follows that nothing more was needed than that some careless servant, after obtaining a light, should ring the burner round against the woodwork, in order to bring about a catastrophe such as the building has narrowly escaped from on the present occasion.

WEST LONDON INDUSTRIAL EXHIBITION.—A meeting of the exhibitors has been held, for the purpose of aiding the committee in promoting its success. The exhibitors feel deeply that the poorer classes in general have withheld their support, and expressed a determination, so far as is in their power, to prevent the promoters suffering pecuniary loss; deputations were appointed from among them to wait upon the principal employers of labour at the west of London, and for this work lady exhibitors also volunteered. We are informed the following have already responded by taking tickets for distribution among their employees.—Mr. Peter Graham, 500; T. Thos. Lucas, 500; Messrs. Benham & Son, 200; W. H. Smith, 200; Mr. W. S. Burton, 100; Mr. J. Crace, 100; Mr. H. Heal, 100; Messrs. Lambert & Butler, 100. The committee may feel surprised at their want of success, but we certainly do not; the high price charged and the general want of management are quite sufficient to account for it. The Builder has been amongst the foremost for years in promoting industrial exhibitions of all kinds; and when we say that we even an intimation of the opening of this West London Exhibition has yet reached this annual, the sort of management that has preceded will be at once seen.

VALUE OF METROPOLITAN PROPERTY.—In a recent debate in the House of Commons the value of property in the metropolis was put at 900,000,000*l.*

STATES.—The first annual meeting of the shareholders of the Valencia Slate Slab Company (Limited), was held at the offices, 40, Upper Belgrave-place, Fimlico, on Thursday, June 20th, when a dividend of 5*s.* 3*d.* per share, being at the rate of 10 per cent. per annum, was declared.

BEDS ARCHITECTURAL SOCIETY.—The annual public meeting of this society has been held at Bedford. The High Sheriff opened the proceedings, and papers were read, by Mr. C. L. Higgins, "On Local Museums;" by Mr. James Wyatt, "On Ancient Bedford;" and by Mr. S. Sharp, "On Antique Counterfeits and Counterfeit Antiques." A valuable collection of curiosities was exhibited at the meeting.

STOCKPORT.—A new bridge has just been completed across the River Mersey; built at the expense of Mr. Cephas Howard, of Stockport, for the purpose of connecting and opening up his building estate. The bridge is in one arch of 70 ft. span, in brickwork set in cement: the parapets are of stone. The cost has been 2,000*l.* Messrs. Thackrah & Pierce, of Stockport, have been the contractors; and Mr. Brierley, of Blackburn, the engineer.

ST. PETER'S ENGLISH CHURCH, CHANTILLY.—The ceremony of laying the first stone of the English Protestant Church of St. Peter's at Chantilly has just taken place in the presence of nearly the whole English congregation and a large number of the French inhabitants. The church is expected to be opened for Divine service early in 1866. The English residents have subscribed liberally, and the proprietors of the domain, in addition to the site—2,000 square metres in a central part of the town, which is in itself a liberal donation—have given 3,000*l.*; but a further sum of 5,000*l.* is still required, and will be raised by voluntary contributions.

SKIDMORE'S ART MANUFACTURES AND CONSTRUCTIVE IRON.—A limited company is being formed for purchasing and developing the business carried on by Messrs. Skidmore & Co., of Coventry, their contracts requiring more capital than they can command. These contracts, including the canopy and spire of the National Memorial in Hyde Park, to the memory of the late Prince Consort, are said to amount to about 25,000*l.*, and good and remunerative works, to the extent of more than 200,000*l.*, have been offered and declined, it is said, for want of the necessary capital for their completion, but part of these may yet be secured. A contract has been entered into for the purchase of the works and business for 30,456*l.* The directors have secured for seven years the services of Mr. Skidmore, as managing director, with the option, on his part, of renewing his engagement; and they have also arranged for his chief assistants and skilled workmen to remain with this company. Messrs. Skidmore take 10,000*l.* in shares. The capital of the company is to be 100,000*l.*, in 10,000 shares of 10*l.* each.

THE DALBEATIE AND KIRKCONNELL GRANITE. The selection of this granite for the Thames Embankment has led to the announcement that a limited company is being formed, to be called "The Dalbeattie and Kirkconnell Granite Company," with the view of working the quarries on a sufficiently extended scale. The Company's capital will be 120,000*l.*, in 12,000 shares of 10*l.* each (with power to increase); deposit 1*l.* per share on application and 2*l.* on allotment. Sir John Dalrymple Hay, Bart., M.P., F.R.S., is chairman of the directors. The Dalbeattie quarries, of which six are opened and in full work, with all the necessary plant and machinery, are situated on the estate of Munches, in the stewartry of Kirkcubright. Among the numerous large undertakings in the execution of which the stone has been already used, the following are mentioned: the Liverpool Docks; Graving Docks, Birkenhead; harbour at Trinidad; Maryport Docks; Newport Docks; Swansea Docks; Silloth Docks; Workington Docks; Bank of England Branch, Liverpool; new municipal offices, Liverpool; Brown's-buildings, Liverpool. The interest of the Company in the present leases of these quarries will expire in 1866. A preliminary contract has been entered into for the purchase of the leases, railways, and plant, together with the existing contracts, for 25,000*l.* The project certainly promises well.

NOTTINGHAM SCHOOL OF ART.—An extensive exhibition of paintings, sculpture, textile fabrics, lace of all countries, ancient and modern pottery and glass, works in metal, architectural drawings, and a selection of art treasures from the Royal Museum of South Kensington, has been opened with a *conversazione*, at the new School of Art in Waverley-street, which attracted a numerous and fashionable company of visitors. The commodious rooms in the new building are now occupied as a spacious museum, with galleries for paintings and sculpture, and affording such facilities for the advantageous exhibition of their contents as have never before been realised in Nottingham. Mr. Birkin delivered an address on "The Nature and Advantages of Art Education."

KIT'S COTTY HOUSE.—A correspondent of the *Maidstone Journal* suggests that the stones of which Kit's Cotty House is composed, with others of a similar nature lying about in that vicinity, were floated to their present site by icebergs, probably from a great distance, and while the land was under water. No such stone exists *in situ* within the county. Whether geologists have had their attention turned to Kit's Cotty House in particular we do not recollect, but the suggestion that such stones, or boulders, as are scattered about throughout the country, and have frequently been made use of in old times, as in the formation of dolmens, rocking-stones, &c., were so scattered about by icebergs, is one quite well known to and accepted by geologists as the only possible explanation of their evident transportation from one district to another, and even from one country to another, and often with hilly land intervening between their present site and the original quarry or stratum whence they were obviously derived.

THE ATLANTIC TELEGRAPH.—In anticipation of the opening of the cable to the public, the Atlantic Telegraph Company have issued a provisional, and rather premature, tariff, together with the traffic arrangements. They confidently expect, however, that the cable connecting Europe with America will be open for public business before the end of the present month. The following are the principal charges:—From any telegraph station in Great Britain or Ireland to any telegraph station in America—20 words or less, including address, date, and signature, not exceeding in all 100 letters, 20*l.*; for every additional word not exceeding five letters, 50*s.* per word. From any telegraph station in Europe to any telegraph station in America—20 words or less, including address, date, and signature, not exceeding in all 100 letters, 21*l.*; for every additional word not exceeding five letters, 21*s.* per word. From any telegraph station in Africa, Asia, and India, to any telegraph station in America—20 words, including address, date, and signature, 25*l.*; for every additional word not exceeding five letters, 25*s.* per word.

MONUMENTAL.—A report on the progress of the Manchester Albert memorial, now being erected in Albert-square, has been published. The total sum received and promised up to the present time amounts to 3,711*l.*, of which 1,569*l.* have been already expended. Mr. T. Worthington, the architect, says,—"The foundations, which were commenced in the summer of 1863, were completed up to the level of the street during the autumn of the same year. This part of the work became more costly than had been anticipated, in consequence of the ground being intersected to a depth of upwards of 17 ft. with old drains, which rendered it necessary to excavate to the rock, on which the structure has been built. The contract now in course of execution by Messrs. Patterson & Sons, amounts to 2,639*l.* The memorial will still be in a very unfinished and incomplete state when the present contract has been fully carried into execution, and the expense of the decorative part of the work which has to follow, cannot be estimated at a less sum than from 2,500*l.* to 3,000*l.*, whilst double that amount might be advantageously spent in more fully developing the ornamental details of the design. Rough blocks of stone are built in preparatory to carving, and many of the mouldings are unworked, the stone being left projecting in the rough for foliage and carved decoration. A meeting is to be held to initiate measures to secure the early completion of the work.—Signor Reggiani, an Italian poet, has written a letter to the foreign minister of the kingdom of Greece, suggesting that a monument should be erected in Athens to Homer! *Punch's* projected monument to Adam may well come next.

THE TOTTENHAM, EDMONTON, AND ENFIELD INDUSTRIAL EXHIBITION.—This exhibition was opened on Saturday, the 24th of June, at the Drill Hall, Park-lane, Tottenham.

DRINKING-FOUNTAIN MOVEMENT.—Two granite drinking-fountains have just been erected at Crewe station, one on each platform, presented to the company by Mr. C. P. Melly, of Liverpool. They have been fixed under the superintendence of Mr. Lee, of Chester, engineer, and are supplied with an abundance of pure water from the company's new works at Madeley.

PREVENTING OXYDATION OF IRON AND STEEL.—According to the patent of Mr. J. B. Chambeiron, of Paris, it is proposed to prevent the oxydation of iron and steel by the forced incorporation of volatile metals having little affinity for oxygen. Tinning, zincing, and leading only give incomplete results, and Mr. Chambeiron has discovered that it was only by incorporating into the iron itself, and to a certain depth, a metal or an alloy little affected by the action of oxygen, and considered practically inoxidizable, that iron and steel can be protected from oxydation in sea and other acidulated waters.

OPEN SPACES IN THE METROPOLIS.—The second report of the select committee of the House of Commons has been issued. Among other recommendations, the committee propose that no enclosure shall take place under the provisions of the Enclosure Act within the metropolitan area,—that a Board be appointed to act as trustees for the preservation of commons and open spaces within the metropolitan area;—that they be authorised specially to inquire into, and report on, the rights and circumstances affecting any particular common or open space which in their judgment may require special legislation in the public interest;—that they be empowered to authorise drainage works, to sanction applications to Parliament, &c. The committee consider that the action of the police, so far as the public safety is concerned, should extend to all open spaces in the metropolitan area.

SOCIAL SCIENCE ASSOCIATION.—At the meeting to be held in Sheffield from the 4th to the 11th of October next, the special questions arranged for discussion in the departments of Health and Economy and Trade, are as follow:—**Health.**—1. In what way can the unnecessary exposure of workmen to dangers of life or health be best avoided, especially in collieries, mines, and manufactories? 2. What are the best means of preventing the spread of contagious diseases? 3. To what extent can the contamination of air in towns be diminished, and by what means? **Economy and Trade.**—1. What are the best means of establishing a system of authoritative arbitration between employers and employed in cases of strikes and outlooks? 2. Can the principles of co-operation be profitably applied to production; and, if so, under what conditions? 3. Is it desirable to consolidate the existing railways of the United Kingdom into one system under Government control? To the department of Education a section of art has been added for the consideration of the following and other questions:—What improvements can be made in the schools, museums, and exhibitions of art, with a view to the development of the public taste and the prosperity of our manufactures?

STRENGTH OF MATERIALS.—It is a remarkable fact that one of the most abundant materials in nature—iron—is the strongest of all known substances. Made into best steel, a rod one-fourth of an inch in diameter will sustain 9,000 lb. before breaking; soft steel, 7,000 lb.; iron wire, 6,000 lb.; bar-iron, 4,000 lb.; inferior bar-iron, 2,000 lb.; cast-iron, 1,000 lb. to 3,000 lb.; copper wire, 3,000 lb.; silver, 2,000 lb.; gold, 2,500 lb.; tin, 300 lb.; cast zinc, 160 lb.; sheet zinc, 1,000 lb.; cast lead, 55 lb.; milled lead, 200 lb. Of wood, box and locust, the same size, will hold 1,200 lb.; the toughest ash, 1,000 lb.; elm, 800 lb.; beech, cedar, white oak, pitch pine, 600 lb.; chestnut and soft maple, 650 lb.; poplar, 400 lb. Wood which will bear a very heavy weight for a minute or two will break with two-thirds the force acting a long time. A rod of iron is about ten times as strong as a hempen cord. A rope an inch in diameter will bear about 2½ tons, but in practice it is not safe to subject it to a strain of more than about 1 ton. Half an inch in diameter, the strength will be one quarter as much; a quarter of an inch, one-sixteenth as much; and so on.—*American Artisan.*

GREAT LANDSLIP AT VAUXHALL.—During the past week, that part of the thoroughfare between Vauxhall and Nine Elms has been opened, as has frequently been the case in this neighbourhood of late, for the purpose of laying down new gas or water mains. The cutting has been carried to a depth of, in some places, 20 ft., the sides being supported by the usual timber supports. On Friday in last week, the rain compelled the men to suspend operations, and just after they had left the works, a loud noise of cracking timbers was heard, and the whole of the cutting, from the goods yard of the London and South-Western railway to the Nine Elms-lane, instantly fell in, snapping all the pipes in two which intersected the pit, like so much earthenware, and reducing the timber to fragments. The ground for a considerable distance was left full of large fissures, and another slip was feared before the labourers could resume their work. The pavement on the Nine Elms side of the road was all torn up in a very singular manner, and barricades were placed round the works to prevent persons getting near.

MR. CHRISTOPHER WHEAT'S MALLET.—At a late general meeting of the London and Middlesex Archaeological Society, says a correspondent of "Notes and Queries," the original mallet, with which it is said King Charles II. laid the first stone of St. Paul's, was exhibited. By the kindness of Mr. C. J. Shoppee, the honorary secretary, I have been furnished with a copy of the inscription; which is on a silver plate, let into the head. It is as follows, and I believe will be interesting to many readers:—

"By Order of the M. W. the Grand Master, His Royal Highness the Duke of Sussex, &c., &c., and W. Master of the Lodge of Antiquity, and with the Concurrence of the Brethren of the Lodge, this plate has been engraved and affixed to this MALLET. A. L. 5831, A.D. 1827."

To commemorate that this was the same Mallet with which

HIS MAJESTY, KING CHARLES THE SECOND, levelled the foundation Stone of St. PAUL'S CATHEDRAL, A. L. 5677, A.D. 1673, Was presented to the Old Lodge of St. Paul's, now the Lodge of Antiquity, acting by immemorial Constitution.

By BROTHER SIR CHRISTOPHER WHEAT, B.W.D.G.M., Worshipful Master of the Lodge, and Architect of that Edifice."

OPENING OF THE LANGTON-WOLD TUMULUS.—The great burial-mound on Langton-Wold, which has for a long period formed the most prominent object of the only oolitic ridge in the East Riding, has been opened for scientific purposes by the Rev. W. Greenwell, M.A., of Durham. The deductions resulting from his examinations are that the tumulus contained the bodies of two distinct tribes of Britons; that it marked a transition of the tribes; and that it was used in the north for numerous Anglo-Saxon deposits. In all, British and Saxon, there must have been considerably over a dozen interments; and it is a singular fact that the Saxon pottery was found exclusively on the north and east sides. This is the first tumulus opened by Mr. Greenwell, which contained unburnt British bodies, and it is inferred, that the period represented from the primary long-head male burial to the Saxon interments was at least 2,000 years. The absence of flints is remarkable, especially as flint implements abound on the wold adjoining.

A NEW ATMOSPHERIC RAILWAY.—A new railway, worked by stationary steam-engines, has of late been exhibiting at No. 338, Albany-road, near Camberwell-gate. This railway is the invention of a Mr. Halliwell, and is worked, somewhat like the old atmospheric line at Croydon, by forced or exhausted air in a tube which is placed between the rails, and runs along the whole length of the line, by which the use of the locomotive engine is superseded. The patentees, Messrs. Halliwell and Allison, claim for the invention that lighter rails and sleepers can be used, one half of the coal saved, and the wear and tear on the rails made not half so great. The tube, which is of cast-iron, is 18 in. in diameter, more or less. On this tube is a sliding valve of iron, which is so tight, it is said, that it will stand as much pressure as any other part of the tube. By the old atmospheric railway, a lifting-valve of leather was used, which could not be made tight, and was the main cause of its failure. A stationary engine will be placed at intervals of five miles, more or less, with self-acting valves, so that through trains may be run any distance without stopping. With regard to the speed of the trains, that, it appears, may be carried as high as fifty, or even a hundred miles an hour.

GIGANTIC LARCH.—An immense larch, containing not less than 193 cubic feet, has recently been cut near Llanidloes. It is the largest of the kind on record in this part of the country.

IMPROVED DWELLINGS AND WORKSHOPS FOR ARTISANS.—The Lords of the Treasury have signified their readiness to apply to Parliament for powers to assist, by advances from the funds at the disposal of the Public Works Loan Commissioners, the projects already in course of being carried out, providing improved industrial dwellings. The condition of the loans will be that the bodies to whom they are granted will limit the profits of their undertakings to 5 per cent.—At the Marylebone Vestry a discussion arose recently on a motion by Dr. Richardson to invite all the other metropolitan vestries to elect two members each, with their medical officer of health, to consider the desirability of taking steps for the erection of public workshops in the various parishes, for the accommodation of artisans who at present worked in their own small and crowded houses and rooms, and as to the propriety of obtaining an Act for the establishment of such workshops, similar to the "Baths and Wash-houses Act." It was thought, however, that the proposal might be an excellent one brought forward as a public institution, or started by a limited liability company, but one quite beyond their province as a parochial Board, and a motion as to it was negatived by a large majority.

TENDERS

For repairs, &c., to houses at East Greenwich, for Mr. Coles Child. Mr. Thos. Dinwiddie, surveyor.—
Hudson £55 0 0
Canham 680 0 0
Jarrett 865 0 0
Walsh 981 0 0
Gibbs 620 0 0
Adams (accepted) 510 0 0

For additions to residence, stabling, and offices, St. Neots, Hunts. Mr. Robert Hutchinson, architect.—
Smith £1,840 0 0
Osborne 1,080 0 0
Balmer 930 0 0
Jackson 880 0 0
Wildman 800 0 0

For the erection of farm buildings at Easton, Hunts. Mr. Robert Hutchinson, architect.—
Hudson £868 10 0
Balmer 786 13 0
Cennell 743 0 0
Richardson 735 0 0
Bridge & Whiteman 689 0 0

For the erection of stables, carriage-house, and offices, at Abbots Ripton, Hunts. Mr. Robert Hutchinson, architect.—
Balmer & Rowe £368 10 0
Allpress 325 0 0
Maile 785 0 0
Bridge & Whiteman 309 0 0

For house at Rossey, near Great Berkhamstead, for Mr. C. G. Hadden. Messrs. Hine & Evans, architects. Quantities supplied:—
Hadden £1,305 0 0
Young (accepted) 3,900 0 3

For boys' national school, Putney. Mr. S. J. Laforest, architect. Quantities supplied:—
Tarrant £1,201 0 0
Ramsay 1,167 0 0
Fenny 1,002 0 0
Sims & Martin 1,057 0 0
Bisch 850 0 0

For six cottages, Deptford. Messrs. Chadwick, Brothers, architects. Quantities not supplied:—
Rudkin £1,298 0 0
Gorett 1,180 0 0
Day 1,090 0 0
Ramsay 1,000 0 0
Hunt 960 0 0
Bunyan 943 0 0

For alterations, &c., No. 232, Tottenham-court-road, for Mr. A. Cottrell. Mr. C. Bradley, architect. Quantities not supplied:—
Dabie £262 0 0
Simpson 650 0 0
Ramsay (accepted) 623 0 0

For the erection of an engine-house, boiler-house, condenser, and boundary-walls, at Croydon Waterworks, for the Croydon Local Board of Health, in accordance with plans prepared by Mr. Baldwin Latham, C.E.—
Ward £9,150 0 0
Jarrett 7,760 0 0
Sims & Martin 7,600 0 0
Chappel 6,862 0 0
Bennett (accepted) 6,350 0 0

For national schools and teachers' residences, Walsingham. Mr. W. Wigginton, architect.—
Hill & Reddell £2,980 0 0
Ennor 2,900 0 0
Axford & Co. 2,840 0 0
Perry 2,785 0 0
Kilby 2,793 0 0
Turner 2,755 0 0
Reed 2,678 0 0
Hearle 2,610 0 0

The Builder.

VOL. XXIII.—No. 1171.

Portraits of Oliver
Cromwell.

The Miniature Ex-
hibition.*

FOURTH instalment of what was to us a pleasant and instructive pursuit of knowledge under double-glass difficulties in visiting, peeping at, and poring over the

Kensington collection of "Portrait-Minatures," has brought us to the great name

of SAMUEL COOPER (1609-1672), limner in ordinary to King Charles II., "the great limner in little," as Mr. Pepys calls him,† "the most famous limner in the world for a face" (for so Mrs. Mary Beale, the painter, describes him), of whom we have here *forty-eight examples*, the greatest number ever brought together, and yet, as we shall have occasion to show, the largest and finest female portrait miniature of the master is not among the number.

So little is in print about Cooper (the best account is in Walpole, brief as it is), that our readers will, we feel assured, be pleased to become better acquainted with our "Vandyck in little." Pepys knew him, and Mrs. Pepys sat to him; and what Pepys records so pleasantly about him in different entries in his Diary we have been at the pains to bring together:—

"1661-2. Jan. 2.—By appointment to meet with Mr. Grant, who promised to bring me acquainted with Cooper, the great limner in little.

1668. March 30.—By coach to Common-garden Coffee-house, where, by appointment, I was to meet Harris; which I did, and also Mr. Cooper, the great painter, and Mr. Hales; and thence presently to Mr. Cooper's house, to see some of his work, which is all in little, but so excellent as, though I must confess, I do think the colouring of the flesh to be a little forced, yet the painting is so extraordinary, as I do never expect to see the like again. Here I did see Mrs. Stewart's picture, as when a young maid, and now just done before her having the small-pox; and it would make a man weep to see what she was then, and what she was like to be, by people's discourse, now. Here I saw my lord general's picture [Monk's], and my Lord Arlington, and Ashly's, and several others; but among the rest, one Swiften, that was secretary to My Lord Manchester, the lord chamberlain, with Cooling, done so admirably as I never saw anything; but the misery was, this fellow died in debt, and never paid Cooper for his picture; but it being seized on by his creditors, among his other goods, after his death, Cooper himself says that he did buy it, and give 25*l.* out of his purse for it, for what he was to have had but 30*l.* Being infinitely satisfied with this sight, and resolving that my wife shall be drawn by him when she comes out of the country.

1668. July 2.—Calling on Cooper to know when my wife shall come and sit for her picture.

6th.—To Mr. Cooper's, and there met my wife and W. Hewer and Deb.; and there my wife

first sat for her picture: but he is a most admirable workman, and good company.

8th.—With my wife to Cooper's, and there saw her sit; and he do extraordinary things indeed.

10th.—To Cooper's, and there find my wife and W. Hewer and Deb., sitting and painting; and here he do work finely, though I fear it will not be so like as I expected: but now I understand his great skill in musick, his playing and setting to the French lute most excellently; and he speaks French, and indeed is an excellent man.

18th.—To Cooper's, and spent the afternoon with them; and it will be an excellent picture.

19th (Lord's Day).—Come Mr. Cooper, Hales, Harris, Mr. Butler, that wrote "Hadibras," and Mr. Cooper's cousin Jack; and by and by come Mr. Reeves and his wife, whom I never saw before: and there we dined: a good dinner, and company that pleased me mightily, being all eminent men in their way.

25th.—At noon, after dinner, to Cooper's, it being a very rainy day, and there saw my wife's picture go on, which will be very fine indeed.

1668. Aug. 10.—To Cooper's, where I spent all the afternoon with my wife and girl, seeing him make an end of her picture, which he did to my great content, though not so great as I confess I expected, being not satisfied in the greatness of the resemblance, nor in the blue garment: but it is most certainly a most rare piece of work, as to the painting. He hath 30*l.* for his work; and the chrystal, and case, and gold case, comes to 8*l.* 3*s.* 4*d.*, and which I sent him this night, that I might be out of his debt."

That is, 38*l.* 3*s.* 4*d.* in all. Where is Mrs. Pepys by Samuel Cooper, crystal, and case, and gold case?

The most celebrated sitter that sat to Samuel Cooper was Oliver Cromwell. The great Protector had little time to give to portrait-painters, bust-makers, and medallists. He sat to Cooper, to Lely (it is said), and to Simon for the obverse of his coins and medals.

Remembering that the much-vexed and canvassed question of three or five years since "Shall Cromwell have a statue?" is much like a peerage case—*dormant* rather than *extinct*—a collection of the known facts about the genuine portraits of the great Protector, their several pedigree possessors, and the artists they are by, may, we submit, well find a space in the columns of the *Builder*. As the statue must (when erected) necessarily be a portrait-statue (look at Falkland, Hyde, Selden, Hampden, already erected, all portraits, and in great good taste), *likeness* is indispensable.

When Derbyshire-born Chantrey received a commission from the senate at Washington for a monument to George Washington, and was asked what shape it should take, England's great bust-sculptor said (taking a pinch of snuff at the time from his tortoiseshell box), "A standing statue of the man, as he looked and moved in his noblest moments." Jonathan at once said, "Yes;" and one of the very finest portrait-statues in the world was "ordered" for America, in what Yankees would call a "business dealing" of a few minutes, and, better still, is in Washington, and equally admired by the discordant Lancaster and York factions, or "jars," of North and South.

Among the many portraits of Oliver P. (for so in the armed terror of his greatness he signed his name), the foremost place is due to a copy made in 1723, by the famous Bernard Lens, and not in the Kensington Collection. Its pedigree is equal to the requirements of justice, law, or turf. Its magnificence of head is equal to the demands of Spurzheim; its mental developments portray the history of the man, and fully satisfy the *biographical* demands of the three living men who know most about Oliver, and admire him most—Thomas Carlyle, John Forster, and John Bruce.

The copy to which we allude belongs to his Grace the Duke of Portland (the London and Nottinghamshire descendant of King William III.'s right hand), to whose family it came through the *Portland Vase* Duchess of Portland, the accomplished daughter and granddaughter of the famous collectors of the Harleian Library and the Harleian MSS. "Where" the *original*, by Cooper, from which Lens worked, is, has long continued, and seems likely to remain, as great a problem as the locality of the flesh-and-blood remains of Oliver himself has been and still continues to be. Lens copied an original by Cooper, finished everywhere but in the tapestry, or column, or curtain-filling-in of Cooper's assistant, and very masterly and delicate is Lens's work.

When the *great* (for so we must call it) Art Treasures Exhibition was on, in the year 1857,—there was no cotton famine in Manchester that year,—it was our good fortune to have repeated and then renewed conversation with two skilled scholars in art in England,—unhappily no more,—John Scott, of Colnaghi's, in Pall Mall East, and Frank Graves, of the "house" of Graves & Co., in Pall Mall West,—need we add, London? How much knowledge of art useful to collectors, connoisseurs, auctioneers, and all who love art, died with these two men, we will not here stop to tell. The Duke of Buccleuch's collection had been mainly formed and arranged by John Scott, with indisputable judgment and unlimited allowance of price. Frank Graves (John Scott's rival) held almost unlimited commissions from noblemen and gentlemen to buy what was good and undoubted. It fell to our luck to show the Oxford (Harleian) Portland miniatures to Frank Graves and John Scott. The Portland miniatures were then (1857) wholly unknown to *both* connoisseurs. We asked (good-naturedly) to be allowed to renew our acquaintance with some of the Buccleuch miniatures, and praising some and hesitating over others as original, "*Welbeck*" was for the first time opened unto them! But not to digress or be disobedient to the requirements of our readers, we will confine the observations of our two deceased friends to one particular miniature portrait, the "*Cromwell*," which we reserved nearly to the last, as a *pièce de résistance*.

This was Lens's exquisite miniature of "Oliver P." Oliver, of Marston Moor and Naseby, in England; Oliver, of the Death Warrant; Oliver, of Dunbar, in Scotland; Oliver, of Drogheda, in Ireland; Oliver, of "all time." Scott, of Colnaghi's, like Dryden's Alexander, looked,

"And sigh'd and look'd, sigh'd and look'd,
Sigh'd and look'd, and sigh'd again,"
first at the writer—"we"—of this article and then at one another,—delighted, confounded. Returning the much-to-be-prized miniature to its case, "What," we asked, "would Scott, of Buccleuch, give for Scott-Portland's miniature of 'Oliver,' as he was?" "Priceless," replied John Scott; "Beyond all price," replied Frank Graves. We can recollect their voices as we write. The inscription on the back of this exquisite historical portrait will now appear in print for the first time:—

"Done from the original of Cooper
in the hands of
Thomas Frankland, Esq.
Berol. Lens, fecit,
Nov. 19, 1723."

This Mr. Frankland became Sir Thomas Frankland, knight. The faithful Vertue made two engravings from the *Frankland* Oliver, and left a MS. note in his Collections about Art in England, that Richard Cromwell gave it to his sister, the Lady Falconbridge; and that she, a little before her death, gave it to Sir Thomas Frankland. In 1826—when Dallaway wrote—the unfinished original was in the hands of Mr. Henry Cromwell Frankland, of Chichester, and "set in a snuff-box."*

* See p. 480, ante.

† Diary, 2nd January, 1661-2.

* Walpole, in 1758, was asked 400*l.* for Cooper's unfinished miniature of Oliver Cromwell (Walpole's Letter to Mann, 9th Feb. 1758).

When [1653?] Oliver sat to Lely (the future Sir Peter was then only "Mr. Lilly, of St. Paul's, Covent Garden, or, rather, Paul's, in Covent Garden"), he is said (so Captain Winde told Sheffield, Earl of Mulgrave and Duke of Buckinghamshire) to have requested, while sitting, "Mr. Lely, I desire you will use all your skill to paint my picture truly like me, and not flatter me at all, but remark all these roughnesses, pimples, warts, and everything as you see me, otherwise I will never pay you a farthing for it." The future court's painter of "The Beauties" (Windsor Beauties) of the court of King Charles II., bowed approval, and painted "the counter-faith presentment," of the Great Protector, as he sat many-mooded-minded before him.

This portrait of Oliver is so little known,—it is, or was, at Chickadees, in Bedfordshire, the seat of the Osbornes,—that it deserves to be sent to London for public exhibition, with a troop of Monk's Coldstream Guards to protect it there and back again.

At Sidney College, Cambridge, is a "limning in large" of Oliver, made, it is said, by Samuel Cooper, as a study for his miniature of the Protector. It was given to the college (Cromwell's own) one hundred years ago (1765) by Mr. Thomas Brand Hollis, a ripe scholar and ardent republican of the Algernon Sidney and *Oceana* Harrington mood. Application was made by letter, officially, to the head of the college (the accomplished brother of our great Shakspearian actor, Mr. Phelps), and the following was the master's reply:—

"Sidney College, Cambridge, April 26, 1857.
SIR,—I regret that I am not able to comply with your request. To do so would require the consent of a majority of the fellows of the college, in a regular college meeting, and I shall have no opportunity of laying the proposition before such a meeting earlier than the 12th or 13th of May.* Moreover, I have very little hope that I should then obtain their consent, owing to the present state of this picture. It is painted in distemper on paper fastened to panel, and from some causes or other several cracks have appeared in the paper, and seem gradually to extend. We are at this very time taking measures for remedying the evil.—I am, Sir, your obedient servant,
"ROBT. PHELPS."

What has been done since 1857 (a period of eight long years) we have not learnt. Surely a photograph, full size (if possible) would meet with more than encouragement. A portrait of so great a man as Oliver, by so skilful an artist in and at heads as Samuel Cooper, deserves perpetuation beyond the Sidney College original. Let some skilled photographer think seriously of this.

We have lately mentioned the late Mr. Frank Graves, and must return to his name, and once more honourably. He kindly called our attention to a marble bust of the great Protector, which Mr. Farrer had secured, and was willing to sell "to one who could fully appreciate it, had a good house for it, would pay well for it, and would not part with it." The bust was Oliver all over, rather coarsely but vigorously carved, unlike the fling-finking art of bust sculpture in the present day. The sculptor, Frank assured us, and we believe him, was Edward Pierce. The bust "turned up" at No. 39, Portland-place, London, the house of Mr. John Fitzgerald, at a sale there in 1849. The massive head attracted the attention of Mr. Labouchere (now Lord Taunton), and was soon on its way to Stoke. A terra-cotta—perhaps the terra-cotta of this fine bust—is now in the National Portrait Gallery, Great George-street, Westminster.

It has been asked, and will again be asked, what has the South Kensington exhibition of portrait miniatures contributed to the preservation of the exact lineaments of the head and face of Oliver Cromwell? The portrait of the Protector, engraved for the great work of "Lodge's Portraits of Illustrious Personages," is from a picture by Robert Walker. Oliver is in armour; a page fastens a sash to his waist. The picture is in Earl Spencer's collection at Althorp. This, Lodge's catalogue tells us, is "the finest portrait of the Protector." There are several repetitions of it. Are the men who ought to know satisfied with the pedigree and portraiture of the Althorp picture? Do the whole fourteen so-called Cromwells in the Kensington collection, or indeed any of them, support the authenticity of the Althorp Cromwell? A general resemblance of features is at once observable throughout, as in all kinds of Napoleons and Wellingtons. Mr. Carlyle will of course give his adherence to No. 476, "Lent by Mr. John Burners," and engraved before his Cromwell. Lord Houghton will vote for No. 2,537, Oliver, by Cooper, in

profile, and cry with the catalogue, "This miniature was sold by the Lady Cornwallis to Sir Joshua Reynolds for one hundred guineas. He bequeathed it to Mr. Richard Burke, who left it to Frances Lady Crewe, from whom it descended to her granddaughter, the present Lady Houghton."

Lord Cremorne likes his Cromwell,—an enamel (121).

Mr. Henry Farrer, jun., fancies his Oliver,—large oval, on card, and fine frame, old (303).

Mr. Charles Pollhill would not exchange (351) his very small oval of an enamel, after Cooper. "This was a present made to Bridget Cromwell on her marriage with General Ireton, in 1646, and was worn by her as a clasp to a bracelet; the back is enamelled in light blue, and bears a crown, the sun and moon, and the letter P."

Earl De Grey and Ripon prefers (373) a so-called Cooper miniature of Oliver, "long the property of the Pallavicini family at Genoa, before it came into the possession of its present owner." He is looking to the left.

Mr. Edward Cheney is not dissatisfied with his Protector portrait (445).

Messrs. Hunt & Roskell would only be content to take "a large figure" for their, to our thinking, poor old copy.

Mr. John Burners, backed up by Mr. Carlyle, does not envy any one else his Cromwell. An oval in a small square black frame, touched up in the blue.

The Earl of Verulam has every reason to believe in his David Loggan (534), pencil on paper, looking to left; after Cooper, we think Loggan was an engraver of the time of Charles II., and exquisitely neat in his pencil portraits.

Mr. R. S. Holford, M.P., is not to be envied the possession of the (762) Oliver. "Poor" was our catalogue mark against it at the time.

The Duke of Devonshire exhibits (1,037), the profile drawing in pen and brown tinted, from which Houbraken engraved.

Lord Fitzhardinge contributes a Cromwell, "on card," by "Cooper" (1,472).

Lord Boston sends (1,853), an Oliver, in profile and armour. "Oil." "Ascribed to Samuel Cooper."

Mr. John Rolls has lent (1,873), "Oliver Cromwell. Ivory."

"Cromwell, our chief of men," looks alive, thanks to Thomas Simon, citizen and goldsmith, all "matchless fortitude,"* on his medals and coins. The silver currency of the great Protector, the work of Thomas Simon, "chief graver of his Highness's mints, scales, and medals," of St. Clement Dances, London, citizen and goldsmith, "have not been equalled in vigour of conception, boldness of execution, and exquisite subtlety of detail, by any one who has 'wrought' in England—not by Thomas Rawlins, not by John, or Philip, or Joseph Roettier, not by Nicholas Briot, not by Peter Blondeau, not by John Croker, not by John Sigismund Tanner (who lives in a nick-name), not by Signor Pistrucci, not by Alfred Joseph Stothard, not by William Wyon or his able son, Leonard Wyon.

The lucky owner of a fine silver crown-piece of Cromwell, by Simon, may feel assured he possesses one of the finest portraits of the Protector—one that was received and passed current with Cromwell's contemporaries,—with Round Head and Cavalier,—with Episcopalian and Presbyterian,—with Roman Catholics, and even with Anything-Arians; a likeness known to King Charles II. and Prince Rupert, to Monk and to Blake, to Jeremy Taylor and to Baxter, to Milton and to May, to Sir Peter Lely and to Samuel Cooper himself.

M. VOGÜÉ'S RESTORATION OF THE BASILICA OF CONSTANTINE.

SOME light may perhaps be thrown on the true position of the Basilica of Constantine at Jerusalem, which is at present the subject of most interesting discussions, by a short abstract of M. Vogüé's arguments in favour of his elaborate and careful restoration of this building.

On the west side of Jerusalem, in a quarter of the city which appears to have been from the earliest times to the present day the Christian quarter, there is a piece of uneven and hilly ground which is covered by a large church of comparatively modern date, the whole inclosure being surrounded by a special curve of the city wall. Starting from these fortifications to the

west of the church, the ground sinks gradually and then falls suddenly, forming a wide but shallow ravine, surrounded on the east and west by vertical walls of rock of about five metres in height. To the east of this the ground rises again rapidly, forming a kind of promontory overlooking the ravine, which has been held, at least since the time of the Crusaders, to be the true Hill of Calvary, or Golgotha. In the western face of this eminence is a small excavation traditionally called the tomb of Adam; while in the side of the hill to the west of the ravine are two somewhat similar excavations, also supposed to be tombs.

The first of these is evidently of Jewish origin, having the ante-chamber and chief chamber found in all the ancient sepulchres round the city, the latter being surrounded with loculi, or niches for the reception of the dead, placed at right angles to the walls of the chamber, two to the north, two to the south, and three to the west.

The second, which is situated to the north-east of the former, is either not a Jewish tomb, or, if it is, it must have been left unfinished, as M. Vogüé considers to be the case, having no loculi for the reception of the dead, but, on the contrary, only one niche or couch for the reception of the body, placed at the end of the principal chamber. It consists of two small apartments, the first being a kind of vestibule entered from the east, and the second a chamber of irregular shape, entered from the vestibule by a low door originally closed by one of those great stones which are frequently to be found at the entrance of ancient tombs. The first sepulchre is called "The Tomb of the Family of Joseph of Arimathea," and the second is supposed by all true believers to be the Holy Sepulchre of Christ.

At some distance from these excavations, near the promontory of Golgotha and down in the ravine, is a sunk chamber or cistern, shallow and dry, in which our Lord is said to have been placed during the preparation of the cross; and near it is another in which that cross was afterwards laid.

Such was the original form of the ground on which the basilica stood, and such was its appearance at the time of the erection of that building, after the Empress Helena had cleared away the mounds of earth with which Adrian had filled the ravine, and covered the Holy Sepulchre and the Hill of Golgotha.

The description of Constantine's basilica which is given in Eusebius is extremely minute, but it has been justly observed that nothing is more difficult than to restore even the simplest building from mere verbal description, and few are aware of the difficulty who have not endeavoured to make such a restoration.

The general idea of this building appears, however, to have been that of a semicircular court surrounding the sepulchre; to the east of this a basilica surrounded by pillars, and an atrium or entrance-hall to the east of the basilica.

That the basilica formed part of the same building as the semicircular church round the tomb, is evident from the text itself; and even if it were questionable, the passages cited by M. Vogüé from Saint Cyril, the Bordeaux pilgrim, and Antoninus of Piacenza, especially that in which the last-mentioned speaks of the basilica as being built over the Holy Sepulchre and Mount Calvary, would leave no doubt on the matter.

The appearance of the sepulchre, after it had been adorned by Constantine, was extremely magnificent, marble, gold, silver, and precious stones being lavished upon it; while the whole hill was cut away on all sides, so as to leave the rock in which the tomb was excavated standing in the midst of a level court.

Round this monument was the hemicycle or semicircular court, which was adorned with twelve pillars, according to the number of the twelve apostles; and this is the first portion of the building which M. Vogüé shows to be still existing in the present church.

The rotunda of the edifice now standing contains three small apses, one to the north, one to the south, and one to the west. Now if these three had been originally built for a circular church, their centres would have been on radii of the circle, and the distance between them would either have been equal, dividing the circle into three, or a fourth apse would have been added to the west; but, on the contrary, the circumference of those to the north and south is on the diameter of the rotunda, thus making the eastern walls of these apses flush with the

* The Manchester Art Treasures Exhibition opened on the 1st of May.

* Milton.

centre of the rotunda, making it evident that they were built for a semicircular edifice. Thus M. Vogüé identifies the hemicycle with the rotunda of the present church, and in this theory he is borne out by the remains of Roman masonry found on the west wall of the rotunda which surrounds the present traditional tomb, as the semicircle surrounded the tomb in the time of Constantine.

On the east side of this court was the basilica, and to the east of that the atrium; if, therefore, the discovery of this entrance-hall could be fixed by the discovery of the position of the principal entrance, the extent of Constantine's edifice would be satisfactorily determined; and if the bounds of the basilica could be determined, it would be easy to restore the whole building, dividing it into church, atrium, and basilica.

Now, in the ancient street of St. Stephen, to the east of the Church of the Holy Sepulchre, Dr. Schultz has discovered the remains of an ancient gateway. These relics consist of a mass of masonry, resembling the corner of a wall, with a pilaster projecting from it, and of the remains of four pillars of grey Egyptian marble, having an intercolumniation of 2 metres, and a diameter of about 60 centimetres. These M. Vogüé considers, with great reason, to be the remains of the colonnade of the principal entrance of the atrium.

The width of the whole building is given by the diameter of the rotunda, and the length from east to west is confined between the principal door and the west wall of the rotunda; the only thing, therefore, required to perfect the plan was the discovery of the limits of the atrium and basilica.

Now, about half-way between the first remains and the sepulchre itself were found part of an ancient pier and arch, covered with rich mouldings. They appear to have formed the north-west angle of a quadrangular portico, a pilaster of beautiful work being attached to the south and east faces of the pier, and two others of much plainer appearance facing to the west and north, while four arches spring above, two being ornamented with rich mouldings, and spanning the space between this pier and the two next, on the west and north sides of the portico, and two others of less ornamental appearance connecting the pier with the wall. From its architectural style, M. Vogüé attributes this fragment to the time of Constantine, and from its position it would naturally form the north-west angle of the atrium, thus facilitating the restoration of that building, and determining the limits of the basilica; while from the spaci of the arches the distance between the piers may readily be found, and they can be all restored with some degree of certainty.

The description of the basilica itself is somewhat confused; but the general idea seems to be that of a five-aisled building, supporting a second order of pillars and a second story of galleries.

The proportions of this part of the edifice M. Vogüé has restored from the Basilica of Bethlehem, giving the same proportional width for the five walks, and the same intercolumniation for the pillars, of which the two inner rows were round, and the two outer square pilasters.

Thus has M. Vogüé restored from a fragment of the chief entrance, from one pier of the atrium, and from the wall of the semicircle, the whole plan of the basilica of Constantine, in a manner which fits perfectly with the confirmation of the ground, with the description of Eusebius, and with all that we know of the architecture of the time of Constantine. The general plan of the building is similar to that of Bethlehem, of which every pillar in the five-aisled basilica still remains, together with the greater part of the atrium, and the semicircle at the end of the basilica, which contains three apses similar to those of the church of the Holy Sepulchre.

This resemblance seems to give further proof of the correctness of M. Vogüé's restoration, and from the similarity of some parts of the buildings, those parts which are totally destroyed in the basilica of Jerusalem may be safely inferred to have been similar to the corresponding structures in the basilica of Bethlehem, especially since the description of Eusebius would apply equally to either edifice; on the other hand the slight differences which are found will be but natural when we consider the different conformation of the ground, the superior magnificence of one building, and the different sites round which they were erected.

Thus, although the height of the basilica and all the measurements of an elevation, can only

be approximately ascertained, yet still enough remains of the building to perfect the plan which is of much greater importance.

On arriving at the basilica from the broad agora, or market square of the city, round the principal gate, the pilgrim entered through a noble colonnade into an atrium, which was filled by the multitude, and thence into the basilica, or covered walk corresponding to the cloisters of the ancient temple; thence he passed into the court of the Sepulchre, in the midst of which rose a marble monument, in the form of a small chapel, adorned with pillars and shewing with gold.

The size and proportions of the whole edifice were very great, and even approached to those of the temple of Herod; and we may well judge from the remains of fresco and arabesque, from the graceful forms and rich mouldings of the building of Bethlehem, what must have been the splendour of this still more beautiful structure, which was the first Christian church ever erected in Jerusalem.

The Empress Helena first visited Jerusalem in the year of our Lord 326, and the basilica was commenced in the same year, and was completed and dedicated nine years after. It stood in all its glory for nearly 280 years, until it was at last completely destroyed by the Persian monarch Chosroes II., who laid siege to Jerusalem, and took it in the year 614.

The wife of the conqueror was the sister of Maurice, emperor of Constantinople, and she still professed the Christian religion amongst the Pagan Persians: although powerless to save the noble edifices of Constantine, she yet obtained leave for the Christians under Modestus, the superior of the Convent of Theodosia, to rebuild the church; and accordingly, in the space of fifteen years, four small churches were erected on the same site, which were again replaced by the buildings of Constantine Monomachus, and these latter were rebuilt by the Crusaders in the form of a single church, the greater part of which is to be found but little modified in the present building.

Such is the history of the Church of the Holy Sepulchre from the time of Constantine down to the present day.

LUNATIC ASYLUMS.

WHETHER or not there has been during the last twenty or thirty years an advance in architecture, certainly the period has been marked by activity in the erection of buildings of several classes, calling for considerable skill in their planning, and special attention by architects to requirements as they are set forth by those whose duties enable them to judge of details to be attended to. It would be interesting to have from time to time, a tabular statement of the works in each of the classes referred to, including churches, with the amounts of cost, total for each building, and per head of the accommodation. The statistics however are not very easily procurable. But we have occasionally collected from the reports of the Commissioners in Lunacy information of the building progress in one of the classes; and the Nineteenth Report, just issued, affords means of recording what is the present provision for the insane, and what has been done most recently. As we have said in former years, every architect who has occasion to plan an asylum should be perfectly acquainted with the Commissioners' Reports: though we must say that, wanting plans of the buildings which are spoken of, and some items interesting to us, they are not so directly serviceable as they should be.

The places for the treatment of the insane in England and Wales, exclusive of lunatic-wards in workhouses, are classed as County and Borough Asylums, Hospitals, Metropolitan Licensed Houses, Provincial Licensed Houses; and Naval, Military, and State Criminal Asylums. The total number of lunatics on the 1st of January last, in these, was 29,425, as against the number in the previous year, 28,385, which did not include patients in Fort Pitt, and the State Criminal Asylum. Only 3,534 of the 29,425 were deemed curable. Of the same number, 23,764 were paupers. There were 22,284 of all the lunatics, in the county and borough asylums. The county asylums were, on the 1st of January last, as we count them in the list, 40 in number. One asylum, serves for the three counties, Bedfordshire, Hertfordshire, and Huntingdonshire; one for Cambridgeshire and the Isle of Ely; one for Cumberland and Westmoreland; one for the

counties of Denbigh, Anglesea, Caernarvon, Flint, and Merioneth; one for Leicester and Rutland; one for Monmouth, Hereford, Brecon, and Radnor; one for Oxford and Berks; and one for Shropshire and Montgomeryshire. There are three asylums for the county of Lancaster, two for Staffordshire, and two for Middlesex. There is one asylum for the North and East Ridings of Yorkshire, and one for the West Riding. Only a small number, five, of the boroughs, are yet provided with asylums; and, of these, Norwich has made only a provisional arrangement, so sanctioned by the Commissioners.

The return does not give the number of patients for which each asylum was planned, or the cost of the building. All such omissions should be rectified in subsequent reports, correction being made, each year, where there has been any enlargement. The average number of patients resident in each asylum during the year, however, is given; and where not exceeding the accommodation for which the building was planned, we believe it may be taken as approaching, with few exceptions, very nearly the intended capacity. The largest number of patients were those in the Colney Hatch Asylum, where there were 1,945. In the Hanwell Asylum there were 1,608. In the asylum for the West Riding of York, at Wakefield, there were 1,075 patients; in the Surrey Asylum, near Tooting, there were 913; and in one of the asylums for the county of Lancaster, that at Prestwich, there were 911. In each of these cases the number must be considered in excess of what is desirable, following the recommendations of the Commissioners. Actually, proper supervision and treatment by the superintendents and medical officers is impossible; and the staff of attendants is far below requirements. In all the asylums, classification of the patients would seem to be very inadequately provided for; and the Commissioners should revise their suggestions and instructions, so that any omission in the plans of the recently erected asylums may not be repeated. The classification observed hitherto has been made correspondent with the different forms or manifestations of the disorder; and little attention seems to have been paid to the fact of original difference in the habits and social state of those affected, and who have only become equally paupers by the affliction itself. To place one who has been always cleanly in his habits, and courteous in his demeanour, in the same ward with those who are just the reverse, and without enough supervision to prevent violence or threats on the part of the unruly, must be calculated to aggravate the malady. So little had the point that we refer to been considered, that at the Surrey Asylum, which has been characterized by many defects of management, it was not long ago the practice to bathe four or five patients in the same water. Few of our readers would be surprised to hear, in one case with which we were acquainted, that this dirty practice was felt as the worst part of the affliction from being deprived of liberty. The supply of water for some of the asylums is lamentably deficient. The Commissioners now require that not more than two patients be bathed in the same water.

The smallest number of patients in a county asylum, in 1864, was in the case of the building for the counties of Cumberland and Westmoreland, near Carlisle, where there were only 225 patients. About 500 is not an uncommon number. There was just that number in the asylum for Beds, Herts, and Hunts, at Arlesey, Baldock; there were 410 in the asylum at Sedgfield for the county of Durham; there were 600 in the asylum at Gloucester: but there are several asylums with less than 300 patients, as those of Bucks, at Stone, near Aylesbury, 286; and Cambridge and the Isle of Ely, at Fulbourn, 288; and several, besides that at Gloucester, with more than 500; as the Devon Asylum, at Exminster, 674; Kent, at Barming Heath, near Maidstone, 686; and Lancaster, at Lancaster Moor, 736, and Rainhill, 664. Of the five borough asylums, the largest is that of Birmingham, where there were 634 patients. There were 202 at Bristol, 116 at Hull, and only 28 at Haverfordwest.

Next to the class of buildings called asylums, comes that of the "hospitals." There are only two of them that receive pauper patients, namely, the Northampton Lunatic General Hospital, and the York Lunatic Hospital. There are in all, only fifteen of the hospitals, including the Asylum for Idiots, Earlswood, near Beigate. The fifteen institutions are the Northampton

Hospital, with 418 patients of all kinds; the Earlswood Institution, with 370 idiots; Bethlelem Hospital, with 263 patients, an unusually large number of whom, or about 195, were lately deemed curable; the York Lunatic Hospital, 176 patients; St. Luke's Hospital, in Old-street, 163; the York Retreat, 124; the Charitable Institution for the Insane, Cotton Hill, near Stafford, 123; the Manchester Royal Lunatic Hospital, Cheadle, 95; Bethel Hospital, Norwich, 76; Lincoln Lunatic Hospital, 67; St. Thomas's Hospital, near Exeter, 58; and Warneford Lunatic Asylum, Headington Hill, near Oxford; Nottingham Lunatic Hospital; Liverpool Lunatic Hospital; and Barnwood House, near Gloucester, with somewhat smaller numbers. Institutions of this class, in which patients might be received at a small charge, are much wanted. The remaining hospitals or asylums, not private, are the Royal Naval Hospital, Yarmouth, average number of patients in 1864, 156; Fort Pitt, Chatham, 29; and the State Criminal Asylum, Broadmoor, near Wokingham, 209. Haslar Hospital is not now in use. The Commissioners found in 1864, 7,287 insane, idiotic, and imbecile inmates of workhouses in the 320 places of this class which they visited; and it appears that in North Wales, half the insane paupers are disposed of as single patients. Much has to be done before the wants of the insane can be considered to have been cared for as charity demands.

As regards the workhouses, some provision in them for insane persons, was in their last report but one, contemplated by the Commissioners. Recent Acts allow the visitors of any asylum to make arrangements for removal of a limited number of chronic lunatics from the asylum to a workhouse, with the approval of the Commissioners, and of the President of the Poor Law Board. The object was to meet the deficiency of accommodation in asylums, making room for recent and probably curable cases. Before giving their approval, the Commissioners insist that there shall be in the workhouses, separate wards, properly constructed, arranged, and furnished, for the patients of the respective sexes; that the dormitories be distinct from the day-rooms; and that the former afford 500 cubical feet space per patient, and the latter 400 feet; also that single bed-rooms contain at least 600 ft. The general defects of workhouses, in the buildings and management, however are such, that it appears those removed to them will be, by no means benefited. The airing-courts especially are inadequate. So that, after having expressed the opinion in their Eighteenth Report, the Commissioners were obliged to add that every year's experience confirmed them in the opinion that where lunatics in workhouses required wards apart from the rest of the inmates, the result was disadvantageous. Amongst matters to which they had to object strongly, was the use of flagged or cement floors to day-rooms.

During the past two years, many of the county asylums have received additions; and some new buildings have been completed. Amongst the latter is the Dorset asylum, near Dorchester. The old building has been preserved, that pauper lunatics from other counties, and non-pauper lunatics generally, may be provided for in it. A new asylum for Glamorganshire, at Bridgend, was opened in November last. In accordance with the recently approved system of distribution, it has detached buildings for the accommodation of working and "convalescing" patients,—these buildings being in connexion respectively with the workshops and the laundry. They are described as well adapted for their purpose, or as being provided with excellent kitchens, sculleries, bath-rooms, and lavatories, all the in-door arrangements being as far as possible of a domestic kind; and each having ample space available for out-door recreation and exercise. The report says:—"The men's block is placed near the entrance, in proximity with the lodge and the chapel; and the diversified effect of these and other buildings, which, without intercepting the beauty of the view beyond, form a kind of boundary to the patients' airing-courts, is extremely pleasing." As regards the airing-courts, "than which there can be no provision more important for the successful treatment of the insane," those in the Glamorganshire Asylum are spoken of as promising "to be as nearly perfect as they can be made." Besides the men's court, more than an acre in extent, and besides a good garden with drying-ground at the laundry-block, there are two large and two smaller courts attached to the main building, laid out and

planted. None of them intercept the view of the country, a sunk wall and a light iron fence being used. Some "oddities of construction" are spoken of as in the main building; but it is observed that there is nothing incompatible with comfort. The dormitories will be ventilated partly by gas-burners, to be kept burning at night. Numerous closets, well constructed and fitted, and opening to the air; baths, three or four in one room, with dressing-room adjacent, and a ready supply of hot and cold water; a bath-room judiciously placed adjoining the dormitory in certain divisions; and the sick-rooms arranged to secure as much cheerfulness as possible, are specified as deserving much praise. All the offices are described as good, and the ventilation throughout the building as having been the subject of great care; and almost the only suggestions made, relate to easy access for the sick and infirm women to their airing-courts, if it be practicable, and to the papering the upper portion of the walls throughout the asylum, and the painting the lower portion in cheerful and pleasing colours. The building, as it was originally, had defects; these have been remedied, and some of the errors have been turned to advantage by the architect, Mr. Martin, who is mentioned as having been called in.

During the past year an idea was entertained of enlarging the asylum at Littlemore, of the counties of Oxford and Berks; but this has been given up; and a new asylum will be erected in Berkshire, whether for the united counties, or for Berkshire alone, is not settled. The Commissioners would prefer the latter arrangement. The building would be for 220 patients.

An additional asylum for the county of Stafford, at Burnwood, near Lichfield, was opened during the year. The site has a gradual slope to the south; and pleasing views are obtained from it. The estate consists of more than 94 acres, and was purchased for 6,963*l.*; but only 18 acres, certainly, of this can be used till 1872. The Commissioners remark that the building has not been placed as indicated on the plans submitted to them. The women's wards were only about being commenced in April last. The men's wards, constructed to accommodate 240 patients, are considered as well arranged; but it is regretted that the lower bath-rooms have been floored with tiles, and that the mantel-pieces will not admit of shelves upon them. The workshops, washhouse, and laundry are described as too small for an asylum containing 500 patients; and the oven had already proved so. The necessity for making all these departments of ample size was urged by the Board originally. The arrangement of some of the passages with the corridor, and doors connected with it; the size and arrangement of the steward's store-rooms; the disposition of doors of communication, or absence of such doors, in the case of attendants' rooms and associated bed-rooms; and the want, in all the staircases, of hand-rails, are condemned; whilst the importance of porches to the doors of day-rooms opening directly into airing-courts; and the defective position of the "foul linen washhouse" and of the dead-house, are mentioned: but it is admitted that the defects admit of easy remedy; and generally the Commissioners have to report very favourably of the construction of the asylum, and disposition of its plan.

We do not find in the last report, any detailed description of the Prestrich Asylum, one of those of the county of Lancaster, to which additional accommodation for 280 patients of each sex has been provided, making the asylum now capable of receiving 1,000 patients; but in the previous report praise was given to what was then nearly completed; and the cost, including that of alterations in the old building, was stated as having amounted to "only 41*l.* per head."

In the way of enlargement of asylums, much, as we have said, has been done of late. In the Bucks Asylum, at Stone, near Aylesbury, new wards for fifty female patients were to be completed early this summer, at a cost of 2,850*l.* Wards are about being erected at the Cambridgeshire Asylum, Fulbourn, costing 1,200*l.* Two block buildings, to contain each 105 patients, are to be added to the Cumberland and Westmoreland Asylum, near Carlisle, which are estimated at 8,900*l.* The Recreation Hall at the Chester Asylum has been enlarged at a cost of 750*l.* For the Cornwall Asylum, Bodmin, a plan has been approved for a building to accommodate fifty-two private patients at a cost of 4,380*l.* At the Durham Asylum, Sedgfield, two additional cottages for attendants have been

built, with rooms between them for ten convalescent patients. At the Hants Asylum, Knole, near Farnham, a range of store-rooms has cost 1,000*l.* A new water-tower at the Kent Asylum, near Maidstone, is estimated to have cost 1,000*l.*; and, at the same place, the chapel has been enlarged at a cost of 600*l.*; and a new residence for the medical superintendent is to be built. In Middlesex a new detached Fever Infirmary has been erected at Colney Hatch, costing 1,839*l.* The visitors of the Joint Counties Asylum at Abergavenny, have been considering enlargement at a cost (including outfit and furniture) of 18,000*l.*, for 120 female, and 100 male patients. The asylum for Salop and Montgomery will be enlarged to provide for, we believe, 76 additional patients at a cost of 2,400*l.* A new day-room, dormitory and nurse's room have been constructed at the Warwick County Asylum, on the female side, at a cost of 420*l.*

Under the head of borough asylums, the chief new building that would call for notice, is the Asylum for the City of London, at Dartford. It is however not open; though the building has been given up some time by the contractor, and the medical superintendent has taken up his residence. The chief fittings had not been procured when the building was visited in October last; and the furniture had not been decided upon. But it was expected that the building would be opened this July. A site for an asylum for Newcastle-upon-Tyne has been purchased; and a new dormitory and day-room have been added to the Birmingham Asylum.

The State Criminal Asylum at Broadmoor, near Wokingham, was opened in 1863, but at first only to receive a portion of the inmates, the work having been found imperfect, and the materials of an inferior character. During the past year, a portion of the male division has been brought into use. The accommodation for 100 female patients is already found insufficient. Additional single rooms; double-panelled and heavily-barred doors, and small circular windows substituted for those of the former construction, have been introduced quite recently. Some of the detached blocks are not yet ready for reception of patients. The airing-courts are described as very defective.

At the Royal Naval Lunatic Hospital, Yarmouth, considerable improvement has been effected by the purchase of land between the building and the sea; and walls which confined the view have been lowered or removed. The provision for the insane from the navy has no counterpart in the provision for the insane of the army.

The Commissioners are directing their attention to the case of idiots. Besides the institution at Earlswood, and one at Essex Hall, Colchester, they refer to two asylums as recently founded, namely, the "Western Counties Idiot Asylum," at Starcross, near Exeter; and the "Northern Counties Asylum for Idiots" at Lancaster. The condition of idiots has been too much neglected. Much however has yet to be done for the more aggravated forms of insanity; and architects will do well to be informed of the progress of the question: many asylums are yet required; and improvements will be needed in those already built.

THE OLD TOWN OF EDINBURGH.*

LIKE to the architect, the ecclesiologist, and the student of history, the beautiful and picturesque ruins of the Chapel Royal of Holyrood must ever prove an object of extreme interest. Founded by the sainted King David in the same year as the Abbey of Kelso, it has seen so many varied vicissitudes, has been so often the object of the spoiler's and incendiary's hostile wrath and blinded fanaticism, so often repaired and added to—the latter work being, in many instances, so ingeniously engrafted on the older as to render it hardly possible to define the amount of change, that, as it now stands, the Chapel Royal is, in the language of Mr. Daniel Wilson, "a complete ecclesiastical enigma." The legend of the miracle to which it owes its foundation; the number of royal marriages which have been celebrated within its holy walls—the last being that of the unhappy Mary Stuart to the lily-livered boy Darnley;—the coronation of Charles I. therein,—the most glorious and magnificent coronation that has ever seen in this kingdom, and the first King

* See p. 480, ante.

of Great Britain that ever was crowned in Scotland," says the contemporary Lord Lyon—its connexion with the Most Ancient Order of the Thistle;—all invest it with an undying interest. It has proved, too, the resting-place of many royal and distinguished persons. Prior to 1776, when it was sacrilegiously plundered, the Royal vault contained the bodies of David II., James II., James V., Queen Magdalene, and Darnley; and in 1848, what were supposed to be the remains of James II.'s widow, Mary of Gueldres, were removed thither from the Collegiate Church of the Holy Trinity. The aisles of the chapel are paved with mortuary tomb-stones, beneath which are interred many haughty nobles and scarcely less haughty ecclesiastics. In truth—

"You never tread upon them, but you set
Your foot upon some reverend history."

It is not our intention at present to trace the history of the chapel, deeply interesting as it is; but we cannot refrain from giving our readers an epitome of the alleged miraculous foundation of the abbey to which it was attached. In the story given by Abbot Bellenden, in his translation of Boece, printed in the *Liber Sancte Crucis*, we are told "how Kyng David past to the hunters on the Croce Day in herest, how he was dund fra his hors be ane wyld hart, and how he founded the abbey of Halyrudhus be myracle of the Holy Croce." This "Kyng David" was the first of the name, and the monarch to whom Scotland is indebted for many of her finest ecclesiastical edifices. In the year 1128, the fourth of his reign, he was on a visit at the Castrum Puellarum, or Castle of the Maidens, as the fortress of Edinburgh was then termed. On Rood or Croce Day, on which the exaltation of the cross was celebrated with great solemnity, after divine service, some of his nobility requested the king to accompany them on a hunting party to the neighbouring forest of Drumsheugh, through which then roamed the wolf, the deer, the elk, and the wild white cattle. His confessor, Alwin, endeavoured, but in vain, to dissuade him from joining the hunting party, and the cavalcade, with the king at its head, proceeded to the Forest of Drumsheugh, which then covered the Queen's Park, and the ground to the south of the Old Town of Edinburgh. In the excitement of the chase he soon found himself separated from the others, and near the northern slope of Salisbury Crags, he was furiously attacked by a large and powerful stag, which in the graphic language of Abbot Bellenden, "dung him fra his hors." He received a severe wound in his thigh, and the infuriated stag was continuing its attack, when a crucifix, made of the cross on which our Saviour was crucified, and which he wore suspended to his neck, miraculously slipped into his hands. The now affrighted animal "fled away with great violence," vanishing into thin air or disappearing through the earth at the spot, "where now springs the rude well." When his attendants came up and learned his providential escape, they fell on their knees, and devoutly worshipped the Holy Cross. In the course of the following night the king had a vision from heaven, in which he was told to found an abbey for the Canons Regular of the Order of St. Augustine, near the spot of his miraculous preservation. His father confessor, Alwin, was consulted on the following morning, and strongly urged the king to obey what he said was clearly a divine command. Is the reader surprised to learn that this ghostly adviser was himself an Augustine canon? We fancy not. Priests in all ages have had a shrewd eye to business, and the advancement of their own order. The priestly advice prevailed, and the king immediately sent to France and Flanders, for "rich crafty masons," and the building of the abbey and chapel was commenced forthwith. They were dedicated to the honour of the Holy Cross, and of the Virgin Mary and all Saints; and the canons adopted as the arms of the abbey, a stag's head, with a crucifix between the antlers.*

The chapel was originally in the form of a cross, consisting, as the *Liber Sancte Crucis* informs us, of a lady chapel, choir, transepts,

and nave. With the exception of some slight traces of the north transept nothing now remains to tell of its former glory except the great north-west tower and the ruined and roofless nave, where, we are told, "*Populus clero semotus divina mysteria per clathros suspiciebat.*"

The holy rood itself was deposited with great solemnity in the chapel. This precious relic, of which, says Abbot Bellenden, "Na man can schan of quhat mater it is, metal or tree," remained in the chapel until King David Bruce took it with him on his ill-fated invasion of England in 1346, which terminated in his complete defeat and imprisonment. The holy rood was captured by the victorious English, and enshrined on the high altar of Durham Cathedral, partly, we suppose, as a sacred relic, partly as a warlike trophy. Of its subsequent history we are in ignorance.

The principal entrance to the chapel, reserved in former days for ecclesiastics, is by the great western doorway, which is in the very best style of late First-pointed architecture, and is in good preservation. The archivolt, which is richly with flowered and dog-tooth mouldings, is lofty and deeply recessed, and is supported by clustered jambs with beautifully-carved capitals. The tympanum is supported by a square-cut oak beam, which, as Charles I.'s cypher is carved upon it, was probably inserted in the course of the repairs of the chapel by that monarch in 1633; and above this runs a row of angels' heads, in stone, very spiritedly carved. The tympanum is occupied by a blank arcade of highly-ornamented pillars and pointed arches.

Above the archway, but a little off the medial line, are two very curious windows, with flat segmental arches, richly cusped, on a level with the wall, which have a good deal in common with the Perpendicular style. The lowest third of these two windows is occupied by an open arcade of circular arches, while within two slender shafts divide either window into three lights. The wall in which these windows are placed is a mixture of the Saxon and Norman styles; and in the central column between them there is a stone tablet with this inscription,—"He shall build an house for my name, and I will establish the throne of his kingdom for ever. *Basilicam hanc semi rutam, Carolus Rex Optimus restauravit Anno Domini MDLXXXIII.*" What a striking comment upon the first part of this inscription does not the history of this unhappy monarch and his descendants supply! On either side of the upper portion of the arch of the door is a semicircular arched niche, now empty.

On the north side, a wall, which is Norman in its character, connects the western doorway with a massive square tower. Originally a like tower stood at the south-west corner of the chapel, but it was either destroyed when the abbey was demolished by the Earl of Hereford, in 1543, or taken down to make room for the palace buildings, in 1674. The north-west tower, which is 53 ft. in height, but originally was much higher, belongs to the transition period, prior to the complete development of the First Pointed style. It is ornamented with ranges, one above another, of small columns and pointed arches. These ranges and the bold trigonal string-courses which separate them are continued along the face of the wall which intervenes between the tower and the archway. In the spandrels of the arches are medallions containing human heads, very boldly and artistically carved.

Let the reader now accompany us through the open archway into the interior of the chapel.

"The sacred tapers' lights are gone,
Grey moss has clad the altar-stone,
The holy image is o'erthrown,
The bell has ceased to toll.
The long-rib'd aisles are burst and sunk,
The holy shrines to ruin sunk,
Departed is the pious monk,
God's blessing on his soul."

Yet ruined and roofless as it is, the Chapel Royal well merits our attention.

Looking east, the view is particularly striking and impressive. The colonnade of the north aisle has all but disappeared, but that of the south is in tolerable preservation. It consists

of seven piers, each composed of eight slender columns arranged around a thick central pillar. The capitals of the columns are all of different designs, and of great beauty, the human face figuring prominently in many of them. The central half-rounds facing the body of the nave are carried up the face of the triforium and clerestory. These massive piers are connected by pointed arches, immediately above which runs a bold string-course. The bases of the piers, which are high, very fully spread, and ornamented with a great variety of mouldings, are very beautiful. The triforium is composed of a series of pointed arches, twice the number of the range beneath, and each containing two smaller arches. It forms a gallery running the entire length of the chapel. There are also visible the remains of a third arcade or gallery, the clerestory, which was open to the interior, and contained windows externally. The whole of the central aisle is in the very best style of late First Pointed.

The capitals of the pillars on the wall of the south aisle are especially worthy of attention, presenting some very striking bas-reliefs. All the mouldings are cut with great boldness, fine deep shadows being formed by the hollows. The windows are lancet-shaped, and flanked by elegant cylindrical pillars. Beneath them runs a range of beautiful columns and pointed arches. The roof of this aisle is groined and adorned with carved bosses. Conspicuous in this part of the building by their repulsive ugliness, are the Royal vault and the burial-place of the earls of Roxburgh. Prior to 1776, the former contained the remains of James V., Queen Magdalene, whose head is described as being entire, and even beautiful, at that time, and of Darnley. These, however, were shortly afterwards stolen, though for what object does not appear very clearly.* In 1848, when the beautiful Collegiate Church of the Holy Trinity was being taken down to make room for the North British Railway, the skeleton of a female was found in the Lady Chapel, supposed to be that of the foundress, Mary of Gueldres, the widowed Queen of James II. Upon that supposition, it was transferred to the Royal vault, where it still lies. In the course, however, of removing the Trinity Church, the skeleton of another female, inclosed in a lead coffin, was found in the eastern apse. This last-discovered skeleton many antiquarians (among others, Mr. Laing, the accomplished treasurer of the Society of Antiquaries of Scotland,) are, for several reasons, disposed to think is that of the Royal foundress. It was deposited outside of, but near the Royal vault.

A private passage from the south aisle communicates—or rather did so before it was blocked up,—by a small door through a hanging of massive and now mouldering tapestry, with Queen Mary's chamber, through which Riccio's murderers passed to the little cabinet, "where he, the Lord Ruthven," we are quoting the words of his own confession, "found the Queen's Majesty sitting at her supper at the middle of a little table, the Lady Argyle sitting at one end, and Davie at the head of the table with his cap on his head; the King speaking with the Queen's Majesty, and his arm about her waste." (See.) Near the doorway of this passage there is a sepulchral stone, which is supposed to mark the spot where the unfortunate Italian was buried. It bears traces of a shield much defaced. It forms a portion of the flooring of the ancient abbey cloisters.

Both aisles are paved with incised or sculptured tombstones, many of them belonging to ecclesiastical dignitaries. The floriated or Calvary cross is engraved upon most of those, and they generally have the chalice and paten on each side. Monumental brasses there are none.

There is a cloister doorway in the west end of the south aisle, now closed up by the palace buildings, which presents undoubted remains of the original foundation of King David. The arch is semicircular, and is ornamented with characteristic zig-zag or chevron and dice-pattern mouldings. It is supported by two Norman columns. It is against this doorway that the royal vault is built.

* The arms of the canons may be seen on the very interesting old market-cross, called St. John's Cross, which now rests against the wall of the Canongate Tolbooth, but which originally stood in the middle of the street. In those days it was mounted on an octagonal stone gallery, which has long since disappeared. From the middle of a circular stone, which forms the uppermost of a flight of three steps, rises an elegant hexagonal shaft, on the upper part of which is a battlemented capital, surmounted by a cross crocketed with a heraldic shield, bearing the Holy-wood arms. The staple of the *joists* (that curious instrument of ecclesiastical discipline) still remains; and there

was also a contrivance of some sort for fixing the legs. Old people, still living, Mr. James Drummond, F.S.A., tells us, recollect of a woman being put in the joists here for stealing yarn, a hank or hasp of it being coiled round her neck during the pilory.

A somewhat similar legend is attached to the foundation of the exquisitely beautiful chapel of St. Hubert, in the grounds of the chateau of Amboise, in Touraine. The saint, who had hitherto been a septic, was converted to Christianity by the miraculous appearance one day, when he was hunting, of a stag bearing a crucifix betwixt its tines. The arms of the two chapels are identical.

* In Sir Walter Scott's "Border Antiquities," there is this passage regarding this despoliation.—"They" (the populace) "sold the lead of which the collars were made, and left the bodies an unseemly spectacle and a degrading memorial of popular fury." The mansions of the mighty dead seem in all ages to have been liable to such despoliation. From curiosity, or to glean materials for history, the ancient sepulchres of the Egyptian kings were ransacked, and but one of the tombs of the Caesars remains undecorated. After the Restoration, Cromwell's bones were exhumed and hung upon a gibbet.

Of the piers of the north aisle, which were borne down by the falling in of the roof in 1768, only two broken shafts remain; but they are sufficient to prove that they belonged to the same style of architecture as those of the south. The north wall, which belongs to the transition period, is ornamented by blank ranges of interlacing semicircular arches. They are supported by columns, the shafts of which are extremely elegant, and the capitals beautifully sculptured.

Between the remains of the two piers of this aisle is a mortuary slab to the memory of the "Nobil and potent Lord James Douglas, Earl of Carlell and Thorthorwald, who married Dame Elizabeth Carlell, heir and heritrix thair of, who was slain in Edinburgh the xliii day of July in the year of God 1608, in his 48 year."

The finest feature in the interior of the chapel is undoubtedly the window, which occupies the great centre arch of the transept, and is a restoration on a reduced scale of the great eastern window. It dates from Charles I.'s repair of the chapel in 1633. It has five light-looking mullions divided by a transom. The feathered geometrical tracery in the upper portion, which is in the form of quatrefoil openings, is extremely airy and elegant. The capitals of the arch are richly sculptured, and the spandrels contain some exquisitely carved heads. This window was blown down during a violent storm in 1795, but has been very judiciously restored. In front of it was placed the high altar. The side arches, by which the aisles of the nave communicated with the transept, are now occupied by two pointed windows, of two lights each. Beneath them is ranged some Gothic screen-work, which formerly disfigured the nave.

Before quitting the interior of the chapel, the visitor will do well to ascend to the roof-loft, access to which is obtained by a door a little to the north of the great west entrance, and from which a beautiful *coup d'œil* is obtained of the whole building. The roof-loft was formerly occupied by the great organ.

Another door to the north of this gives admission to the square tower already noticed. The precise use of this tower is not known, but in all probability it was the belfry. It contains a monument, of considerable architectural attractions, to Robert Douglas, Lord Viscount Belhaven, who died in 1639. Upon a pedestal, 5 ft. high, and underneath a pediment supported by fluted columns, a full-length statue of the viscount lies in a recumbent position, the right arm resting on a cushion, the head raised, and the left hand grasping the pommel of a sword. He is arrayed in robes of state, and wears a viscount's coronet. In the open pediment there is a shield chequered with armorial bearings. The monument is of fine Parian marble.

Passing out of the nave by the north, or Abbot Crawford's door, we have an opportunity of examining the exterior of it, and of the north wall. This entrance, which was the one made use of by all persons other than ecclesiastics, and the seven richly ornamented buttresses, which support the now fast decaying wall, were reconstructions of Abbot Crawford, who succeeded to the abbey in 1457, and are favorable specimens of First Pointed architecture. The arch of the door, which springs from clustered jambs, is semicircular, and ornamented with richly flowered mouldings. It is surmounted by a crocketed triangular canopy, containing the abbot's arms, and terminating in a finial. The junction of the arch and the pediment forms an ogee curve. On either side of the door are two flat pillars, with highly decorated pinnacles, and at the upper portion of the arch are four beautifully canopied niches, two at either side, which it is almost superfluous to say are now empty. The buttresses, on some of which the abbot's arms are empanelled, are ornamented with canopied niches and pinnacles.

Passing round by the end of the Chapel Royal one approaches the south wall, which, like the others, presents a variety of styles of architecture. The east door of the cloister in this wall, the window immediately above it, and the pillars at the sides of the arches of the other windows are Norman in their character. The flying buttresses, which are especially worthy of attention, and those overarching the cloister, are crocketed and pinnacled, and in the late First Pointed style.

Before quitting these interesting ruins, one cannot help pausing for a space to admire the elaborately carved sun-dial, in the north garden of the palace, which is generally called Queen Mary's dial, as well as the magnificent cast-iron railing on the north-west and south-west of the palace. For elegance the latter is unsurpassed

by any similar construction in the kingdom, unless, indeed, it be by the celebrated railing in the Phoenix Park, Dublin. The dial is undoubtedly of much later date than Queen Mary's time. This is proved by the cypher of her grandson and those of his queen and the Prince of Wales occurring on its most prominent carvings.

And now, perhaps, our readers expect a description of Holyrood Palace; if so, they will be disappointed. The place, with all its associations, possesses but little architectural interest, and there is so much of quackery about its *tions*—the fabulous blood-stains of David Riccio, the Puritan trooper's corselet falsely assigned to Darnley, and the mythical portraits of the Scottish kings, many of whom were myths themselves, or, at any rate, lived and died long before the invention of oil-painting,—that we have no stomach to act as *dicromes*. True the palace is so interwoven with the eventful life of the hapless Mary Stuart, that it must claim an undying interest. Let him who would look far back into those other years turn to the eloquent pages of Mr. Froude's latest published volume; or, if he be too zealous a partisan of Queen Mary to digest all the severe things said by that gentleman, he may peruse Miss Strickland's or Sheriff Bell's more eulogistic accounts.

There is, however, one interesting architectural feature deserving notice, inasmuch as, though common enough in Scotland, it is nowhere to be met with in England. In the original north-west tower of the palace and its modern copy, the south-west one, a lofty conical turret rises at each of the four corners from behind the rampart. The mounting of these lofty cones was borrowed from France.

The palace, which was built in 1674, is a servile copy of the Château of Chantilly, the residence of the noble family of Condé.

There only remains to be mentioned the beautiful church of the Holy Trinity, which till 18— stood at the foot of Leith Wynd. It was taken down then to give more room for the terminus of the North British Railway Company, the stones being all carefully numbered, with a view to their re-edification on another site. The city received a large sum in compensation, but the magistrates refused to rebuild it, and at length, after a tedious litigation in the Scotch courts, the House of Lords decided that they were not under any obligation to do so. And so, *misérable dictu*, the stones get leave to lie uselessly on the side of the Calton Hill. What we have thus lost, or are, at least, likely to lose, may be gathered from a sentence or two from Mr. Rickman's "Gothic Architecture." "The interior," he says, at page 283, "is a very beautiful decorated composition, with the capitals of the piers enriched with foliage, not exceeded in any English cathedral. . . . This building is all of good decorated character, and is deserving of minute examination and study."

This church, which was collegiate, was founded in 1462, by the queen dowager, Mary of Guelders, for a provost, eight prebendaries, and two singing boys, and was dedicated to "the praise and honour of the Holy Trinity, of the ever-blessed and glorious Virgin Mary, of St. Ninian the Confessor, and of all saints and elect of God." The foundation charter affords us some curious peeps into the state of the morals and education of the fifteenth century. Thus it provides that "no prebendary shall be instituted unless he can read and sing plainly, count and discount, and that the boys may be found docile in the premises." But the most extraordinary provision is the following:—"And if any of the said prebendaries shall keep a concubine or fire-maker, and shall not dismiss her, after being thrice admonished thereto by the provost, his prebend shall be adjudged vacant, and conferred on another."

The plan comprised a choir with aisles and a polygonal apse, south porch and north chantry chapel, and north and south transepts. There was an octagonal belfry-turret on the west of the north transept, and two similar turrets on the east walls of the transepts. Of the two latter, three sides of the octagon projected exteriorly, and five of the former. At the intersection there was a square tower, which had only been partially built and finished with crenellations and a sloping roof. The length of the choir was 53 ft., and that of the transepts, from wall to wall, 25 ft. 3 in.

The architecture was of the best Middle Pointed style.

The windows were the least meritorious features. Those of the transepts were large but meagre, of four lights each, the upper portion

being filled in with unfoliated loop tracery. In each of the three sides of the apse was a tall narrow lancet window, the head of the middle one being more acutely pointed and loftier than the other two. In the west walls of the transepts there were two eight-foiled circular windows, the cusps of one of which were foliated.

At the angle of the apse, and of the transepts, were buttresses divided into stages by offsets. They were ornamented with niches having sculptured canopies, and terminated in long square-shaped pinnacles, with crocketed finials. Those of the aisles were of heavier construction, to enable them to sustain the thrust of the flying buttresses of the clerestory.

The whole roof was originally "theikit with stone," and plain parapets were carried continuously round the building. From beneath the parapet projected quaint fanciful gurgoyles, principally representing apes in different attitudes. The octagonal turrets had high pyramidal stone cappings and finials, and contained newel staircases, those on the east wall of the transepts giving access to the parapet.

The principal entrance was by an open porch, with a groined roof, underneath which a beautiful round-headed doorway, composed of continuous filleted quarter-rolls, gave access to the south aisle of the choir. The porch was formed by a circular segmental arch placed between two good buttresses.

The interior of the choir and apse was extremely imposing. The piers were square, set diamond-wise, with half-round and semi-hexagonal mouldings and foliated capitals, with extremely grotesque figures introduced among the foliage. The arches were obtusely-pointed, of three orders, and with hoods on the choir side. The clerestory-windows were large, and filled with tracery. The cornice was ornamented with a modification of the ball-flower occurring at intervals in the hollow. Between the clerestory windows and the pier arches a string-course, which was striped with a broad fillet, banded together the vaulting-shafts, which supported the lofty and beautifully-groined and bossed roof. The vaulted shafts rested on corbels, most of which were carved into grotesque faces; one, however, representing the figure of an angel, with expanded wings, holding a scroll in both hands. Their capitals, which had semi-octagonal or half-circle abaci, were of beautifully-designed foliage, with heads or faces embossed among the stalks, which issued from their mouths. The central longitudinal and the groin ribs were richly moulded, the square fillet being of constant occurrence, and were ornamented with beautiful and highly-sculptured bosses.

On the north and south walls of the apse crosses pateres were incised within a circle. These were probably dedication crosses. In the south of the apse were the priests' door, and to the west of it a canopied niche, probably either a baptistry or a piscina.

The aisles were vaulted, with transverse and diagonal ribs springing from the capitals of the piers on the one side, and from curiously-sculptured corbels on the other. One of the latter represented a winged figure with a most sinister countenance. In the east wall of the north aisle there was a piscina in a niche surmounted by an octagonal canopy. In the middle of this aisle a semicircular doorway with roll and chamfered mouldings, and a hood over it, gave access to a mortuary chapel, in the north wall of which there was a beautiful Gothic fireplace, and a square niche to the east of it, which had a foliated corbel and sculptured canopy, and contained a polygonal piscina.

Of the transepts little need be said. The label terminations of the windows were carved into grotesque figures. From the capitals of two of the piers projected shields, the one containing the monograms of our Lord and the blessed Virgin, flanked by the letters I. O., and on the other were represented three mallets and a cock between the letters I. B. That a nave had been contemplated was evident from the trusses for tying it, and the weatherings of the roof being visible on the west wall. The church contained a great variety of armorial bearings, in one instance the supporters being angels.

PROPOSED SANITARY ASSOCIATION.—The formation of a Metropolitan Association for promoting Sanitary Laws, and assisting to spread sanitary knowledge, is contemplated. Several meetings to forward it have been held in the large room of the Society of Arts.

NEW ST. THOMAS'S HOSPITAL.

THE governors of St. Thomas's Hospital have now under their consideration, and will probably determine on Tuesday, the designs prepared by Mr. Henry Curry, for the new hospital proposed to be erected on the south bank of the Thames, and which are set forth in twenty-two drawings, including one very large and very good perspective view, showing the aspect the building, or rather pile of buildings, will present from the river, along which it will extend 1,200 feet. It comes close up to Westminster Bridge, on the right-hand side (when going towards Ashtley's), and shows towards the river seven separate blocks, four stories high above ground, connected by corridors and service-buildings, the pavilion principle being of course adopted. The pavilions are placed at a distance of 125 ft. from each other, the centre court being increased to 200 ft., which distance will admit of ample sunlight and air to every block. The wards are designed to be 28 ft. in width by 120 ft. in length, and 16 ft. in height, and will accommodate twenty-eight beds, giving a cubic capacity for each patient of 1,800 ft. The beds are placed at distances of 8 ft. from centre to centre, and the windows are arranged alternately with the beds, at a level to enable a patient to look out of them. The number of beds will be 588. The water-closets, lavatories, and bath-rooms attached to each ward, are projected from the main building, and are cut off from the ward by intercepting lobbies, with windows on both sides. The water-closets and lavatories have also windows on all four sides to provide for thorough ventilation, with a view to prevent the escape of any noxious effluvia into the ward. The arrangement here seems very satisfactory. The chapel is placed in the centre of the building, communicating with the corridor of one pair story, with convenient access for both sexes, and is designed to give 300 sittings. The museums, school buildings, lecture theatres, &c., are proposed to be placed at the southern end of the ground, as indicated on the plans, but the detailed arrangements of this department are not completely matured. The building is designed to have fire-proof floors throughout, formed with wrought and rolled iron joists, and concrete. The windows go up to the ceilings of the wards. The floors will be of oak, and the wall surfaces finished with Keene's or Parian cement. The terrace towards the river is proposed to be kept 4 ft. above the public footway. This, with the height of a parapet, 8 ft. 6 in., will prevent any overlooking by the public. The style adopted may be called, broadly, Italian.

Mr. Curry's approximate estimate, the walls being of brick with stone dressings, is 330,000l. If the whole building be faced with stone, the cost would be about 30,000l. more. The estimate includes a bed of concrete, 10 ft. thick, under the whole surface, and some idea is given of the size of the area covered, when it is mentioned, that for every additional yard in depth of concrete, the extra expenditure will be 4,000l.

LAMBTON CASTLE.*

HAVING been requested to address you on the subject of Lambton Castle, I do so with great pleasure, not only on account of the interest which I naturally feel in the work itself, but because I sincerely desire to promote and encourage, in however trifling and humble a way, a practice which of late years has grown up, especially among men devoted, practically, either to art or to science, of meeting together for the friendly consideration and discussion of subjects in which they feel a common interest, without the restraint and inconvenience of a crowded lecture-room; but in the open air, or, at all events, amidst the scenes and objects to which their attention is invited. When the geologist, with his hammer in hand, and surrounded by men interested in his special science, addresses us amidst the very rocks which form the subject of his studies, how far more instructive as well as intelligible his lessons become! On the hill-top, or under the escarpment of some ridge of rocks, Nature herself lays bare the secrets of her handiwork, and explains the wonder of the creation with more clearness and force than the lecturer can hope to attain by any, even the most carefully-digested, treatise.

It is the same with the archaeologist. The learned expositor in his study may exhaust his stores of knowledge, in terms the most accurately scientific, and in language the most unexceptionable, and yet produce on his audience an impression but faint and languid compared with the lively interest which excites them when, amidst the ruins of some time-honoured structure, the lecturer lays his hand upon the very pillars and arches which form the subject of his exposition.

These considerations lead me to hope that, on the present occasion, I may succeed in securing your attention whilst I expatiate for a short time upon the building before you. As a work of venerable age it has and can have indeed no attractions. It is graced by none of the charms of genuine antiquity, though it may well lay claim to that regard and that careful survey which your respect for its noble possessor, rather than any architectural merits, will secure for it. I am induced to say this, not from any affectation of modesty, but for fear you should suppose that, in entering into what may be a tedious description of the works at Lambton Castle, I am inviting, or awaiting, your approval of them. The sole reasons that induce me to enter upon this description are, firstly, that I have been courteously invited to do so; and, secondly, because I think it possible that a plain account of a large and important work of this nature, and of the particular views that have influenced the designers of it, may be of some service to you who are for the most part engaged in the same pursuits as myself.

Having detained you with these preliminary remarks, I will at once enter into the subject of my address.

Harraton Hall, now Lambton Castle, is situated about a mile below Chester-le-Street, upon the banks of the Wear, a river abounding in romantic scenery. It was anciently the seat of the D'Arcys, who conveyed it to the Hedworths, or Hedworths; and after the decease (in 1688) of the last male heir of that family, it became the property and seat of Mr. Ralph Lambton, through his wife, who inherited it on the death of Mr. John Hedworth. Some fifty or sixty years ago the grandfather of the present Earl ceased to be built a residence on, or nearly on, this spot, and he could hardly have selected a more agreeable site; but, unfortunately, the architect was not aware of the singular nature of the spot so selected. Highly picturesque as it is, rising magnificently above the valley of the river on whose steep and richly-wooded banks the castle stands, it happened that the whole neighbourhood had at a remote time been undermined in search of coal. At the depth of about 69 fathoms below the surface of the hill, there were a series of beds of coal, reaching downwards to I know not what depth. These beds had been worked out, and had then been deserted and forgotten, so that the beautiful knowle, whilst it appeared to be as solid as any other portion of the great mountain range of coal measures, was in truth a most unsubstantial tract of perforated ground unable to bear the weight artificially imposed upon it. The castle showed early symptoms of the gradual subsidence of the earth on which it stood, and, by the time that the present earl came into possession of the estate, the building had become in some parts insecure. His lordship had, in fact, to choose one of two courses; either to take down the structure and abandon the site as a place of residence; or to restore to the hill that stability of which the miners had deprived it, and, when thus rendered solid and trustworthy, to re-erect thereon the castle.

The beauty of the surrounding scenery, as well as, perhaps, a not unnatural partiality for a site already selected by his predecessors as their residence, ultimately induced his lordship to adopt the latter course, notwithstanding the large expense that was inevitably occasioned by the adoption of it.

Accordingly, over the whole area occupied by the castle, the succession of empty coal seams were all diligently and substantially built up or "stowed" with solid masonry. The very core of the hill was restored, not by occasional props or piers, but by a series of solid, continuous, beds of masonry.

I need not tell you how difficult, tedious, and expensive this work necessarily was; nor need I dwell on the serious responsibility that must have been felt by all who in recommending this course had, as it were, guaranteed its success. The process occupied upwards of six years, and till this was completed little advance could be

made on the superstructure. This remarkable work, however, was undoubtedly successful, and is a great triumph of practical skill.

The offices and private suite of apartments were, for the most part, rebuilt at the beginning of the year 1862, when Mr. Dobson fell ill. His vigorous mind and powerful constitution, together with those temperate habits which had marked all his previous life, enabled him to struggle with paralysis for about three years; but throughout that interval of suffering he was utterly unable to attend to professional duties. Under these circumstances his lordship thought proper to honour me by placing in my hands the further conduct of the work. The completion, therefore, of the private suite of apartments and the whole of the reception-rooms has been so carried on,* and I am in the hope that early next year his lordship will have the enjoyment of the whole residence, but little disturbed by the operations of the builder.

I will now proceed to call your attention to such portions of the building as seem to me most likely to interest you as practical men.

With regard to the foundations, it will be readily understood that the very unfavourable nature of the subsoil rendered them a work of primary importance. The principal walls have had to be taken down, in most cases, to the depth of 15 ft. below the cellar floor, and under them has been placed a bed of concrete 10 ft. wide and 8 ft. deep. To the clerk of the works, Mr. Leighton, who has been on the spot for five years, I cannot but express my thanks for the special attention he has paid to this important point, as well as to the soundness and solidity of the masonry throughout.

There is no sham more discreditably than the mode of construction by which we have walls of formidable apparent thickness, but consisting in truth of two thin faces of worked stone, filled in between with loose rubble. Nor is this a dishonesty chargeable on modern contract work alone. It is a sham of ancient standing, met with not unfrequently in buildings of various Mediaeval dates. A long list might be drawn up of the towers and spires that have prematurely perished or become rent in twain from this cause.

We are apt to look back upon our ancient worthies with awe and reverence as to men of a golden age; but "This distance lends enchantment to the view," and could we go back again to the time of the cowl and hauberk, we should probably find that human nature is not so much worse than it was of yore, and that amidst those freemasons of pious simplicity not a few rogues might have been found.

I must, however, hasten to take you rapidly over the principal parts of this mansion.

After entering the outer hall, which is so placed as to prevent the cold winds, which are here often very violent, from rushing into the interior and so chilling all the adjacent apartments, we are introduced into the great hall, which was always an essential part of the baron's residence in feudal times, and which I expect in the present case will be found of great and various utility: besides forming a handsome means of communication between all the principal parts of the house, it will afford room for recreation and exercise to both young and old in bad weather, and on state occasions will become a brilliant hall for receptions, banquets, or balls.

The floor will be laid with *parquet* panels of wainscot, and the walls will be similarly panelled, the upper part of them clothed with pictures, and perhaps armour and banners. The great end window will be glazed with richly-stained glass, which, together with the side windows, is now busily engaging the attention of Mr. Wailes. Before quitting the hall, I must not omit to invite your attention to the carved oak roof, which is a specimen of sound workmanship by the Burnups, of Newcastle, worthy to be compared in execution with any similar work of the fifteenth century.

These framed timber roofs are one of the special glories of Gothic architecture, contrasting favourably with the cobweb-like structures to which engineers are so prone, and of which it may be truly said that they are "a work to wonder at;" the wonder, however, being that they do not more frequently collapse, and resolve themselves into their simple elements, a heap of rods, bolts, and bars.

It may be of some interest to compare the

* Address delivered by Professor Sydney Smirke, at the June meeting of the Northern Union of Mechanics' Institutions, at Chester-le-Street.

* It may be well to note that some portions of the damaged building, being sound, were preserved, although the severe archaeological critic would condemn them.

dimensions of this hall with those of some similar halls of various dates. I subjoin a few examples:—

	Ft.	Ft.	Height to Ridge.
Westminster Hall, London.....	238	by 67½	80 ft.
Guildhall, London.....	133	by 50	62
Lincoln's Inn, London.....	130	by 45	60
Raby Castle, Durham.....	120	by 35	—
Christ Church, Oxford.....	115	by 40	50
Whitehall, London.....	110	by 65	55
Hampton Court Palace.....	106½	by 43	49
Eltham Palace.....	101½	by 36	51
Middle Temple, London.....	100	by 40	60
Mansion House, London.....	90	by 50	60
St. Stephen's Hall, Westminster.....	80½	by 30	60
Lambton Castle, Durham.....	84	by 38	64

Proceeding onwards, we enter the principal staircase, which is 50 ft. by 24 ft., and 36 ft. high. Its walls will afford ample space for the exhibition of pictures and other objects of interest. From the deeply embowed window at the first landing there is a charming view of the wooded hills which surround the mansion and of the valley of the Wear, whose stream runs 120 ft. below.

Returning now to the hall, a central door towards the east leads into the dining-room, 59 ft. by 25 ft., and 22 ft. high. Although this room is in temporary use, its final decorations are postponed until a more convenient time: the ceiling will demand gilding and coloured treatment.

A door on the west side of the hall leads into the drawing-room, overlooking the terrace and garden. It is 66 ft. by 28 ft., exclusive of the bow, and 22½ ft. high. The walls will be richly clothed by the ample stores of works of art in his lordship's possession. The floor will be parquetry in various woods. The carved chimney-pieces, rising to a height of 18 ft., have been executed by Messrs. Mazaro & Co., a firm in Paris eminent for artistic workmanship of this nature. It is a fact well worthy of your notice and emulation, that such is the energy of our French neighbours, these elaborate chimney-pieces, together with those, equally enriched, in the hall, and that in the state bedroom, comprising together a prodigious amount of carving, were modelled, carved out of the solid oak, framed and fitted together, packed up and delivered, from Paris, at the castle, within three months.

I do not know that it is worth while to detain you by any description of the other less conspicuous parts of the mansion. Mr. Leighton will, with readiness and intelligence, explain every detail that you may think worthy of inquiry, and there are 400 or 500 drawings open for your inspection. This structure I hope you will consider to be, upon the whole, a noble pile, not unworthy of the family which possesses it.

Join me, gentlemen, in wishing that it may for very many years be to them a happy and a comfortable home.

COUNTERFEIT ANTIQUITIES.

MR. SAMUEL SHARP has been reading some papers in Northampton on ancient and modern counterfeits of antiquities, and although we have been amongst the earliest to bring these deceptions before the public, part of his résumé of the more recent impositions will not be out of place or without value:—

In 1857, extensive excavations were going on at Shadwell, in the making of new docks; and during that and the following year, a respectable dealer in antiquities in London purchased a large number of remarkable objects, said to have been found in the course of these excavations, a smaller number having made their way into the hands of other parties. They were of lead, and exhibited all the corrosion and encrustation of age: in fact, every material mark of antiquity. The dealer called them "pilgrims' signs," a term first used by Mr. Roach Smith as applied to somewhat similar objects, which he considered to have been badges worn by pilgrims to indicate the shrines of saints which they had visited. This term, however, could only apply to a small proportion of these Shadwell objects, which consisted of figures of "monarchs, knights, archbishops, bishops, and priests, incense cups, reliquaries, vessels of all forms, and numerous plaques and large medallions with loops for suspension." They were of all sizes (some being 2 in. or 3 in. in diameter, and others from 2 ft. to 3 ft. in height), and in numbers sufficient to fill a large room. Mr. Roach Smith, in the course of the publication of his "Collectanea Antiqua," published several articles upon them, and held that they were genuine, notwithstanding some

difficulties and anachronisms which they presented. These he reconciled by concluding, from the lettering, that they were of the time of Queen Mary, had been imported from abroad, and were "copies of early examples." Some members of the British Archaeological Association, however, busied themselves to inquire about these strange objects. One of the secretaries examined 800 of them, and ascertained that their aggregate number was not less than 12,000. As a result, the learned Association concluded that they were forgeries; and, in the report of their proceedings, published in the *Athenæum*, *Literary Gazette*, and *Gentleman's Magazine*, "the public was put upon its guard against forged leaden images then being offered for sale." The dealer, aggrieved, brought an action against the *Athenæum*, and was defeated. The great number and variety of these objects seemed opposed to the conclusion as to their spurious origin—the ingenuity of many persons must have been taxed in their production—no single forger could have exhibited such facility of invention. Mr. Franks, Mr. Syer Cuming, Mr. Gunston, and Mr. Charles Reed, determined to solve the mystery, and at last laid bare the imposition. Mr. Reed obtained some of the plaster moulds in which the objects had been cast, and ascertained the process (the use of acids and compounds) by which they had been made "antique." Another gentleman cunningly entrapped the forgers into copying in lead, from a drawing he left with them, a figure seated on a bull; which, when made, as in the case of the other objects, was as broadly and as truthfully asserted to be antique. Mr. Evans has afforded me the pleasure of exhibiting this very figure here. Even this crucial test was not enough. Mr. Gunston made a sketch of the statue of a bishop at Rochester, and, in a vein of racy humour, he placed upon the pedestal in the drawing the word "Fabricatus." He left this sketch with one of the workmen, with a request that he would inquire after such a figure, as if he supposed such a one had been found. In twelve hours, an ancient-looking leaden figure, true to the drawing, was produced, and lo! "FABRICATUS" was upon the pedestal!

These things are still being made, and some of them have penetrated even to Northampton. They are very incongruous in their design—helmet, armour, and costume of different ages being frequently combined: they have meaningless inscriptions, and dates varying from 1000 to 1200, in Arabic numerals! Besides the figure on a bull, Mr. Evans has lent me a knight, two medallions, two leaden bottles or *ampullæ* (one with its ancient garb washed off), and an "apostle spoon" (also cleansed of its antiquity). The last is a curious model to have chosen, as being altogether inconsistent in date with the other objects. I exhibit for comparison a genuine apostle's spoon (so called from the figure on the handle).

The *venue* for the sale of these forgeries has now shifted to the works of the Thames Embankment, which has become quite a mart for counterfeit antiquities. The manufacture has advanced with time; and in addition to, and partly as a substitute for, articles in lead (probably by this time become a drug) articles of bronze have been introduced, marked with the same inconsistency as to period. Here are three bronze celts, nearly similar as to type, but varying in size, the largest of which, having been cleansed, offers a strange contrast to the others (to these I oppose a genuine one, found at Eye, near Peterborough, three years ago); also three Roman daggers (two of which, and one lead medallion, belong to Mr. Cosford, of Northampton, who purchased them of some of the Thames Embankment workmen). These daggers present two forms, one seems very familiar, copied, I suspect, from some old print. The handle is formed of a broad spiral band, terminating in a composite head, something between a ram and a deer; the hilt is of the form of the letter *f*, and on each side of the intersection is a lion's mask, under which, on one side, are the letters "MOMI." Can we suppose that the designer knew anything about *Momus*,—that he was a wag, and that, in placing the name of the god in the genitive case on these figures, he was having a laugh by anticipation at their future purchasers? Perhaps it is a blunder for "Romi;" but then, this, too, would be a mistake. The second form I may describe as an elegant and original invention: the handle consists of a nude female figure (holding what may be supposed to be an apple), which may be intended to represent either Venus or Eve: the hilt has a kind of

rescent form. These daggers have been roughly cast, apparently in sand, and show blemishes and file-marks. A spear-head is a clever fabrication; but a lack of correctness in form betrays its character. A graphic bearded head, on a massive bronze ring, is a novel form of antique. The ornament might be worn appropriately in a burlesque: its age is clearly at the choice of the purchaser.

The remaining forged antiquities which I have to notice consist of various forms wrought in jet, Cannel coal, stone of several kinds, and flint, and I will group these together, because a large proportion have a common parentage.

Some years ago, two individuals in Yorkshire acquired an infamous notoriety as clever rivals in the forgery of antiquities. The one was William Smith, alias "Skin and Grief," alias "Snake Willy;" the other was Edward Simpson, of Whitby, alias "Flint Jack." These men manufactured stone hammer-heads, ancient British urns, flint implements of all kinds, jet seals and rings, and other objects, in great numbers; and not only were ordinary forms produced by them, but knives, saws, rings, and even fish-hooks, in flint, some of which were actually engraved as genuine in local archaeological publications.

These men travelled through the country, vending their peculiar merchandise. With both have I come into contact, and by both have I been victimised—but by the latter not lately! Some ten or twelve years ago, a shabbily-dressed man called upon me at Stamford; he was a tradesman, he said, "on the tramp," in search of employment: he had happened to be in Bull-street, in Oakham, on the previous day, where an old house had been pulled down, and in the rubbish of the foundation he had found this jet seal. It presents a venerable-looking male head in profile, in a kind of helmet, with falcon crest, and a mail curtain falling from the helmet to the shoulders. The bust is hidden by a shield, having a bordure bezauntée, and bearing the words "Cap. Ser. Dei"—"the head of the servant of God. Surrounding the device, are the words, "Sigillum Gustavi de Aldburgh." He asked no great price for it; and I gladly bought it, esteeming myself fortunate. It was the first antiquity of the kind I had seen! I have seen many since! I never saw him again, but I learned afterwards that he was the William Smith of peculiar aliases. About the same time, I heard of a remarkable Roman signet ring in jet, which had been found by a labourer near Peterborough, and was on sale at a silversmith's, at Spalding. I bought it at an enhanced price. I thought it would assort well with my jet seal. It did! It was made by the same person! It is neatly ornamented, and bears a laureated head, and the curious word "Imperatorium." Some time afterwards, I was shown a jet seal of Julius Cæsar, said to have been found in Bourn Fen, Lincolnshire. I took a rough impression of it in gutta-percha. It bears the head of Cæsar, and the inscription, "SIG. IVL. CÆSAR. IMP." From the character of the lettering, and the whole look of the thing, I saw this was a forgery at once. It is not nearly so well executed as my seal and ring, but I have no doubt it was by the same hand. Before this last incident, a man shabbier even than the other, called upon me with a little assortment of six arrow-heads and a sling-stone, in flint. I bought them, and thought I was getting on. This was "Flint Jack." I added nothing in this way to my collection until 1862, but I had long since learned the character of my jets and flints. In 1862, a man brought to my house a rough seal in Cannel coal. I did not see him, but bought it as a forgery for 1s. 6d. I found afterwards that he had sold its counterpart at Northampton as genuine, and also some flint arrow-heads, which reminded me of my Stamford purchase. He soon called again upon me—with a stone axe-head this time—and I recognised him; upon which he was very candid as to his occupation, stating that he was the genuine "Flint Jack," and giving me a few aliases, which I need not repeat. I have seen him several times since, and have obtained from him much information and various specimens of his skill. He has shown me his mode of working both in flint and jet, having made some arrow-heads and commenced a seal in Cannel coal in my presence, selling me for a trifle the implement (a common table-knife sharpened to a point) with which he had been accustomed to work.

Objects of another class, and these the most ancient, considered archaeologically, have furnished subjects, and offered inducement for fraudulent imitation. The ancient remains and

works of man, found in Swiss lake-dwellings, Danish kjökkenmødding or "kitchen-heaps," caves in England, France, Germany, and Spain, and associated with extinct species of animals in gravel deposits in numerous localities both in this country and on the Continent, have excited so much interest and induced so much discussion amongst almost all classes of persons, both at home and abroad, that it was certain that in them would be opened a wide and profitable field for the exercise of the diabolical ingenuity of the results of which I have given so many examples; and accordingly forgeries of these remains from every source have been daily perpetrated. "Flint Jack" was not likely to be an exception, and I have four flint implements from the drift of his manufacture, and the simple tool (part of a hinge taken from a field gate) with which they, and (as he declared) eight hundred others, were made.

It may, perhaps, be thought that in the face of such universal forgery, it is unsafe to rely upon the genuineness of scarcely anything assuming to be ancient, and that it is folly to collect objects so liable to be counterfeited. But the risk, after all, is not so great as it appears, and chiefly attaches to the incautious tyro. It is surprising, in the present day of take-nothing-for-granted inquiry, how soon a counterfeit comes to be found out, and how soon the inexperienced collector, after being taken in a few times (more or less), learns to discriminate the real from the false. There is a danger to be avoided of falling into the error of rejecting as unguine the whole of any class of objects, because some, many, or even most, of the examples we have known have certainly been forged; the very fact of forgery would generally imply the existence of a genuine model. It behoves us to be cautious, but it is as great a mistake to reject rashly as to accept credulously.

PARIS.

The annual Exhibition of the Fine Arts of the present year, held in the Palace of the Champs Elysées, comprised 3,554 numbers altogether of the several classes, of which 2,243 were of pictures, 601 of drawing, 327 of sculpture, 56 only of architecture, 272 of engravings, and 58 of lithographs. Of course, among so great a number there was a great mass of mediocrity, the leading artists abstaining from contribution excepting of works for public edifices. Of the works of the few exhibitors in the architectural department, there is little to mention, the designs for new churches being unusually bare of artistic merit. One very elaborate and pretentious drawing by M. Gros, proposed to cover the Hill of Montmartre with palaces, colonnades, fountains, cascades, &c. from the summit to the base.

About 300 ft. of the old gallery of the Louvre have been razed to the ground, nor is there any preparation to join it by a new section to the heavy construction adjacent to the Pavillon de Flore, which latter, although rebuilt, is covered by an enormous scaffolding, with numerous enclosed parts where sculptors are busily at work.

In the salons of the old Louvre, the Campana Museum (now called the Museum of Napoleon III.) is placed. The pictures of the French School which were formerly hung there, have been transferred to the new gallery which runs laterally with the famous old gallery; and the Clandes, Poussins, Lesueurs, and others, are now congregated in this new locale. In the Salon Carré, the portrait of a man, painted by Antonella da Messina, is the only new addition. It was purchased at the Portales sale for 4,200l., the Count having purchased it several years before for 20l. in Venice.

The picture gallery of the Duke de Morny at his official residence in the Palace of the Corps Législatif, was constructed by the side of the ball-room, and entered by five large openings. The pictures were hung on one side principally, lighted from the roof by day, and at night by lamps similar to those in use in London for lighting shop-windows from the street.

The walls were covered with dark maroon damask, and the whole of the woodwork, without exception, was dark oak.

The Grand Opera is much advanced: the principal story is completed to the capital of the columns. The Northern Railway Station is far from completion, nearly one-half of the interior not being yet roofed over.

It appears that the site of the new Hôtel-Dieu has been at length definitely agreed upon.

This is the plot of ground occupied by the block of buildings in the island of the Cité bounded by the Rue de Constantine on the north, the Rue d'Arcole on the east, the Rue Saint-Christophe on the south, and the Rue de la Cité on the west. The inhabitants have received notice to quit on the 15th of October next.

The Saint-Denis canal has been laid dry for want of water, the limited supply derived from the Ourcq being reduced to nothing during the dry weather. In consequence all the shipping of the port of Paris has been obliged to take refuge in the Port St. Nicholas, opposite the Louvre, thus giving the quay a most animated appearance.

A plan is being studied at this moment for taking, by means of a powerful set of steam-pumps, a supply of water from the Marne sufficient not only for alimenting the Canal Saint-Denis, but for keeping the Canal St. Martin constantly full, and the bornes-fontaines of the capital well supplied.

The *Mondes* informs us that M. Emile Trélat has taken the initiative in founding a central school of architecture. The number of subscribing founders is already considerable. The studies are to be of three years' duration: the pupils, all externs, are to remain eight hours at the school, each day, from 8½ a.m. till 4½ p.m. The scholar-year will last for eight months, from the 10th of September to the 10th of August, and at the end of the studies the school will deliver to successful pupils at the general examination a diploma certifying as to their architectural capabilities. National subjects and strangers will be admitted after they have been subjected to the examination indicated in a special programme. The temporary offices of the society are No. 9, Passage Sannier. Among the professors are M.M. Jansen, physics; Dehérain, chemistry; Treca, stability of construction; Baillon, botany, &c.

ST. LUKE'S CHURCH, CHORLTON-UPON-MEDLOCK, MANCHESTER.

ST. LUKE'S CHURCH is of the Early Decorated style, and comprises nave and north aisle, 70 ft. by 46 ft., and chancel 24 ft. by 20 ft. A small gallery is at the west end; the accommodation being 740, of which 323 are free. The tower, which is prominently placed at the north-east angle of the nave, is capped with a broach spire, surmounted with gilt coronal and vane, the total height being 148 ft. Adjoining the chancel are the vestry, organ-chamber, and choristers' vestry. The church is built with Yorkshire Pierpoint stone, with Longridge and Hollinton stone dressings. The approaches of the church are from the north and south, the former being the principal one; while the access to the gallery is obtained from the west end by a stone covered staircase, with a pinnace at the angle, with carved gurgyles.

The arches between the aisle and nave are supported by double iron pillars (picked out in colour), which add to the lightness of the church, and interfere as little as possible with the line of sight in any direction. The roof is of high pitch, with open framed principals, with carved spandrels, wind beams, tospars, &c. and covered with slating of different tints, with ornamental cresting to the ridge.

A dwarf wall of Caen stone, inlaid with marble, determines the boundary of the chancel, in which are the choir stalls. The altar is approached by five steps. The floor is paved with Maw's encaustic tiles.

All the seats and other internal fittings are of oak, the pulpit and reading-desk being enriched and inlaid with walnut and ebony. The font is of Caen stone, with marble shafts, of elaborate design, and is placed at the west end adjoining the entrance. The altar rail, of polished brass, with floriated standards, is by Skidmore & Co., of Coventry; also the gas-fittings, by the same firm. The heating and ventilation apparatus is by Haden & Co., of Trowbridge.

The east window of the chancel is by Wailes of Newcastle, in memory of the late wife of the patron; and all the other windows are enriched more or less by the introduction of stained glass from the works of Edmundson & Son, of Manchester, who have also supplied the brass tablets and other decorations. The organ was built by Imhof & Muckle, of London. The clock, which has three faces, was made by Joyce, of Whitchurch, and is provided with Denison's gravity escapement. There is one bell (G sharp), by Taylor, of Loughborough.

The masonry is by Ellis & Hinchcliffe, of

Manchester; and the woodwork and general supervision of all other trades were undertaken by the contractors for the whole building, Messrs. Bowden, Edwards, & Forster, Manchester, under the direction of the architect, Mr. John Lowe, of the same city.

The grave-yard is enclosed with a dwarf wall, of similar materials to the church, with iron rails at intervals, with an entrance gateway to the east elevation, of elaborate design. All the gates are of English oak. The whole of the cost has been defrayed by the patron, Robert Gardner, Esq.

THE LADIES' SANITARY ASSOCIATION.

THE public have reason to regret, as we very much do, that the last annual report of this most useful and important Association announces a great falling off in the funds during the past year, which must paralyze the labours of the active and efficient staff of the Association, at a time, too, when constant appeals for grants of sanitary tracts and for lectures are being made to the committees from the working men's clubs and the Bible women in all parts of England, as well as in the metropolis and from the City missionaries and the clergy. The funds, instead of increasing as last year at the rate of 230l. per annum, have fallen short of even the income of 1860; and, to begin their present financial year with, there were only 12l. in hand, while it is a rule of the Association not to incur expenses which cannot be met by the funds available. The valuable sanitary work of these good ladies will thus be actually stopped in the very midst of their arduous and willing labours, and at a time when these labours had very much increased. Surely, notwithstanding the endeavours of the press, in which we have taken an earnest part, the public do not yet know of or appreciate the purposes and endeavours of the Ladies' Sanitary Association; and that this may no longer be the case (as far as our efforts may help it), we shall here re-state the objects for the promotion of which the Association was established, and which it has already done a great deal to realize.

"The promoters of this Association, convinced that one of the principal causes of a low physical condition is ignorance of the laws of health, have combined to extend and popularize sanitary knowledge.

- For this purpose:-
- 1st. They write and distribute simple interesting tracts on sanitary and domestic subjects. The greater part of these are written specially for the poor.
 - 2nd. They establish loan libraries of popular books on subjects relating to health and social well-being.
 - 3rd. They arrange for the delivery of practical lectures on health, sanitary improvements, and domestic economy.
 - 4th. They form branch associations in various localities for carrying on practical sanitary work.
 - a. By distribution of the tracts among the poor of the district, and in schools, hospitals, and mothers' meetings.
 - b. By collecting money for sanitary improvements, such as opening windows, curbing smoky chimneys, removing nuisances: giving soap, and lime for whitewashing; lending books, patterns of clothes, scrubbing-brushes, saucepans, and cooking recipes.
 - c. By requesting the medical officers of health, and other professional and well-educated gentlemen, to deliver popular free lectures.
 - d. By instituting mothers' meetings, and classes of adult girls, and giving them sanitary and domestic instruction.
 - e. By forming or aiding Penny Clothing Clubs, Coal Clubs, Baths and Wash-houses, Temperance Associations, Cooking Depôts, and Working-men's Clubs.
 - f. By establishing nurseries for motherless babes, which may serve as schools for mothers of all classes, schoolmistresses, and nurses."

Already no fewer than 760,000 of the many sanitary and domestic tracts referred to have been distributed. During the past year alone eighty-three lectures have been given. Throughout the country, including Scotland and Ireland, ten branches have already been formed. From the meetings of the Association on overwork, the London Dressmaking Establishment has arisen. Park parties of ragged school children were sent out last summer, conferring happy holidays on 29,000 children. The committee wish not only to continue all this work, but to increase it, by offering prizes for clean and tidy rooms, by encouraging flower shows, establishing nurseries for motherless babes, by employing sanitary missionaries, &c. But unless funds are speedily forthcoming, they will be unable not only to extend their operations, but even to sustain those already in hand. An annual subscription of 10s., or a donation of 10l., constitutes the subscriber a member of the Ladies' Sanitary Association, and there are no other resources for it to fall back upon. The funds are well administered, and the Association is in excellent hands. Lady

Burrell and Mrs. Osborne Stock are the honorary secretaries, and Miss Griffiths is the secretary. The office of the Association is No. 14A, Princes-street, Cavendish-square, W. The Hon. Mrs. W. F. Cowper is the president; and on the committee are such names as Miss Burdett Coutts, the Countess of Airlie, Miss Isa Craig, Lady Stanley, and many other well-known persons. The president's name appears on every sub-committee,—finance, tract, lecture, park parties, gymnastics, and branch association. Branches have already been established at Brighton, Oxford, Reading, Bath, Leeds, Glasgow, Paisley, Aberdeen, and Dublin; and efforts are being made to extend such branches to Bristol, Cardiff, Greenock, Edinburgh, &c. The Association is affiliated with the National Association for the Promotion of Social Science, every member of which, we think, is in social duty bound to support so excellent an institution as the Ladies' Sanitary Association.

To give an idea of the nature of those domestic and familiar sanitary and social teachings which are promoted by the extensive tract distributions of the Association we may here give a few of the titles, although we have already done so on former occasions:—The Black Hole in our own Bedrooms—The Mischief of Bad Air—Washing the Children—The Cheap Doctor—The Massacre of the Innocents—A Model Wife—Measles—When were you Vaccinated?—The Use of pure Water—Never Despair—The Health of Mothers—How do People hasten Death?—Woman's Work in Sanitary Reform—Healthy Dwellings, &c. &c. A condensation of useful precepts such as many of these tracts inculcate has been tastefully arranged, together with various other scraps of useful information, such as rates of postage, weights and measures, &c., round a chromo-lithograph of a humble home which forms the chief ornamental feature of a very neat "Home Almanac" for 1865, which will no doubt, even yet, appear in thousands of humble dwellings in course of this year if an access of funds enable the sanitary lady visitors to distribute them further while carrying on their various other useful labours, as it is our earnest hope they will shortly be enabled to do.

THE WORKING MEN'S EVENINGS AT EXETER HALL.

The series was closed on the 4th inst., with a paper by Mr. J. M. Ludlow, entitled "Can Arbitration be successfully used in Disputes between Employers and Workmen?" The Earl of Lichfield was in the chair. The writer remarked that his subject logically preceded the subject of strikes and co-operation, which had been discussed at the first two of these meetings. Co-operation was the end—arbitration one of the means of securing that end. The question of applying arbitration to the settlement of disputes between masters and men had been embodied in this nation's laws since 1800, and again in the reign of George IV. But these legal provisions have been very unsuccessful, and there is at present great need of dealing with the question afresh. Mr. Ludlow distinguished between mediation and arbitration, indicating that mediation would often be a step in securing sound and effective arbitration, but the latter must be endowed with a greater authority than could belong to the former. He thought that if the working conditions could be secured, it would be as easy to arbitrate between masters and workmen as between any two persons who might disagree; and these conditions, he said, were confidence on the part of the parties disagreeing in the members of the council of arbitration, who should be experienced in the subject in dispute, and be armed with authority to enforce their award. It would be impossible to secure arbitration which should never fail, but the great thing was to secure a system which should fail as seldom and with as few evils as possible. For councils of conciliation and arbitration he would select, by vote, equal numbers of experienced masters and workmen; and the qualifications for a vote, in both cases, having worked five years at his trade, and having resided three years in the town in which the council met. The selection of a chairman was a difficult and very important arrangement, inasmuch as the numbers of masters and men being equal, it might often happen that with the chairman would rest the entire decision. The council of conciliation and arbitration should have power to enforce its advice or determinations; and that this might be done

thoroughly, it would be necessary to legalise trades' unions, that so their councils would legally represent their own members when before the court. Another very important question was whether these courts were to fix or simply declare a scale of wages, but into that he should not then enter. It seemed to him that the present means of fixing wages obliged both employer and employed to maintain their respective hostile organizations. He thought that the expenses of these councils should be paid out of national or municipal funds. He would have, in connexion with the councils, the right of appeal, which would prevent constant re-hearings of cases. Mr. Ludlow said he had for seventeen years considered this subject under different phases, and had always advocated councils of arbitration as a great improvement upon the present state of things, as a safe and simple means of bringing the different classes and opposing interests into more friendly relationship. The results of this system would be most blessed in teaching men how to prevent and remove class warfare.

A brisk discussion ensued. The chairman, in reply to a vote of thanks, said,—Co-operation between employers and employed had been advocated as a means of preventing the mischief; but he feared it would be a long time before that system could possibly be brought into action; and, even if it were adopted, it seemed to him that disputes would arise as to the manner of dividing the profits. Nothing could be so useful as co-operation among the working men themselves, but not so between one man and one thousand. He thought that arbitration, at all events at present, was best calculated to remove the difficulties of strikes; but there would be difficulties even in that system, and one would be that of applying or carrying into effect the awards of the courts of arbitration. To effect this it would be needful to do what Mr. Ludlow had recommended, viz., to give trades' unions and societies a legal status, and thus enable them as corporations to use or be subjected to the law. In this way public opinion would be brought to bear upon these unions, and would make them feel what he feared they had not sufficiently felt, viz., their sense of responsibility. The funds of these societies were obtained for the support of men on strike or outlocked from other societies, which did not always know the merits of the case, and were not, indeed, asked to contribute on the merits of the case, but simply on the ground that there were so many brother workmen out of employment who must be supported. One great benefit which would be secured by courts of arbitration would be the bringing masters and men together to talk over any change which was proposed to be made, either in their relationships or wages, and would secure the points being thoroughly discussed before any action was taken. This arrangement alone, would, he believed, put an end to one-half of the distressing strikes and outlooks which were taking place. The appointment of a chairman for these councils of arbitration would, he admitted, be a difficult work, as had been said, but one which, with care, might be satisfactorily performed.

ARCHÆOLOGICAL INSTITUTE.

At the last meeting for the session of the members of the Archeological Institute of Great Britain and Ireland, the Marquis Camden took the chair. The first paper read was a joint communication from Professor Westwood and Mr. Way, respecting the removal and supposed demolition of an ancient cross, which was in the old church at Leeds. It was asserted that the architect, when pulling down or "restoring" the building, had removed the cross and built it into the wall of his own residence, near King's Cross, and that his house having been required for a railway, the cross was demolished. Drawings of it were exhibited, which represented a highly decorated cross about 7 ft. high. A visitor, a gentleman from Leeds, gave a different account of the fate of the cross. He said he remembered it very well in its original position in the church, and he afterwards saw it at the architect's, who resided at Highbury, and not at King's Cross. It was not built into the wall, but stood by itself in the garden, and it is possible it may be there yet.

Two curious large gold ornaments, which had been discovered at Padstow, in Cornwall, in the spring of this year, had been sent for exhibition by the Prince of Wales, the patron of the Institute, and were described by Mr. Smirke. They

are crescent-shaped, and turned up at the ends, each one being about 6 inches long, and their value, as mere bullion, is estimated at 30*l*. They were found by some men working in a rock at a depth of 6 ft., and associated with them were some bronze ornaments and some "cells." They had evidently been placed where they were found for concealment. One or two similar gold ornaments of smaller size are in the collection of the British Museum.

A paper was read on the discovery of bronze implements and other relics of antiquity in Denmark. A long description was then given of a journey from Smyrna to Halicarnassus, and of some of the excavations there undertaken on behalf of the British Museum.

WEST LONDON SCHOOL OF ART.

At this school (which is in connexion with the Department of Science and Art), and is established at 204, Great Portland-street, W., with branch classes, the second annual distribution of medals and prizes took place on the 4th instant, Mr. Harvey Lewis, M.P., occupying the chair.

The statement put forward by the council showed, that during the year 1864 they had 519 students attending the school, of whom 48 were artists and designers, 54 were decorators, writers, and gilders, 46 were wood, stone, and ivory carvers, 9 modellers, 27 glass painters, 13 papier mâché, &c., workers, 20 goldsmiths and chasers, 19 engravers and die-sinkers, 20 metal workers, 35 cabinet makers, 30 upholsterers, 10 musical instrument makers, 32 carpenters and joiners, 27 machinists, 11 masons, 11 photographers, &c., 29 salesmen and clerks, 26 teachers, 21 at school, and 31 miscellaneous. In the ordinary studies of the pupils, 23 were awarded medals, and 6 honourable mention; and subsequently in the national competition the large proportion of 3 national medallions and 2 honourable mentions were awarded. Six senior students had during the past year been admitted as students of the Royal Academy.

The chairman, in opening the proceedings, said it was very gratifying that notwithstanding the head master had for some time been ill, the school had progressed in so satisfactory a manner, and also that there were more prizes to be given than in any previous year.

The principal prize, the Queen's prize, was won by Mr. Horace Montford.

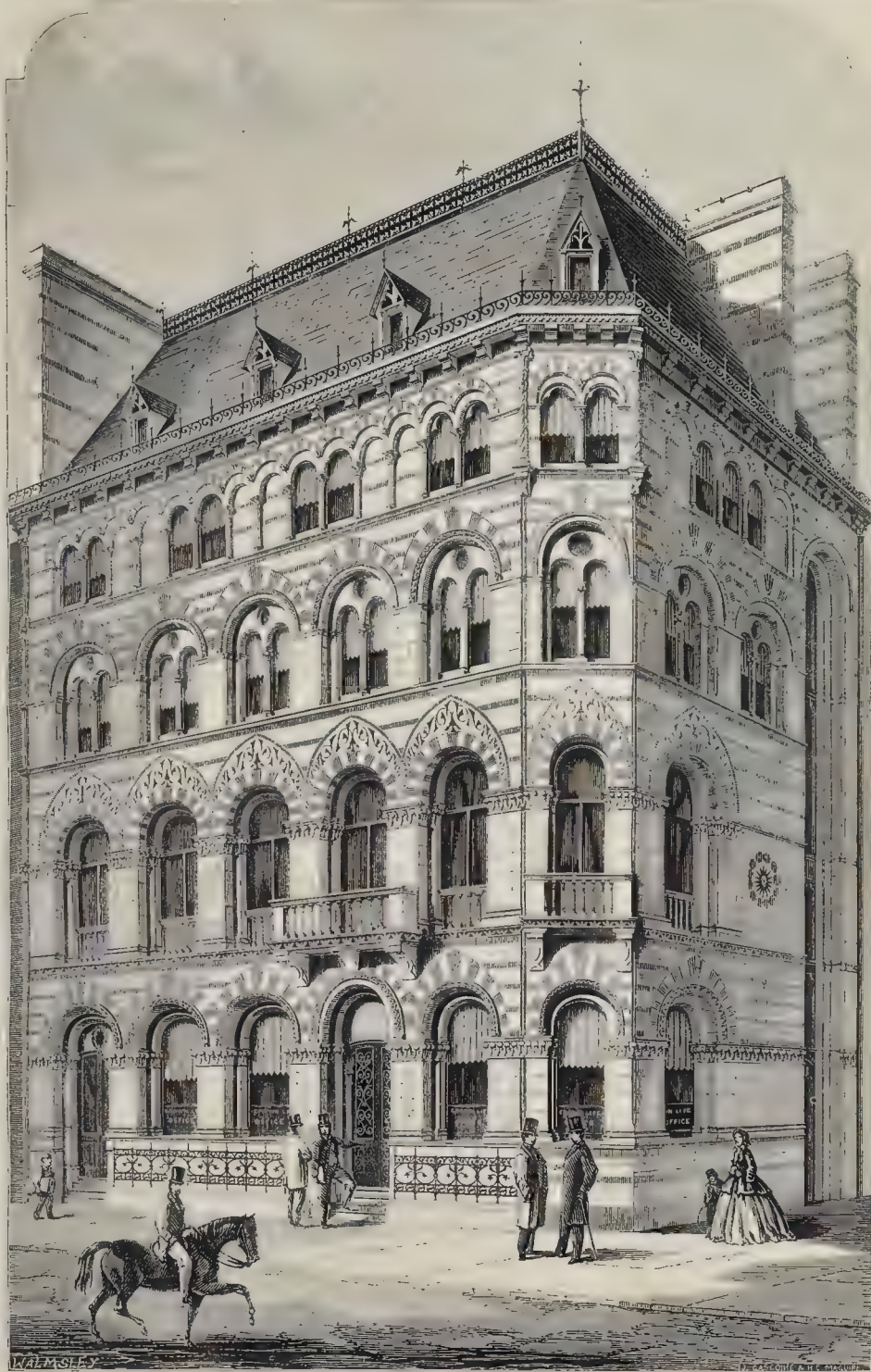
Mr. M. D. Wyatt and Mr. Peter Graham, the treasurer, addressed the meeting, and proposed a vote of thanks to the chairman, which was unanimously carried.

OFFICES OF THE CROWN LIFE ASSURANCE COMPANY, FLEET STREET, LONDON.

The offices of this highly-esteemed company occupy the whole of the ground floor, and consist of public office, secretary's room, board-room, medical officers' and waiting rooms; strong rooms and clerks' luncheon-rooms in the basement. It is proposed to let the upper floors in suites of offices, the first-floor having a separate entrance from Fleet-street. There are laboratories and a w.c. to each set of apartments. The building is constructed with fire-proof floors throughout.

The materials used in the facing are Portland stone in the piers and caps; Forest of Dean, red Mansfield, and blue Warwick, in other portions of the front; and over the arches, Sicilian marble. The carving is by Whelan, who is also engaged on the new buildings at Christ Church, Oxford, now nearly completed. The cost of the new Crown Office will be about 16,000*l*. The contractors are Messrs. Piper & Wheeler, of Bishopsgate-street. The architect is Mr. T. Newenham Deane. The result promises to be very satisfactory.

INDUSTRIAL EXHIBITION FOR THE CITY OF LONDON.—A crowded meeting has been held in the Sussex Hall, Leadenhall-street, in connexion with the proposed Working Classes Industrial Exhibition for the city of London. The Lord Mayor presided. It was resolved, "That a Working Classes Industrial Exhibition for the city of London is most desirable; and that this meeting pledges itself to adopt means for the furtherance of this object." A committee was appointed.



OFFICES OF THE CROWN LIFE ASSURANCE COMPANY, FLEET STREET, LONDON.
MR. THOMAS NEWENHAM DEANE, ARCHITECT.

TOBACCO SMOKING.

It is not one of the pleasing signs of the times that this practice has become in use amongst boys who have scarcely passed beyond their school days; and so numerous are the instances in which small boys may be seen, without any seeming shame, smoking pipes in the open street, that it is often difficult to resist the inclination to administer a little seasonable correction. On some points the doctors differ; but on the unwholesomeness of the practice for boys who have not arrived at a proper bodily development using narcotic fumes, there is no dispute whatever.

In France, reliable statistics show that in proportion to the increase of the sum which is derived by the Government as a duty on tobacco, so has the extent of insanity and some other diseases which have their origin in the derangement and weakening of the nervous system increased. The French physicians say that to no other cause than the excessive use of tobacco is the vast increase of lunacy in France to be traced.

At home, we fear that a great deal of mischief is due to excessive smoking. The use of the tobacco-pipe before the bodily functions have been developed, stops and dwarfs the growth. It leads to idleness, and is in far too many instances a sort of connecting link with dishonesty and habits of drinking. In the artificial conditions in which young men live in the metropolis and in our great towns, in the midst of unsanitary arrangements and other disadvantages, the tobacco-pipe destroys more lives than is generally supposed; and it would be useful if in our hospitals, especially those devoted to the cure of consumption, a note were made of those who have at an early age been accustomed to the use of tobacco.

In these days we need to increase the intellectual and bodily strength of our youth; we therefore beg of the masters of schools, of the fathers, mothers, and others who have charge of boys, to have no hesitation about the matter, but to put out the pipes of the small boys at once.

THE AMALGAMATED ENGINEERS.

We recur to this subject, in order to note that the last report of this Incorporated Society of Engineers, which consists of engineers, machinists, millwrights, smiths, and pattern-makers, is full of information of an encouraging description, not only to the members of this society, but also to those who may be contemplating the formation of similar institutions, or to others who may be connected with societies of a kindred nature in various stages of their progress. The report is admirably drawn up, and in its clear and business-like arrangements might well serve as a model to the directors and managers of establishments which have far more lofty pretensions. This is the fourteenth yearly report; and in glancing back at the history of this society, it is instructive to note its various and severe struggles, and also the elasticity which has caused it to rebound from various adverse circumstances to increasing prosperity.

In carefully arranged tables, the financial position of the Amalgamated Engineers, and of the numerous branches connected with the parent body, is distinctly shown; and some of the features are curious; but upon the whole the facts are very encouraging. For instance, in the year 1860, the balance in favour of the society, upon the year's accounts, after paying all expenses, was £23,366l.; whilst, during 1861—the first year of the American cotton famine—was only £13,194l. In 1862, the state of the funds was so bad that there was actually a deficiency, and the funds were reduced that year by £7,821l.; but mark the elasticity of the society: in 1863, the loss was only a little over £2000l.; and in 1864, the cloud of adversity was rolling away, and the return to prosperity was shown by the increase of the fund during the year to £9,537l.; so that the money position of the society is better than it was before the great depression of the cotton trade first took place.

The amalgamated fund of the society now amounts to 3l. 0s. 6d. a member, and the arrears are equal to 5s. 8d. a member, this being 7d. a member more than in the year before. This amount of arrear is one of the few unpleasant features of the report, and it would be well if the members were to make an effort to get this blot removed before another year's report is pub-

lished. The secretary says, "I have shown, in tables appended to this statement, the principal sources of expenditure, the amount which has been required for various benefits, as well as the cost of management. It will be seen that the amount paid to members out of employment during the year was 16,425l. 9s. 6½d., or 11s. 4½d. per member. The amount paid during the previous year was 32,653l. 6s. 10½d. The vast improvement in trade during the past year is thus to be seen at a glance, and the improvement would seem to be somewhat permanent. Sick benefit during the year has been 13,612l. 4s. 7½d., or 9s. 5½d. per member, being a slight decrease on the amount per member in the previous year, although the total expenditure was about 1,000l. more. The amount expended by these two principal benefits was 30,037l. 14s. 2d.; and there were three other important benefits, upon which the following sums had been paid, viz., superannuation benefit, 3,902l. 6s. 7½d.; benefit in case of accident, 1,100l.; funeral benefits, 3,924l. 0s. 11½d. The three benefits amount to 8,926l. 6s. 6½d."

In all ways the money expended amounted to nearly 40,000l. (38,964l. 0s. 8½d.).

The whole year's expenditure amounted to 51,518l. 12s. 6d., and the accumulated fund amounted to 86,947l. 15s.

The deaths during the year have been, in proportion to the number of members, about the same as last year: 282 members have died during the year, and 165 members' wives; and to this item we beg to direct especial attention, first, to the large proportion of deaths of the men who work at these especial trades, which are, for the most part, so well paid, that a want of a sufficient supply of the necessaries of life should not be one of the causes of this peculiarity of death-rate. Moreover, the secretary says, "Consumption has been the main cause of death, as will be seen by the table appended."

We have before referred to the enormous death-rate from consumption, or lung diseases, amongst the English workmen who are in the prime of years, and we have no doubt that its fatal effect is as dependent on the sanitary condition of houses and workshops as is that of the zymotic complaints to which so much attention has been very properly given. May we hint that advantage would result if those able and clear-headed men who have assisted in drawing up the report of the Amalgamated Engineers were to form a supplementary health committee, who would inquire into those matters? No doubt they would, if needful, be able to get useful information from the medical attendants of the branch societies, &c., and some valuable hints might be given in the yearly reports at but little additional cost to the society.

EIGHTEEN YEARS OF LITIGATION.

M'INTOSH V. THE GREAT WESTERN RAILWAY CO.

This cause, which has been several times mentioned in our columns, and has been litigated for upwards of eighteen years, came to a final hearing, in Vice-Chancellor Sir John Stuart's Court, on the 28th ult., when the Vice-Chancellor delivered his judgment on all the matters involved. The circumstances are shortly as follow:—The late Mr. David M'Intosh had a contract for a portion of the company's main line near London, and other contracts for portions between Bath and Bristol, including in the latter the execution of a large quantity of rubble masonry. Various questions arose between the contractor and the company as to their respective rights under the contracts, and the amounts due to the former. Among others, was one as to the quality of the masonry, it being contended by Mr. M'Intosh that the engineer, Mr. Brunel, had, by various orders directing particular modes of working the stone, so increased the value of the work as to make it ashlair, or equal to it. After many abortive attempts between 1840 and 1847 to bring the company to a settlement, Mr. M'Intosh in the latter year filed his bill claiming from the company payment of 248,000l., the balance of his accounts, delivered some years before. The company defended the suit on every point, alleging want of jurisdiction in the court, setting up the Statute of Limitations as to some portions of the demand, and want of written orders and other similar defences, and made a counter claim of 340,000l. for penalties for delay in completion of the work. After nine answers had been put in by them, the cause came to a hearing in the year 1855, and after a

hearing extending over sixteen days, a decree was made for an inquiry whether anything was due to the plaintiff. This inquiry was accordingly taken before the chief clerk in chambers, where every item of the plaintiff's account of works was gone through before him, and the defendants' counter claims were also discussed. The whole of the latter were disallowed, and in February, 1863, the chief clerk made a certificate, finding a gross sum of 147,598l. due to the plaintiff, including interest at 4 per cent. from the opening of the line. The company objected to this certificate, that it did not give the particulars of the items allowed. And on appeal to the Lords Justices, their objection was sustained, and sent back for revision. The chief clerk accordingly, in February, 1864, made a new certificate, finding 148,271l. due, and setting out the detail. The company then objected to upwards of 900 items as improperly allowed; and the plaintiff also objected that a sufficient sum had not been found due to him. The defendants' objections were heard last year, occupying in all upwards of thirty days, when the Vice-Chancellor did not think it necessary to call on the plaintiff's counsel in answer, and the latter then declined to enter on their motion to increase the sum found due, expressing themselves willing to take that sum to end the matter. The cause then having been heard, on further consideration the Vice-Chancellor gave his judgment. After referring to the fact that each of the items objected to had been the subject of an elaborate investigation, and that the evidence was now before the Court for the fourth time, he said that the Court had a concurrent jurisdiction with the courts of law on such matters, and that the course of the Court was to consider each item having reference to the others and all the circumstances; that this had been done, and the chief clerk had stated the result of the inquiry at great length. The company had now objected to more than 900 items, the sum in dispute on one being 3d., and in another 9d., and there being 53 disputed items under 1l. each, and 145 under 5s. each. No such proceeding would have been allowed at common law, and this was of necessity, from the nature of the questions, which were questions of compensation and estimate, on which no two men could agree; and the sum which the jury agree to fix, although not perhaps one which any two of them acting separately would have fixed, yet, being agreed to on a compromise of opinion, is to be accepted as conclusive. The same principle must be acted on in this court, and he could see no reason to alter the certificate. As an illustration, he referred to certain charges for gates, which the plaintiff's witnesses valued at 5l. each, while Mr. Brunel stated they were worth but 3l. 10s. Another item was for compensation for expense and delay caused by orders given by the company's engineer to preserve for a considerable period the site of a Roman villa discovered in the line of the works. This item had also undergone a long and laborious investigation before the chief clerk. Various modes of estimating the compensation might be suggested, but there was no safe ground for an alteration of the certificate unless manifest error were shown. As to the questions raised with regard to the amount of the 3 B Extension and 6 B Contract sums, and the penalties, he concurred with the chief clerk. The Attorney-General having intimated on the part of the plaintiff his intention not to proceed with his motion to increase the amount without prejudice to his right to appeal if the defendants did so, he proceeded to consider the questions of interest and costs. The decree left the question of interest open. In the case of the Duchess of Marlborough v. Strong, it was laid down that when the compensation was fixed at an increased rate on account of slow payment, no interest should be allowed, but that slow payment must be compensated either by interest or an increased allowance. In this case the time for payment was certain; and if the engineer's certificates had been for proper sums, the sum was certain too. As to the rate, he would have considered 5 per cent. a proper rate; but the chief clerk having fixed 4 per cent., as he could not say, on a question of estimate, it was wrong, he should on principle decline to alter the certificate. As to costs, the contracts contained Arbitration Clauses, but the defendants had, before litigation, during litigation, and up to the last day of the argument, refused to submit to arbitration; and they, nevertheless, objected to the jurisdiction of the court. The litigation was not occasioned by any failure of the plaintiff to

deliver accounts. It was no part of his contract to do so; on the contrary, a careful consideration of the terms and nature of the contracts, as to the engineer's certificates, and of the duties imposed on the defendants, led to a very unfavourable view of their conduct as the cause of this litigation. It was the duty of the engineer to make just certificates. It now appeared clearly enough that great injustice had been done to the plaintiff in these certificates. This was almost decisive on the question of costs. As to those parts of the case where the plaintiff failed, it must be considered if any distinction should be made as to the costs. The demand for ashlar had been disallowed. This was a question of singular difficulty. It seemed certain that by insisting on having coarsed rubble wrought and finished in a very perfect manner, although not so finished in point of style as to answer the technical description of ashlar, yet the labour might make it so expensive that payment at less than ashlar prices must be a very insufficient remuneration. As the plaintiff had withdrawn his motion to vary the certificate it was unnecessary to consider whether the conclusion came to by the chief clerk was perfectly correct. From an examination of the evidence he was satisfied that the exacting nature of the directions given by the engineer had occasioned the litigation on this point; that the terms of the contract on a point of difficult construction had exposed the plaintiff to a loss not contemplated; and that, looking at the vastly complicated circumstances of this unparalleled case, there was no such failure on the plaintiff's part as would warrant any distinction as to costs. As to the hardness of strata, there was no separate evidence, and no time occupied to warrant any distinction. On the whole, the result was, that the defendants' motion to vary the certificate must be refused; there must be a decree for payment of the sum found due, with interest; the costs of the defendants' motion to be costs in the cause; and the defendants to pay the costs of the cause. For the reasons before mentioned, the plaintiff's motion to vary was refused, without costs.

The counsel engaged were:—For the plaintiff, the Attorney-General, Mr. Bazealgette, Q.C., Mr. F. C. J. Miller, instructed by Mr. Barnard. For the defendants, Mr. Bacon, Q.C., Mr. Malins, Q.C., and Mr. Stevens.

ANOTHER NOTE ON THE CUPBOARDS OF TENEMENTED HOUSES.

EXTEMPORISING A FAMILY CLOSET.

THE subject of cupboard accommodation is of far greater consequence to the working classes of the metropolis than is generally supposed by those who are not obliged to suffer from the want of it: we will therefore add somewhat to the particulars which have been already given. In the present changing state of the dwellings in which many thousands are obliged to live the matter is of even more than usual importance.

To keep tidiness in apartments which are occupied by families, without proper closets, is quite an impossibility. Notwithstanding, it will be found that many rooms which are let to families are without any provision in this way. In glancing at a number of houses we have jotted down particulars, and give examples which might be multiplied.

In two rooms on the first floor, occupied by a numerous family, there were two closets in the front room, the size of each, 33 in. high, 24 in. wide, and 15 in. deep. In the back room there were no cupboards at all. In houses let in this way a similar arrangement will be found throughout.

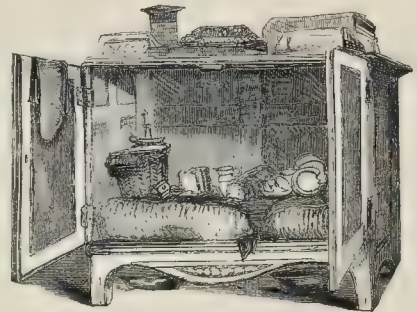
We find numerous instances of back rooms, let to families, in which there are no cupboards. In some cases tenants have bought second-hand closets, and fitted them up for the reception of plates, tea-cups, saucers, bread, and other necessities; in other instances, carpenters living in such places have purchased materials and put up shelves, which, to a certain extent, are a means of preserving order. Some housewives have an opportunity of storing saucepans, frying-pans, washing-tubs, and other articles, in the wash-house; but here they are liable to be spoiled by the damp, or to be constantly used by other people living in the house. The keeping of coals and coke is a sore trouble: for this purpose, hair-covered trunks, boxes which have once contained clothes, &c., are often applied,—so are baskets or sacks; sometimes the half or

three-quarters of a hundredweight is shot underneath the bed or sofa-bedstead, where are also stored the pans and other cooking utensils.

In some houses closets are contrived underneath parts of the staircase, and for these a weekly rental of 3d. or 4d. each is readily obtained, and, under the circumstances, when a good padlock is placed upon the door, they prove cheap at the money. For an orderly woman to be without closet accommodation is a most troublesome and unpleasant matter. Fancy a tradesman, or any person engaged in business, to be provided with a suit of clothes without pockets, and we may form some estimate of the state of a good housewife who has a home with no closet accommodation.

The dwellers in the kitchen are generally tolerably well supplied in this respect, for there are dressers, shelves, &c., which have been put up by the owner of the premises, when they were occupied in a different way.

Slovenly women make their homes worse than they would be in consequence of the want of cupboards. Morning, noon, and evening, the crocks,—most of them broken in some way,—remain unwashed, standing on tables or chairs, sometimes on the mantel-piece, or even on the floor or the bed.



For Want of a Closet.

Women who wish to keep their rooms in decent order in the absence of sufficient cupboard accommodation, are put to many shifts and contrivances, and, in their desire to keep unseasonable matters from the view, adopt plans which cannot be approved of, however worthy the intention may be. Some of the contrivances which are resorted to would scarcely be credited; for instance, in an apartment of a clean and very decent appearance, in consequence of the want referred to, one of the old-fashioned pressant bedsteads is in part, during the day, devoted to the purpose of a cupboard. At night, in consequence of the framework and tick being broken, it is necessary to place the mattress, and bed, on the floor for the children to sleep on. In the morning these articles are carefully replaced, as also are a number of plates, dishes, and other things which at bedtime had been taken out; so that during the day there are bread and other provisions, tea things, and matters which do not associate well with the sleeping things on which they are placed. We give a sketch of the result.

Hundreds of other instances of the inconvenience which arises from this household want might be mentioned, but they are all of a very similar kind: we will therefore only further mention that this subject is of far more consequence than is supposed by a large number of persons.

No apartment should be let for the use of families which is not provided with cupboards: in many instances these might be fitted in rooms at a very small expense. At times, staircases might be made available for this purpose; and meat and bread safes be placed outside windows, especially those which have a northern aspect.

Many into whose hands these few lines will fall will recognize the truthfulness of the remarks; and to these we would say, when looking for a home for their families, "See after the cupboards." Formerly, a corner cupboard was considered a necessary article of furniture, which was removed by the owner from house to house; why should the working man be without his movable cupboard now? Landlords of tenemented property would generally find it to their advantage to attend to the matter of cupboards;

and one or two apartments properly provided in this way would be usually worth 3d. a week more than those without cupboards.

In all houses about to be built or adapted to the use of the working classes, cupboards should be made an especial consideration.

POLLUTION OF RIVERS.

THE instructions given to the commissioners (Mr. R. Rawlinson, Mr. J. T. Harrison, and Mr. J. T. Way) appointed to inquire into the best means of remedying the pollution of rivers, are as follow:—

"Her Majesty having been pleased to appoint you to be commissioners for inquiry into the pollution of rivers, I am directed by Secretary Sir George Grey to send you the following instructions for your guidance in the proposed inquiry.

Although it may be taken as proved generally that there is a wide-spread and serious pollution of rivers, both from town sewage and the refuse of mines and manufactories, and that town sewage may be turned to profitable account as a manure, there is not sufficient evidence to show

that any measure absolutely prohibiting the discharge of such refuse into rivers, or absolutely compelling town authorities to carry it on the lands, might not be remedying one evil at the cost of an evil still more serious, in the shape of injury to health, and damage to manufactures. It is, therefore, suggested that your inquiry should include selected river basins, illustrating different classes of employment and population; that these river basins might be:—

1st. The Thames Valley,—both as an example of an agricultural river basin, with many navigation works, such as locks, and weirs, and mills affecting the flow of water, and many towns and some manufactories discharging their sewage and refuse into the stream from which is mainly derived the water supply of the metropolis.

2nd. The Mersey Valley,—including its feeders, particularly the Irwell, as an example of the river basin, most extensively polluted by all forms of manufacturing refuse, particularly that arising from the cotton manufacture and processes connected therewith.

3rd. The Aire and Calder Basin, as an additional example of the same class, particularly in connexion with the woollen and iron manufactories.

4th. The Severn Basin, for the same reason, but in particular connexion with the great seats of the iron trade.

5th. The Taff Valley, in connexion with mining and industry applied to metals.

6th. A river basin comprising a mining district in Cornwall.

Your special points of inquiry should, it is conceived, be, in the Thames Valley,—1. The condition of the river as affected by mills, weirs, and locks, and as affecting the drainage of towns and villages and adjacent lands. 2. The condition of the river, as affected both by the discharge of sewage from towns and villages, and the refuse of manufactories, paper-mills, &c., and the possibility of intercepting and rendering useful or innocuous these sources of pollution.

As to the other rivers mentioned, the main

object of the inquiry should be, how far the use or abuse of the rivers is, under present circumstances, essential to the carrying on the industry of these districts? How far, by new arrangements, the refuse arising from industrial processes in these districts can be kept out of the streams, or rendered harmless before it reaches them, or utilized or got rid of otherwise than by discharge into running waters? In the course of these investigations you will make inquiry into the effect on health and comfort of the existing system of sewage of towns and populous places in the districts examined, and into the best mode of protecting individual and public interests in the purity of running water.

Secondary questions will, no doubt, arise contingent on these leading points, in which case you will include them, as far as it is necessary, within the scope of your inquiry."

ENGLISH CUSTOMS THROUGH FOREIGN GLASSES.

THE *Nazione* has the following remarks on one of our English customs:—

"Every London house is inhabited by one single family;* and as the outer doors are always shut, the knocks at the door, counted from within, indicate the station in life of the person at the door: to give more or less knocks is an act of insolence or degradation. The milkman, sweep, beggar, the servants, knock with one single knock, as if to say, 'Allow me to come in.' Two knocks denote the postman, tax-gatherer, &c., and seem to say, 'It is my business to enter this house.' When three knocks are given, they indicate the master of the house or a friend of the family, and are given with an air of command, as if to say, 'Open.' Four knocks steadily given denote a person of consequence, some aristocrat, arrived in a carriage. These four knocks may be supposed to express, 'I intend to enter.' He who gives four knocks and, after a short pause, repeats them with a certain proud impetuosity, is decidedly either a milord or milady, an Indian nabob, a Russian prince, German baron, or Italian marquis. These seem to say, 'Open quickly—I wish to honour you with a visit.'"

MR. UNDER-SHERIFF BURCHELL AND RAILWAY COMPENSATION.

SIR,—In answer to your correspondent (page 488), Mr. Under-Sheriff Burchell is related to the firm of Messrs. Burchell, Westminster, Solicitors to the Metropolitan Railway; but he does not sit as assessor in cases where they are so concerned. J. R. B.
North London Railway.

PREMIUMS AWARDED BY INSTITUTION OF CIVIL ENGINEERS.

THE Council of the Institution of Civil Engineers have awarded the following premiums:—

1. A Telford Medal, and a Telford Premium, in books, to J. W. Bazalgette, for his paper "On the Metropolitan System of Drainage, and the Interception of the Sewage from the River Thames."
2. A Telford Medal, and a Telford Premium, in books, to Colclough Kelly, for his paper "On Uniform Stress in Girder Work, illustrated by reference to two bridges recently built."
3. A Telford Medal, and a Telford Premium, in books, to E. Hole Clark, for his "Description of the Great Grimby (Royal) Docks, with a Detailed Account of the Enclosed Land, Entrance Locks, Dock Walls, &c."
4. A Telford Medal, and a Telford Premium, in books, to Captain H. Whistley Tyler, R.E., for his paper "On the Fastening Railway for Passengers."
5. A Telford Premium, in books, to J. England, for his paper on "Giffard's Injector."
6. A Telford Premium, in books, to T. Hawthorn, for his "Account of the Docks and Warehouses at Marseilles."
7. A Telford Premium, in books, to E. Fletcher, for his paper "On the Maintenance of Railway Rolling Stock."
8. A Telford Premium, in books, to E. Johnston, for his paper "The Chay-Air Bridge, Madras Railway."
9. A Telford Premium, in books, to Godfrey Oates Mann, for his paper "On the Decay of Materials in Tropical Climates, and the Methods employed for Arresting and Preventing it."
10. A Telford Premium, in books, to W. J. Walker Heath, Assoc. Inst. C.E., for his paper "On the Decay of Materials in Tropical Climates, and the Methods employed for Arresting and Preventing it."
11. A Telford Premium, in books, to Joseph Taylor, for his paper on "The River Tees, and the Works upon it connected with the Navigation."
12. The Manby Premium, in books, to H. Burdett Hedderstedt, for his "Account of the Drainage of Paris."

* Mistaken individual!—Ed.

COLOUR AND FORM.

'COUNT not antagonist to form
The issue of the solar ray,
Nor, prompt to theorize, deform
Their iridescent grace away,
And take from art's successful strife
The evanescent hues of life.

In colour, robed by Nature's care,
Creation's loveliest forms are seen;
And sea, and sky, and terrene wear
Blent harmonies of blue and green;
And o'er obtrusive tints she lays
A genial monotone of haze.

Deep hidden in the soul of man
The glorious tones of vision lie;
And form and colour, one in plan,
Raised Thebes' gigantic dynasty;
Whose splendid beauty still commands,
While Luxor lasts or Karnak stands.

This well the favour'd Grecians knew,
And join'd the sister arts in one;
Thus Pericles and Phidias drew
The chaste and solemn Parthenon,
And left us in their shrine to see
How all things beautiful agree.

The natural homage of the mind,
In sensuous youth or sated age,
To neither race nor sphere confined,
Seeks contrast sweet in every stage:
Such contrast as the sun displays
When morning breaks and night decays.

And shall we sever, e'en in thought,
Such wondrous curves, such splendid tones,
While yet those arts again are wrought
By Gibson, Scott, and Owen Jones?
No: let us hail in Britain's clime
The Beautiful and the Sublime.

W. R. COOPER.

Working Men's College.

MR. FERGUSSON ON THE HOLY SEPULCHRE.

SIR,—Mr. Fergusson's work on the Holy Sepulchre is a reprint, with notes of two lectures on the subject, delivered by him at different times. The first of these lectures is principally devoted to the architectural argument; but in the second, he strives to prove his theory by evidence of an independent character.

It is certainly impossible that the sepulchre of Joseph of Arimathea, or, indeed, the site of the Crucifixion, should have been within the temple courts; and it is most improbable that the Basilica and other buildings of Constantine should have existed within that inclosure, if its limits were known in his time. Accordingly, Mr. Fergusson begins his second argument (that of Topography) by endeavouring to prove that the Mosque of Omar was always without the temple.

Leaving aside for the present the beautiful restoration of the tabernacle, and the descriptions of the temples of Solomon, Zerubbabel, and Ezekiel, with which Mr. Fergusson opens this part of his work, as having no immediate connexion with the point in view, the Temple of Herod first claims attention; and it will be unnecessary to prove that the Mosque of Omar was without the two former temples, if it can be proved that it was not within the boundary-wall of Herod's building; for the area of this last was much greater than that of Solomon's or Zerubbabel's temple.

That the temple did really cover some part of the great square commonly known as the Haram Inclosure, in which the Mosque of Omar now stands, Mr. Fergusson does not doubt; but that it occupied the whole area, as it is traditionally reported to have done, he does not believe; and the only question which he raises is, in what part of the inclosure to place it.

The length and breadth of the outer wall of Herod's temple, according to Josephus, was a furlong, or 400 cubits; but the length of the cubit has been differently determined, and there appear to have been two,—a longer one of 21 inches, and a lesser one of 18 inches, making the furlong to be either 600 ft. or 700 ft. Mr. Fergusson, however, considers that there cannot be much doubt which of the two was used in the measurement of the temple, and fixes the furlong, or stadium, as being 600 ft. The only question to be settled is, from which of the four corners of the Haram to measure this distance;

and on this subject, also, there is fortunately little difficulty. About 40 ft. from the south-west angle of the present wall are found the remains of an arch of enormous stones, which, there can be little doubt, must have belonged to the bridge which connected the royal palace of Herod with the king's cloister on the southern wall of the temple. From this corner, therefore, Mr. Fergusson measures a furlong north and east, inclosing a space which he considers to have been the largest ever covered by any of the three temples of Solomon, Zerubbabel, and Herod.

At the distance of a furlong from the south-west corner, and also on the western wall, are the remains of a second bridge, connecting the city and the temple; and between these two points the wall is built of those enormous stones which characterize the times of Solomon and Herod, and which also extend along the south wall of the Haram to the same distance of 600 ft., at which point the ground ceases to be solid, and the level platform is supported by a series of vaults, which Mr. Fergusson supposes to have been built at a much later date than the rest of the structures to the west of this point, and which he points out as being greatly inferior to the vaulted passage and hall of El Akaa within the temple inclosure. Thus, measuring from the ancient temple bridge, Mr. Fergusson places his temple in a part of the Haram where the remains of the megalithic masonry of Herod are found at the present day, and infers that the inclosure excluded the Golden Gate and the whole platform of the Mosque of Omar.

Mr. Fergusson has also another topographical argument, which he brings forward in his first lecture, namely, the position of the Mary Church of Justinian, which is described as being near the portico of Solomon.

Now Dr. Richardson has suggested in his travels that the site of this building may be marked by the present Mosque El Akaa, because under this edifice are found vaults similar to those described by Procopius as forming the substructures of Justinian's Church; and although, according to Mr. Fergusson, this is impossible, because there is abundant historical and architectural evidence to prove that the Mosque El Akaa is a Saracenic building of the seventh century, yet the description of the historian is so clear as to leave but little doubt concerning the position of the edifices in question; and the expression, "*Secus porticum Salomonis*," seems to place it, according to Mr. Fergusson, over the vaults already mentioned at the south-east corner of the Haram, which are called the stables or portico of Solomon. That Justinian's Church should have stood within the precincts of the "accursed temple," Mr. Fergusson considers impossible; but these vaults he has before shown to have been without the boundary-wall of Herod's building.

Now, if this Christian church was built here upon a level platform obtained by the erection of such enormous substructures, in a part of the city far from the Christian quarter and the numerous Christian edifices, in such close proximity to the "accursed temple," and altogether in so difficult and unexpected a situation, what could have been the reason of the erection there, unless that the Church of the Holy Sepulchre, the sacred Mount of Calvary, and the Basilica of Constantine were all situated in its immediate vicinity?

Thus, from the limits of the temple excluding the present mosque, and from the supposed position of Justinian's Church, Mr. Fergusson finds fresh proofs of the truth of a theory which he considers to have been already independently established. The answer to this second series of arguments is not more difficult than that to the first, and is, perhaps, more conclusive against Mr. Fergusson's theory.

1. The character of the masonry of the times of Solomon and Herod can be made out at the present time with a tolerable degree of certainty. The stones composing the exterior walls of the Haram are of two kinds, the first Cyclopean blocks of marble with rebated edges; the second, stones of even greater size, but plain and not rebated. The first is found below the second kind, and the great bridge of the royal cloister appears to have been built in the latter style of masonry. Hence it may safely be inferred that the rebated stones are those of the time of Solomon, and the plain stones the work of Herod. Now, in the vaults at the south-east corner of the Haram the piers are built of stones of the first order, the rebating being still plainly visible, although, owing to the damp and the trickling of the rain from the platform above,

most of the stones have become greatly disintegrated. The arches supported by these piers are of much later date, as in the case of the vaults of El Aksa. The colonnades formed by these arches run north and south, forming vaults, said by Mohametan tradition to have been erected by Suleyman, the son of Daoud.

These substructures are the eastern boundary of Mr. Fergusson's temple, but they are apparently of the same age as the vaults of El Aksa, which he allows to be ancient. His northern limit is the second bridge of Herodian masonry, leading to one of the four western gates; but, according to Mr. Fergusson's plan, half of it is within the temple enclosure, and the other half in that of the citadel of Antonia, to the north of the temple.

2. Mr. Fergusson informs us that the megalithic masonry extends between the boundaries which he gives for the temple; but he does not mention that the whole southern wall of the Haram to the eastern corner is composed of stones of similar character, and that the eastern wall to the north corner is also of the same masonry, especially near the northern end and on either side of the Golden Gate; that at the north-west angle of the present wall, the ancient corner, is also found; and that glimpses have been obtained of the same masonry all along the course of the western wall.

Again, Mr. Fergusson has placed the royal viaduct opposite the centre walk of the king's cloister, which would, indeed, be its position, if the greater cubit were used, but not if the lesser cubit were taken, which Mr. Fergusson considered to have been the case. Nor has Mr. Fergusson noticed that the length of this bridge, 350 ft., is an exact number of the larger, but not of the lesser cubit. He has also laid aside the words of the rabbis, who are more likely to be correct than Josephus, when they state the length of the temple-wall to have been 500 cubits, considering this expression to be a clumsy adaptation of the 500 *reads* of Ezekiel, which equals 3,000 cubits; yet the length of the present Haram wall is exactly 500 greater cubits, and all its foundations are of ancient masonry.

That Josephus should have understated the length of the temple wall in giving an approximate measurement (for in no case does he state the length in cubits) is not so impossible if we reflect that he probably never actually measured the distance, and that at the present day a difference of nearly 200 ft. has been made in actual measurement.

Again, if the distance of 500 great cubits be measured along the east wall of the Haram from the southern corner, which will bring us near to the Golden Gate, a change in the masonry will be found, and the stones, although still of the same antiquity, become somewhat larger and less polished. In this part, north of the temple, the tower and court of Antonia would be situated, the masonry of which would naturally be stronger and less ornamental.

This larger area given for the temple would include the Mosque of Omar within its limits.

3. It can be clearly proved from the words of Josephus that the inclosure of Antonia was nearly equal in size to that of the temple; and even if it were proved that the temple only occupied the smaller space of 600 ft., still the area of Antonia would include the Mosque of Omar and nearly half of Mr. Fergusson's Basilica; while, if the larger measurement be taken, the whole of the larger space would be occupied by the courts of Antonia. Now, it is quite as impossible that the sepulchre in the garden should have been within Antonia, as that it should have been in the temple; and quite as improbable that this spot should have been selected by Constantine as a likely one, as that any spot in the area of the court should have been chosen.

4. If it be the case that the church of Justinian was not within the temple, it is impossible that it should have been within the Haram, which was apparently all occupied by that building, and therefore all Christian associations with this part of the city are dissolved; while, before the expression "*Secus Porticum Solomonis*" can be made use of, it must be well understood what was meant by the "portico of Solomon" in the times of the writer.

5. Mr. Fergusson has appended to his topographical arguments a chapter on Local Indications; but among these must be noticed the indications given by the cavern of the Sacred Rock, which he supposes to be the Holy Sepulchre. It is certainly not a Jewish tomb; and, in fact, it is not a tomb at all, for there is no conch or

loculus for the reception of the body, and in the centre is a well or drain, generally known by the name of the Well of Souls, whence has arisen the unsavoury hypothesis that the Sacrah was originally a cesspool.

Such appears to be the answer to Mr. Fergusson's second train of argument, and only one more remains to be mentioned.

C. R. C.

MORE QUERIES ON STAINED GLASS.

1. Ought a stained-glass window to be composed of an innumerable quantity of little pieces of glass, of various and glaring colours, in order to produce the effect of a kaleidoscope? This is a very common thing in modern glass, but certainly not in old English, the best of all schools.

2. Is not this kaleidoscopic effect very vulgar?

3. Are not figures of rich subdued colours on a ground of silvery white quarry-glass the most beautiful and chaste in effect?

4. Which look best, single figures or subjects, in glass? Which are the most distinct? Can you keep confusion of colour out of subjects? If you treat subjects, must not figures be kept distinct?

5. Can bad colours ever be toned down by besmearing with black? Must not colours be originally quiet, good, subdued, richly cool?

W.

RAILWAY MATTERS.

THE new railway route from London Bridge to Euston-square, by way of Waterloo and Kensington, which is intended to afford direct communication between the South Coast and the North of England and Scotland, has been opened. There will be ten trains each way daily (Sundays at present excepted), between Kensington and Waterloo, Blackfriars, and London Bridge stations direct, while there will be fourteen trains each way daily (on week days only) between Waterloo, Blackfriars, and London Bridge stations.

The Metropolitan District Railway, one of those sanctioned in the last session of Parliament with a view to connecting lines in London, has been begun at several points. Among these, that in Earl-street, Blackfriars, is 30 ft. below the London, Chatham, and Dover Railway; from thence it will pass beneath the new street to the Mansion House, and in a westerly direction along the new embankment of the Thames. The line, which will relieve the London and Brighton Railway Company's main line of the sole charge of traffic to and from the Crystal Palace, will soon be completed. It will use the terminus which is just opposite to the central transept of the palace.

The Act for the South Wales and Great Western Railway, which is to cross the Severn by a high-level bridge at Chepstow, has been passed. This line will facilitate the supply of coal to the metropolis, and therefore, in some partial degree, mitigate the effect of the recent rejection of the coal line of the Great Eastern Company, by which the interests of London and the Southern Counties were sacrificed in order to secure a monopoly to the North-Western and Great Northern Companies.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 24th of June, on 11,961 miles, to 707,980l.; and for the corresponding week of last year, on 11,605 miles, to 671,195l.; showing an increase of 356 miles, and of 36,785l.

FROM SCOTLAND.

Lockerbie.—The late Mr. Easton, of Chester, having devised certain funds towards the establishment in his native village of Lockerbie of a library and mechanics' institute, the foundation stone of the building has been laid with masonic honours. The new building will comprise lecture-hall or concert-room, reading-room, library, and keeper's house. The style of architecture may be termed Scottish Medieval. The front elevation presents to view the end of the hall, which is gabled, and contains two large and three smaller circular-headed windows; the front entrance-door is also arched and label-moulded. Over the doorway and at the side of the large gable of the hall a square turret is formed, in which the trustees contemplate placing a clock. The internal dimensions of the hall are as follows:—Length, 52 ft. 6 in.; width,

28 ft.; height from floor to ceiling, 29 ft. Accommodation is provided for about 400 sitters. The roof is open nearly to the ridge, the timbers of principals, &c., being shown, which will be stained and varnished. The total cost will be about 800l. The building is from plans by Mr. Alex. Fraser, Dumfries, architect; and the following are the contractors, viz., Messrs. John Edgar, mason, Dumfries; J. Thomson & Co., joiners, &c., Dumfries; J. & G. Corrie, plumbers, &c., Annan; E. Moffat, slater, Lockerbie; and Laidlaw, plasterers, Dalton.

Elgin.—The new court-house in Elgin has just been completed, at an expense of 4,110l., part of which has been given by Government, as has been the case with some other court-houses recently built in Scotland. The building has been erected to the east of the old court-house, and in close proximity to it. The style of architecture is Palladian. The court-house itself is 40 ft. long, 29 ft. broad, and 25 ft. high, and is lighted by eleven windows. The roof is paneled. The building is heated and ventilated on a principle applied by Mr. Furnell, engineer, Glasgow. The contractor for the building has been Mr. Stewart, Peterhead; the architects, the Messrs. Reid, Elgin; and the inspector, Mr. Mortimer. A new street is to be opened at the east end of the new court-house.

Lynturk.—The foundation-stone of a new U. P. Church has been laid at Muggarthaugh, on the estate of Lynturk, Leochel-Cushnie. It is being built by the congregation presently worshipping at Buffle. The church is to be seated for about 350 persons, and will be a Gothic structure, built partly of dressed granite.

PROVINCIAL NEWS.

Windsor.—The foundation stone of St. Andrew's Convalescent Hospital, in connexion with the House of Mercy at Clower, has been laid. The site is nearly opposite to the House of Mercy, and the hospital is to accommodate 24 men, 18 women, and 15 children, together with the sisters in charge. The excellent objects of this charity are to provide careful nursing and medical attendance to invalids who are disqualified from admission to, or have been discharged from, ordinary hospitals; and, in cases of incurable disease, there is secured a quiet home during the remainder of life. The estimated sum required for all purposes is 12,000l., of which about 6,000l. have already been subscribed. The subscription list is headed by a donation of 100l. from her Majesty, who, besides, gives 20l. as an annual subscriber. One of the Sisters of Mercy has also subscribed 2,000l.; and amongst the liberal subscribers are,—A Friend, 500l.; Hon. Mrs. Harris, 100l.; Hon. Miss O'Brien, 50l.; Lady Louisa Greville and Lady Charlotte Greville, 40l., and an annual subscription of 55l.

Romsey.—The Town Hall and County Court Building Committee have received tenders for erecting the new town-hall and county court. Mr. Bedborough, of Southampton, the architect employed by the committee, attended. There were six contracts from builders, the respective amounts of which were as follow:—Mr. Dallimore, Fareham, 2,725l.; Messrs. Bull & Son, Southampton, 2,926l.; Mr. E. Prichard, Portsmouth, 3,122l.; Mr. Stevens, Southampton, 3,130l.; Mr. Till, Romsey, 3,350l.; Mr. G. Wheeler, Romsey, 3,450l. It was resolved that Mr. Dallimore's tender be accepted. The cost of the new building, as originally estimated, was 2,600l.; but since the framing of that estimate two or three alterations have been determined on, with a view to complete the accommodation of the building; hence an increase in the contract price. The building will be constructed in red brick with stone facings.

Worcester.—At a recent meeting of the City Council, the Markets Committee reported that they had advertised in each of the Worcester newspapers for tenders for re-constructing the roof of the market hall, in accordance with the plan and specifications of Mr. H. Rowe, architect; that five tenders were sent in, and that the committee accepted the tender of Messrs. Hemming & Son to execute the work for 930l. The report was adopted.

Bradford.—The new eye and ear hospital has been opened. It has been erected from plans by Messrs. Lockwood & Mawson, at an estimated cost of 5,251l. odd. At the opening ceremonial Mr. J. Behrens, on the part of the building committee, said, "We had to consult the plans and descriptions of the newest general

infirmaries, and it was our aim to combine their best features with the peculiar wants of an institution devoted to the cure of diseases of the eye. For this purpose perfect ventilation was to be combined with a complete command of the light admitted. We hope that both purposes have been accomplished by allowing to each patient 1,500 cubic feet of breathing space, by having large sash-windows, open fire-places, by warming only the corridors by hot water, and by providing each window with close-fitting shutters, venetian and common blinds, so as to regulate the light according to the directions of the medical officers. This hospital possesses an advantage over every other similar institution, in an airy and convenient day-room, to be occupied by patients sufficiently recovered to be no longer confined to their beds and yet not allowed to go home. The washhouse under the building is completely separated from it by a brick arch, filled up with concrete, preventing every escape of steam or unpleasant smells into the part occupied by patients. A hoist connects the coal-cellar with the kitchen, the scullery, and the upper story. The waiting, consulting, and ophthalmoscopic rooms, with the dispensary, are very conveniently situated."

Pontefract.—The foundation stone of a new town-hall at Knottingley has been laid. The hall, when completed, will also be used as a mechanics' institute.

CHURCH-BUILDING NEWS.

Petistree (Suffolk).—The church of this parish has been re-opened, having been closed for the purpose of re-pewing, and the erection of a new pulpit, &c. The pews are of old English oak throughout, and are carved. The pulpit is an octagon, standing on a pedestal, carved, and the reading-desk is of open tabernacle work. The whole has been done at the sole expense of a lady resident.

Edmondsthorpe (Leicestershire).—The parish church, dedicated to St. Michael, is about to undergo restoration. It has a lofty nave and spacious aisles; the south aisle containing several monuments to the memory of the family of Sir Alexander Smith. The works to be done comprise repairs to roofs, removal of old pewing, to be replaced with oak benches, new pulpit and reading-desk, repairs to the handsome rood-screen, opening out the chancel arch, new windows in south aisle and in tower, re-hanging the bells, new fence walls, gates, &c. It is expected that the necessary repairs and restoration of the church will follow. Mr. R. W. Johnson, of Melton Mowbray and Leicester, is the architect employed.

Basingsbourn (Cambridgeshire).—The church here has been restored and re-opened. It was found necessary to take down the whole of the nave and aisle, and these have been rebuilt upon the old foundations. The walls are faced externally with split flints from the neighbourhood, and have dressings of freestone. The ancient work has been copied where possible. Messrs. Nash, of Royston, were the architects, and Mr. Gibbons, of Buntingford, the contractor. The cost of the work is upwards of 1,700*l*.

Easthampstead (Berks).—The church in this parish being in a very dilapidated condition, the Rev. O. Gordon (the rector), the Marquis of Downshire, Sir W. C. Hayter, and other proprietors, decided upon rebuilding and enlarging the body of the church, and erecting a chancel. The work is now about to be commenced, under the direction of Mr. J. W. Huggall, of London, whose plans comprise a nave and a north aisle, with a transeptal chapel on the south, for the family of the Marquis of Downshire, and a chancel with south aisles, appropriated as an organ-chamber and vestry. The style adopted by the architect is Early Geometrical. The nave is 70 ft. by 27 ft.; the aisle, 11 ft. wide; the chancel, 36 ft. by 22 ft. The furniture in the nave, and the open timbered roofs, are to be of oak, varnished. The chancel fittings are to be of oak, and the floors will be paved with Maw's tiles. Accommodation will be provided for all classes in benches of one uniform character, and principally free.

Kintbury (Berks).—The Earl of Craven having conveyed to the Ecclesiastical Commissioners sites for a chapel of ease and parsonage at the Crossways, in the parish of Kintbury, a new edifice, to be called Christ Church, is in course of erection, and the corner-stone of the chancel-arch has been laid by the Bishop of Oxford. The sum required to complete the building is 2,500*l*.

The new building is distant about two miles from the parish church. The style selected is that of the Second Pointed period. The plan consists of a nave 66 ft. long by 25 ft. 6 in. wide; a chancel, 28 ft. long by 20 ft. wide, with a vestry and recess for an organ on the north side. The entrance to the church is under a tower at the south-west angle of the building, which breaks into the roof. The walls are to be built of brick, and the windows, weatherings, doorways, and copings are to be of Bath stone. The roof is to be covered with tiles of varied colour and pattern. The passages will be paved in tiles in patterns; the seats will be of deal, stained and varnished. The height of the nave will be nearly 60 ft., and the tower about 100 ft. to the top of the cross. The church is intended to hold 254 persons, and the sittings are nearly all free. It is intended to erect a school and house, as well as a small parsonage. The architect is Mr. T. Bury, of London. The stonework has been entrusted to Mr. Skates, of Newbury, and Mr. Cumner, of Kintbury, will execute the whole of the brickwork, tiling, paving, and plastering; and the carpentering work will be done by Mr. Cruse, of Kintbury.

Headhorn Worthy (Winchester).—Headhorn Worthy church, portions of which it is supposed were built anterior to the Conquest, is undergoing a partial restoration, under the direction of Mr. Street, of London, architect. Mr. C. Fielder, of Winchester, is the contractor. The floor of the church must be again raised: the one just removed was quite a foot above the original level, which would now, from the gradual accumulation of soil in the valley around, be quite under water.

Arrow (Warwick).—The Bishop of Worcester has consecrated the new north aisle and the memorial aisle of Arrow Church. The edifice, which previously comprised only a nave and chancel, has now been enlarged to accommodate about double the number, by the addition of a north aisle: a memorial aisle has also been erected, at the sole expense of the late Admiral Meynell. A stained window has been inserted in the eastern end to the memory of the late rector; the subjects represented being, the Good Shepherd, the Raising of Lazarus, Healing of the Cripple, and the Good Samaritan. There is also a smaller window of two compartments, representing the baptism and the temptation of the Saviour. This was the gift of Mr. T. Huband. A new school-house has also been built.

Gloucester.—At present immediate or early improvements are contemplated in three or four of the Gloucester churches. It would seem that the ancient parish church of St. Nicholas, a church possessing not a few features of antiquarian interest, but sadly disfigured by its multiform pews, many of them in a state of rottenness and decay, much needs the like treatment. The dilapidated state of the roof and ceiling, and of the battlements of the tower, has at length rendered imperative immediate and extensive repairs. The dampness of the floor is to be remedied by raising it a foot, and repaving; and a re-construction of the pews on a uniform plan, so as to give a large increase of free and comfortable accommodation, is contemplated. The walls of the church are still firm, and in the opinion of the architects who have the management of the work, the repairs and improvements now designed will make it good for another century. It will require at least 600*l*. to effect this work. The parishioners and congregation are combining with their minister to subscribe one-fourth of this sum; and some effective aid is counted on from ecclesiastical charities, but half the entire amount has to be sought for from other sources, and especially from the city and county.

Newland (Gloucestershire).—Some additions have recently been made to the church. Stained glass has been put in the west window. The subject is the Four Rivers in the Garden of Eden. On the chancel arch has been painted a representation of the Last Judgment. Over the centre of the arch is the figure of our Saviour standing in a circle, showing the wounds in his hands. On his right, and lower down the arch, are three circles, beneath which is the tree of life. The figure of the angel nearest our Lord is in the act of blowing a trumpet; while in the circle below is another angel holding a crown of glory in his hand; and in the third circle are four figures of saints carrying palm branches. On this side of the arch are birds of Paradise and flowers. To the left of our Saviour are three circles to correspond with those on his right. In the first is an angel blowing a trum-

pet; and in the next, another angel with a flaming sword in his hand, thrusting the condemned into the third circle, in the centre of which are flames of fire. Beneath this is the tree of knowledge of good and evil, round which the serpent is twined. The ribs of the arch are painted in colours relieved with gold.

Frome.—On the eve of St. John Baptist's day the completion of one of the chief portions of the work of restoration at the parish church was celebrated, viz., the tower and belfry. The whole of the tower has been strengthened and restored, and the bells have been re-hung and re-tuned by Mr. A. York, of Bristol. The chancel arch and nave roof will next be proceeded with, in conjunction with the west front.

Llandudno.—The chief stone of Trinity Church, Llandudno, has been laid. The design is by Mr. George Felton, architect for the Mostyn estate. The new church is to occupy a site near the railway station, will be built in the style prevalent in the thirteenth century, and accommodate, when the design is completed, 10,000 persons, the estimate being 7,000*l*. At present, as the funds are inadequate, the nave and aisles will alone be built, at a cost of 3,900*l*, the seat-room thus afforded being for 700 persons. The building will be of blue native limestone, set in cornices with freestone dressings, and have a tower and spire, and three entrances. It will be cruciform, and measure from east to west, 133 ft., inside measurement, the length of the transepts being 83 ft., and the width of nave and aisles, 58 ft. 6 in.; width of transepts, 27 ft.; of chancel with circular apse, 27 ft. 6 in.; and the greatest height, 52 ft. On the south side of the chancel, which will be lined with Bath stone, the spandrels between the windows having incised patterns, will be an organ. The building will be covered with an open roof, timbered, and stained and varnished. The interior will be lined with polychromatic brickwork and with stone dressings.

Huddersfield.—St. Bartholomew's church, Scammonden, Huddersfield, built to replace one erected in 1805, but in a very dilapidated state, has been consecrated by the Bishop of Ripon. It contains 380 sittings, and consists of nave, transepts, chancel, and tower, the latter being placed at the south-east corner, and serving as a vestry. The length from east to west is only 60 ft., being curtailed on account of graves and vaults at each end. The tower is surmounted by a broached spire, the height being 90 ft. from the ground to the iron cross and cock. There is a children's gallery, at the west end, entered by means of an outside staircase. The entrance to the church is by a south-west porch. The total cost, including value of old materials, has been 1,500*l*. The architect employed was Mr. E. W. Tarn, of London. The contract for the mason's work was taken by Messrs. Whitehead, of Massden; for carpenter's work, by Mr. Holroyd, of Stainland; for slating, by Messrs. Goodwin, of Huddersfield; and for plumbing and glazing, by Mr. Garton, of Huddersfield.

Jarrow.—Mr. Hudspeth's contract for rebuilding the nave of Jarrow church has been accepted by the Restoration Committee. A few hundred pounds are still wanting to complete the work. The committee, not wishing to run unnecessarily into debt, have let the contract without the fittings.

DISSENTING CHURCH-BUILDING NEWS.

Stansted Mountfitchet (Essex).—The new Congregational Chapel has been opened for Divine service. The old chapel, which was pulled down in the latter end of last year, had been standing from about the year 1698, and was consequently in a very decayed and dilapidated state. The material of the new chapel is white brick, with stone dressings, and the style of architecture Italian or Lombardo-Venetian. The front entrance is approached by a circular-headed doorway to a porch paved with Minton tiles. On either side of this are projecting towers, surmounted exteriorly by finials, the doors through which form the entrance to the gallery, which is ascended by stone staircases. The protection in front of the gallery is of cast-iron, and open ornamental panels, the clock being in the centre; while the windows, which are circular-headed, are five on each side. The open boarded roof is supported by queen-post trusses, stained and varnished, the exterior being slated. The area is filled with open deal benches of light-coloured oak, stained and varnished, constructed to hold 300, the present gallery about 200, and there is provision made for the erection of side galleries

when necessary, which will give 150 additional sittings. At the further end is a raised platform with circular front and open trellis work with mahogany rail, behind which is the movable and very low pulpit. The two vestries are divided by a movable partition.

Faversham.—The new Congregational chapel here has been opened. The new structure will accommodate about 500 persons. It is in the Gothic style. The pulpit is placed on a platform, and the seats are of the modern low-backed description. The chapel is situated in Mortimer-street, and has been built by Mr. Adams, of this town; the architect being Mr. W. F. Poulton, of Reading.

Guernsey.—The foundation stone of a new Wesleyan chapel was laid, on the 27th of June, at St. Martin's. The new edifice will face the road, and is to be constructed of red granite from Cobo, and in random masonry. The style will be Gothic; the coigne, mullions, windows, tracery, and water-tables to be plastered with cement in imitation of Caen-stone dressing; the windows to be of rough plate quarried glass. The front of the building will have a large three-light window, with mullions and tracery, and two smaller windows, one on each side of the entrance porch. Four two-light windows on each side will admit as much light as is necessary for the congregation. The plan of the building will comprise two vestries or class-rooms, at the rear, with other necessary accommodation for organ, &c. Without galleries there will be sufficient accommodation for 400 persons in the body of the edifice. The principal feature of the interior will be a Gothic arched ceiling, with a ventilator the entire length of the roof, and cornices at the spring. The whole of the woodwork will be stained in imitation of oak, and varnished. The cost of the whole is estimated at about 1,000*l*. The length of the building inside is 58 ft. by 37 ft. 6 in.; height from the floor to the top of the ceiling, 32 feet; entire height to the top of the roof, 40 ft. The erection has been undertaken by Mr. James Le Faro.

Harborne (Staffordshire).—The new Baptist chapel here has been opened. It has been built upon the site of the old place of worship, and will accommodate some 300 people, as compared with 120 formerly. Provision has been made for enlargement, should it become necessary. Mr. A. B. Phipson was the architect of the building, which is in the Gothic style, cruciform in shape, with open-timbered and plastered roof. In the front there is an entrance-porch between two towers, which rise at the two front corners of the chapel, and which form a prominent object in the building. All the seats are open; and the singers have a platform below the rostrum; and the chapel is lighted by large windows. At the back are two rooms, which may be used as vestries or class-rooms. The materials of the exterior are bricks, with Bath stone facings. Mr. W. Matthews was the builder; and the cost has been 2,000*l*. This includes the expense of a school-room, which is detached, and stands immediately behind the chapel. There will be accommodation for about 200 children.

Over (Cheshire).—The foundation-stone of a new Congregational church has been laid at Over. The new edifice is to accommodate some 500 persons, and the old one, which would contain no more than 300, is to be used as a school-room. The estimates for the building amount to 1,800*l*. The building is to be in a modified Gothic style, with a vestibule and columns in front, and an open-timbered roof. Its extreme length will be 70 ft. and its width 41 ft. From the ends of the vestibule staircases will lead to the galleries, which, however, it is intended to devote entirely to the organ and the choir. At the end opposite the entrance a platform will be erected, upon which the pulpit and communion-table will be placed, and the vestries will be, as usual, in the rear. The seats for the congregation will be made open, and will be constructed with a slight bend inwards, in orchestral fashion; at the same time the floor will descend some 18 in. from front to back, both these arrangements being adopted for the purpose of facilitating the circulation of sound. Above the pulpit a wheel window will be placed, which, together with the tracery of the east windows, will consist wholly of painted glass. The edifice is to be built chiefly of white pressed bricks, from the Farnley Iron Company's works, the facings for the windows, doors, &c. consisting of Runcorn stone, and the columns in the vestibule of Aberdeen granite. Mr. Douglas, of Chester, is the architect; and Mr. Dutton, of Over, the builder.

SCHOOL-BUILDING NEWS.

Bedford.—St. Mary's Sunday-school has been opened. The site once formed part of the churchyard of St. Peter Dunstable. The school presents a gable end to the street containing a five-light window with a single independent light above. There is a smaller window of similar character at the opposite end, but none in the side walls on account of the adjacent buildings, some additional light being obtained by means of dormers. The material is red brick, which is shown internally without plaster, stone windows, &c., and open deal roof. The porch is attached on the west side. The plans were furnished by Mr. J. T. Wing, architect, and the contract has been carried out by Messrs. Winn & Foster, of Kempston.

Hemel Hempstead (Herts).—The memorial stone of new schools, in connexion with Marlowes Chapel, has been laid here. The building now in course of erection adjoins Marlowes Chapel. It is estimated that the cost of the new school-house, with all its fittings, will be 800*l*. The architect is Mr. James, and the builder, Mr. Seers, of Hemel Hempstead. The class-rooms, eight in number, will be on the ground-floor, and the large room above them will be 50 ft. by 30 ft. in size. The school-house will be simple in its architecture, though in accordance with the style of the chapel adjoining.

Leigh.—Leigh Sinton Church School is in progress. Mr. G. Warner, of the Link, is the builder. The building consists of what would be called, if it were to be used for a church service only, a nave and chancel; in the former the school-children will be taught, and in the latter—which will be shut off by a curtain—the service will be conducted. The entrance is on the west, by a porch. The materials in the building consist of bricks, with Cradley stone for window and door jambs and coigne. The roof is on, and part of the floor laid. The windows in the school portion are Perpendicular in style, while those in the chancel, one on each side, are Early English lancets. The cost of the building is to be about 550*l*.

Wednesfield Heath.—New schools, in connexion with the Wesleyan Chapel in this place, are about to be commenced. The contract has been let to Mr. Evans for 1,058*l*. 9*s*., including boundary walls and fittings. The architect is Mr. Bidlake, of Wolverhampton.

Guernsey.—The local *Comet* says that the foundation-stone of a new school-room, adjoining Morley Wesleyan Chapel, Guernsey, was laid on the 26th of June. This building will be of red granite from Cobo, constructed in random masonry, to correspond with contiguous buildings. The style is Early English Gothic, each gable being adorned with a decorated Caen stone finial. The roof will be an open one, and the exterior of the building strengthened with buttresses. It will contain sufficient accommodation for 200 children. For the purposes of ventilation the windows will be supplied with pivot sashes; but, in order to supply the requisite amount when the windows are closed in wet or stormy weather, a plan has been devised by which a constant current of air will be supplied along the skirting, and outlets also will be placed under the eaves, so that the desideratum of ventilation may be secured under all circumstances. By the erection of the new building, and the connexion of the former school-room with the chapel, ninety-three additional sittings will be obtained. The dimensions are as follows:—Length outside, 47 ft.; length inside, 44 ft.; inside span, 25 ft.; pitch of the roof, 52 degrees. The builder is Mr. Edward Hart; the architect is Mr. J. Crewe. The cost, it is expected, will not exceed 500*l*.

RECENT PATENTS CONNECTED WITH BUILDING.*

MANUFACTURE OF BRICKS, TILES, &c.—S. S. Anderson. Dated 24th October, 1864.—This invention consists in the construction, at the end of the pug-mill remote from that at which the raw material to be moulded is introduced, of a cylindrical chamber, the diameter of which is less than that of the pug-mill. Within this chamber, and mounted upon the revolving shaft of the pug-mill (which shaft passes into the chamber), the patentee places a double-threaded screw, large enough to fill the area of the chamber, allowance being made for the rotation of the screw within the chamber. This double-

threaded screw receives the clay or other plastic material from the pug-mill (where it has been tempered), and propels it in a straight and continuous stream through a die or dies fixed at the end of the chamber remote from the pug-mill.

STOVES FOR HEATING PURPOSES.—A. Hippius. Dated 14th October, 1864.—This stove is constructed of iron and brick in combination, and is fitted with metal doors. The grate or hearth is situated in the lower part, and is arched over or covered with a large fire-lump, having an opening in front or side through which the fuel is inserted above, and sometimes at both the sides and back of the fire space. The stove consists of a series of horizontal or vertical flues, which, being heated by the fire and smoke when ascending to the chimney, communicate their heat to the entire stove, which then in its turn radiates it throughout the apartment. The stove is closed by hermetical doors, which, when closed, exclude the draught and prevent all possible escape of any particle of hot air contained in the stove through the chimney. Below the fuel door is another one, also capable of being hermetically closed, through which a draught of air is conveyed below the fuel. Besides the smoke-flues the patentee constructs channels or passages in the brickwork of the stove, through which the external air enters, and, becoming heated in its passage, re-enters the room by one or more openings. This heated air may also, when desired, be conveyed from the stove, by flues or earthenware pipes, to any part of the house.

Books Received.

VARIORUM.

The new number of the *Quarterly* includes an article on "Sanitary Reform in the Metropolis," written by one who evidently feels the importance of the subject, and calculated to awaken attention to the matter in quarters where it has been heretofore disregarded. We shall hope to find it in future *Quarterlies* carried farther. The writer properly urges men of position and education to come forward and take their share in parish business. Again,—

"In order to give the medical officers of health in the metropolis that independent standing which is useful in order to enable them to make their voices heard with effect, we would urge that they should not be liable either to be dismissed, or to have their salary reduced, without the consent of the Privy Council. This would be in accordance with the present position of the medical officers of unions, who can only be dismissed by the authority of the Poor-law Board, and who are certainly in no sense more important or more responsible functionaries. At present we hear strange tales of vestries threatening to cut down the salaries, to turn out the medical officer of health, if he be what they consider 'too busy.' If such things are true, there is an urgent call for improvement. But if such improvement is not to embrace one point only, but to be general and adequate, it can, as far as we see, be effected in but one of two ways,—either by developing and extending the jurisdiction of the Health Department of the Privy Council (at the risk of a centralization hardly in unison with English tastes), or by men of enlightened views and business habits putting their shoulders to the wheel, each in his own locality, in the administration of the sanitary laws of the metropolis. And why should not this be done?"

—**"The Timber Importer's, Timber Merchant's, and Builder's Standard Guide."** By R. E. Grandy. London: Lockwood. 1865. The tables in the first part of this very useful volume are arranged with equivalent values for quantities in dollars, currency, and sterling, when referring to North American markets, and there are other distinctive features of mercantile arrangements recognised in the various North American and Baltic ports, referring to standard deductions, surplus measurements, and freights. The second part contains much valuable information for the builder and salesman;—lists of comparative values for joisting, flooring (plain, tongued, and grooved, or otherwise), with prices per leaf and square; lists for roofing, slating, lathing, stonework, brickwork, painting, glazing, &c., with explanations and methods for finding number of squares, or other necessary quantities in building. The numerous short rules given are valuable, though some of them might have been a little more clearly rendered.—The last part but one of "Homes without Hands" (Longman & Co.) has been issued.—*Fraser's Magazine* for July (Longman also) contains a paper on the late operations on the Serpentine, in which an account of the engineering and other operations is given, with a running accompaniment of pretty sharp criticism, especially on the Office of Works. The writer remarks that "it would really seem as if everything connected with the recent attempts to improve this unfortunate water was fated to

* Selected from the *Engineer's* Lists.

have about it a touch of absurdity;" and he strongly condemns not only the "extravagant waste of money and the ridiculous disproportion or misapplication of means to ends," but also and most especially the irremediable "destruction of our fine old trees, another group of which has been fatally injured."

Miscellaneous.

CALAIS.—At Calais, the famous old Fort Ronge has disappeared, only a few piles remaining; but it has been so often painted that its memory will remain in many pictures by Stanfield, Turner, and other of our eminent artists.

A STRIKE.—The whole of the carpenters and joiners employed in London and the neighbourhood by Messrs. Cubitt & Co., to the number of about 400, have struck for an advance of wages to the extent of $\frac{1}{4}$ d. an hour instead of $\frac{1}{8}$ d., as offered by the masters.

OPENING OF THE RAMSDALE VALLEY BRIDGE, SCARBOROUGH.—The greatest processional demonstration ever made in Scarborough was on the occasion of opening the Ramsdale Valley Bridge. The fallen girders of the iron lattice bridge across the Ouse at York were used in its construction. The contract for the work was taken by Mr. Ald. Cabry, of York, under the direction of Mr. E. Clarke, the engineer. The bridge is now completed, with the exception of a few minor details, and it has been opened as a public toll-bridge.

ERECTION OF A POLICE STATION FOR THE S DIVISION.—A new station for the S division of police is in course of erection, in Albany-street, Regent's Park, it having been found that, in consideration of the extensive space of ground the force has to perambulate on duty, there was not sufficient accommodation at the station which was its rendezvous. It will afford accommodation to about thirty single men, while stabling will be built for the horses of the patrol.

ROYAL MASONIC INSTITUTION FOR BOYS.—The new school for boys in connexion with this institution was inaugurated on Saturday last. It is situated at Wood-green, Tottenham. It is intended to accommodate 150 boys—sons of deceased and distressed brethren—and when completed will have cost about 30,000*l.* Earl de Grey and Ripon, R.W. Deputy Grand Master, and Provincial Grand Master for West Yorkshire, presided. The Secretary (Mr. Binckes) announced that the result of the day's festival, so far at least as could then be approximately ascertained, was the receipt of 6,500*l.* towards the 10,000*l.* which the committee had anticipated realising. The total amount would probably be 8,000*l.*, when the promised donations came in.

WEST LONDON WORKING CLASSES INDUSTRIAL EXHIBITION.—With reference to a remark in the *Builder* of last week, the secretary writes,—"The agreement with Mr. Gye for the Floral Hall only being ratified a fortnight or so before our opening day caused great haste, and consequently some oversights in the arrangements. I can assure you it was the desire of the committee to pay proper attention to the press. I must add that the high prices charged for the first week was a compromise with Mr. Gye, who sought to keep them high throughout, and who, by the nature of the agreement, has a voice in the fixing of the prices. Mr. Peter Graham and Mr. Thos. Lucas being appointed arbitrators, in case of differences between the committee and Mr. Gye."

THE METROPOLIS SEWAGE AND ESSEX RECLAMATION COMPANY has been announced, with a capital of 2,100,000*l.* The prospectus is introduced to the public by the International Financial Society, and the object is to utilize the sewage of the northern area of the metropolis, the concession of which has been granted to Messrs. Napier & Hope, who have agreed to part with it to the company for 50,000*l.*, "in fully paid-up shares of the company, and a small contingent per-centage of the net profits." A contract has been entered into with Mr. William Webster (who has constructed more than one-third of the Main Drainage Works of the metropolis, including the Crossness Outfall) for the construction of the works mentioned above, together with the necessary pumping-stations, for the sum of 1,853,448*l.*

SASH-WINDOW.—Unlike the window that opens and shuts on hinges, and with a horizontal movement, the sash-window works up and down like a sluice. Hence, I have always thought that sash-window meant sluice-window, *Sasse*, in old English, a sluice: so, in Dutch, *sas*. Sash-window = *sasse*-window. — *Notes and Queries*.

THE TYNDALE MONUMENT.—It may be remembered, that some time ago, after the monument to Tyndale, on the Nibley Knoll, had been in great part erected, the construction proved to be faulty, and part came down. Fresh efforts have been made, and the foundation-stone of the erection has been relaid.

FÊTE FOR THE ROYAL DRAMATIC COLLEGE.—In aid of the "poor player" let us mention and ask attention to the fact that this annual fête will be held at the Crystal Palace on (this) Saturday, the 15th, and Monday, the 17th. Richardson's Show, Wombwell's Menagerie, Messrs. Toole and Paul Bedford, a Circus of all sorts of odd lectures and songs, will fill the day with fun and, it may be hoped, the coffers of the charity with baser metal.

VALUE OF CAMBRIDGE PROPERTY.—There can be no doubt, says the *Cambridge Chronicle*, as to the increasing value of freehold building ground and house property in Cambridge: only on Wednesday last Messrs. Wentworth & Son brought into the market, for sale by auction, about three acres of land, on the Mill-road, near Parker's Piece, which was planned and arranged in fifty-three lots, every one of which was sold at a large price, and they realised in all the sum of 3,245*l.* The chief portion was purchased for Caius College, who have land adjoining.

THE NEW SEWAGE ACT.—The Act to facilitate the more useful application of sewage in Great Britain and Ireland is issued. It recites that it is expedient to remove difficulties under which local boards and other bodies having the care of sewers labour, in disposing of the sewage in their districts so as not to be a nuisance, and to give facilities to such authorities to make arrangements for the application of sewage to land for agricultural purposes. There are various provisions in the Act. The sewer authorities are to prevent the pollution of streams, and to dispose of the sewage.

COLOGNE EXHIBITION. — STEAM FIRE-ENGINE TRIALS.—At the recent competitive trials of steam fire-engines at the Cologne International Exhibition there were exhibited four steam fire-engines, two being of English, one of American, and one of German manufacture. Messrs. Merryweather, of London, have carried off the first prize of 500 thalers, placed in the hands of the Exhibition committee by the Colonia Fire Insurance Company to be awarded to the makers of the best steam fire-engine, as well as a diploma certifying that they have received the first prize for the best steam fire-engine. Messrs. Merryweather's engine raised steam from cold water, and commenced working with 100 lb. pressure in 7 min. 28 sec. from the time of lighting the fire, weighed one ton less, and was of considerably less cost than either of the other two competing engines. The German engine was considered out of the contest, as its jet failed to reach the water-target efficiently.

AMALGAMATED SOCIETY OF OPERATIVE CARPENTERS AND JOINERS. BRADFORD BRANCH.—On the 4th inst. a meeting of operative carpenters and joiners of Bradford was held in the Teetotal Hall, Southgate, for the purpose of witnessing the handing over to one of their number, a member of the above society, of the sum of 100*l.*, a benefit to which he had become entitled (though he had been only one year a member of the society), through having his hand cut off. Mr. C. D. Dewhurst, president of the branch, occupied the chair, and spoke strongly in favour of their society, as having increased their wages and shortened their hours of labour, and urged all present who were not members to join it. He then called on Mr. B. Applegarth, general secretary of the society, from London, who made some remarks on trade societies, their history, and purposes. He contended that the interests of masters and men were not in fact identical, nor ever could be so, but were opposed. Nevertheless, he said, no one felt more strongly than himself the necessity of a good understanding between employers and employed.

A HIGHLAND LODGE FOR HER MAJESTY.—A new lodge is in course of erection, for the convenience of her Majesty and attendants, in Glengelder. It is to be on a pretty extensive scale, and is to be built of granite.

OAK CARVING.—Several specimens of oak carving, for the reredos of Cliphsham Church, have just been completed, by Messrs. Richardson, of Stamford, according to the *Lincolnshire Chronicle*, which says,—"One piece, representing the Last Supper, is especially worthy of commendation, and we hope to see it in the forthcoming industrial exhibition at Nottingham. The carving has been done by a workman named Rippin, in the employ of Messrs. Richardson."

THE HOTEL MOVEMENT.—The Duke of Cornwall Hotel, according to the *Devonport Independent*, has been opened. There are more than two hundred rooms in the house, nearly all of them luxuriously fitted up. The dining-rooms are decorated, and there are smoking rooms, ladies' coffee saloon, &c.; and a fine view is obtainable from an observatory erected on a tower at the west end of the building.

MASTERS AND SERVANTS.—The select committee on masters and servants agreed to the following report:—"That, inasmuch as the state of the law of contracts between masters and servants is a subject of the highest importance, affecting as it does the relations of employers and employed throughout the kingdom, and any inquiry as to the operation of the law should be full, searching, and complete; and inasmuch as there is no probability of your committee being able to complete such inquiry in the present session, it is desirable that the evidence, so far as it has been already taken, should be reported to the House, accompanied by a recommendation that a committee should be appointed in the next session of Parliament to consider this subject."

WIDENING THE POULTRY AND NEWGATE-STREET.—At the last court of Common Council, Mr. Stewart moved that it be referred to the improvement committee to consider whether any steps could be taken, in reference to the present condition of the property on the north side of the Poultry, to widen and improve that important thoroughfare. Deputy De Jersey, the chairman of the Sewers Commission, said that they had found that it would take such an enormous amount of money to purchase the property, that they could not venture to tax the ratepayers to such an extent. The motion, however, was agreed to. Mr. De Jersey next brought forward a motion having reference to certain improvements that had been effected by the Commissioners of Sewers by setting back several of the houses in Newgate-street, and with a view to obtain a contribution from the corporation funds in aid of these improvements. This gave rise to a discussion, but in the result the motion of Mr. De Jersey was agreed to by a majority of 36 upon a division.

COVERED YARDS.—That cattle kept in covered yards enjoy better health than others kept where the cover is only partial, is established by abundant evidence. In support of this view, Mr. J. G. Marriage, of Ham Farm, Redhill, says:—"Our buildings are 130 ft. by 103 ft., and afford accommodation to 180 head of stock; and, to give you an idea of the health they enjoy, I may say that, for the last seven years, the farrier's bill has not averaged 20*s.* per year." By far the greater proportion of ordinary farm-yard manure consists of straw and water, the remainder being the excrements of the cattle. Under cover, about 20 lb. of straw per diem is found litter sufficient for one animal; in open yards, more than twice that quantity is required. It would be superfluous to dwell on the deteriorating influence exercised by rain-water falling on manure, or the great loss incurred by exposure to its washings. The curious in this matter will find ample information by referring to the researches of Way, Voelcker, and other modern writers on Chemistry. Mr. Chancellor says:—"The late Mr. James Beadel always stated, as the result of his lengthened experience (and he might be considered as one of the pioneers of the system), that one load of covered-yard manure was worth more than two loads of open-yard manure. Its tendency to get dried and heated has always been advanced as an argument against covered yards by those who have not tried them; but I never heard it used by any one who had. The truth is, it keeps infinitely moister than in open yards in a dry season."—*Bridgwater Mercury*.

MONUMENT TO PEDRO IV. AT LISBON.—Two French artists, M. David and M. Robert, have obtained the first prize in this competition; a native artist obtained the second; another French sculptor the third; and the fourth and fifth were awarded to Italians. The monument will consist of four parts,—a basement of granite, a pedestal, a column, and a statue. The column is decorated with four figures of fame, in bas-relief, on its lower portion, and these figures are connected together by garlands. The figure of Don Pedro IV., dressed in a general's uniform, is to be 10 ft. high, cast in bronze, and gilt by the electro-galvanic process. The entire monument will be nearly 140 ft. high.

SCHOOLS OF ART.—At Chippenham, a public meeting, convened by the mayor, has been held, at which Mr. Buckmaster, from the Science and Art Department of the South Kensington Museum, attended, and addressed the meeting in favour of establishing a school at Chippenham. The mayor said he was pleased to state that gentlemen whom he had called upon for subscriptions had liberally responded to his appeal. The meeting was not largely attended; but a number of artisans present expressed their opinion that a drawing-class should be formed without delay. At Abingdon, also, the lecture given at the end of last season by Mr. Buckmaster appears likely to bring forth good results. Mr. J. K. Leake, of Corthill, near this town, who was present at that lecture, having taken action in the matter of the formation of a branch School of Art in the town. A preliminary meeting was called by that gentleman, and it was resolved unanimously—"That it is desirable to form a branch School of Art in Abingdon." A provisional committee was formed to make the necessary inquiries, and to report to another meeting.

SALES OF PROPERTY.—At Garraway's, by Messrs. Toplis & Harding.—One undivided moiety of and in the leasehold house with shop, being No. 57, Quadrant, Regent-street, let on lease at 250l. per annum, term 75½ years from 1818, and a reversionary term from 1894 of 23½ years—2,000l. Leasehold stables and premises, being No. 15, Swallow-street, Piccadilly, let on lease at 150l. per annum, term 99 years from 1818, ground-rent 16l. per annum—1,800l. At the Guildhall Coffee-house, by Messrs. Norton & Trist.—Freehold house, being No. 18, Bennett-street, Stamford-street, Blackfriars-road, let at 30l. per annum—500l. At Garraway's, by Mr. Peake.—Freehold house, situated in Queen-street, Southwark, let at 31l. 10s. per annum—500l. Freehold building land, comprising an area of 1,150 superficial feet, situated in Mint-street, Southwark—190l. By Messrs. Kemp.—The rectorial tithes-rent charges, commuted at 550l. per annum, near Dartford, Kent, together with the parsonage house and the Manor or Court Lodge Farm, containing about 365 acres, and producing 691l. 10s. per annum—16,150l.

NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.—The annual business meeting of the members of this Association was held on the 6th, at their office, Adam-street, Adelphi, Mr. Godwin in the chair. The report stated that in consequence of the dissolution of Parliament, the annual meeting was held this year at an earlier date than usual, but the council were enabled to wind up the financial and other business of the Association in a very satisfactory way. The meetings during the year had been generally well attended. The permanent income of the Association had increased this year by 134l., but there was a decrease in the total receipts. The balance-sheet showed a total receipt of 2,167l. 16s. 5d. After defraying all expenses, there remained a balance of 64l. 14s. 1d. In July, 1864, the balance in hand was 364l. 6s. 5d., which showed a falling off of something like 300l. The assets of the Association were estimated at 1,544l. 11s. 7d. The total liabilities amount to 424l. 0s. 6d., which left a surplus assets of 1,120l. 10s. 1d. The adoption of the report having been moved, Mr. G. W. Hastings, general secretary, explained that the falling off in the total receipts was not in any degree to be attributed to a want of prosperity, and stated that the Association was never in a more flourishing position. The chairman, in putting the motion, congratulated the society on the very interesting papers which were read at the evening meetings during the year. The report was unanimously adopted, after which the election of officers, standing committees, &c., was proceeded with. Lord Brougham was re-elected president.

ABOLITION OF MORE TURNPIKE GATES AND BARS.—By the Turnpike Continuance Act, just passed, every gate and bar in the south metropolitan area (except the Greenwich and Woolwich Lower-road Trust and the Dulwich College gate) will be levelled on the 1st of November next. The removal will extend into the three counties of Surrey, Kent, and Sussex. Provision is also made in the same Act for the removal of the archway gate in the Kentish Town Junction-road on the 4th of August next; and it also fixes the 1st of November, 1866, as the day for the expiry of the Greenwich and Woolwich Lower-road trust and the Middlesex and Essex trust, unless a private bill be obtained for a prolonged term. The total number of gates and bars which, including last year, will be removed on the 1st of November from the metropolis and neighbourhood will be 143, and the length of roads set free, 164.

TENDERS

For residence on the Sunbury Court Estate. Mr. R. A. A. Architect:—
King & Son 24,350 0 0
Tyler 4,308 0 0
T'Anson 4,233 0 0
Myers & Sons 4,220 0 0
Jackson & Shaw 4,189 0 0
Gammon & Son 4,173 0 0
Sharlington & Co. 4,111 0 0
Mills & Son 3,613 0 0

For building villa residence at Shooter's-hill for Lord Truro. Mr. F. T. Thomas, architect:—
Jones 27,110 0 0
Penny 7,100 0 0
Myers 7,000 0 0
Wardell 6,914 0 0
Malay 6,911 0 0
Higgs 6,865 0 0
Coles 6,184 0 0

For new church, North End, Croydon. Messrs. Mulins, architects:—
Patrick 24,200 0 0
Smith 4,150 0 0
Axford 4,115 0 0
Rider 4,092 0 0
Downs 4,010 0 0
Nicholson 3,952 0 0
Patman & Co. 3,860 0 0
Myers & Sons 3,874 0 0

For repairs at two houses, Malda-hill. Messrs. Pain & Clark, architects:—
Ebbs & Sons (accepted) 2,789 0 0

For three pairs of villa residences, at Brixton. Messrs. Pain & Clark, architects. Quantities not supplied:—
Each pair
Wardle & Baker 1,900 0 0
Stone & Pearce 4,010 0 0
Three pairs
Lambie (accepted) 4,767 0 0

For additions to the Organ factory of Messrs. Bryceson, Brothers, at Brook-street, Euston-road, for the adaptation of steam power. Messrs. Pain & Clark, architects. Quantities supplied:—
Manley & Rogers 2,457 0 0
Lawrence, Baugh, & Co. 449 0 0
Wardle & Baker 437 0 0
Rowe 413 0 0
Lambie (accepted) 383 0 0

For new church at Ebersham, near Petworth, Sussex, for Mr. Wm. Peasey. Messrs. E. Halderson, Spalding, & Brock, architects:—
Woodridge 21,150 0 0
Simpson (accepted) 3,099 0 0

For St. Andrew's Mission Church and residence, North Bromley, Middlesex. Mr. John W. Morris, architect:—
Hack & Son 21,667 0 0
Sheffield 1,948 0 0
Hensel 1,600 0 0
Ennor 1,586 0 0
Hedges 1,540 0 0
Kilby 1,526 0 0

For three dwelling-houses, Devon-road, Bromley, Middlesex. Mr. John W. Morris, architect:—
Kilby 2,725 0 0
Brown 705 0 0
Stevens 675 0 0
Heiser 630 0 0
Sheffield 567 0 0

For house and offices, Silver-hill, Hastings, for Mr. A. L. Wollaston. Messrs. Voysey, Jeffery, & Skiller, architects:—
Simons & Marten 23,085 0 0
Hopkins 2,849 0 0
Page 2,825 0 0
Roddick 2,525 0 0
Broadbridge 2,781 4 3
Catt & Co. 2,737 0 0
Huxwell 2,637 0 0
Homan (after time) 2,658 0 0
Kenwood 2,493 0 0

For additions and alterations to house at Fetcham, Surrey, for Mr. William Sturt. Mr. F. J. Dibble, architect, Dorking:—
Speier 2,945 0 0
Batchelor 709 0 0

For finishing tavern, and erecting and finishing two villas, Lancaster-road, for Mr. J. Davis. Mr. R. Stap, architect:—
Tavern. Villars.
Green (accepted) £290 0 0 £1,690 0 0

For the erection of the first portion of Messrs. Winsor & Newton's new artistic colour factories, in Spring-place, Kentish Town. Mr. F. Fred. Holsworth, architect:—
Gammon 23,147 0 0
Fish 4,940 0 0
Lawrence 4,719 0 0
Manley & Rogers 4,487 0 0
T'Anson 4,203 0 0
Tracey & Son 4,185 0 0
Scrivener & White (accepted) 4,125 0 0

For the erection of Percy Villa, Bromley, Kent, for Mr. W. Hewett. Mr. W. F. Potter, architect:—
Outhwaite 2,755 0 0
Tozer 700 0 0
Southall & Watson 665 0 0
Honour 630 0 0
Peerless (accepted) 600 0 0

For new bar fittings and alterations to the Prince of Wales Tavern, East-road, City-road, for Mr. Wallace Ritchie. Mr. W. F. Potter, architect:—
Stead 2,379 0 0
Babey & Son 350 0 0
Williams 349 10 0
Moore 335 10 0
Wardell 330 0 0
Jenkins (accepted) 319 0 0

For house and offices at Reigate, Surrey. Quantities by Mr. James G. Sauter:—
Howard (accepted) 23,740 0 0

For Fairfield House, Stoke Poges, for Mr. J. W. Basson. Mr. J. L. Pearson, architect. Quantities supplied by Mr. T. M. Rickman:—
Shopee & Son 27,275 0 0
Masons 5,945 0 0
Gibson 5,663 0 0
Snowball 5,667 0 0
Sharlington & Co. 5,533 0 0
Fassnidge & Son 5,594 0 0
Coles & Son 5,230 0 0
Nicholson 6,190 0 0

For new premises, Broad-street, Hereford, for Mr. Thomas Landon. Messrs. Elmslie, Franey, & Haddon, architects:—
Mason (accepted) 23,575 0 0

For premises, High-street, Hereford, for Mr. E. Smith. Messrs. Elmslie, Franey, & Haddon, architects:—
Welsh (accepted) 2,721 0 0

For restoration of church at Rowlestone, Herefordshire. Messrs. Elmslie, Franey, & Haddon, architects:—
King & Godwin (accepted) 2,553 0 0

For additions and alterations to Beauchamp Hotel, Great Malvern. Messrs. Elmslie, Franey, & Haddon, architects:—
Smart (accepted) 21,435 0 0

For additions to vicarage house, Dilyry, Herefordshire, for the Rev. W. Heather, LL.D. Messrs. Elmslie, Franey, & Haddon, architects:—
Lewis & Day (accepted) 2,880 0 0

For new parsonage, Lingon, Herefordshire. Messrs. Elmslie, Franey, & Haddon, architects:—
Ford (accepted) 2,830 0 0

For dwelling-house at Merstham, Surrey, for Mr. J. P. Maynard. Mr. F. J. Dibble, architect:—
Francis (accepted) 2,850 0 0

For lodge, cottage, walls, gate, &c., at Ashurst Headley, for Mr. E. A. Glaas. Mr. F. J. Dibble, architect:—
Haynes 21,003 0 0
Inkern 808 0 0
Lynn & Dudley 780 0 0
Hamblin (accepted) 750 0 0

For the erection of the first portion of Messrs. Winsor & Newton's new artistic colour factories, in Spring-place, Kentish Town. Mr. F. Fred. Holsworth, architect:—
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TO CORRESPONDENTS.

R. R. A. T. W. E. R. P. & C. W. F. T. M. S. J. C. J. W. M. J. R. R. E. H. A. H. W. R. J. W. C. R. F. C. F. I. H. R. J. D. T. & B. O. H. J. R. A. Rev. M. W. (sent week).

J. R. F. (we cannot judge of things of which we know nothing).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessary for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

The Publisher cannot be responsible for ORIGINAL TESTIMONIALS left at the Office in reply to Advertisements, and strongly recommends that COPIES ONLY should be sent.

Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS.

J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

The Builder.

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*Out and About :
The Grove, Watford.*

S there anything to see near Watford? writes a correspondent. "We want an outing, and love trees, old buildings, and pictures." Anything to see! Of course there is. In fact, with such likings, there are few places in England where "something to see" could not be found. The railway ride from London, to begin

with, is a pretty one, including a fine view of Harrow; passing which, though the churchyard is scarcely discoverable, the mind's eye may see Byron lounging, and recall his reference to the practice when he afterwards wrote,—

"Or when oppress'd with sad foreboding gloom,
I sat reclined upon our favourite tomb."

Pinner and Bushey, too, both give pretty landscapes. At Watford, the church has two or three points of interest, including some monuments by Nic. Stone. The places, however, where trees and pictures are to be seen are Moor Park, the residence of Lord Ebury; Cassiobury, belonging to the Earl of Essex; and, above all, The Grove, the seat of the Earl of Clarendon—all within an easy drive. The house at Moor Park, in Pseudo-classic style, was built by Giacomo Leoni, a Venetian architect, who settled in England, and built, among other things, a considerable addition to the Elizabethan pile, Lyme Hall, in Cheshire. He died in the middle of the eighteenth century. The chief feature of the house is the Hall, the whole height of the building, painted originally by Thornhill, with deceptive openings in the roof, and subjects from Ovid in the panels below. There are two or three interesting pictures, some fine models (in porcelain) of pagodas, and a capital sculptured marble chimney in the drawing-room, whereof the frieze of sculptured white marble figures, with a back-ground of lapis-lazuli, is exceedingly well executed. The gardens and grounds are charming. The statement is, that they were first laid out by Lucy Waters, Monmouth's mother, and altered by "Capability" Brown, who may be called the first that practised landscape gardening in this country as an art. "The place has capabilities," said Brown usually, when first called in to look at it, and so he got his name. It was in 1773 that he died.

For even finer foliage and some extensive sweeps, got on to Cassiobury. The variety here is great, and some of the trees are mighty. A new poet has described such a scene as may be found here, and hit off very admirably the characteristics of the component features. Above,—

"Some ancient Pines, their limbs fantastic spread,
And rich warm perfume in the sunshine shed;
Each tufted branch was edged with lighter green,
And redly bright their rough stems glow'd between.
The tap'ring Larch their welcoming arms held out
To myriads of their fellows; while, without
Sufficient air to stir their pensile threads,
The Silver Birch inclined their graceful heads.
The smooth-backed Beech, trailing its branches down
Like garlands; and the Mountain Ash, whose crown

Of shining fruit had ripen'd in the sun,
Though summer's hottest days had scarce begun.
And, nearer still, the Oak threw plots of shade,
While at their feet a fragrant couch was made
Of graceful fern, which show'd in high relief,
As the bright sunshine stream'd through many a leaf.
The stately Lime at intervals was seen,
A faultless cone of fresh and brilliant green,
Rising majestic from the turf-spread ground,
On which its lower branches rested round,
On which its lower branches rested round,
The Wych-Elm, with its ev'ry limb leaf-fringed;
The Eucamorie, already golden tinged;
And o'er the sloping lawn, that downward led,
Their gorgeous masses, noble Cedars spread."

Under one of the trees, when we were pacing the park, reclined a shepherd, a creature very different from the vision of the poets in that direction. Sad deceptions dogs are some of these poets! "I see you have your crook, shepherd," once said a gushing young lady, on Brighton Downs; "but why have you not your pipe?"—"Because I've got no baccy, marm," was the less poetic reply.

"While the ploughman, near at hand,
Whistles o'er the furrow'd land,
And the milk-maid singeth blithe—
And the mower whets his scythe;
And ev'ry shepherd tells his tale—
Under the hawthorn in the dale."

Hard by a cottage chimney smokes,
From betwixt two aged oaks,
Where Corydon and Thyrsis met,
Are at their ev'ry dinner sat,
Of herbs, and other country messes;
Which the neat-handed Phyllis dresses;
And then, in haste, her bow'r she leaves,
With Thesytis to bind the sheaves."

So sings Milton, and sweetly fall the words in their true measure, like pleasant music on the ear, and most temptingly does the description lead the thoughts of the pent-up town dweller to delicious country scenes, while the landscape painter is urged by the description to seize his pencil and palette, and endeavour to give permanent form to those images which the great writer brings so vividly to the mind.

But painters and poets are prone to look only at the silver side of the cloud and the sunny aspect of the landscape; and it is feared that Milton, Thompson, and other of our descriptive poets would not feel delighted by too long interviews with the majority of the ploughmen, milk-maids, and shepherds of the present time, who labour in the rich rural districts of "Merrie England." It usually turns out, that the first sight of objects which are known only from poets' descriptions are disappointments. For instance, the actual raging of the sea—even on our rough northern coast—is, when seen in reality after a long course of reading, disappointing. In this, however, as it is with other natural phenomena, the reality impresses the mind to a greater extent the more it is studied. But our experience does not prove that this is the case generally with shepherds and shepherdesses. We well remember meeting, years ago, with a shepherdess in one of the English border counties, and certainly few female forms could be readily found which presented a more unlovely appearance: the rough guttural speech, the peculiar dialect, the common-place matter-of-fact ideas, the rude, unpicturesque, and not over clean costume, and the large, ungainly, and clumsily-shod feet, formed a most unpleasant contrast with the shepherdess of the poets. We have met with intelligent shepherds, who, like experienced seamen, have studied the phases of the weather and the peculiarities of the seasons; but, as a rule, in comparison with the advanced intelligence of the age, shepherds, milkmaids, and ploughmen are disappointing if we gauge them by the poets' descriptions.

From cottages backed by trees, overgrown with roses and creeping plants, come sickly, pale-faced children, and, with them, the neat-handed Phyllis, more attenuated, careworn, and sickly-looking than the rest: in the rich fields are groups of children labourers who are let to ill-mannered and ignorant men, who dispose of them in gangs at a fixed price per head; and, after the hours of labour are ended, herd the untought boys and girls without care

together. While on the roads the "weary ploughman" and other labourers of the farm may be seen wending, their way to dwellings which are not fit for human habitation in the undrained villages or in the back-slums of the neighbouring towns.

It is inharmonious, amid all the beauty of the vegetation, the fields of waving corn, and luxuriant grass lands, to see the neglected and worn-out labourers, who, in days gone by, have whistled at the plough, bending beneath their bundle of fire-wood or some other burden; and to find pent up in the workhouses, such multitudes of worn-out men and women, who, from their slender earnings, have with difficulty reared a family: the family themselves unable to assist their parents. To save upon the slender means which have been afforded by their labour, under the circumstances, was an impossibility; so that, when no longer able to work, the union is the only resort; and, in old age, those who have been solemnly joined together, are separated by the harsh working of the poor-law system, before their earthly pilgrimage has been completed. Most exquisitely beautiful are our English landscapes, and well worthy of the poet's best praises; but how greatly would the delight of exploring be increased if the human workers could be made to take their right position and to harmonise with it, by means of improved dwellings, better education, and a remuneration for labour; instead of being, as they are now, a blot upon the fair face of nature.

We are forgetting however the advice of the poet, who says—

"Digressions are inexpiably bad;"

and as we have not the purpose with which Swift asserts that Dryden's "prefaces" were written,—

"Alone for filling;
To raise the volume's price a shilling,"—

we may as well continue our ramble.

The House at Cassiobury (the name takes us back to a very early period in the history of the tight little island—to the days of the *Cassii* and struggles with the Romans), is a modern Gothic pile of the time of the early revival of the Mediaeval styles amongst us, the beginning of the nineteenth century, and, viewed by our present lights, is a tame and tasteless affair,—now undergoing repair. It is interesting to trace the progress of this revival from the days when poet Gray, Warburton, Warton, and Essex wrote, and Walpole (from 1750 to 1776) built his Strawberry Hill; but now is not the moment to dilate upon it.

It was a charming and cheering day when we were at Cassiobury; an afternoon that would justify Longfellow in again singing,—

"O gift of God! O perfect day:
Whereon shall no man work, but play;
Whereon it is enough for me,
Not to be doing, but to be!"

And certainly it was happiness enough for once to lie under the trees and watch the deer. The house contains some good pictures, but these can be seen only by arrangement.

At the Grove, on the contrary, if the family be away, there would seem to be no difficulty in entering,—at any rate, we found none, the obliging and well-tempered housekeeper appearing to take a pleasure in showing its treasures and giving good testimony of a good master. And treasures in both an historical and art point of view there are. This collection, as many of our readers will recollect, is part of that gathered by the Lord Chancellor Clarendon, and which has been made the ground for charges against him of bribery and corruption. The collection comprised an extraordinary assemblage of portraits of the different members of conspicuous families on the King's side in the Civil War, painted by Vandyck and others; and it was contended that, as people do not usually give away family portraits to a stranger, and, more-

over, that as it was not usual for collectors to have portraits not belonging to their family, it might be taken for granted that they had been received as bribes or extorted by threats. Fortunately, Evelyn, in his Diary and in letters to Pepps, had left an account of the plan on which the Chancellor had determined on forming his gallery,—that it was intended to be made up of "our ancient wis, poets, philosophers, famous and learned Englishmen, the most illustrious of our nation, especially of his lordship's time and acquaintance, and of divers before it;" and he showed how he had aided in it himself by sending lists of names of those who ought to be included. This, it will be seen, materially assisted the friends of the Chancellor's character in disposing of that part of the evidence against him. The collection has been divided, many of the pictures being now in Bothwell Castle, in Scotland, while others are missing altogether; and certainly, concerning those now left at The Grove, no wonder need be expressed as to want of connexion, a good reason for being there being obvious in nearly every case, quite irrespective of the idea the Chancellor had in view when he made the original collection. Some thirteen years ago, Lady Theresa Lewis published three interesting volumes, entitled "Lives of the Friends and Contemporaries of Lord-Chancellor Clarendon," illustrative of portraits in this collection. It was a capital idea, and was worked out with ability and pains. The men, and women too, whose "counterfeit presentments" are here gathered together, moved during an eventful period of our history; while an account of their doings and sketches of their character have been handed down to us by Clarendon's own pen. "Through him we live again in their times; we view them, as it were, with the eyes of a contemporary, and acquire the personal interest in each portrait which personal intimacy would give."

The number of Vandycks is considerable, and some of them are rare specimens of his rare art:—

"His pieces so with their live objects strive,
That both or pictures seen, or both alive,
Nature, herself amazed, does doubting stand
Which is her own, and which the painter's hand;
And does attempt the like with less success,
When her own work in twins she would express."

Vandyck was in England, it may be remembered, from 1620 to 1621, and then from 1632 till he died, in 1641. The small study of the equestrian picture of Charles I. now at Blenheim, Queen Henrietta Maria, the 10th Earl of Northumberland, Philip, the 4th Earl of Pembroke, Lord Falkland, and the Earl and Countess of Derby and Child, not to mention half a dozen others all by the same great hand, will strike the visitor. *Northwell's* Queen of Bohemia, Jansen's Lord Keeper Coventry, and Sir Peter Lely's picture of the Chancellor when he was 52, are sure to get attention. The last picture was painted seven years before Clarendon was impeached and banished. How many persons know that the Clarendon Press in Oxford was partly founded on the profits of the sale of copies of Lord Clarendon's "History of the Rebellion," the copyright of which was presented to the University by his sons?

There are two or three of Lely's best pictures at The Grove, very unlike some of the rubbish with which he is credited. Lely came to England and began to paint in the very year in which Vandyck died—1641. He himself died suddenly of apoplexy thirty-nine years after that, while painting the Duchess of Somerset. The pictures and drawings left by him were so numerous that their sale by auction is said to have occupied forty days, and to have produced 26,000*l.* In the churchwardens' accounts of St. Paul's, Covent Garden, the following entry appears:—"1680, Dec. 7th. Received for the ground for the corps of Sir Peter Lilly, and use of the pall, 6*l.* 13*s.* 4*d.*"¹ A monument was placed in the church, with a bust, by Grinling Gibbons, and an epitaph by Flatman; and was destroyed by fire in September of 1795. Lely had left 200*l.* "for funeral expenses, and one hundred pounds more for a monument." He devised 50*l.* by the way, towards the rebuilding of St. Paul's Cathedral.

Amongst his pictures at The Grove, though not one of the best, is a portrait of Anne Hyde, daughter of the Chancellor, Duchess of York, and mother of two queens, Mary and Anne. Of these queens there are here well-known portraits by Wissing and by Kneller. As to persons of another kind of eminence, there are portraits

of Fletcher the poet; Spelman the antiquary; Waller, a capital piece of Lely; Madame de Sévigné; and a few more. In the library, a remarkably comfortable and cosy room, filled with—

"Gold of the dead,—
Which Time does still disperse, but not devour;"

the present earl sits, surrounded by engravings of the statesmen and warriors he has known, mostly passed away.

Looking back over the fields of Life, as may be easily done moving through such a company as is found at The Grove, how rapidly do the labourers seem to disappear: how slight was the tenure, how short was the term of the longest life-holder! The years, pall-bearers of the ages, tramp on remorselessly, bearing all towards the grave! We may not stay, however, to moralize or muse. One glance, when in the hall, at a masterly rendering in tapestry of the grand fish-miracle cartoon, with its small boats often carpeted at, and then out into the clear air for a walk under the great trees that in the sunlight throw—

"Tangles of light and shade below."

We have probably said enough to indicate that there is something to be seen near Watford.

FRAUDS OF PAINTERS.

WHEN our profession was younger by some twenty years, the question was not uncommonly discussed whether the work in building was better executed on the system of general contracts, than by that wherein each branch was undertaken directly by a separate master,—that is to say, not only as a separate craft, but as a separate trade. If the "conscript fathers" of the profession,—alas! sadly diminished in number,—were now polled, we apprehend there would be some repining at the change that has been consummated. The actual system, however, has been found convenient alike by architects and the public; and there is so much advantage in knowing beforehand the lump-sum that a building will cost,—if not subject to changes of intention on the part of the proprietor, or to the consequences of want of foresight on that of the architect,—that it is not perhaps to be desired that the practice should revert to that which is become matter of history. The Government, at least, advised by one capable of forming an opinion,—we mean Mr. Hunt,—appear to have adopted the system supposed to be favourable to a reliance upon estimates.

Why the system of general contracts should be so peculiarly favourable for given work, or where there is an architect, does not immediately appear. It is to be assumed that under either system, the work is correctly specified, and that the supervision is equally well performed. However, it is not to be questioned that the manner of execution of work has not progressed to the extent that might have been accordant with progress of time; until the crafts themselves, or the available skill of workmen, are thought to be deteriorated. There is no other sufficient explanation of the discrepancies in estimates which we are constantly publishing, than that something in the manner of work is constantly eluding the greatest precision of specifications, together with what is practicable in the supervision of an architect. Were materials, that is the designated qualities, and labour, always the same, as they are assumed; and were only capital, and tact in watching the markets, in direction, and in the use of machinery, variable; we apprehend that the difference between the positions of those tendering for works to the same specification, would fail to account for such discrepancies as those found in a list of tenders where, with nine or ten parties tendering, the lowest amount will be half of the highest, and the others will be in regular gradation. The explanation must be, not chiefly that there is elasticity in the sum to be set against given materials and labour, but rather that there is considerable scope of selection and allotment of these latter.

Now we would invite the attention of architects and builders to the consideration of this state of things; which we could exemplify and elucidate from one particular trade, that of painters' work. We would seek an answer to the question whether it is possible to import greater precision into specifications, which may be read and attended to, or in what direction there is better chance than at present appears of getting work done according to the

just expectation of the person paying for it. It is useless to say that the difference of 50 per cent. represents a difference in the actual quality of work; the real point is whether the person for whom the work is to be done, understands that there is such difference in the conditions, and is content to accept, say, the inferior work.

If the conditions be not identical, the whole politico-economical theory of benefit from competition is inapplicable. More, if the conditions are presented and ostensibly taken as equal, any tender calculating upon profit by work inferior in quality to that which may be presumed to have been intended, is made at the expense of moral rectitude on the part of its author, however consistently with practice in trade. Not denying that cases occur in which those calling themselves architects may endeavour to cut down fair prices for work, we must say that the general disposition in the profession is to allow the reasonable profit; and at all events that those in the several trades will never stand in a right position till they cordially co-operate with architects in devising such a system as will allow tenders to be made on the same conditions, and duly visit with condemnation those cases in which the expressed or implied understanding is not observed.

We have suggested that the fact of the discrepancy between tenders, might be explained by a want of precision in the wording of specifications. The reports of cases at law show the latitude that is countenanced in trade, as to the interpretation of the word "best" as applied to material or work. Ordinary parts of speech expressive of quality, would not seem to suffice for the description of articles; and, in some trades, a jargon of adjective piled upon the same adjective is brought into use, in a manner which both implies ignorance, and directly tends to confusion of one quality with another. But there is something more than this circumstance; which may indeed be met in part, by specifying prime-cost and name of manufacturer. The difficulty extends to the whole manner of executing work; and where the materials and the details of manipulation are very numerous, as they really are in painters' work, there appears to be no medium between what is little better than entire dependence upon the contractor, and a length and precision of description such as we imagine no architect has dared to attempt. Assuming that particular directions are given in place of the usual rather general clauses, the result is almost necessarily length; and the direct tendency of this not simply is that it may be left unread, but seems to be that it will produce an extravagantly high estimate. Certainly, in some of the trades, we have known a very simple matter, only shown by the most complete drawings, priced at a very high rate, and apparently through the fact that the drawings, which really went to ease the labour, and demonstrate the simplicity, were complete. On the other hand, every architect finds estimates sent to him on the basis of the bill of quantities, after scarcely a glance at the drawings and specification; which latter may contain things that mere items in the quantities would fail to give a sufficient idea of.

We believe that masters in the trades would find it their interest to help to terminate the state of things by which the conditions in a tender are practically not equal in the view of the competitors, and from which in many cases deception is practised. If the mode that they discern be by addition to, or modification in, the terms of specifications, they should not hesitate to point it out. Estimates for painters' work are precisely those in which the greatest discrepancy is observable; whilst, also, the proper work is most in contrast with the portion of specification relating to it. The whole space given to the heads glazing, painting, and paper-hanging, in the specification for almost any house of ordinary dimensions, does not generally amount to more than ten or twenty lines. If the work were properly gone into, the description might occupy two or three hundred lines.

It is not alone omission of things not specified that characterizes painters' work: there are gross frauds perpetrated, as by the substitution of one thing for another specified, to save materials and labour, and at great loss of durability. Mr. Hay, many years ago, in one of the later editions of his "Laws of Harmonious Colouring," particularly mentioned some of the practices, as one of the substitution of a coat of size for a coat of paint; and we happen to have at hand a pamphlet by M. Leclaire, the house-painter, of Paris, which, though it is dated as far back as the year 1842, is so much to the point,

¹ Quoted in "A Selection from the Wills of Eminent Persons," printed for the Camden Society, in 1863.

still, of the present article, that we shall make some use of it in what is to follow.*

M. Leclaire's name is well known to our readers. It has been most recently mentioned in referring to his judicious and truly philanthropic efforts to raise the condition of men in his employ; and he shows in the pamphlet now before us,—as we may be said to have shown in our article on the Prevention of Strikes,—the connexion of the subject affecting workmen, with that which we have at present in hand. It is evident from M. Leclaire's pages, that precisely the same practices have prevailed in France as in England; and we fear that up to this moment, the case is little altered as to either country.

So long as masters set the bad example, they must not be surprised if they have difficulty in procuring "a fair day's work" from the hands employed by them in deceiving others. It were much to be desired that men, who are generally well aware of what is required to make good work, would put their acquired knowledge into explanatory words. Thus, the precise required steps might be taken by sufficient clauses of specifications, and in the supervision of work, to check that which we have adverted to. As we have said, the practices are maintained in great part from the latitude allowed to parties who tender and take contracts. Honest men would welcome particularity and minuteness in description of work, feeling disembarassed of all competition except that resting on the true basis, namely equality in conditions. The only losers would be those who deserve to lose.

One of the most frequent practices saving cost, at the expense, and to the injury, of the person for whom the work is done, has been already alluded to. A first coat of size is substituted for one of oil or paint; whereby a considerable immediate gain accrues to one party to the contract, and a corresponding future loss to the other. The gain and loss are greatest where the material painted upon is plaster. Occasionally a little turpentine is mixed with the size, just to give an odour, and to make believe that something workmanlike is being done. When the work is so closely supervised that the first coat of size cannot be given, the plaster may be moistened immediately before applying the coat of oil; thus the plaster having imbibed water, will not soak up much oil. On woodwork, a first coat of size is given; and it is represented to be necessary, as enabling the rubbing-down to be done more easily. But there are other modes of deception. The difference in the price of varnish being considerable, the least expensive kind is chosen, which will not bear the slightest cleansing. In distemper work, an excess of water, perhaps, is mixed with the colouring material; and when the result is insufficiency of tint, the contractor will explain that the plaster was wet; and there is an end of the matter. When the colour peels off, in consequence of the plaster-surface not having been well prepared, the circumstance is said to be a sign of solidity, and that the size has been employed too strong.

M. Leclaire, in the form of a dialogue between two contractors, makes one of the parties observe, that even when there is a competent supervisor of the work, the contractor can always find means of protecting himself from consequences of having taken the work at too low a price. "The architect, as well as the proprietor, breakfasts, dines: sometimes they have regular hours for coming upon the works;" these are taken notice of, and use is made of the intervals: besides, a multitude of individuals know nothing about painters' work, either in the state of its progress, or after. Even by scraping with a penknife, with a view to ascertain the number of coats, nothing can be positively proved, unless the material scraped off be subjected to analysis. Spanish white is substituted for white of lead; but if the analyst should ask for one of the mixing-pots, opportunity might have been found to cover the inferior material with an upper stratum of the white of lead, which therefore he would probably take up for his analysis. The tricks employed in estimating, or to make up a profit after a low estimate has been submitted, are endless. As regards gilding, should an estimate be asked for, a clever tradesman in France will

never give any except for oil-gilding on plain surfaces, and without indication of the nature of the preparation. As to measurement, previous agreement upon the method of it will be avoided as much as possible: thus there will be latitude for making out the bill in the form that may be most to the contractor's advantage. For paperhanger's work, there are various ways of turning the business to account; although a low price may have been set down for the paper itself. A border may be required; and as each roll of borders has four bands, it may be separated into two rolls; and the price of a roll of two bands will appear moderate. In works of repa-ration where canvass is found under paper, the tradesman, having said that new material would be necessary, may simply restretch the old canvass, charging it as new.

The workman lends himself to the deception practised on architect, or proprietor, sometimes under the idea that durability of work is not "good for trade" and for demand for his labour. But he forgets that the same act which gives the proprietor coats of size whilst paying for oil, subtracts from him, the workman, remuneration that he would have had for the work in oil in excess of that which he has for the work in size; since more labour is required using the former material than the latter. Moreover the workman injures others besides himself, of his class. The manufacture of size, for instance, demands a smaller amount of labour than that of oil.

According to one of the parties in M. Leclaire's supposed dialogue, when a detailed estimate is demanded of the master, his cue is not to set down all the work that will require to be executed. Thus he does not frighten the proprietor by the total cost. After the execution of the work, it is measured: the estimate is exceeded greatly; but the end will be the payment of the demand. When a schedule of prices is asked for, such items are put down as will not be wanted: the agreement will contain a clause that all unforeseen works shall be priced by analogy; but the base on which analogies may be established, is large in painters' work. If the client, in conversing with the contractor, should cite the name of another master-painter, the contractor, even without knowing the other, will say of him that he is the greatest thief ever seen. When there is no architect, and the proprietor himself is inspecting the work, his attention is to be constantly directed to the beauty of what is done; thus the idea will never occur to him, that so much care is taken only the better to entrap him. Should the proprietor unfortunately discover some piece of fraud, it may be put down to the foreman, who can be threatened with dismissal: or the latter may be actually dismissed: for a consideration, he will consent to anything; and a hint is given to the new foreman not to allow himself to be caught.

Such is a representation of the tricks of trade, as in France. It would fit the state of things at home.

One of the conditions of improvement being more exactness in the specification of painters' work, and other work commonly falling to the share of the same master-tradesman, we look further to the pamphlet of M. Leclaire for suggestion. The pamphlet contains a specimen "*Cahier des charges*," or specification, for works of painting, gilding, paperhanging, and glazing. It has forty-four clauses, or "articles," treating of the manner of executing the painting on surfaces not previously painted, and on those which may have been so painted, of the cleansing of painters' work for the preservation, of painting in distemper, of the treatment of mouldings, of gilding in oil and in water, of the paperhanger's work, of the glazier's, and of the liability of the contractor, and the damages to which he will be subject in the event of non-performance of his agreement. The first article sets forth that no coat of paint may be laid without written order of the architect. The next following articles specify the colour to be adopted for the first coat (and sometimes that of the second also), according to what may be intended to be the finished colour; and for the remaining coats, they say that the colours are to be those which may be selected by the architect. Another article sets forth that as to certain portions of the work, as the backs of shutters, parts of back-stairs, kitchen-doors, and the like, not executed after previously described methods, the price of a third coat of paint shall not be demanded unless after production by the contractor, of the written authorization. We should mention that in no part of the specifica-

tion, do we find allusion to more than three coats. The next article directs that coating of size is never to be used, to receive painting in oil, whether for plaster or woodwork, under pain of consequences referred to afterwards; and that the contractor must conform to certain stated articles of those which relate to the painting of the work that has been previously painted.

Under the general head for this latter, the first article directs that when the tints are to be similar to the old, they shall be mixed somewhat lighter, that the contractor shall paint a surface as specimen, and that where there are two coats, the second is not to be paid for without the production of the architect's written order. The next article directs the use of tinted putty for stopping, after the last coat but one, and also mulcts the contractor in the price of one coat if he be unable to produce a note from the architect, or proprietor, attesting that the stopping has been done in conformity with the terms of the article. Then there is an article to distinguish the work requiring the greater amount of rubbing-down from the other work. In following articles it is stated that painting in two tones to the back of shutters, and insides of cupboards, without written order, will be disallowed; and there are rules for the measurement of Venetian blinds, and the estimation of the painting of various matters of ironmongery.

As to the cleansing of old work, the contractor is to direct attention to such work, if it be in a bad state, before commencing; and if the cleansing should be done in such manner as to compel repainting, he is to bear the charge thereof. Distemper-work is to be executed subject to the chief conditions given for the painting in oil; and when the work is finished and dry, it is when rubbed, even rather hard, with a piece of black cloth, not to soil the cloth any more than would work in oil; at least, this, it is said, should be the case unless there be humidity in the plaster. Five articles relate to oil-gilding, three to water-gilding, and six to paperhanger's work. They chiefly aim at the prevention of demand for extras. Under the head of glazing, one of the articles requires that specimens of the glass, marked with the signature of the contractor, shall be deposited with the architect, in order that the latter may have recourse to the manufacturer to ascertain if the material be really that originally approved of.

The articles defining the responsibility of the contractor, relate to the breakage of glass, damage caused by the workmen of other trades, and to various omissions.

The last division, relating to damages to which the contractor may be exposed, is in some respects the most important. Its first article states that the architect's supervision at every instant being impossible, the proprietor reserves, notwithstanding the previous clauses, the right, after the works are finished, to scrape parts of the painting, or gilding, in order to submit them to chemical analysis; when in case the white of lead should be found inferior to that of certain specified manufacturers, the contractor will be made to submit to a deduction of 25 per cent. in all work where such pigment has been introduced. Should the analysis disclose the use of size to replace oil, there will be a deduction of 50 per cent. upon the whole of the work where it might have been possible to use the size, reason alleged being the bad result sooner or later to attend the use of any such matter as size, especially on plaster. Deductions of 25 per cent. are provided for in the case of defects made apparent by the examination of other parts of the work, as in the material of the gilding.

The analyses here referred to may be made without much experience in practical chemistry, and at an expense ranging from 8s. to three times that sum. The methods adopted by M. Leclaire, are due to M. Barruel, professor of practical chemistry at the Ecole de Médecine, and would enable the experimenter to recognise the presence of size, or paste, or to discover whether the white of lead were pure. In each case a portion of the paint must be scraped off, to be subjected to the experiment.

The object of the pamphlet that has been noticed above, was to show that competition without limits or conditions, produces ill effects; the entire means to ensure good work in house-painting, as in other branches of the building-craft, are still left for the consideration of those who are competent to take up the subject.

* "*Dialogues sur la Concurrence sans Limites dans la Peinture en Bâtimens*, ainsi que dans la Dorure, la Tenture, et la Vitreerie," 8vo. pp. iv. & 36. Paris, 1862. M. Leclaire has issued in the previous year, "*Recueil de Notes sur les Abus introduits dans la Peinture en Bâtimens, ainsi que dans la Dorure, la Tenture, et la Vitreerie*," etc. (4to. Paris, 1861.) and about the same time, "*Des Améliorations qu'il serait possible d'apporter dans le Sort des Ouvriers Peintres en Bâtimens*."

THE SANITARY CONDITION OF NEW YORK.*

The City of New York ought to be one of the most healthy cities in the world, for no other large city is favoured with greater natural advantages of locality and climate, and probably no city has a greater influx of a vigorous and healthy population, from the rural districts and from foreign countries. But a very high death-rate with proportionate sickness prevails. The total number of deaths during 1863, according to the city inspector's returns, was 25,196 out of a population of scarcely 900,000. This is equal to one death in every thirty-five of the inhabitants.

Hitherto there has been no proper organization for sanitary purposes established in New York; but the immense benefits already derived from sanitary improvements in this country have been appreciated by the more enlightened and energetic of the citizens; and a Citizens' Association has been formed, on voluntary principles, for the purpose of showing forth the need for sanitary reforms. This association has appointed a Council of Hygiene and Public Health, the executive committee of which, first of all, addressed a letter to twenty-four of the principal physicians of the city, for the purpose of obtaining from them the fullest and most reliable information relative to the public health. The medical men thus addressed not only responded with the utmost cordiality and public spirit, but afterwards, as voluntary sanitary inspectors, reported minutely on the sanitary condition of various districts into which the city was divided for the purposes of this sanitary inspection. These reports, together with reports of the executive committee and the council to the sanitary association of the citizens, have now been published, and they form a portly volume of 360 octavo pages, a copy of which the council, by their secretary, Dr. Harris, have just sent us.

"It should be borne in mind," says the council, in their Introductory Statement, "that this preliminary labour of the Council of Hygiene, and its corps of skilled and indefatigable sanitary inspectors, has been planned and performed voluntarily, and by gentlemen whose time and thoughts are burdened by their ordinary professional and official duties; and that none of the means or power of the municipal government could be used in prosecuting the great work of inquiry and recording, which has, under peculiar disadvantages, but with marked success, been prosecuted by them."

The Citizens' Association asks the attention of the people of the City and the State of New York to the facts set forth in this Sanitary Report, and it also asks that the needed works of sanitary improvement be immediately begun by competent minds and competent hands. The skilled labours and trustworthy advice of a voluntary council of hygiene have definitely determined when and how such works of improvement should be commenced: they have shown what is the nature, and what must be the preventive or cure of existing causes of needless sickness, mortality, and public peril from removable evils."

Such is the position of the sanitary question in New York. A new war,—a war against nature's powers of evil,—has been resolved upon just as the fearful and destructive civil war has ceased; and the citizens may be assured that they can save, if they choose, as many lives during the next few years in their city as they have lost of their citizens by war during the past few years.

The physicians, in their joint response to the address of the committee, while drawing attention to the "fearfully high death-rate" of the city, say:—

"By means of suitable sanitary regulations, and a faithful and competent administration of such laws, the rate of mortality in this city ought to be very greatly reduced. The experience of other great cities, and the teachings of sanitary science, warrant the opinion that the present rate of mortality may be reduced fully ~~twenty~~ ^{one} per cent. Such a reduction would save from 7,000 to 8,000 lives in the present year. But the saving of this vast number of precious lives is not the only, nor is it the greatest, benefit that would result to the health and welfare of the city by means of suitable sanitary government."

It is a medical and statistical fact that for every death in a large community there are at least twenty-eight cases of sickness. This would give, in the population of our city, upwards of two hundred thousand cases of *preventable* and *needless* sickness every year! This conclusion is fully warranted by the statistics of our public charities, and by medical observation, and it is based upon broad inquiries and generalization respecting sickness and mortality in Great Britain, as stated by Dr. Lyon Playfair, a distinguished authority in hygiene.

It is a maxim in the medical profession that it is far easier to *prevent* disease than to *cure* it, and it certainly is far more economical to do so. And when we remember that the great excess of mortality and of sickness in our city occurs among the *poor* classes of the population,

* "Report of the Council of Hygiene and Public Health of the Citizens' Association of New York, upon the Sanitary Condition of the City." Published, with an Introductory Statement, by order of the Council of Hygiene and Public Health, New York: Appleton & Co., Broadway, 1865.

and that such excessive unhealthiness and mortality is a most prolific source of physical and social want, demoralization, and pauperism, the subject of needed sanitary reforms in this crowded metropolis, assumes such important bearings and such a vast magnitude as to demand the most serious consideration of all persons who regard the welfare of their fellow-beings, or the best interests of the community."

The reports of the inspectors show that in certain portions of the city there exists an almost universal neglect of sanitary regulations; the streets, courts, and alleys generally filthy, the gutters obstructed, the house-drainage defective, and the sewerage faulty; while in the subdivided "tenant-houses" of such localities are found numerous cases of typhus, small-pox, and all varieties of pulmonary and infantile maladies, which are perpetuated and rendered fatal by overcrowding, domestic uncleanness, and want of ventilation. In such localities, however great the advantages of natural salubrity, and however well fed and well-to-do the resident population, sickness is always very prevalent, and diseases are very fatal. On the other hand, there are portions of the city in which the streets have been well paved and kept clean by private enterprise, or by the influence of the residents; where the dwellings are kept in a cleanly and not overcrowded condition; where the local drainage and general sewerage are good, and local nuisances of every kind are abated. Here a very different state of health prevails. Thus, while in the Fifth Ward, included in the third Sanitary Inspection District, the death-rate is one in twenty-eight of the resident population; in the Fifteenth Ward, which is included in the same district, the death-rate is only one in sixty. The Council of Hygiene, in their report, while speaking of the inevitable mortality of the total population of the city, point to the Fifteenth Ward, and say,—

"It is entirely practicable to bring the standard of health throughout the city up to the present standard in that ward. Good sanitary regulations will bring up the health-standard in some wards, the Twenty-first, or Murray Hill district, for example, to a point considerably higher than that of the Fifteenth. The entire city, with a death-rate of 1 in 60, which is the present rate of mortality in a central, crowded, but salubrious ward,—the total mortality of the city—would be at the rate of but 16,668 to the million, instead of ranging as it now does from 25,500 to 38,000 deaths to the million of the inhabitants. And if, for the present, the death-rate in the city were brought down to the standard which, by the agency of sanitary works, was speedily reached in London, and which New York enjoyed fifty years ago, under better sanitary regulations than are now enforced, namely, about 1 death to every 45 of the population, it still would be too high a rate of mortality, though it would be a saving of several thousand lives annually upon the present mortality."

Of course, the contrasts just referred to are observed no less in the relative amounts or rates of sickness than in the rates of mortality; and, in the study of causes which induce and perpetuate the diseases prevailing in the insalubrious quarters, the physicians find the full explanation of such wide differences in the sickness and death rates of particular localities.

The reports of the sanitary inspectors show that particular diseases are connected with special conditions of insalubrity. Typhus fever and consumption are found in the overcrowded tenant-houses, and in dark noisome quarters excluded from sunlight and fresh air. Cholera infantum, dysentery, diarrheal diseases, and various typhoid maladies are found to prevail in badly-drained and neglected streets and alleys, and in cellars, or in damp and filthy domiciles surrounded by nuisances and poisonous effluvia. In such localities it has also been observed that scrofulous, rheumatic, and eruptive diseases prevail, and that the average or constant sickness-rate in the families and houses so situated is very high, the proportionate number of persons sick, or the total days of sickness, being three, five, or even ten times the ratio of sickness in the localities where better sanitary care prevails. And physical and rational evidences combine with overwhelming proof to show that specific and removable physical conditions both produce and perpetuate such sickness.

Within a single "block" of streets from the elegant mansions of Stuyvesant Square, is a row of tenant-houses in which typhus has been constantly prevailing for more than a year past. From one of these houses, in which reside twenty families, the Sanitary Inspector reports that he has sent more than twenty patients to the fever hospital during the year 1864, and that at least eighty cases of the fever occurred in that house during the year. Again, in a group of crowded tenant-houses, near the corner of Mulberry and Canal streets, typhus has prevailed very fatally, and almost constantly during the past three years; and in the first two months of

the winter of 1865, twenty-three patients and five deaths from that fever were witnessed by the sanitary inspector in two of the smaller houses. In another quarter, upon a great thoroughfare, the infection of typhus has for a long time been so virulent and fatal, that in consequence of the panic it creates among the families which it enters, a perpetual succession of hasty removals both of families and fever patients has been kept up during the year, and that means the seventy-four domiciles of that single rookery have sent out an incessant and widely-distributed current of the typhus poison to other and distant sections of the city.

In short, the sanitary investigations of these New York inspectors confirm, in reference to this city, the truth of the conclusions now familiar to the public of our own cities,—

"That filth, overcrowding, bad drainage, excessive humidity, imperfect supply of air and sunlight, neglect of excrementitious and decaying material, and the putrid exhalations from sinks, sewers, gutters, and dirty streets, both produce and perpetuate disease; and that whatever sickness occurs in such localities is more virulent and destructive than the same or similar maladies when occurring in places where such conditions do not prevail."

The council recommend,—

"First.—That a system of faithful Medical and Sanitary Inspection should be maintained throughout the city, for the purpose of searching out and reporting to a central authority the existence and the sources of fevers, small-pox, and other pestilential diseases; and that, in the absence of a competent board of health, such duties of inspection, &c., should be maintained by voluntary organization. It is also recommended, that such sanitary inquiry should be accompanied by the needed personal advice, and such other influences as would tend most certainly to diminish the evils thus discovered and reported."

Second.—That either by public authority or a competent bureau of hygiene, or by voluntary and private enterprise, there should be instituted such a system of general inquiry and advice concerning the occurrence and spread of contagious and dangerous diseases, as will not only enable the people of the city of New York to protect themselves against dangers that now exist in their midst, but also more effectually guard against small-pox and fever from external sources, and at the same time intelligently provide adequate measures to prevent the spread of such infectious diseases from this city to other communities."

The evils and abuses of the tenant-house system are seen on every hand, and the council have adopted the *Builder's* mode of forcing this on the public eye by graphic illustrations of various "fever nests" of this description:—

Not only do filth, overcrowding, lack of privacy and domesticity, lack of ventilation and lighting, and absence of supervision and of sanitary regulations, still characterise the greater number of them; but they are built to a greater height in stories; there are more rear tenant-houses erected back to back with other buildings, correspondingly situated on parallel streets; the courts and alleys are more greedily encroached upon and narrowed into unventilated, unlighted, damp, and well-like holes between the many-storied front and rear tenements; and more fever-breeding wynds and *culs-de-sac* are created as the demand for the humble homes of the labouring poor increases. Disease and death bear fearful sway among the inhabitants of this class of dwellings. "These evils," as the council remark, "must be remedied; and as far as possible they should be prevented by faithfully executed sanitary regulations." The subject of improved dwellings and model lodging-houses needs to be far more seriously considered in New York than it has yet been. The council recommend:—

"First.—That capitalists, architects, and builders should unite in devising and executing the construction of improved dwellings for the industrial classes in the city."

Second.—That effective measures be immediately undertaken to procure the introduction of needed improvements in the ventilation, lighting, and cleanliness of the tenant-houses of the city."

Third.—That citizens should put forth the requisite efforts to procure the enactment and execution of suitable sanitary laws for the better regulation of tenant-houses, and to enforce the necessary care and cleanliness of the same by the owners, lessees, and occupants."

Fourth.—That a Department of Social Statistics and Dwelling Improvement be maintained in connexion with the plan of labours pursued by the Council of Hygiene and the Board of Engineers and Architects of the Citizens' Association of New York, for the purpose of acquiring and imparting needed information relating to the social statistics and improvements in dwellings which sanitary science and the public welfare require, and which will best conduce to the immediate development and execution of successful plans and examples of the dwelling improvements which are demanded for the physical and the social welfare of the industrial classes."

* By the way, it is notable that while these reports have frequently been sent to English writers who have only followed the lead of the *Builder*, we find only one instance in which anything like justice is done us in this respect. The *Builder*, like the *Times*, appears to be regarded, in this connection, as public property, which any one is entitled to make use of without much acknowledgment.

There are 173 slaughter-houses in the City, all of them too offensive to health and decency to be longer permitted in their present localities. These establishments are thrust into the midst of the most crowded districts, and a loathsome train of dependent nuisances is grouped in the same neighbourhoods.

Towards the full attainment of the prospective sanitary advantages which the Association of Citizens and their council have in view, one grand agent is already prepared in ample force;—that is, water. New York is blessed with a noble system of water supply, and which for years past has exerted a most direct and important influence in protecting the inhabitants from the general prevalence of typhoid infections and diarrhoeal diseases. Indeed, the Croton-water, in its universal distribution and abundant supply everywhere throughout the city, tempting to cleanliness of person and premises, preventing the use of water saturated with organic poisons from wells, and of worse poisons from stills, is to be regarded as the chief agency of sanitary protection which the city enjoys. Especially as regards preventable diseases, Croton-water is to-day the only well-administered agency of sanitary protection yet provided. But, alone, this agency is insufficient to guard against the incursions of disease; and, when house drainage and sewer cleaning are neglected, and when, in crowded courts and in obstructed gutters and cesspools, the filthy ooze and fever-breeding exhalations are kept up by means of waste water and putrefying organic matters, even the rich blessing of abundant water-supply becomes in particular instances a source of disease. Nevertheless, the value of the benefits outweigh the aggregate of evils from neglect, even in such instances.

THE UNDERGROUND WORKS AT LAMBTON CASTLE.

HAVING been solicited to furnish a paper relative to the underground work recently done under my supervision, to prevent the further subsiding of Lambton Castle, I beg to make the following observations. They will serve to supplement the paper contributed by Professor Smirke.*

Soon after the castle, which is the property of the Right Hon. the Earl of Durham, was discovered to be sustaining damage by the subsidence of its foundations, I was, in October, 1854, requested by Mr. Henry Morton, his lordship's principal agent, to endeavour, without loss of time, to ascertain whether the workings in the main coal seam, which are at 199 ft. below the surface of the Castle, were the cause. On the 24th of that month, I, with others, descended to this seam by means of the Old Engine pit-shaft, near to the river Wear, and east of the park; and, after freeing the workings from the accumulated silt, a work requiring some little time, found no evidence that the cause of the shrinking of the building existed in the workings of this seam; for, although the roof in some places had fallen to the extent of 10 ft. or more, the pillars of coal, and also the strata immediately above, remained perfectly firm and unshaken: this seam itself being 6 ft. in thickness, and in places 10 ft. of the roof having fallen, the height of several of the pillars, wholly in part, were of course found to be 16 ft., which gave them the appearance of not being of such strength as to withstand any general movement of the under or overlying strata without becoming crushed and causing a corresponding subsidence of the surface.

Mr. Morton, with his usual prudence, caution, and foresight, consulted two of the oldest and most eminent mining engineers of the district; and, acting upon their suggestions, the workings under and around the castle, to the extent, in this seam, of an area of upwards of $4\frac{1}{2}$ acres, were hereafter alluded to, were carefully and completely stowed or filled up with the fallen debris brought from the adjacent workings. This stowing was completed on the 14th of February, 1857. Whilst the above work was being prosecuted, communication, by means of a staple, was made with the seam below, in the workings of which similar results to those already mentioned, excepting only that fewer stones had fallen from the roof, were discovered. These workings were also stowed in a similar manner to those of the seam above named, being begun on the 10th of

December, 1855, and finished on the 13th of September, 1856.

Failing to discover in either of these seams the cause of the damage to the castle, it was sought for in the seams above and below them: the upper seams previously, however, were not known to have been worked. I may now state that below the castle floor,—

	Ft. In.		Ft. In.
At a depth of 30 0	is a coal seam of 2 0	in thickness,	
" 60 3	" 2 0	"	"
" 100 4	" 2 4	"	"
" 138 0	" 4 1	"	"
" 199 0	" 6 0	"	"
" 259 0	" 4 0	"	"
" 415 0	" 4 0	"	"

all of which seams have been worked in the whole mine, or, in other words, worked so as pillars only are left, which pillars in some of the seams stand over and exceed the whole area occupied by the castle, excepting the top seam, that at 30 ft. depth, which being only drifted into a few feet, is standing unworked; the second, third, and fourth of these seams, which are called the second, three-quarter, and five-quarter (the first, that at 30 ft., being called the top seam), are those in which the pillars of coal have been left of insufficient strength to support the weight of the superincumbent strata and castle, and were therefore, from their weakness, the cause of the damage.

Finding the pillars of coal much crushed in these seams, more particularly those in the second and third, in order to secure the foundations at all satisfactorily, it was found necessary not to stow the workings as those of the fifth or main coal, and the sixth or Mandlin seam; but, instead, to remove all the crushed coal and other disturbed material, and to fill the space with solid brickwork, which, in the second seam, was begun in February, 1856, and left off in October, 1858; the third, or three-quarter seam, was begun in January, 1857, and left off in December, 1858; and in the fourth, or five-quarter seam, the solid brickwork, in like manner, was begun in November, 1858, and left off in August, 1860.

The main coal and Mandlin seam workings, below these, as already stated, being stowed or packed with fallen debris, there remains to be mentioned as having been worked under the castle, or as having reference to it in anywise, only one more seam, which, as mentioned above, is the seventh, or Hutton seam, and the workings in it, under and about the castle, for the most part are not what are generally called *wide*, but *narrow*, workings, the widest being about three yards, and consequently they present but little if any risk of damage to the surface, or castle, so long as the working of coal is not permitted to approach within a proper distance of, and such as will not diminish the lateral support necessary to prevent undue pressure upon, the pillars of coal left immediately under and around the castle. This observation, with respect to the lateral support, in my opinion, applies equally to the main coal, Mandlin, and other seams, notwithstanding that the workings in them may be built or stowed: such precautions being self-evident will, no doubt, at all times have the proper attention of his lordship's agents.

When the brickwork in the workings of the three seams as already stated, viz., the second, three-quarter, and five-quarter seams, arrived at that state of completion to warrant the prudent removal of the masons engaged at the work, and consequently of their being prudently employed at the restoration of the castle, the underground work was discontinued, and the restoration was commenced,—the underground work being intended to be afterwards resumed and completed, which at this time (June, 1865) is about being proceeded with, with a view to its being finished, and now, after a lapse of nearly five years, it is far from unpleasant to me to be enabled to record that I understand not the least appearance of shrinking has presented itself in any portion of the building. In conclusion, I may state that there have been built,—

	Bricks.
In the top seam, over an area of 45,800 square feet, surrounding 100 small sound pieces of pillar coal	6,900
In the third or three-quarter seam, over an area of about 105,000 square feet, surrounding about 120 pillars and portions of pillars of sound coal	1,856,580
In the fourth or fifth quarter seam, over an area of about 95,000 square feet, surrounding about 140 pillars and portions of pillars of sound coal	5,042,980
Together	2,875,520
Which with 6,000 used in the main coal seam, and say 21,710 yet required for second, third, and fourth seams together, make the gross number, say	9,792,280
	10,000,000

Before leaving the subject with reference to the brickwork, I would observe that, in certain places in the second, third, and fourth seams, it was required to be carried to a considerable height to reach firm material, such as was considered of sufficient solidity, and in several instances, in the latter seam, the height exceeded 30 ft.

The quantity of stowing in the workings of the seams next below those last mentioned, may be stated as being,—

	Cubic Yds.
In the fifth or main coal, over an area of about 45 acres, or 135,000 square feet, including 152 pillars of sound coal, assuming 12 ft. as the average thickness	40,000
In the sixth or Mandlin seam, over an area of about 3 acres, or 130,000 square feet, including 104 pillars of sound coal, and assuming 5½ ft. as the average thickness	13,000
Making the total number in these two seams	53,000

The seventh, being the lowest or Hutton Seam, as already observed, is not built up or stowed, but is considered to be left in a condition strong enough, so far as relates to it, to render any apprehension as to damage on the surface unnecessary, so long as proper precaution is taken to keep the working of coal sufficiently distant from the castle, and which, as already remarked, will doubtless from time to time have the attention of his lordship's agents.

Not only in the removal of the fallen debris, and in the substitution for it by stowing and masonry, but from the accumulation of noxious gases in the whole of the workings, some of which workings, those of the upper seams, are believed to have been made about 300 years ago, considerable danger, as may readily be imagined, had to be encountered; and I, as having had the entire direction of the work, have much comfort and satisfaction in the fact that in an undertaking of such magnitude no accident of a nature at all serious, nor such, indeed, as to cause any of the workpeople to be absent from their work, occurred, excepting only in a single instance, where one man, from a slight bruise, was prevented coming for a few days.

I think it due to the memory of the late Mr. John Cawthorne, who was for many years master-mason at the Lambton Collieries, to state that the manner in which he executed the underground masonry work was to me highly satisfactory; and with respect to the dangers and critical work connected with the removal of the much fallen strata, and the freeing of the workings from inflammable and other gases, credit is, I consider, due to Anthony Winslip, for the steady and attentive way in which he carried out the directions he, from time to time, had given him.

R. HECKELS.

CHICHESTER CATHEDRAL.

A CORRESPONDENT, signing "F.S.A.," writes:—"It is well known that the Gothic central lantern is the counterpart of the Byzantine dome, as the detached bell-tower is of the Lombardic campanile: both of these fine features occur at Chichester. During the destruction of the bell-towers, in many instances the lantern was converted into a heltry story, and shut out from view by a vault, to the destruction of the original effect. A long continuous vault or ceiling, unrelieved by the occurrence of the lantern, is always a sensible diminution of grandeur in a building. It is said to be the intention of the Executive Committee to restore the vault in the newly-rebuilt lantern at Chichester, simply from a somewhat superstitious desire to make a *fac-simile* in this respect of the tower which fell. It is a scheme to be deprecated, and, if possible, prevented. The walls, it is true, are now wholly unornamented, but they offer a grand opportunity for the exhibition of the finest mural enrichment and of frescoes on a noble scale, which would form a fitting base to the windows if filled with stained glass; whilst a coved vault of different stones above would form a domelike termination to the interior. We all admire, to the highest degree of delight, the superb octagon of Ely and the open lantern of other cathedrals, showering down a flood of radiance upon the crossing. Is it possible, then, that with this rare opportunity for creating a matchless effect, the eminent architect engaged at Chichester will not embrace it? The alternative is a regulation vault inside, and a system of detestable louver-boards, with their rigid lines clogging up the windows, without any object to serve. I do hope, sir, that you will

* See p. 499, ante.

now exercise your influence whilst there is time, to withstand a resolution which will, if carried out, be a source of endless regret hereafter."

The suggestion appears to us well to deserve the serious consideration of those who are engaged in the rebuilding. Visiting the five-aisled cathedral recently, we were glad to find the work advancing. The tower is up, and the spire commenced. The work appears to be generally, soundly done. Iron bars, we may note, tie the four arches of the tower together at the springing. The carved ornaments in the upper part of the tower, by the way, would be the better for a little extra force, scarcely showing at the height at which they are placed.

What has become of the portraits and other painted decorations of the south transept? It is to be hoped they were not destroyed in the fall of the tower. The curious sculptured groups in relief affixed to the south wall of the aisle at the east end of the building should not be overlooked by the visitor. They would seem to belong to the eleventh century, though the verger (an obliging one he is) has been persuaded to make them two or three hundred years older.

The tower, once Cissa's camp (*Cissa's Caester*), will always afford a pleasant day to the tourist. The fifteenth-century bell-tower, the only one in England attached to a cathedral, the market cross (going rapidly to ruin, apparently), and St. Mary's Hospital, are the most important features.

At Boesham Church, a few miles off, where Canute's daughter was buried, where Christianity was first taught on the Sussex coast, and whence Harold started when he visited Normandy, some works are going on and have made evident the very early date of much of the building. In that division of the Bayeux tapestry which is inscribed, "Harold and his Knights riding towards Boesham," the church is indicated, though not properly represented.

A SUGGESTION FOR HOMES OF THE INDUSTRIOUS CLASSES.

In all directions we hear complaints, especially in Clerkenwell parish, of the demolition of the houses of the industrious and poorer classes, and that so little has been done for the purpose of relieving the evil which is complained of, notwithstanding opportunities which, if allowed to pass by, will not be again readily found. For several years an immense area, from which a great multitude of people have been removed, has been left lying waste. The line of street which has been marked out, with the arches formed, and the roadway made, and reaches from Farringdon-street to the bottom of Coppe-row, has been left without use, except the part which is occupied by the railway and station: the rental lost in this way would amount to a considerable sum. Although the houses and shops are not yet formed, the wayfarer will notice the great increase of the traffic which comes this way, and soon the basement of these premises will, in the shape of shops for various kinds of business, turn in a goodly sum; and it is well worthy of consideration, if the under part of the buildings be devoted to the purposes of trade, whether the superstructure should not be let in flats, like parts of Edinburgh, for the use of families. For a large number of persons who have families and whose employment causes them to be engaged in the City, this site is most convenient: its close position to the Underground Railway, which will ere long be a means of transit to the chief points of the metropolis and the suburbs, will in other ways be of advantage in rendering this a useful place of residence. Let us therefore hope that the opportunity which is here afforded may not be allowed to slip away: at any rate, let us have an estimate of what the shops here would be likely to bring; and of the rental of sets of apartments arranged in flats after the Scotch fashion,—the houses being raised say to the height of five stories above the shops. We have no doubt but that apartments of the kind indicated would, in this situation, let as readily as those in Stratton-street and some of the other so-called model lodging-houses. The cost of building houses of this kind could be readily estimated, and the ground-rent and working expenses exactly known: we could then see the chance which there would be of making an undertaking of this kind pay a fair amount of interest. There are at the present time heavy calls on the London corporation, in consequence of the Holborn viaduct and other works; but

there is a duty resting with the corporation of this great city, to set an example in providing dwellings for the use of those who have been ejected from their homes, in consequence of the needed changes of this time of transition; but if the provision of dwellings on the plan which we have hinted hold out a fair promise of paying, shops and all together included, a return of 5 per cent., any amount of money which might be needed for a purpose of this kind could be obtained, in consequence of the new order in council which has been made, in connexion with sums which the Government has at its disposal for the purpose of assisting schemes of this description. The opportunity to which we have referred may, if allowed to pass by, not be again readily met with. Farringdon Market, the street facing the Fleet Prison, the property in Smithfield, are well worth the most careful consideration of those whose duty it is to attend to the provision of houses which are so much needed.

It may be said that by the erection of houses, and dividing them in flats, the amount of rental which will be required to make them pay will confine them to the best paid classes of mechanics,—to clerks and others engaged in various ways of business;—but the fact is, that by providing house-room for any particular class, we make way for those who are, to a certain extent, below them.

NEW BLACKFRIARS BRIDGE.

On Thursday, at the moment of our going to press, the foundation stone of the new Bridge at Blackfriars was laid by the Lord Mayor with considerable ceremony. The stone bears a Latin inscription, of which the following is the, not very precise, official translation:—

The former Bridge over the River Thames having fallen into decay,
The Court of Common Council
of the City of London
ordered the Construction of a New Bridge
on the same site,
of which the Right Honourable Warren Stormes Hale,
Lord Mayor,
laid the first stone, on the Twentieth Day of July,
in the year of our Lord, One Thousand Eight Hundred
and Sixty-five.

We trust under better auspices:
for the former Bridge was built
during a period of general war;
the construction of the present has been undertaken
in a time of profound peace,
in the Twenty-ninth year of the reign
of QUEEN VICTORIA,
at a moment when the former restrictions of commerce
have been removed,
and, by the adoption of Free Trade,
those separate interests which divided nations
have been happily bridged over.
May the Almighty,
of His infinite goodness,
grant to the work a happy completion.
JOSEPH CUBITT, Engineer.

The original says, *Joseph Cubitt Construxit*, which, to future ages, should the bridge last, will not convey the same idea as the English version given: in fact, it is not the right expression.*

We must in justice add, though we now give no constructive particulars, that Mr. Henry Carr is joint engineer with Mr. Cubitt; but the committee to whom the work is entrusted refuse, in accordance with an existing rule, to recognise more than one name.

Mr. R. W. Mylne writes as to the old bridge:—In February, 1760, the decision was finally made by the City authorities, approving, out of fifty designs, the one sent in by my grandfather, Mr. Robert Mylne; and, four months later, the first pile was driven for the south middle pier. No works whatever were carried out on the north bank of the river until May, 1764, when the excavations for the north abutment were commenced; but those on the south bank were begun much earlier.

The laying of an inauguration stone on the City side of the river by Sir Thomas Chitty, in 1760, before the expiration of his mayoralty, was considered so desirable that, although no permanent works had been commenced, it was decided to have a great public ceremony, and for that object a special excavation was made in front of the old wharf wall adjoining the mouth of the River Fleet, to the west of the ancient causeway, or public ferry landing-place, at the foot of Water-lane.

Four large Portland blocks were fixed on a platform, over which a stone 6 ft. by 3 ft. was

* A view of the proposed Bridge, and some descriptive particulars, will be found in our Vol. XX. (1852), p. 732.

placed, having a cavity 47 in. by 30 in. for medals and other objects, besides a plate of tin bearing an inscription.

This inauguration stone was laid on the last day of October, 1760, and was securely fixed with fourteen iron cramps, dove-tailed, and leaded, and, subsequently, two additional blocks were fixed to prevent the possibility of its being disturbed, the total cost being 185*l*.

In the following year the pile-driving at the south middle pier had so far advanced as to permit a caisson to be floated and set, and masonry founded within.

The first stone at the south-east angle of this pier was laid on the 23^d of June, 1761, by Sir Robert Ludbrooke, chairman of the Bridge Committee, under which was placed a slab of Devonshire marble, with an inscription, and immediately above, another slab of similar marble, with inscription, was laid by desire of Sir Francis Goelling.

The whole of these inscriptions, besides medals, &c., were discovered in this pier in 1834, when the repairs were carried out, renewing the cutwaters with granite, in lieu of Portland; and on the 14th of January, 1835, they were again relaid, on the occasion of an official ceremony by the Bridge Committee, at which I was present.

THE PROPOSED EXHIBITION OF NATIONAL PORTRAITS.

A MEETING has been held in South Kensington Museum for the purpose of organising the projected National Portrait Exhibition. Amongst those present were Earl Granville, the Earl of Derby, the Duke of Buccleuch, the Marquis of Lansdowne, the Earl of Clarendon, Lord Houghton, Lord Tannton, and Viscount Sydney.

On the motion of Earl Granville, Lord President, the chair was taken by the Earl of Derby, who said that it was not intended that the present meeting should come to any resolution, but that it should act as a committee of advice, and give information as to any details which it might be thought advisable to take into consideration. The object in view was to form a collection of portraits—beginning probably about the middle of the fifteenth century and coming down to a very recent period,—which should exhibit in chronological series the great contemporary characters of the successive eras—the statesmen, warriors, men of letters, and artists of each age—whose portraits could be collected together from private sources. It would also be useful and interesting as illustrating and affording an opportunity of tracing the progress and condition of British art at various periods. There were in private houses a vast number of such portraits now utterly unknown, but which would be brought to light by the exhibition, and afford valuable materials for history. It was proposed that the exhibition should take place in one of the arcades—that which had served for the refreshment-rooms of the Exhibition of 1862. There they would have space for about 800 portraits. It was proposed that the exhibition should be opened in April, 1866, continuing open for several months, and it would depend upon the number of contributions whether there should be a second or even a third exhibition in the following years. He had received a letter from General Grey, intimating that her Majesty entirely approved of the project, and that it should receive her warmest support.

Earl Granville, Mr. Scharf, Mr. Redgrave, Mr. Cole, the Earl of Clarendon, the Marquis of Lansdowne, the Duke of Buccleuch, and all gentlemen, addressed the meeting, and all appeared to be of opinion that a very numerous and valuable collection would be obtained for exhibition.

COST OF CHORLTON HOSPITAL.

With reference to the cost of this hospital, of which we recently gave illustrations, we learn that the general contract for the five pavilions, with the corridor, very little exceeds 15,000*l*, or, in round numbers, 3,000*l*, a pavilion, with portion of corridor. This does not include fittings or administration, but the cost presents a great contrast to that of the large foreign hospitals, or to our own military hospitals, at Netley and Woolwich. The architect observes,—"I need not say that all attempt at architectural effect has been carefully avoided, but the work is substantial and good, and the main sanitary objects will be attained."

M. MICHEL CHEVALIER AND ENGLISH ART.

Sir,—If it be difficult sometimes to come to a correct judgment on a subject by reason of its distance, it is equally hard at times to do so by reason of our closeness to it. We are unable to see the definite outline of an object very far off, and equally unable to take in the same outline from the fact of standing so near to it that we can see but a part of it, thus missing as much of the truth of things by nearness and intimate knowledge as by remoteness and ignorance.

The truth of this will be evident to any one who has ever tried to estimate the value of the common and every-day art about him, by watching the growth of new buildings close to him,—by noticing the perpetual change of fashion, and the ever-changing art of the time, as seen, and to be seen only, in the contents of the shop windows. We are so near them that they seem all unchangeable. What a vast help, therefore, it is, and must be, when some one of sufficient capacity and knowledge looks at all these things from a distance, and who then tells us in plain and pointed language how these same things, that seem so and so to us that are near, appear to him at a favourable distance and entirely unprejudiced. We must, therefore, as I think, all feel much obliged to M. Michel Chevalier, the great French economist, for looking, in a kindly way, at English art as it was and is, and comparing it with his own French art. I do not know what others may have thought of his remarks in the French Chambers, and which have now gone the round of the newspapers; but I think, with all possible respect, that they are as erroneous and void of foundation as anything ever yet uttered on art matters; and it is to dispute their correctness—no one having, as far as I have seen, yet done so—that I plead for space for a few lines on so very important a matter. I must ask again for a little attention to facts, and of those with short memories for form and pattern, to go once or twice up and down any one of our principal shop streets and look into the “windows” for evidence. Bond-street is always enough for me.

M. Chevalier tells us that it is now three whole years since he was in London; but that then (1862), both himself and his colleagues were struck at the progress made by us English in the art of design in connexion with industry, and it inspired them with “*admiration and fear*,”—admiration at our English capabilities, and fear lest his own countrymen might be outdone. Let me observe here, in passing, so as to avoid mistakes, that he is speaking of the evidences of art-strength as seen in the 1862 Exhibition; but that it is necessary to bear perpetually in mind that there was nothing more in the building—nor, indeed, is there ever in any of our exhibitions—than is to be seen every day out of them, they having been nothing more than pickings from the principal shop windows. The “*exhibition*” is, therefore, still open to those who will fairly look at it. What was it, then, that so struck the accomplished mind of this Frenchman?—the progress in art-manufacture made during the eleven years from 1851, the year of the first Exhibition, to 1862, the year of the second Exhibition. I must beg simply and shortly to ask him—where? What evidence is there of such advance, and where may specimens be seen showing in themselves, in any kind of material, visible and tangible signs even of it? What was it that M. Chevalier was especially or generally looking at? Was it the building? outside or inside, or the decoration of it? Was it in stone, or wood, or metal, furniture or “*fabrics*,” printed cottons or carpets, or paper-stainings or architectural drawings? What, I must ask, was it? and more, where are all the specimens now? If this wonderful progress was so visible, and all may yet see them, viz., in the shop windows—those true and unmistakable thermometers of the arts of nations. I ask therefore again, what proof is there at this moment, in the contents of these shop windows, of advance in the arts of design and execution since from '51 to this hour? Can M. Chevalier point to one single specimen? I say he cannot; and even more, that no such little group of art-objects could be got together as a series of “*mental art-results and impressions of the mind of an artist in material as was to be seen in that little court of Gothic work of Pugin's*.” We may therefore ask yet again, what *style* of art is that has been or is progressing? M. Chevalier is

in Paris, we in London, and he can see without prejudice what is, perhaps, here viewed with patriotic partiality. Looking at tangible results to be daily seen everywhere, I deny the truth of all this Frenchman has told his countrymen and us.

I know the interest you have always taken in these common though little heeded art matters, but I can only ask you for space to notice in detail one or two actual specimens of art-manufacture now to be seen, without cost, in the great London Exhibition of this year,—the shop windows. I refer to the most costly.

Mr. Ruskin has asked somewhere,—“*What is vulgarity?*” and has attempted, with the help of worthy Shakespeare, to define it in words. *Material* may help both him and us, and certainly my present argument. Vulgarity is insincerity, says Mr. Ruskin. I ask, is it vulgarity, or insincerity, or the progress of the art of design, or manufacture, which can induce a fine lady to dress herself up in a *whites* “*fabric*,” covered all over with huge black, dead black, round spots, or balls, the size of pennypieces, 3½ inches apart! Is this French or English? because M. Chevalier says, that before 1851, all woven fabric patterns were designed by French artists, but that since then this special work has been done by the pupils of our Art Department. Again, is it design, or what is it, which can see progress or art in ornamenting an article of dress, with the representation of a “*hand at whist*,” some eight or ten playing-cards ranged in a semicircle in rows? Is it “*insincerity*,” which covers a blue fabric all over with gilt rings, some 4 in. across? Who will claim the merit of dotting a surface with small feathers, as picked from a fowl, with dice in twos and threes, with exploding bombshells, postage-stamps, an English invention at least; rifles, percussion-caps, stripes half the width of the stuff itself, and hosts of others, which it would take pages to catalogue? Are all these things French or English, “*designs or accidents*”? Are they the results of knowledge or ignorance? Surely it is for M. Chevalier, and such as he, to find in these performances either “*art*,” or “*progress*.” They are things to be ashamed of, whether French or English, and are to be accounted for, in part it is to be feared, by the fact of so enlightened and advanced a man as M. Chevalier allowing himself to talk of things of which he either knows nothing, or perhaps did not take the trouble to look at a second time. But all this is, as I have said, new to the political economists, and they with him have yet to look with a serious interest at what they have hitherto regarded as childish toy-work. The brightest page of their book has yet to be written.

I had thought to have left off here, merely contenting myself with calling attention to the inaccuracies of the French writer, in consideration of his eminent position and the effect his words are likely to have if unquestioned; but he has said much more. Before '51, says he, everything in “*good taste*” was French; we English, “*though having some celebrated artists, have not been very remarkable for taste*.” After '51 came the Schools of the Art Department, or the Schools of Design, and to them exclusively, he informs us, is to be attributed his so-called and thought improvement in our art manufactures. I have indicated a few of the “*improvements*,” and might have gone on and cited the like improvements in other art trades as little to be proud of as “*fabrics*”; but whether all these things are *improvements* or no, I must, from personal knowledge, deny that the Art Department is to be held responsible for them, either by way of credit or blame. It has had nothing whatever to do with the matter. All these fabrics may be covered with noble “*patterns*,” but they are not of the Department; or they may be foolish abortions, but they are not of the Department, as he has been led to suppose. The action of that institution has been, as far as art, or even art manufacture, is concerned, simply *nil*. Movement, but not progress, has been, for reasons which might be given, the motto of the Department; for the very self-same system of work and model drawings in use now thirty years back—all one vast mass of error and falsity—is in use at this very hour. Stagnation the Department may be accused of, but not the “*dulness*” before the '51 Exhibition, nor the “*progress*” after it. M. Chevalier should first look at facts.

One more remark you must kindly allow me. In a number of the same journal, that of the Society of Arts, in which this valuable series of

opinions of an illustrious man first appeared, there is a long and detailed account of a “*National Conservatoire of Music and Eloquence*,” with a list of regulations, course of studies, salaries and duties of officers, etc., the whole complicated apparatus being for the simple purpose of teaching people to sing, or play on some instrument. The French are beginning to find out “*how not to do it*.” The whole work of the institution as a school seems to rest with the inferior and assistant professors; and on looking at the scale of salaries it will be seen that these *working* teachers are paid, or to be paid, some five-and-twenty per cent. less than the “*servants*” of the establishment. The amount of knowledge required of these professors, low as they are, is something appalling; but however accomplished or able, it will be but to find out that to be able to play on, and to teach to others to play on, even the most difficult instrument is of less “*value*” than the being trusted with the duty of *dusting* it. Has M. Chevalier looked at this institution as a political economist? I mention it for the sole reason of asking whether or no there is not something radically wrong in the present idea of art action and teaching. If it be all right, how can such things be? or how can such able men as M. Chevalier or M. Merimée be brought to talk as they have done?

C. BRUCE ALLEN.

NOTES ON FUNERAL OBSERVANCES AND MEMORIALS OF THE DEAD.

FROM the most remote periods, so far as history goes back, to pay honour and respect to the remains of eminent personages, or those of departed friends, is shown to have been an inherent feeling of human nature; and in connexion with the remains of the most celebrated of the ancient people, the tombs and other receptacles of the dead are, for the most part, remarkable for the permanent nature of their construction, and for the artistic skill and extent of their ornamentation.

The discoveries which have been made in recent years show with what great care the Egyptians, many ages ago, preserved the bodies of their dead; and in their anxiety to show their regard to their race, they also embalmed and preserved with care animals of various kinds which were held in favour during lifetime by their departed relatives.

In the sacred writings there are various accounts of anxiety shown in the selection of final resting-places by the ancient men whose lives are therein recorded; for instance, we have particulars of the purchase of the cave of Machpelah and the ground in which it was situated, by Abraham, for the burial of Sarah his wife. As time passed on this became a more and more honoured spot, by the burial in it of the patriarch and others of his race. As a last request, Jacob desired, in a most impressive manner, to be taken from Egypt to the land of Canaan, in which this cave was. On the death of his father, Joseph, in compliance with this request, caused his servants, the physicians, to embalm the body of Jacob, “*and forty days were fulfilled for him; for so are fulfilled the days of those who were embalmed: and the Egyptians mourned for him three score and ten days*.” (Gen. 1. 3.) After this observance, Joseph begged of Pharaoh that he might be allowed to go to the land of Canaan to bury his father, as he had sworn to him to do. Pharaoh gave permission, and Joseph went up to bury his father, and with him went up all the servants of Pharaoh, the elders of his house, and all the elders of the land of Egypt.

“*And all the house of Joseph, and his brethren, and his father's house: only their little ones, and their flocks and their herds, they left in the land of Goshen. And there went up with him both chariots and horsemen: and it was a very great company*.” (Gen. 1. 8, 9.)

Joseph, on his death, caused his brethren to swear that his body should be buried with his father's, in the cave of Machpelah; but he was embalmed and *cheated* or *coffined* in the land of Egypt.

Without especially referring to books which illustrate the various conditions, so far as the ornamentation of tombs and sepulchres are concerned, an observant wanderer in the antiquarian galleries of the British Museum will find much that is instructive and interesting in viewing the gatherings which have been made from so many places of former fame. Passing over multitudes of objects, he will notice some of rare

value, which have been deposited in tombs and other repositories of the dead. Of varied date are these relics, but notwithstanding, in all there is shown the same desire to snatch from oblivion the name and repute of those who have been closely allied to the entombers by the ties of love, relationship, or other bonds. Amongst these is the devotion which is shown by various peoples to great warriors, or national benefactors,—in various centuries, in different parts of the world,—in a period ranging from three to four thousand years back to the present day. From the days of those Pharaohs, to preserve whose memory huge pyramids were reared, to those of the present era, when goodly monuments of different kinds have been completed, or are in progress, to show our love and admiration for the late lamented Prince Albert, cultivated nations have been moved by the same spirit to preserve, as many vainly hope for ever, the memory of those who have done worthy things in their generations, and who have been so much admired by, and so familiar to, their contemporaries. But vain are the attempts of man to achieve immortality, or to contend against the ravages of time. The Pyramids still stand in Egypt, but if they were built to record the worth or the renown of famous rulers we know but little or nothing of them, their peculiarities or exploits.

In our walk through the ancient remains in the British Museum, we note that, considering the enormous time which has elapsed, the Egyptians have been very successful in preserving the remains of their dead: in the mummy forms, the skin and the bones have been wonderfully kept from decay; and in their colossal and other statues there have, no doubt, been preserved the truthful representation of mighty men who, in the time of the greatness of the land of the Pharaohs, were chief movers in the management of the State; and so perfect is the preservation of their sculptures, that the very polish of their surfaces, although so many thousand years have passed away, has been scarcely dimmed or in any way injured.

Closely in connexion with the dead Assyrians, Greeks, Romans, &c., were strewn in profusion hand and other rings, personal ornaments of many kinds, richly-wrought armour, and choice articles of domestic use. Although the Romans burnt their dead to ashes, the choice vases in which this valued dust was placed still remain as things of beauty, useful to the art-student and delightful to all persons of taste. The Roman tombs were, in many instances, of chaste and simple design; and the inscriptions show a kindly feeling, a love of home, and a respect for family ties. The busts and statues of the soldiers, statesmen, orators, and others of note amongst this people, are so evidently faithful and life-like, and so well preserved, that they will for a long time remain as valued memorials.

In Great Britain, since the first dawn of modern civilization, the methods of burial have been varied, and in the British Museum we find many relics which have been gleaned from rude earthen tombs of ancient British date; others from cairns and barrows, and relics from places of sepulture where the introduction of Christianity caused a marked difference to be made in the funeral ceremonials. A large volume would not afford sufficient space to contain all that might be usefully said on this subject. As time passed on, the funerals of royal personages, ecclesiastics, and persons of high rank became stately pageants; and the tombs placed over the graves, until awhile after the Reformation, increased in the style and extent of their elaborate execution, and the expensive nature of their design. The tomb of Henry VII. may be taken as an example.

In the pages of English history we have long and careful accounts of those funeral feasts, which often crippled for long the means of noble families; and of the example of the great having been followed by those of lower position. The funeral of a relative often brought a family to ruin. In the Print-room and in the King's Library, at the British Museum, there will be found representations of some state funerals; amongst them those of Queen Elizabeth and General Monk. Anything more unsightly than the costume used on those occasions it would not be easy to imagine. Very gradually, except on very special and more and more rare occasions in England, the rough feasting, the excessive drinking, the lying-in-state, and other marks of what was considered to be a proper respect for the departed, were in a great measure dis-

used. In the Highlands, and in other portions of Scotland and Ireland, the quantity of meat and drink consumed was extraordinary and disgusting. Even still we find in the local newspapers accounts of the lingering of this bad custom. During the lifetime of the present generation there have been but few state funerals. Many of the particulars in connexion with that of the late Duke of Wellington will not be readily forgotten by those who had the opportunity of noticing them. In connexion with Royalty, we are not likely to have any more lying-in-state, burying by torchlight, or other ceremonials which were once common.

The funerals of our people of talent and repute, nevertheless, have lost none of their impressiveness, as has lately been shown by the great gathering of friends, in their ordinary costume, who crowded round the graves of Jerrold, Thackeray, John Leech, and others who have departed from amongst us. There have, however, been two remarkable funerals, in which, to a certain extent, the ceremonials of the past have been revived. One of these was the funeral of Cardinal Wiseman; the other that of the Duke of Northumberland. But, in the metropolis, and in the large towns, the mutes in their sable robes, the silk and crape-covered staves which denote their office, the feathers carried before the hearse, those which nodded on the horses' heads and on the carriage which conveyed the remains of the dead, the costume of the mourners, &c., &c., have fallen greatly into disuse. Few will regret this. But there are certain funeral observances common in some rural districts which would be sorely missed by those who like picturesque ceremonials, and evidence of kindly feeling amongst those of low degree. Amongst these is the practice of hanging garlands of flowers and ribbons on the tombs and, in the churches, over the seats which have been generally occupied by those who have died. These garlands, often withered and far too great in their number, are glanced at with the eye of affection, and do not seem out of place amongst the richly-carved tombs, the knightly banners, the monumental brasses, and other objects connected with the memory of those of rank.

In the churchyards we would regret the disuse of those plain wooden monuments, on which are painted some pious texts, together with the names, and times of birth and death, of the departed.

NEWS FROM GERMANY.

Prussia.—In Berlin the erection of a new National Museum has been determined on, and will probably be begun this autumn. The site is fixed in the rear of what has hitherto been known as the "New" Museum, fronting the Royal Palace; and the costs are estimated at one million thalers, or about 150,000*l.* It is to be finished in six years.—Von Kaulbach, the well-known animal and fresco painter, will have finished the frescoes in the great staircase of the present "New" Museum this autumn, after a labour of twenty years. The great staircase will then be free of all scaffolding for the first time, and some kind of ceremony is expected on the occasion.—The Institute of Architects of Berlin has opened a subscription for a handsome tomb to be erected over the grave of the architect Von Stüler, who died in the spring.

—The question of the new Houses of Parliament has now been so far decided that the two Houses are to be separate. A site for the Lower House has been obtained where the Royal Porcelain Works now are. These will be removed beyond the city, and plans for the new chambers are now being prepared.—A new and handsome Exchange, in Gothic style, is in course of erection at Breslau. The capital is furnished by a company, and the plans are by a M. Lüdecke, a local architect.—In Cologne the works at the Dom are steadily progressing. The Rhenish and Cologne-Minden Railway Companies have forwarded 10,000 thalers towards the North Tower fund. A new church, St. Mauritius, has been lately consecrated. The style is German Gothic, somewhat resembling the church of Notre Dame, at Treves. The dimensions are,—length of nave, 164 ft.; transepts, 110 ft.; height of vaulted nave, 70 ft.; of side aisles, 35 ft. The funds for the tower have still to be collected,—*tout comme chez nous*. It will be 230 ft. high.—At Falkenberg, near Aix-la-Chapelle, an interesting tessellated pavement has been discovered, at a depth of 4 ft. under the soil: 3 ft. deeper, three handsome vases,

a medallion with the portrait of an emperor, and six large jars with ashes were found. All these objects are of the time of immediate descendants of Charlemagne.

Austria.—The church of the German order of Knights Templar, at Vienna, has been restored, and a new altar-screen, sculptured by Peter Kahlmayer, inserted.—Six architects have competed for the new Houses of Representatives.—Professor Schmidt (Gothic); Hansen, two designs (Classic and Italian Renaissance); Ferstl, Zettl, and Uobl (French Renaissance); and Easonwein (late Romanesque). We have not yet heard whose design has been chosen.—Eleven huge blocks of Carrara marble have arrived for the figures on the new opera-house, on the Kärnthner Ring. The largest of these is 9 ft. by 6 ft. by 6 ft., and is destined for a group of "Danubius and Vindobona," the latter being the tutelary deity of Vienna. This block weighs 500 cwt. The opera-house itself is now nearly up to the height of the cornice, but will scarcely be roofed in this winter.

Bavaria.—A new polytechnic school is being erected at Munich, for which the Government has demanded a vote of 1,000,000 florins (84,000*l.*). The chief front is 480 ft. long, and faces the Pinacothek. It is two-storied above the ground-floor, and is flanked by two receding wings 125 ft. long each, which again return at the back for a length of 105 ft. It is in the usual Bavarian style, but in keeping with the surrounding buildings.—A mausoleum is in course of erection, for the remains of the late King Maximilian, at the church of the Theatines (Theatre was the see of Bishop Caraffa, one of the founders of the order). The designs were prepared during the king's lifetime, and are now being executed under the supervision of Mr. Riedel, architect.—King Ludwig, who, since his abdication, nearly twenty years ago, has made the erection of monuments to men of worth or fame his especial and very praiseworthy hobby, has discovered two more men of Bavaria, who are as yet unrepresented in this manner; these are F. von Gärtner and Leo von Klenze, both architects. The sculptors Brugger and Professor Widmann are commissioned to produce sketches by September next.—Widmann has just completed a very beautiful recumbent figure of the Grand Duchess Matilda, to be placed over her tomb at Darmstadt.—The two towers at the Cathedral of Ratisbon are now being completed. Judging from the sums received by the committee for this purpose, the completion may be looked to in 1870.—The cathedral church of Passau is now completely restored, after a work of eight years. The expenses were entirely defrayed by the inhabitants, who liberally responded to the call of the bishop, Heinrich von Hofstätter. The church, originally of the eleventh century Romanesque style, had been terribly disfigured internally with rocco plastering, but all this has now been removed.

ITALY.

The foundations of a Temple of Jupiter have been discovered in the garden of the Caffarelli Palace, at Rome, but we have no particulars, as yet, further than that a space about 70 ft. square was laid open in taking down some outhouses, when enormous blocks, like those of the Tabularium, were found, proving the former existence of a very large public building on this spot. Similar remains were also found lately at Torriglia, near Genoa. At Ostia, the two Viscontis are pursuing their researches with success. Three well-preserved frescoes were discovered, and carefully copied by them. One of these is particularly interesting; representing a ship, with figures on board: over the heads of each are scrolls, with the names of their respective offices. The frescoes are transferred to canvas by a peculiar process, which is said to be very successful in reproducing works of this kind.

THE MEMORIAL CHURCH AT CONSTANTINOPLE. The ceremony of laying the corner-stone of the church to be erected at Constantinople, in memory of the British troops who died there during the Crimean war, was performed on the 4th instant by the Rev. W. H. Ewald, in presence of a numerous attendance of British, foreign, and native spectators. The works are being vigorously pushed on, and will, it is hoped, be completed early in the coming year. Mr. Street is the architect.

FRANCE.

THE Treaty of Commerce entered into by France with Prussia and the Zollverein, the free and Hanse towns of Lubeck, Bremen, and Hamburg, the United Kingdoms of Norway, Sweden, and Switzerland, came into vigour on the 1st inst., but it was inaugurated by a dreadful event, the destruction by fire of the little manufacturing town of Laroche, in Belgium.

Upwards of a hundred houses—and, consequently, a hundred factories—for every house in the village was a factory of more or less importance—are now in ruins. Raw material, merchandise of all sorts, looms, machinery, and tools were all destroyed. For some months past commercial exchanges of goods had been suspended between France and the Zollverein, both countries waiting for the favourably amended tariffs of 1st July; consequently all the warehouses near the frontiers were completely filled with goods. Laroche, which supplied with woollen stuffs the neighbouring provinces of France, Belgium, and Prussia, was thus stored with merchandise, and the fire, having abundant aliment, spread with great rapidity through the village in one general conflagration.

An order has just been given to an engineering firm in the Department of the Haut Rhin for twenty-four locomotive engines, and from two to three hundred carriages for the German railways.

PARIS.

A PORTION of the double bridge by which the Anteuil Viaduct of the circular railway traverses the Seine, at the Pointe du Jour, was opened for the traffic of vehicles on the 1st inst. The structure is to consist of two series of arches, one over the other, the upper one carrying the railway, and the lower one serving for general circulation. The latter is composed of five semi-elliptical arches, of 99 ft. 1 in. span each, and two land arches, one at each end, of 65 ft. 7½ in. span. Above this stands the viaduct, the level of rails being 67 ft. 3 in. over the water: it commences at the Anteuil station, and terminates on the left bank of the river, about a kilomètre from the bridge, and throughout its whole length there is a double arcade for foot passengers. At the base of the viaduct, on the lower bridge, a roadway on each side, 28 ft. wide, bordered by a footpath, 6 ft. 6 in. wide, has been constructed for vehicles; the bridge being 116 ft. 10 in. wide between parapets, and 36 ft. 5 in. high over the water. One of these passages is the portion opened a few days ago: it places Anteuil in direct communication with the Route de Sèvres and the military road of the fortifications.

The *Moniteur* states, that the Imperial Commission, after having examined most carefully the numerous projects which have been submitted to it for the Paris Exhibition, has, according to the report presented in the name of its Committee of Plans and Constructions, by M. Dumas, definitely adopted the preliminary project prepared by the commissary-general, as answering completely to the different requirements of the Universal Exposition of 1867. The execution of this plan has been confided to M. Krantz, engineer in chief of bridges and roadways.

For some time past the Hôpital Saint Louis has been under repair, by the care of the Assistance Publique, or general committee of the Paris hospitals. This building was founded in the year 1607, during the plague which then raged in Paris, and placed, outside the town limits of that period, between the Portes du Temple and Saint Martin. It was erected, not as is often supposed, from the designs of Claude Châtilion, but according to the plans of Claude Villefauz. A document preserved in the bureau of the Hôtel Dieu gives the text of the deliberation, dated the 27th of November, 1607: "The Company to deliver a mandate to Claude Villefauz, *juré du roi des-œuvres de maçonnerie à Paris*, for the sum of 255 livres 3 sols, as the reimbursement of what he has paid to those who have assisted him in making the design and model in elevation of the hospital."

The establishment was put under the patronage of Saint Louis, because that king died of the plague.

A complete bathing service has been for many years added to this hospital, with all the improvements and requirements of modern hydropathy. Lately the chapel has been restored, and new arches, flooring, woodwork, windows, and a hypocaust have been added. In the sick

wards, the sales St. Augustin, St. Marthe, and St. Jean have also been renewed, and the gas-stoves for warming replaced by others upon a less objectionable calorific principle. Apropos of gas, we may mention that there is preserved in the Conservatoire des Arts et Métiers in Paris, a model of the apparatus for lighting with coal-gas, said to have been constructed by the engineer Lebon for the St. Louis Hospital. Lebon's patent is dated September 28, 1799; and a certificate of addition more particularly relating to the general lighting by gas bears the date of August 25, 1801.

The Assistance Publique is not connected with the corporation of Paris. It is a great institution which has its own administrators; a chief director named by the Emperor; and as directors, MM. Troplong, Dupin, Le Pelletier d'Anlay, and Davillier, president of the Tribunal of Commerce of Paris. This public body had formerly held in different quarters of Paris vast lands, which had become its property by legacies or pious donations, and for many years had permitted the town of Paris to establish thereon its markets, which had thus become a source of joint revenue for the two parties. Finding, however, this state of co-partnership inconvenient and the accounts difficult to regulate, the Assistance Publique, about twenty years ago, sold all these lands to the town for the sum of 493,221, payable in 1874. The site of the new Hôtel Dieu and the plan of construction having been decided upon by the above committee, they set about building it at once, and the town has agreed to pay the debt of 493,221. now, instead of in 1874.

The estimate and accounts of treaty between the two bodies are as follow:—Expropriation, materials, &c., 856,000; the Assistance Publique contributing from its own resources the debt due by the town of Paris, 493,221; the value of the lands ceded to the town in the neighbourhood of Notre Dame, &c., 192,000; the proceeds of the sale of the houses and lands of St. Pereine and ancient hospices des Ménages and Incorables, &c., 100,000; total, 785,221. The town of Paris consents to pay 70,779, the sum by which the expense of construction, installation, &c., of the hospital, exceeds the amount furnished by the Committee of Assistance, as above stated, independently of the other expenses of street and highway works, exclusively at the municipal charge.

In the ancient Hôtel-Dieu there were 826 beds, and the area was 11,000 square metres (13.3 square metres per bed); whereas the new building will contain 716 beds, standing on 22,000 square metres (30.7 square metres per bed), and thus disposed:—18 wards, containing from 26 to 30 beds; 19 ditto, of 6 to 10 beds; 3 ditto, from 6 to 12 beds; and 44 rooms, with 1 or 2 beds; total, 84 separate apartments, averaging from 8 to 9 beds, containing a greater cubic quantity of air than has hitherto been possessed by any similar establishment. These 716 beds will cost 856,000, or at the rate of 1,195, per bed.

The following is a statement of the comparative mortality in the Paris hospitals:—Lariboisière (Embarcadere du Nord), 1 in 8.01 patients; Hôtel-Dieu (Cité), 8.35; Beaujon (Faubourg St. Honoré), 8.39; Pitié (Jardin des Plantes), 8.75; Necker (Vaugirard), 8.91; Charité (Faubourg St. Germain), 9.43; Saint Antoine (Faubourg St. Antoine), 9.43; Cochin (Faubourg St. Jacques), the smallest hospital in Paris, 9.96.

This difference in mortality does not seem to be owing to the nature of the surrounding population, nor to the considerable number of consumptive patients, but seems to be the effect of overcrowding. The Lariboisière, in which the mortality is greatest, was constructed for 400 beds, whereas it now contains 600.

A new Asylum has been lately founded behind the new Church of Saint Augustine, for children, orphans, and infirm persons. The building for the children has been completed, and contains room for 400 pupils, and dormitories for 350 beds, large court-yards, &c. The expense of lodging, board, lighting, warming, washing, clothes, linen, bedding, instruction, musical lessons, vocal and instrumental, the hire of pianos and organs, only amounts to 1 franc per day for each pupil. This institution, having for its object the preparation of children either as teachers in small seminaries in Paris, for the examinations of teachers held in the Hôtel de Ville, or for the office of chorist or organist, was opened on the 1st inst. under the direction of the Sisters of Charity founded by St. Vincent de Paul.

PROPOSED NEW INFIRMARY, SWANSEA.

A NEW infirmary for Swansea has long been under discussion, the present building, which was erected some forty years ago, near the seashore, having been found quite inadequate to the wants of a large and rapidly increasing community. The Infirmary Committee have recently purchased a site of about 2½ acres on the outskirts of the town, and in the best quarter, and about 36 ft. above the level of the sea. The site commands a south-west aspect, and receives the soft prevailing winds direct from the Bristol Channel.

The new building provides for 100 in-patients, of whom sixty-eight are men, and for a large number of out-patients. In connexion with this latter department, will be a bath establishment, the object of the Institution (which is supported by voluntary contributions) "being to afford warm and cold sea-water bathing, and medical and surgical relief to the sick poor from every part of the kingdom."

The building may be considered as divided into four distinct parts, viz.—the out-patients' department, the men's wards, the women's wards, and the administrative offices, communication being effected by a corridor on the ground-floor, and by an open terrace over, affording access to the wards on the upper floor direct from the matron's department.

The ward arrangements, which are the same for men and women, consist of a large and small ward under the same supervision. In the case of the men's wards the surgical cases, which are very numerous in consequence of the extensive works throughout the district, will probably be treated in the large wards, the small wards being appropriated to medical cases. The cubic space per bed is 1,600 ft.; the floor space per bed, 100 ft.; the wards being 16 ft. high. The wards will be warmed by open stoves, placed near the wall, so as not to interfere with the symmetrical arrangement of beds and windows. The ventilation of the wards and W.C.'s, &c., will be effected by inlets for fresh air, placed near the ceiling, and by outlets at the ends of the wards, the shafts being carried up separately into the towers, and terminated by louvres. The wards will have sash windows, 5 ft. wide, opening from 9 in. below the ceiling line to within 2 ft. 9 in. of the floor, the sashes being hung in two widths on account of excessive size and weight. They will have, externally, the appearance of French casements.

The ward walls and ceilings will probably be finished in Parian cement, but as the committee are now raising subscriptions for the new work, the employment of any but the ordinary materials will depend much upon the amount of support given to this praiseworthy undertaking.

There is a basement to the building devoted to administration, containing the kitchen and necessary stores. The upper story is appropriated entirely to dormitories for the nursing staff.

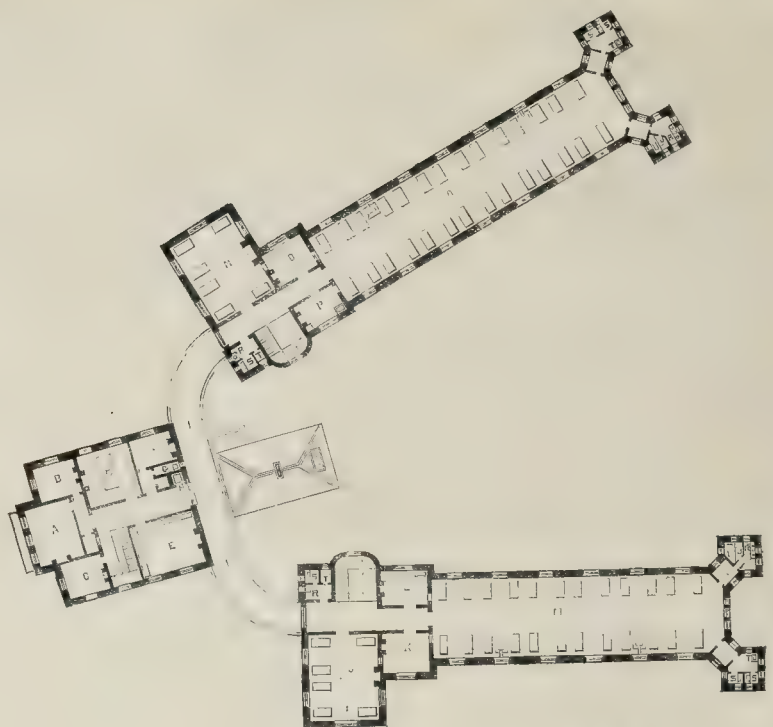
The building will be constructed of coursed rubble limestone, from the immediate locality, with dressings of Bath stone. The roofs will be of slate. The design, of which we give a view, and plans of, the two principal stories, was selected in competition.

The architect of the work, which will shortly be commenced, is Mr. Alexander Graham, of Carlton-chambers, Regent-street.

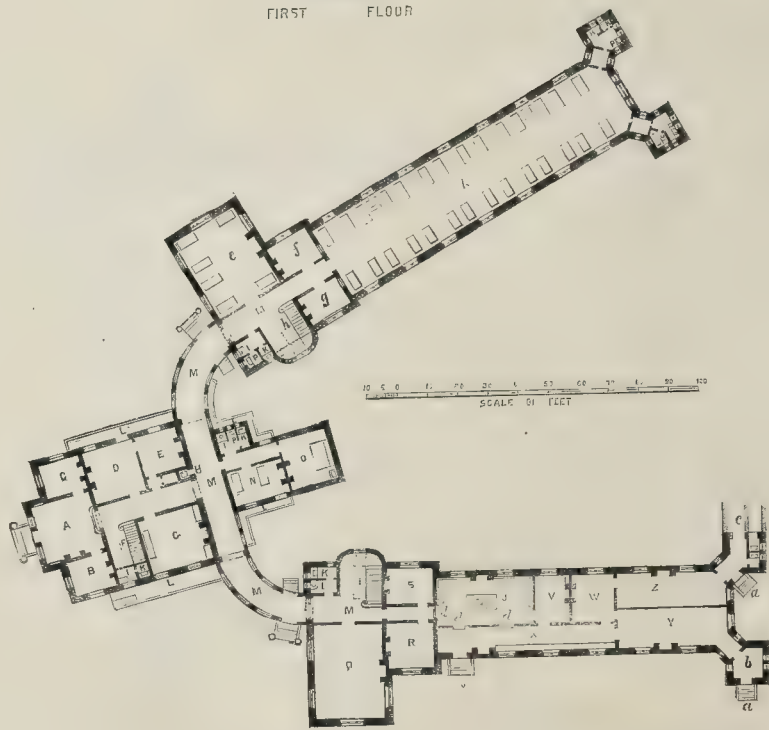
REFERENCES.

GROUND FLOOR.	
A. Entrance-hall.	a. Entrance.
B. Porters'-room.	b. Lobby.
C. Patients' Receiving-room.	c. To Salt-water Baths.
D. House Surgeon's Sitting-room.	d. Hatch.
E. House Surgeon's Bed-room.	e. Male Wards, 6 beds.
F. Staircase.	f. Nurse.
G. Surgery.	g. Scullery.
H. Lift.	h. Stairs to upper floor.
I. Lavatory.	i. Bath.
J. W.C.	j. Out-patients' Exit.
K. Area.	k. Male Ward, 28 beds.
FIRST FLOOR.	
A. Matron's Sitting-room.	A. Matron's Sitting-room.
B. Matron's Bed-room.	B. Matron's Bed-room.
C. Housemaid.	C. Housemaid.
D. Bedding Store.	D. Bedding Store.
E. Linen Room.	E. Linen Room.
F. Cook's Room.	F. Cook's Room.
G. W.C.	G. W.C.
H. Lift.	H. Lift.
I. Flat over Corridor.	I. Flat over Corridor.
J. Female Ward, 6 beds.	J. Female Ward, 6 beds.
K. Nurse.	K. Nurse.
L. Scullery.	L. Scullery.
M. Female Ward, 24 beds.	M. Female Ward, 24 beds.
N. Male Ward, 6 beds.	N. Male Ward, 6 beds.
O. Nurse.	O. Nurse.
P. Scullery.	P. Scullery.
Q. Male Ward, 28 beds.	Q. Male Ward, 28 beds.
R. Lavatory.	R. Lavatory.
S. W.C.	S. W.C.
T. Sink.	T. Sink.
U. Bath.	U. Bath.

Division walls between 10 ft. high.



FIRST FLOOR



GROUND FLOOR

PROPOSED SWANSEA INFIRMARY.



PROPOSED SWANSEA INFIRMARY.—MR. ALEXANDER GRAHAM, ARCHITECT.

THE BELFAST ALBERT MEMORIAL COMPETITION.

SIR,—Had Mr. Gordon M. Hills taken a less partial glance at the *Belfast Newsletter* of the 27th ult., he might have learned some facts connected with this matter which, if placed before your readers, would go far to rebut the charges which he has thought proper to make, and be quite sufficient to show that Mr. Lanyon had no intention whatever of occupying "a position as unfair to his brother architects as can possibly be conceived."

In the first place, I may mention that Mr. Lanyon did not "become" a member of the committee in the sense Mr. Hills would seem to imply. His name happened to be placed on the committee when the memorial was first talked of, immediately after the Prince's death; and, being one of the chief promoters of the movement, it has remained there since. Secondly, Mr. Lanyon,—individually,—not being engaged in the authorship or preparation of the design "*Palman*," and therefore not so personally interested, and being innocent of any desire to exercise undue influence, the peculiarity of his position, under the circumstances, did not strike him. Thirdly, Mr. Lanyon took nothing to do with the proceedings of the committee regarding the competition, beyond advising as to the "instructions" to be issued to architects; and his presence at the meeting of the general committee (on which simple fact so much misrepresentation has been based) was owing solely to his having, like the other members, received a circular to attend, for the purpose of inspecting the selected designs. This he did, believing the selection to have been finally made, and without knowing that "*Palman*" was one of the four; but on finding, after the reading of the report of the sub-committee, that the general committee, owing to the report not being unanimous, intended to rediscuss the relative merits of the selected designs, he left the room, without having attempted, in the remotest manner, to influence a single individual, and did not return until a final decision had been come to. Therefore Mr. Hills's suggestion that Mr. Lanyon's "influence in Belfast, together with his presence," went far to settle the question, is quite unwarranted. Fourthly, Mr. Lanyon, when he did return and found that the design he was interested in had been placed first, proposed to the committee that the *sic* best of the designs should be submitted to the further adjudication of the president of the R.I.B.A.

These are the simple facts of the case. I happened to be out of town during the proceedings of the committee; and finding on my return (Mr. Lanyon having in the meantime left for London) that the final selection was found fault with; I proposed, in a letter to one of the local papers, as well as to members of the committee individually, that they should request the Institute to nominate some one of their members to visit Belfast, to examine and report on the whole of the designs. The committee again met, to consider the question of further adjudication; and, notwithstanding the suggestions before them, determined on submitting only the four designs to the examination of the Institute.

I admit that it must appear strange to competitors at a distance that the four designs selected as the best should have emanated from local architects; I say the four, as the author of that placed third (Mr. Linklater, of Manchester) had been a pupil, and in our office, until a short time previous to the competition. On this point, however, I can assure Mr. Hills, that if the committee have been guilty of an error in judgment, he has no ground for censure so far as we are concerned. The selection committee placed "*Palman*" second under the impression, I understand, that they were selecting an English design, so little did they know of the authorship.

I am sorry to occupy your space on a matter about which more has been written and said than the whole thing is worth; but such statements as contained in Mr. Hills's letter (although they have been fully refuted here) should not, I think, be allowed to go before the profession without question.

In conclusion, I shall merely remark, in reference to a point which Mr. Hills urges on the Institute, that although the position of a member of a committee, if at the same time he is a competitor, may appear equivocal, it is quite possible, practically, that no improper influence should follow, when such a member does not take part in the deliberations, for instance. And when the whole of the designs submitted in a

competition are referred to such a tribunal as the Institute, every member of the committee might be a competitor for that matter, as their position, in any respect, could have no influence on a professional judgment.

W. HENRY LYNN (Lanyon, Lynn, & Lanyon).

DID THE ANCIENT EGYPTIANS KNOW THE NILE SOURCES?

By the interesting discovery of Mr. Baker, public attention is again drawn to the Nile and its source. We may congratulate ourselves that the enterprise and courage of Englishmen have secured for Great Britain the honour of this discovery. I am satisfied that the Nile source was well known to the ancient Egyptians; for, when at Thebes, I saw a picture which had just been uncovered, and which was as fresh as if but newly executed, which represented a procession of negro captives, amongst whom were two of the enormously fat women described by Captain Speke. The other figures in the procession resembled those given in Captain Speke's illustrations so completely, that when I first saw these I was at once struck with the resemblance.

I was not allowed to sketch the picture then newly discovered: an Arab guardian had been placed beside it, with orders to prevent all sketching. This being the case, I hope that careful drawings have been made by order of the Egyptian Government, and that nothing has happened to this interesting representation. Unluckily it was not within a rock excavation, but was external. To the best of my recollection this interesting picture was near the tombs of Sheikh Abd el Koorneh. At all events, if still preserved from the devastating hands of native or other ruffians, it is near those interesting tombs where the architect may have his mind set at rest as to the antiquity and origin of the arch: by comparing what he may observe there with what remains at Memphis, he can have little doubt as to what first suggested the arch, or as to its gradual perfection, step by step.

When I first saw the picture to which I have alluded, I thought that the two enormously fat women, so carefully tended, were curiosities destined as gifts to Pharaoh: they realized the expression, "as broad as they were long," and exceeded all representations which I had ever seen of fatness.

It appears to me, judging from this picture, that the great lake, now the Victoria Nyanza, and the country around it, were perfectly known to the ancient inhabitants of Egypt. It would be very desirable to obtain drawings of the ancient work of art which I saw. I should have made sketches, but felt that I had no right to do so without permission.

CHARLES H. WILSON.

METROPOLITAN BOARD OF WORKS.

At the usual meeting last week the Chairman intimated that eight tenders had been received for the Southern Embankment works, and that one of the tenders was from Mr. Samuel Ridley. Mr. Newton moved that the tender in question be not received by the Board.

The motion was lost by 8 votes to 13.

The Chairman then proceeded with the reading of the tenders, as follows:—Mr. Ridley, 279,000l.; Mr. W. Webster, 309,000l.; Mr. G. Furness, 311,000l.; Mr. G. Smees, representing J. Earle & Son, 327,361l.; Mr. W. Dethick, 335,000l.; Mr. T. Pearson, 340,000l.; Messrs. T. Brassey & Company, 355,000l.; Mr. Ritson, 386,000l. Tenders had also been received for covering and improving the open Stamford Brook sewer. The tenders were:—Messrs. J. and S. Williams, 24,600l.; Mr. J. Nibley, 24,900l.; Mr. E. Thirst, 25,089l.; Mr. W. H. Bowen, 25,170l.; Mr. W. Dethick, 26,200l.; Mr. T. Pearson, 26,300l. For reconstructing the White Post-lane branch, tenders were received from Mr. T. Wainwright, 3,210l.; Messrs. Hale & Kettle, 3,987l.; Mr. W. H. Howe, 4,207l.; Mr. W. Dethick, 4,550l.; Mr. T. Pearson, 4,638l.

The Board then resolved themselves into committee for consideration of the several tenders. On the readmission of the public a report was read recommending that the tenders for the Southern Embankment works be referred to the Thames Embankment Committee; and that the tender of Messrs. J. and S. Williams for covering and improving the Stamford Brook sewer, and that of Mr. T. Wainwright for reconstructing the White Post-lane branch, be accepted. The report was approved by the Board.

SQUARING THE CIRCLE.

We find the following in the *Ottawa Citizen*:—

"VARIORUM.

To the Editor of the *Ottawa Citizen*.

Dear Sir,—An article appears in the *London Builder*, of June 3rd, with the above heading, which states that a Mr. Smith has published a work demonstrating that twenty-five diameters of every circle is exactly equal to eight circumferences. Now, if Mr. Smith be correct, he must be prepared to prove that the chord of an arc of his circle is greater than the arc itself, which is an impossibility.

If the radius or chord of sixty degrees be unity, we easily find the chords of 30°, 15°, 7½°, 3¾°, by the 6th book of Euclid. Hence the chord of 3° 45' = 0.0654890. And if we divide Mr. Smith's circumference 6.25 by 96, we get the length of the arc 3° 45' = 0.0651040; so that it appears the chord is 3340 parts longer than the arc, which proves Mr. Smith's quadrature a failure, and that his circumference is too short. The old standard for the circumference, calculated by Van Culen and others, should be increased, rather than diminished, as it is one hundred and ninety-ninth part of the whole circumference by Mr. Smith.

For the past twelve months I have been daily employed at the quadrature of the circle; and, from many calculations, I found that when the diameter of a circle ... = 43290080569 miles, the circumference ... = 1359995712854 miles.

Now, although this circumference is short for the diameter, if you add to it a hair's breadth it will be too long. I believe this to be the nearest ratio of the diameter to the circumference in the whole numbers yet discovered.

WILLIAM MURRAY.

Ottawa, C. W. June 21st, 1865.

The *Builder* will please notice the above."

A HOSPITAL FOR MORIBUND PATIENTS.

In the course of inquiries respecting the conditions of the sick poor of the metropolis, we have, in hundreds of instances, noticed the difficulties that there are in dealing with cases in which hospital treatment stops in consequence of cares being said to have been effected. Sometimes patients are discharged in such a weakly condition, that when they return to their ill-ventilated and unwholesome houses, and the improper and insufficient food, which have in so many instances been the actual cause of disease, something worse than a relapse takes place. We have often mentioned these circumstances, but will just now confine our remarks to one point, viz., the discharge of patients from the hospitals when they are on the verge of death. The effect of this is often most serious and distressing. As an instance we will mention one case. A man, who was twelve months since the very picture of health, a mason, came from a country district, to reside, with his family, and to work in London. He took a tenemented dwelling in Islington, and with his wife and four children, kept, as is usually the case, possession of the kitchen. The change of air from the country to this underground room, poisoned to an extra extent by the drains passing through the apartment from the cesspool at the back, soon produced an unfavorable change on the man's appearance, and all the marks of consumption became clearly conspicuous. After trying other means of cure in vain, he became a patient in the Brompton hospital. From the first it would seem that there was scarcely a chance of any permanent relief being afforded; and towards the end his wife was sent for, and the man was with difficulty taken home in a cab, and, after much suffering, evidently aggravated by the journey, the sufferer died in about a week from the time of his discharge from the hospital. In this instance, besides the family of the dead man, the other parts of the house were thronged with children; and altogether, the change was a sad one from the quiet regularity of the hospital, from the light, the properly-arranged beds, the trained nurses, the good and proper food and nourishment, and the rightly administered medicine, which, in the hands of the skilful medical attendants, can be made, in nine cases out of

* In the same paper we find the opening of "Her Majesty's Theatre" announced, "with a highly talented company, under the management of John Townsend, late member of the British House of Commons!"

ten, so much to relieve the last pangs of suffering humanity. No wonder that a week's residence in the kitchen home, with its usual look of discomfort, its polluted air, the incessant worry of children in the house and in the street, and other annoyances, sufficed to end the poor man's life.

In this case, the decomposition of the body ensued with great rapidity; and although the coffin was speedily screwed down and the funeral took place within a week, the effect of keeping the body in the back kitchen of a house in which so many were living was revolting and dangerous. When the time for burial came, too, a most painful occurrence took place. So narrow were the stairs leading from the kitchens to the street door, that the coffin could not be got out by that way; and after much jolting, and eventually by putting the dead man on his feet in a most unusual manner, the body was forced into the front kitchen, and in the same position was raised by the area and carried head first into the hearse. In reality, it is no matter in what position the dead be taken to the last resting-place, but there is something harrowing in such procedure to the feelings of friends of the departed.

We might refer to many other cases in which distressing results have been caused by the discharge of dying patients from the metropolitan hospitals. Sometimes, indeed, the people have died on their way home, or before they could be carried to their dwellings. We have often mentioned the subject to hospital authorities, and some of them say that without care a considerable expense would be incurred by the funerals of strangers, and that parishes strive to shift the cost of the interments of those who die in the hospitals, who have only poor relations to care about their remains, upon the institutions; but in many instances before a sick person is admitted into the hospital a guarantee is signed by some responsible person, that in case of death the charity will not be put to burial expenses. There is also to be considered the desire which the medical officers of these institutions have to do as much practical good as possible, so that they make a point of removing those who are past hope to afford room for others. For all purposes for the needful relief of the sick poor, however, there is no lack of money; and if, by way of experiment, one or two of the hospital boards of management were to be willing to retain particular cases until life had passed away; or what would perhaps be better, if it were considered necessary, as we believe it to be, to establish a general hospital for those who are incurable, and whose homes are but ill-adapted for their reception, sufficient pecuniary support, if the subject were brought properly under notice, would soon be obtained.

ACCIDENTS BY LIGHTNING.

THE casualties during recent thunder storms have been rather more numerous than usual.

At Stamford, the congregation attending St. Mary's Church were greatly alarmed by an exceedingly vivid flash of lightning, lighting up the interior of the church by what appeared to be a sheet of flame, which seemed to emit innumerable sparks, giving out a strong sulphurous odour. The people, after some hesitation, made towards the door, some screaming, while others had fainted; and the falling of masonry from the upper part of the building greatly heightened the alarm, as it was supposed that the spire was tumbling. Great confusion ensued, but no personal injury was sustained. It was found that the spire and tower had been injured in two or three places. The damage throughout the tower and spire is believed to be extensive; but Mr. Browning, the parish architect, being from home, the extent is not known.

At Boston, the electricity struck the lofty tower of St. Botolph, the parish church, and did considerable damage. The entire building was afterwards surveyed, and the official account states that the lightning struck one of the eight pinnacles of the tower, and seems to have descended the spindle of the ram, and then disrupting the stonework at its base in a very dangerous manner, appears to have dispersed itself over the wet surface of the stonework of the tower, and so descended to the earth without doing further damage, excepting that in one of the upper windows of the tower it fused a small portion of the glass. Some little damage has been produced on the tower, apparently by the

concussion of the air; for from the top down to fully half-way of the height, many pieces of stone (not of large size) have been detached, and even the font, situated at the west end of the church, did not escape. Three plumbers working inside the church for Mr. Pindar were thrown down by the vibration: one of them remained paralysed for a few minutes.

At Colchester, the lightning struck one of the ornamental Norman turrets, 10 ft. or 12 ft. high over the western entrance to the Roman Catholic chapel, in Priory-street, demolishing the turret, and carrying away a mass of several hundred weight of the stone *debris* into the chapel yard and priest's garden on the other side. A small copper cross let into a stone ball on the top of the turret is supposed to have attracted the lightning, which then entered the chapel through some fissure, and, passing through the organ gallery, knocked a large hole partly through the brickwork of the inside wall, and melted a leaden gas-pipe near by.

The telegraph office at Thirsk was struck by lightning, which disconnected and twisted the wires inside the office, injured the instruments, and set fire to one of them. No serious damage, however, was done.

The most singular accident took place in a train in transit on the Great Western Railway. The lightning struck a carriage and rendered a woman insensible.

PROVINCIAL NEWS.

Oxford.—An endeavour is being made to obtain funds to construct a bridge over the Isis, immediately above Medley Lock, so as to open up the walk by the river side to Binsey, Godstow, Wytham, Wolvercote, &c. The necessary permission has been obtained from the Dean and Chapter of Christ Church and the Thames Commissioners.

Manchester.—The preparations for the erection of a new building for the Manchester Royal Exchange are steadily progressing. The sum agreed upon for Newall's buildings has been paid, and the property secured for the purpose.

Doncaster.—The foundation stone of the Infirmary for the town and neighbourhood of Doncaster has been laid by the Mayor, assisted by the Archbishop of York, in the presence of a large assembly. The style is Elizabethan, and it is proposed to build the edifice in red brick, with stone quoins, dressings to windows, &c. The front elevation, which will be towards Whitaker-street, will have the characteristics of a public building. The plan is in the form of the letter H, and is contrived to insure good natural ventilation, all the wards having outer walls, so that the windows can be placed opposite each other. The building is designed to accommodate twenty-five in-patients, in addition to a dispensing department, and accommodation for seeing out-patients, it being in contemplation to remove the work of the present dispensary to the new building. In the east wing of the basement, pantry, larder, and cellars are placed; and in the west wing of the basement will be a *post mortem* and dead-house. On the ground-floor in the west wing is placed the accident-ward, for five beds, with an operating-room and nurse's room in close proximity. In the centre of the building on this floor are two consulting-rooms for one physician and surgeon, with dispensary 20 ft. by 17 ft., and waiting-hall 30 ft. by 17 ft. These are so arranged that patients coming to the dispensary will not in any way interfere with the comfort of the infirm patients. The east wing of this floor is appropriated to the house-surgeon's residence, with separate entrance; and kitchen, 26 ft. by 17 ft. for the use of the institution. The second floor is approached by two flights of stone stairs at either end of the building, and this floor has four wards, with nurses' rooms, bath-rooms, linen-closets, and other accommodation. All the wards are 14 ft. high. The length of the frontage towards Whitaker-street is 105 ft., and the side elevation next Wood-street is 70 ft. long.

Gateshead.—At a recent meeting of the town council, the town-hall committee reported that at the meeting of the council, held on the 25th of November, 1863, it was decided that the cost of the proposed town-hall buildings, inclusive of all contingencies, should not exceed 10,000*l.*; and that if it should be intended to erect the buildings in accordance with the designs and specifications of the town surveyor, or in accordance with any other design which would involve an expenditure exceeding 10,000*l.*, it would be

necessary to rescind the resolution of the 25th of November, 1863. The actual cost of the building proposed by the surveyor was 16,575*l.* It was added that there was other work which could either be included or dispensed with, which would make the total cost 22,300*l.* The town clerk stated that the council had been under notice to leave the present premises for two years. The North-Eastern Company could order them to quit at any time. It was decided that the plans and specifications of the surveyor should be printed for circulation amongst the members of the council, and that the subject, after being considered, should be brought up for discussion.

FROM SCOTLAND.

Dumfries.—The foundation stone of Maxwell-town free church has been laid. The building was commenced some time ago, and the contractors—Messrs. Crackston & Son—have pushed on the work, and the walls have already attained some 10 ft. in height, save at the south-east corner, where the foundation stone was laid. The church is to be erected in the Decorated style, from plans by Mr. James Barbour.

Arbroath.—Contracts have been entered into for the erection of a new church for the United Presbyterian congregation worshipping in Grimsby Church, under the pastoral charge of the Rev. Mr. Johnston. The new church is to be erected in the corner of Queen-street. The plans have been prepared by Mr. MacLaren, architect, Dundee. The design is Gothic, having the side to Queen-street, and the principal front facing the street to the west. There is one main doorway in the west front, with a four-light window over it, with tracery. There are also doors on each side. There are galleries running round three sides of the church, and the pulpit is placed in the west end. The roof is supported on iron columns, and the principal rafters are visible. The seats are very wide, with ornamental ends instead of doors, and the wood is to be stained and varnished. The church is to be seated for about 850. Provision is made for heating the building with hot water. Attached to the church, at the north-east, is a large class-room, to be used for weekly meetings, as a vestry, and for other purposes. The total cost is expected to be about 2,000*l.* The contractors are,—masons, J. Gordon, Arbroath; J. Whyte, Arbroath; slater, Mr. Wishart, Frickheim; plumber, A. K. Miln, BroUGHT; and plasterer, J. Miller, Arbroath.

Glenbuckie.—The new free church here has been opened for divine service. The church is in the Gothic style. The walls outside are of dressed granite, and there is a belfry. The church and school are built uniform, under one roof, but separated by a moveable wooden partition within, so that the whole area can be easily thrown open for public worship when necessary. A teacher's house has been built beside the church. The architect was Mr. Henderson, of Aberdeen.

YOUTHS' CHRISTIAN ASSOCIATION AND HOME.

THE fifth annual report of this Association has been issued. The object of the institution is to provide lodgings and food at a cheap rate for country or other friendless lads in town, so as to obviate the necessity of their living in low lodging-houses. Since the inauguration of the institution in 1862, it is said, nearly 150 lads have been thus provided with the social, moral, and religious benefits of a Christian home. Each youth pays 2*s.* a week for lodging, which charge includes admission to classes, lectures, addresses, library, and other privileges. If they wish it, they can have breakfast for 3*d.*, dinner for 6*d.*, tea for 3*d.*, and supper for 1*d.* They must be recommended by a clergyman, and must not be out of the home after half-past ten p.m. The Association appears to be greatly in want of funds. Mr. G. H. Jones, of 12, Stafford-street, Marylebone, N.W., is the honorary secretary.

TREATMENT OF LUNATICS.

SIR,—In reference to the article on Lunatic Asylums in the *Builder* of last week, I beg to inform you that I lately registered the death of a female who had only left Colney Hatch Asylum a few days previously to her death, who complained to her brother bitterly of having been put into a bath which had been previously used by another person. W. H. BUTTERFIELD, Registrar.

TELEGRAPHIC PROGRESS.

THE Atlantic telegraph cable is now on its way, in the *Great Eastern*, to be laid down. A comparison between this cable and the last may here be briefly made. The last had seven wires, and this has seven; but there the resemblance ceases. The seven wires in the one case weighed 107 lb. per nautical mile: in this instance, 300 lb. The insulation in 1858 was by three layers of gutta percha, weighing 261 lb. per knot: the present insulator is in four layers, weighing 400 lb. The external covering then was by 18 strands of the spiral wires: now it is by 10 solid wires of the same diameter, now it is "served" with homogeneous iron, each wire a preservative compound. The weight in air then was 20 cwt. per mile: this is 35½ cwt. The weight in water was 13½ cwt. per mile: now it is 14 cwt. The breaking strain was 3½ tons: now it is 7½ tons; and while the strength of the former cable was 2½ times the strength required for the deepest water, this is 4½ times stronger than is deemed absolutely necessary. Finally, the length shipped for 1858 was 2,17½ nautical miles: now it is 2,300 knots.

The United Kingdom Telegraph Company have announced the abandonment of the uniform shilling rate, after a four years' trial; the public, they say, not having supported it to a sufficient extent. Henceforth the charges are to be, for 100 miles, 1s.; for 200, 1s. 6d.; and for all distances above 200, 2s.

The Anglo-Indian line of telegraph now brings Sydney within 23 days of London. The first message to Australia by this route is stated in the *Railway News* to have been despatched from London on the 20th of March, and received in Melbourne on the 19th of April: it would have arrived as early as the 13th but for the breaking down of the *Madras*.

The new submarine telegraphic line just laid down from La Calle in Algiers to Bizerte and Marsala in Sicily, has now been opened for public and private despatches. The tariffs are reasonable, being for twenty words between any office in Algeria and any office of France, Corsica, or the Roman States, 6s. 5d.; to Italy, 4s. 9d.; to Bavaria, Belgium, Duchies of Baden and Luxembourg, 8s.; Prussia to the west of the Weser, 8s. 5d.; ditto to the east of the Weser, 8s. 9d.; Spain, 8s. 9d.; Portugal, 10s. 4d.; beyond these places the prices vary according to the telegraphic treaties of Berne and Brussels. For every ten words above the twenty allowed by the above rates, the charge is increased by one half.

WAGES MOVEMENT IN THE BUILDING TRADES.

Six.—As the *Builder* is devoted to the interests of employer and employed, I hope you will think the following of sufficient interest for insertion. It is said a number of employers are willing to give the advance of three farthings per hour at once, so, because the rest stand out. It seems that when an agitation is started, the majority of workmen soon become involved in it. The men in the firm I was working at up to Saturday last caught the infection, and sent one of their number to the manager, asking for that which other firms had already been memorialized for. The manager gave the usual evasive answer, and the men were content to wait until something more definite took place. On Saturday, July 8th, he informed the shop that the advance would be given to all on the next Saturday; and the men, as a matter of course, expected he would perform his promise; but on Saturday, only a portion of the men received the advance. The result was, that those who fell short left the employ. It is a fancy idea of those who do the leading articles in the daily and other papers, that there ought to be various rates of wages, and that workmen in the building trades ought to be paid according to their merits. Such theories, I allow, look plausible on paper, but when reduced to practice, there has always been great dissatisfaction. I wish to ask—and perhaps some employer or foreman will give the answer—as to who is to fix the standard; or, put it more plainly, what is to guide the foreman as to the value of each workman?

I have had some experience of this system of paying men according to their merits, and the result has been that those who were the foreman's favorites received the most, and those who were the least liked the least. I do not court his favour. Saturday's experience is a still further illustration that a system of paying wages as the foreman thinks fit will not work to the benefit of either master or man. One of the men who received the usual rate had worked in the firm over nine months, and during that time had seen at least fifty men discharged, through slackness or not suiting, and leaving out the foreman, he was the oldest hand in the shop; and he received only the usual price, and left with others. It must be evident that the manager had been very remiss in relation to the employer's interests, or he would have found out before nine months that this man was not worth so much by three-farthings an hour as other men, or else he thought he could impose on him to that extent. Workmen are condemned for joining trade-unions; but I think the treatment of men, by masters and foremen, is to a large extent the cause. And if, in future, the treatment is to be such as several of us received on Saturday, it will add additional strength to trade societies, and widen still further the breach which separates the masters' interests

from the men's. I hope, Sir, the employers will issue a manifesto of the course they intend to pursue. I intended to append my name, and that of the firm; but I think this letter will attract sufficient attention without them. And as I have no wish for notoriety, I hope you will insert the above with the initials of H. W. H.

SAFE GUNPOWDER.

The simplicity and completeness of Mr. Gale's invention for rendering gunpowder non-explosive, and then, *presto*, restoring it to its original villanous condition (to which we have already referred) are remarkable, and ought to bring the discoverer a fortune. The gunpowder is simply mixed with another powder, cheap and easily obtained, and a slow match may be burnt through it without exploding anything more than the few grains immediately touching it: throw the mixture into a common sieve: one shake; and then, if a light be applied, look out for an earthquake. We have tried it, and we know. It is not necessary to point out the advantages the discovery promises. There need be no repetition of the Erieh catastrophe. Just one inquiry will have to be made. Does sufficient of the non-explosive powder adhere to the grains of gunpowder, after sifting, to lessen, in any appreciable degree, its explosive strength? We fancy not: but it will have to be tried.

CHURCH-BUILDING NEWS.

Barnsbury (Leington).—St. Clement's Church, Barnsbury, has been consecrated by the Bishop of London. The church is situated in Arundel-square, and York-place, Barnsbury. The foundation stone was laid on the 14th of last July by Mr. George Cubitt, M.P., by whom the whole of the expenses of building, &c., amounting to between 7,000l. and 8,000l., have been defrayed. The church, which is a spacious structure of brick, the nave and side aisles being in the Early English style of architecture, with a lofty groined roof, supported on solid stone pillars, is from the design of Mr. Gilbert Scott, and is calculated to afford seat-accommodation for between 700 and 800 persons. The chancel is approached by a flight of five steps, and over the communion table, at the eastern end, is a window of stained glass. The pulpit is of carved stone, with pillars of polished coloured marble. The organ, which is placed on the left of the chancel, there being no galleries, has been built by Mr. Walker.

Buckingham.—During some months past alterations have been in course of execution at the parish church here, according to plans prepared by Mr. Scott. The whole character of the church is intended to be altered. The Duke of Buckingham has offered to build a new chancel entirely at his own cost, and the Duchess has laid the foundation stone of it.

Henley.—The new church at Adwell has been opened by the Bishop of Oxford. The whole expense of the church has been provided for by the late Mr. J. W. Newell Birch, of Henley Park; Mr. H. Birch, of Newell Birch, of Adwell; and Miss Reynardson; with the exception of the east window (one of three lights in stained glass, representing the "Presentation of Christ in the Temple," "The Crucifixion," and "The Resurrection"), erected as a memorial to their uncle by the nephews and nieces of the late Mr. Birch. Mr. Blomfield was the architect.

Romey.—A series of improvements are to be carried out forthwith in the Abbey. The roof of the nave, put on a few years ago, is now being relieved by colouring and gilding, under the personal superintendence of the vicar. It is intended also to restore the transept roof, and to new-roof and restore the chancel.

Grantham.—The following tenders have been sent in by six out of nine builders invited to compete for the execution of the church new-roofs:—

Dove, Brothers, London	£11,905
Thompson, Peterborough	11,384
Jackson & Shaw, Westminster	10,715
Haliday & Carr, Gratham	10,570
Huddleston, Lincoln	10,270
J. E. Hall, Nottingham	9,370

The sub-committee accepted the last tender, subject to the approval of the general committee, and conditionally on Mr. Hall's consenting to such variations and deductions on reasonable terms as may be required by the architect.

Stanton Fitzwarren (Wilt).—The small church of St. Leonard is now being restored under the direction of Mr. J. W. Huggall. The present furniture of the church is of the worst description: high square pews, an offensive gallery, and a

"three decker" encumber the nave: equally inappropriate fittings are in the chancel. The roofs are much decayed, otherwise the fabric is in good preservation. The church, though small, (the nave being 30 ft. 3 in. by 17 ft. 9 in., the chancel 29 ft. 7 in. by 15 ft.) is interesting as containing vestiges of a Norman foundation.

Ossett (Yorkshire).—The new Church of the Holy Trinity, Ossett, has been consecrated. The plan of the edifice is cruciform, having a nave with aisles 83 ft. long inside, a chancel 32 ft. long, and transepts 78 ft. within. Over the centre of the cross rises a tower and spire to the height of 226 ft. The height of the nave is 67 ft. to the ridge of the roof, and that of the chancel and transepts 59 ft. The style is Geometrical. The nave has a clerestory of great height, pierced by two high windows of a Geometrical design outside, which work in with a continuous foliated arcade inside. The shafts supporting the nave arcade are alternately polished Aberdeen red and blue granite. The small respond shafts are of Devonshire marble, all surmounted by carved capitals, alternate foliage, and angels bearing monograms. The tower piers are of stone, having foliated capitals. The reredos, pulpit, and font, and also the rest of the sculpture in the church, have been executed by Mr. Raddock, of London. The reredos extends across the east wall, having as a central subject the Last Supper, flanked by the Annunciation, Adoration, Our Lord bearing His Cross, and the Agony in the Garden. The pulpit is octagonal, having a canopied figure in each face. The figures represent St. Paul and the Evangelists. The font is circular, and has on the four cardinal points the evangelistic symbols. The east window, of five lights, is filled with stained glass, in memory of Joseph, William, Joshua, and Benjamin Ingham, brothers, all of Ossett, by Benjamin Ingham, of Palermo, son of Joseph. The west window, also of five lights, is stained in memory of Joseph and Mary Whitaker, by their five sons, Isaac, John, Joseph, Joshua, and Benjamin Whitaker. Both of these windows are by Messrs. O'Connor, of London. The tower contains a peal of eight bells, presented by Mr. Whitaker, of Ossett, and Mr. Ingham, of Palermo, designed by Mr. E. B. Denison, Q.C., and cast by Taylor, Brothers, of Loughborough. The weight of the peal is 6 tons; and the tenor bell weighs 26½ cwt. These, and the clock, were fixed by Mr. Potts, of Leeds. The organ was made by Mr. Hopkinson, of Bristol. The fixed seats accommodate over 900 adults. The contractors were Messrs. Hampshires, masons, Huddersfield; J. Sykes, joiner, Huddersfield; and Snowdon, plumber. The heating apparatus was fixed by Messrs. Wood & Tomlinson, of Manchester. Mr. Little was clerk of the works; and the architect was Mr. W. H. Crossland, of Leeds.

Gateshead.—St. James's Church here has been consecrated. The church consists of a chancel, 32 ft. by 29 ft., with vestry and organ chamber on the north side; and a nave, 71 ft. 6 in. by 29 ft., with a north aisle, 72 ft. 3 in. by 12 ft. 3 in., in which is the principal entrance to the church, screened by a porch on the north side. There are sittings for 584 persons, and provision is made by arches, built into the south wall of the nave for the future addition of a south aisle, which, according to the construction determined on, would accommodate from 130 to 250 persons. The architecture is Early Geometrical. Externally, the nave and chancel are covered with lofty roofs of slates, laid in patterns, with ornamental ridgings, about 55 ft. from the ground; and a simple slated spirelet, holding a single bell, is placed near the east end of the nave roof. The north aisle, vestry, and organ chamber are covered by steep lean-to roofs, leaving a small wall space at their heads before the starting of the nave and chancel-roofs. In case of the erection of a south aisle, it is probable that a steeple on the south of the chancel would be undertaken in connexion with it. At the west end is a large five-light lancet window, within an enclosing arch. This window is designed after an ancient example in the county. The aisle windows are plain lancets. The chancel aisle is about 26 ft. broad, and 32 ft. high, and springs from carved corbel shafts. At the east end is a large five-light window, with geometrical tracery in the head. The lower part of the chancel is lined with ashared stone, and the rest of the walls throughout the church are unplastered, the joints of the stonework being simply pointed. The chancel seats, pulpit, and desk are wrought in oak, with carving on the bosses, &c. The church is heated by hot-water,

and a large corona in the chancel, with rows of gas jets at the top of the nave walls, supply means of lighting during the winter evening services. Messrs. Ansell & Johnson were the architects; and the church has been carried out under Mr. Johnson's personal supervision, Mr. Dryden being the clerk of works. The contractors were:—Mason, Mr. J. Hogg; carpenter and joiner, Mr. R. Sanderson; slaker, Mr. E. Beck; plumber, Mr. H. Watson; plasterers, Messrs. Wilkinson & Co.; painter and glazier, Messrs. Wilson & Romanis; heating, Messrs. Walker & Emley; gasfitting, Messrs. Mather & Armstrong.

DISSENTING CHURCH-BUILDING NEWS.

Wolverhampton.—The chief stone of a Primitive Methodist new chapel has been laid in Dudley-road, at the corner of Derry-street. The proposed new chapel, when completed, will be the largest of five which the Primitive Methodists have erected in this town and neighbourhood within the last eighteen months. The design is by Mr. C. Manton, architect to the trustees, under whose superintendence the works are proceeding. The front elevation is of the Corinthian order, with four partly-detached columns. The side elevation will have white brick dressings. The interior is provided with galleries all round. There will be two large vestries. The chapel will contain upwards of 800 full sittings, and the total cost, including boundary walls, palisading, &c., will be about 1,300*l.* Mr. T. Jones is the contractor.

Rotherham.—The foundation stone of a chapel for the use of the Primitive Methodists has been laid at New York, Rotherham. The cost of the chapel building will be about 300*l.* Mr. J. Shaw is the architect; and Messrs. Slamson & Gummer are the builders.

RECENT PATENTS CONNECTED WITH BUILDING.*

MATERIAL TO BE USED FOR ROOFING OR COVERING BUILDINGS, &c.—*J. F. Empson.* Dated May 9, 1864.—The patentee claims a material, consisting, essentially, of a base or foundation of paper, or other fibrous mixture or material, upon the surfaces of which pounded slate or other gritty material is made to adhere by means of tar or pitch, or a mixture of tar, pitch, and asphalt, or other bituminous matter, or a material consisting essentially of a mixture of gaster, pitch, and asphalt, or other bituminous matter, combined with hay or chaff, waste flax or cotton, or other fibrous or binding material, the said mixture being made into a plastic mass and formed into sheets or slabs, or moulded or pressed in dies.

APPARATUS FOR MAKING BRICKS.—*J. Chambers.* Dated May 9, 1864.—The patentee claims constructing machinery or apparatus for making bricks in which the moulds are removable from the revolving table, and are made to pass underneath a box projecting from the pug-mill, in which box a stamper, hammer, or ram, is caused to work up and down for the purpose of pressing the material into the moulds.

KILNS FOR BURNING BRICKS, TILES, &c.—*T. M. Gisborne.* Dated May 11, 1864.—The patentee claims, First, arranging a series of kilns burning on the principle of the Newcastle kiln, side by side, in such a manner that the front or combustion end of the one kiln is contiguous to, and can communicate with, the back or chimney end of the next kiln, while the chimney end of such kiln can furthermore communicate either with a chimney common to all, or with a separate chimney. Second, constructing a series of kilns burning on the principle of the Newcastle kiln, placed side by side, and made to taper from the combustion end to the chimney end, the chimney end of one kiln being made capable of communicating either with the combustion end of the next kiln, or with a common or separate flue or chimney. Third, constructing a series of kilns, burning on the principle of the Newcastle kiln, made to taper from the combustion end to the chimney end, and arranged side by side alternately in reversed positions, the chimney end of the one kiln being made capable of communicating either with the combustion end of the next kiln, or with a common or separate flue or chimney.

CONSTRUCTION OF CAISSONS, COFFER-DAMS, &c.—*J. G. Jennings.* Dated April 21, 1864.—In constructing coffer-dams and similar struc-

tures according to this invention, the patentee drives, side by side, into the earth, piles or plates formed of corrugated sheet metal. Each pile is composed of two corrugated plates placed together face to face, in such manner that the ridges of one plate come against the ridges of the opposite plate, and where the plates thus come together they are attached together by means of rivets. The corrugations of the plate run vertically in the direction of the length of the pile, and the pile is made of such a length that, after its lower end has been forced into the earth to the requisite extent, its upper edge shall project sufficiently above the highest water-line. The lower ends of the combined plates are furnished with shoes or points for entering the earth, which shoes may be attached to the plates in any suitable manner. On the upper end of the combined plates is also placed a head or block, by which the piles or plates may be driven or forced into the earth. In constructing a coffer-dam or similar structure, after having forced into the earth one of the piles or plates constructed as above described, another plate is forced down, so that the edges of the plate shall be in close connexion with each other. The lower end of another plate is then similarly forced down into the earth, and so on, until the length of dam required is constructed. The joints between the neighbouring ends of two plates may be made water-tight by filling or ramming in the space between two tubes with clay, cement, or other suitable material. In forcing the plates down into the earth they may be guided by piles of timber previously driven in, or they may be otherwise guided.

Books Received.

VARIORUM.

"Society of Engineers: Transactions for 1864." London: Spon. 1865. This volume contains papers, of more or less interest, on Fuel, by P. F. Nursey; on Coal Gas Manufacturing, by A. F. Wilson; on the Cornish Pumping Engine, by A. Fraser; on Elastic Railway Wheels, by V. Pendred; on the Road Bridges of the Charing-cross Railway, by M. Parkes; on the Charing-cross Railway Bridge over the Thames, by M. Parkes; on the Explosion at Erith, and Repair of the River Bank, by L. G. Moore; and on the Water Supply of Towns, by B. Latham. The volume is well illustrated by numerous engravings.—"Fry's Shilling Guide to the London Charities for 1865-6." Third annual edition. London: Hardwicke. Some idea of the extraordinary number and value of the metropolitan charities may be derived from the fact that the mere alphabetical list here given, with name, address, objects, income, &c., arranged tabularly, requires no less than 180 pages, of by no means small size. The volume, being an annual issue, contains the more important charities of a temporary nature, as well as those of a more permanent description. Thus, in this 1865-6 edition, the Surrey Theatre Fund for the relief of persons suffering from the burning down of the theatre is included. The volume is both interesting and useful as a guide to metropolitan charities.

Miscellaneous.

WORKING MEN'S EXHIBITION, GLASGOW.—This exhibition is managed entirely by working men. It contains works, the production of their leisure hours, and is very interesting.

THE STRIKE.—The strike against Messrs. Cubitt & Co. continues, and it seems not unlikely, we deeply regret to say, that a general outlook on the part of the master-builders of the metropolis may be the result.

A NEW LADDER.—An interesting trial was made lately, in the spacious courtyard of the Archinto Palace, at Milan, with what the inventor, Paolo Porta, calls an "air ladder." It consists of several pieces, which, with a sort of carriage as a basis, can be fixed one on the top of another. A height of 90 ft. was thus reached in a very few minutes. The apparatus may be bent down to an angle of 45, and is capable of carrying heavy weights. The principle, it is stated, can be adapted to portable bridges, which can be put together in an equally short time.

EXPENDITURE ON PARIS.—According to the *Revue Universelle des Mines*, the grants by the State towards new buildings and improvements in Paris since 1852, amount to nearly ten millions sterling. This is, of course, irrespective of the sums spent by the city of Paris itself.

THE VALE OF LLANGOLLEN.—The authorities of this beautiful district are endeavouring to afford its visitors all the facilities and comforts essential to the success of a pleasure resort. A railway is formed through the entire vale, and waterworks for the town are about to be constructed by the local Board, under the superintendence of Mr. Josiah F. Fairbank, C.E. Building operations and projects, we are told, are already actively proceeding.

PRIZE COMPETITION IN BRONZES IN PARIS.—The manufacturers of bronzes have announced a competition amongst the artists and workmen employed in that important branch of Paris industry. The prizes to be distributed are to consist of medals and honourable mentions, and the following amounts in money:—For sculptors and ornamental modellers, each 800*fr.*; chasers, 1,600*fr.*; designers, 500*fr.*; founders, 600*fr.*; turners, 400*fr.*; mounters, 300*fr.*

ROYAL SCHOOL OF NAVAL ARCHITECTURE, &c., SOUTH KENSINGTON MUSEUM.—The first session of this school terminated on the 30th April. The number of students was twenty, of whom sixteen were sent by the Admiralty, and four were young men intended for the private ship-building profession. Courses of lectures on iron, steam, wood, the strength of materials as applied to ship-building, and other cognate subjects, were delivered by gentlemen of the highest reputation. The next session will commence at South Kensington, on Wednesday, November 1st, two days before which the gentlemen who offer themselves as pupils of the school will undergo a preliminary examination. Mr. Merrifield, as principal, resigns in favour of Mr. Purkiss, who was vice-principal. Four Russians and one Swede have applied for admission to the school.

WATER FOR ROME.—With reference to this subject, the local correspondent of the *Morning Post* says,—"The restoration of the Marcian aqueduct is now passing out of the region of possibility into that of probability, and its execution will be very much facilitated by uniting the necessary levelling works with those of the Tivoli Railway, the execution of which is now entrusted to the Marquis Lavaggi. The principle adopted is that of bringing the pure water of the Marcian springs to Rome in iron pipes, following the direction of the ancient aqueduct in the upper valley of the Anio, and that of the railway from Tivoli to Rome. Operations are to be commenced in September, and Mr. James Shepherd, the director of the Anglo-Roman Gas Company, has gone to England to organise the aqueduct company, and to order the required quantity of pipes. The high level of this spring will allow of its waters being supplied to all Rome, even to the upper stories of the Quirinal Palace, and its abundance may be conceived by comparison with the Trevi water, whose volume is measured at 180 in., whereas the Marcian water can boast of a flow equivalent to 4,000 in."

ORNAMENTATION OF GLASS, METAL, &c.—Professor Kuhlmann, who has been occupied for some time past in researches on crystallogenic force, has recently patented some of his discoveries in this direction. (No. 1,981, 1864.) The patent is for producing ornamentation on porcelain, glass, metal, and other surfaces. The effects, says the *Reader*, are produced by applying to the surfaces saline solutions or other crystallizable matters in a cold state, either alone or mixed with amorphous insoluble substances held in suspension, and in facilitating the formation of large crystalline configurations, by thickening the concentrated solutions with gum, dextrine, or gelatine. Any solid matters, such as mineral colours, coloured enamels, &c., may be held in suspension in these solutions. By the slow evaporation of the water the solid matters will remain deposited on the glass or metal, retaining at the same time their crystalline arrangement, and the "watered" or "frosted" appearance thus produced may be fixed, in the case of glass, by vitrification, and in the case of metals by etching with acid. Impressions may afterwards be taken from the metal plates in the ordinary manner. The specification also contains a description of a new method of engraving upon glass by hydrofluoric acid.

PRICE OF LAND IN LONDON.—A piece of freehold ground forming an area of 2,500 ft. in Cannon-street, at the corner of Swithin's-lane, was sold last week at auction by Messrs. Fuller & Horsey for 30,600l.

IMPORTS OF METALS.—While in 1854 the computed value of the copper ore and regulus imported into the United Kingdom was 1,286,132l., in 1854 it had risen to 2,054,674l. Unwrought and partly wrought copper was imported, in 1854, to the extent of 388,090l., while in 1854 the imports were valued at 2,206,525l. In 1854, unwrought iron, in bars, was imported to the value of 528,074l.; in 1854 the corresponding value was 625,283l. The receipts of silver ore were valued, in 1854, at 521,330l., and in 1854 at 251,568l. The value of the tin, in blocks, ingots, bars, or slabs, imported in 1854, was 267,312l., and in 1854, 497,328l. Lead, again, was imported to the value of 254,947l., in 1854; while last year's imports were valued at 611,273l. With the exception of silver ore, every metal is now imported in larger quantities than it was ten years since.

PRESERVATION OF WOOD BY CHARRING.—The superficial carbonization or charring of wood, as a preservative means, has long been practised on a small scale, the rationale of the process being the formation of an indestructible skin of carbon, which is, moreover, impregnated with the empyreumatic oils and creosote, produced by the carbonization of the outer layer of wood. About two years ago M. Lapparent proposed to apply it to the timber used in the French navy. Some experiments which were undertaken with the view to determine its practicability have terminated, according to the *Reader*, very satisfactorily; and the Minister of Marine has ordered the process to be introduced into the Imperial dockyards. M. Lapparent makes use of a gas blow-pipe, the flame from which is allowed to play upon every part of the piece of timber in succession. By this means the degree of torrefaction may be regulated at will. The method is applicable to woodwork of all kinds, and the charring, it is said, does not destroy the sharpness of any mouldings with which the wood may be ornamented.

BEDFORD DRAINAGE AND WATER-WORKS.—At a special meeting of the Bedford Town Council, for the purpose of receiving the report of Mr. Lawson, the engineer, and of deciding upon the tenders sent in for the performance of the works according to the plans previously accepted, the following tenders were unanimously accepted:—
[Mr. L. B. Moore, of Newport, Monmouthshire, for the sewerage works, for 17,886l. 6s. 8d.]
[The decision relative to the tender for the water-works was postponed till the next meeting, in order that some further inquiries may be made.]
[Messrs. Cochrane & Co., for supplying iron pipes and other castings, for 4,603l. 3s. 3d.; Messrs. Guest & Chirnes, of Rotherham, for supplying the sluice-valves and hydrants, for 525l. 15s. 6d.; Mr. T. Crump, of Derby, for laying and joining pipes, and fixing valves and hydrants, for 1,793l. 18s. 1d.; and Mr. L. B. Moore, of Newport, for making the service reservoir, wells, and other works, for 1,785l. 5s.]

PARSONAGE HOUSES.—As to the new Act relating to parsonage houses, it may be useful to incumbents of benefices to learn that by an Act lately passed—the 28th and 29th of Victoria, cap. 69, sec. 1.—intituled "An Act further to amend and render more effectual the Law for providing fit Houses for the beneficed Clergy and for other Purposes," incumbents are empowered to borrow on the security of the glebe, tithes, &c., of their benefices any sum not less than 100l., and not more than three years' net income,—1. For the purposes of the former Act—namely, for building, repairing, &c., house or residence. 2. For the purpose of purchasing any lands or hereditaments, not exceeding 12 acres, contiguous to or desirable to be used with the parsonage-house or glebe. 3. For the purpose of acquiring any offices, stabling or out-buildings, or enclosures necessary for the occupation or protection of the parsonage-house. 4. For the purpose of restoring, rebuilding, or repairing the fabric of the benefice church. 5. For the purpose of building, improving, enlarging, or purchasing any farm-house, or farm buildings, or labourers' dwelling-houses belonging to or desirable to be acquired for any farm or lands appertaining to the benefice. 6. Out of the sum to be borrowed the charges and expenses of the architect or surveyor and the costs of the mortgage deed may be paid.

GAS.—The Jedburgh Gas Company have resolved on a dividend at the rate of 10 per cent. on the year's transactions, and also to reduce the price of gas from 7s. to 6s. 10½d. per 1,000 ft.!

LEVENSHTULME LOCAL BOARD.—Previously to commencing operations under the Act, the Board, at a meeting, held last week, appointed as their surveyors, Messrs. Whyatt & Redford, of Manchester, and Heywood.

INK FOR WRITING ON ZINC.—The following is given as a receipt for an indelible black ink to be used for writing on zinc:—Take 30 parts of verdigris, 80 of sal-ammonia, 8 of lamp-black, 8 of gum Arabic, and 300 of water: dissolve the gum in the water, and pour it over the other ingredients, well mixed and reduced to powder. A quill pen should be used for writing.

FALL OF TWO HOUSES IN CHANDOS-STREET.—On Tuesday evening, a fatal calamity occurred in Chandos-street, Covent Garden. One house was formerly known as the White Swan tavern, but had been closed for some time, the lease having expired. The other was for many years an oil warehouse. Both houses had been in course of demolition with a view to rebuilding, and the inner portion of both had been partly removed. It has been said that the front portion was not sufficiently shored. Be this as it may, the whole of the front portion suddenly gave way, and fell forward into the street. Two men were buried in the debris, and killed upon the spot. Two other men are seriously injured.

EAST LONDON WORKING CLASSES INDUSTRIAL EXHIBITION.—The exhibition of products of the working classes resident in the east of London has been opened in St. Mary's School-room, Whitechapel-road. The opening ceremony was performed by the Earl of Shaftesbury, and the occasion was honoured by the presence of a large assemblage. The attendance each day since has been numerous. The exhibition is divided into four classes,—fine arts, mechanical productions, models, and miscellaneous. The committee of management have arranged for the gratuitous services of gentlemen, well-known in London as popular lecturers, to deliver addresses twice a week during the continuance of the exhibition. It is contemplated to keep it open only up to the 2nd of next month.

NARROW ESCAPE OF LEICESTER THEATRE.—The building was lately opened by an English opera company, and in the course of the first evening the performance was stopped by the sudden appearance of the gallery in flames. It seems that some of the "gods" had kicked or cut a hole into a leaden gas-pipe, thus causing an escape of gas, and that they threw a lighted match to the pipe. Many left the building in alarm. Search was made for the key of the gas-meter, but it could not be found; and an alarm of fire was raised, and the different fire-brigades summoned, but luckily their services were not required, as before their arrival a man of some sense in the gallery took off his coat, and, throwing it over the flames, succeeded in putting them out.

THE STEEPLE OF ST. BRIDE'S CHURCH.—A vestry meeting of St. Bride's parish has been held, to consider the report of Mr. Tress, architect, as to the state of the church steeple. The report was to the effect that the steeple and tower, from the top to the bottom, were in a most unsound and unsafe condition, and required immediate and extensive repair. Mr. G. Walter asked the vestry to adjourn the consideration of the question until they had seen the report of their former architect, Mr. Shaw, and which report he made some two years since. Mr. Paterson, a practical builder and stonemason, said that he had made a very careful survey of the tower and steeple, and he was prepared to say, that no immediate danger need be apprehended. It was true that some repairs were necessary, but nothing to the extent stated in Mr. Tress's report. Mr. Hancock ridiculed the notion of the church tower requiring repairs, when it was attended to only two years since. Mr. W. Payne observed that architects were in the habit of getting up great jobs; and he warned the vestry against being led away to spend large sums of money on the steeple and tower. He did not think it at all necessary. He should move that a committee be appointed to inquire into the matter, and report at the next vestry. Mr. Walter seconded the motion, which was unanimously adopted.

AÉRIAL NAVIGATION AT LAST.—The aerial vessel invented by M. Delamarne bids fair, according to the Paris correspondent of the *Star*, to realise the anticipations entertained as to the successful application of the vertical helm in controlling the currents of wind by which the courses of balloons have hitherto been guided. The vessel rose to the height of 1,500 yards, and then took a course due south. M. Delamarne, who acted as helmsman, steered the vessel in an opposite direction, and it accordingly sailed direct for Vincennes. To prove her obedience to the helm, M. Delamarne then took a northerly route. At the request of the passengers, without touching the safety-valve, and simply by using the helm, he descended near Nogent, and floated for some time close to the earth. After a sail of an hour and a half, they decided on descending in the neighbourhood of Choisy, which M. Delamarne accomplished without the slightest difficulty, and his passengers landed on terra firma as easily as if they had stepped out of an express train. Two results, it is added, are evident:—By the horizontal helm placed in the stern of the vessel, it ascends and descends as the helmsman pleases; and by means of the helms placed at each side, combined with the action of the helm, a horizontal course is obtained.

AN AQUATIC UMBRELLA.—Some years since a good deal was said about hail-sticks, for guarding crops from all risk of hail falling where they were set up. Whether the umbrella-stick spoken of by the Paris correspondent of the *Star* be an offshoot from the old hail-stick we do not know, but it looks rather like it. The *Star* correspondent says of it,—“The *Gazette de France* devotes two of its columns to the new and startling discovery of an umbrella, the cover of which, instead of being of the texture of Robinson Crusoe's, or of alpaca, or silk, is of the last material any one would guess, namely, rain itself. The steady old *Legitimist Gazette* never having condescended to joke since its creation, A.D. 1630, I firmly believe the statement, which I translate, ‘Any travellers, who, like myself (the correspondent of the *Gazette*), were passing, between two and three o'clock, on the road between Sourdes and Peyrouse, must have noticed a person, who, although unknown in the country, attracted universal attention. The rain was pouring down in torrents. He held a cane about 10 in. above his head. The rain, falling on this magic wand, spread out in the form of an umbrella, under which M. Drulep, the inventor, walked perfectly sheltered from even a single drop of water. M. Drulep will not as yet solve this mysterious problem; but the marvellous effect produced by this stick is reported to be due to a new application of electricity, and that M. Drulep's stick acts on the principle of the well-known *tour-niquet électrique*.”

THE CHOLERA IN EGYPT.—On the 20th of June the number of cases of cholera which had proved fatal in Alexandria was upwards of 60. From that date to the 24th the average number of deaths was 85 per diem; making a total of 857 since the outbreak of the epidemic. At this date a violent *chamsin*, or unwholesome south wind, arose, which continued with great intensity till the 7th instant. On the 25th ult. the official list shows the mortality to have been 183; on the 26th, 193; on the 27th, 208; on the 28th, 214; on the 29th, 209; on the 30th, 197; on the 2nd of June, 196; on the 3rd, 228; on the 4th, 176; on the 5th, 118; on the 6th, 132; on the 7th, 142. It is believed that the mortality is much greater than stated by the official reports. It is not doubted that such a rapid spread of the epidemic is to a great extent due to local causes, and principally to the state of the dwellings of the Arab fellahs, which are shared alike by man and beast; to the food of these natives, which, especially at the present time, is insufficient and bad; to the putrid water the Arabs are compelled to drink during the low state of the Nile; to the excessive heat; the want of personal cleanliness among them, as well as among the poorer class of Europeans; and, lastly, to the stupid superstition of the Arabs with regard to epidemics and death. A few instances of cholera have occurred in the European quarters of the town, but the upper class of Europeans have entirely escaped up to the present time. It is roughly estimated that between 18,000 and 20,000 European residents have left Alexandria. At Cairo the choleraic symptoms have shown themselves in a manner which gives rise to the most serious apprehensions.

PRICES IN ADELAIDE, SOUTH AUSTRALIA.—The following are some of the prices of labour and material, as quoted, Adelaide, 20th of April:—Brickmakers, per 1,000 bricks, without burning, 12s.; sawyers, 100 ft. cedar, 11s.; ditto deal, 8s.; bricklayers, 10s. a-day; carpenters, 8s. 6d. to 9s.; galvanized iron-workers, 8s. to 10s.; iron-founders, 9s. to 12s.; labourers, 6s.; masons, 9s.; painters, 8s. to 10s.; plasterers, 9s.; plumbers, 10s.; quarrymen, 7s. to 8s.; Welsh duchess slates, 21l. per 1,000; ditto countesses, 18l.; zinc, 40s. to 45s. per cwt.; bricks, 35s. to 45s. per 1,000; flooring-boards, grooved and tongued, 6 in. by 1½ in., 2½d. to 2½d. per foot; red deal battens, 7 in. by 2½ in., 4d. per foot.

NEWSPAPER PRESS FUND.—The annual general meeting was held on Saturday, at the Freemasons' Tavern, Great Queen-street, Mr. S. C. Hall in the chair. Mr. H. G. Warren, the hon. secretary of the society, read the report, of which the following is the substance:—"The committee congratulate the society on the steady progress which has been made during the last twelve months. The number of members on the books is 192, of whom 40 are life members and 152 annual members. The number elected since the 30th of June last year is 64. During the year the society has lost three members by death; the widows of two of them have received assistance from the fund. The total receipts during the past year (irrespective of dinner tickets) were 1,265l. 2s. 10d. The society has now 1,500l. stock in the New 3 per Cent., and 600l. on deposit at the City Bank, leaving at the bankers' at the end of the year a balance of 183l. 8s. 4d. The income of the society at the present time may be thus estimated:—From interest on investments, 60l.; annual subscription of members, 156l.; annual donations, 128l.; making a total of upwards of 340l." The report was unanimously adopted.

EXTENSIVE SCHEMES OF TOWN IMPROVEMENT IN LIVERPOOL.—At a recent council meeting, amongst the proceedings of the finance committee, were recommendations to devote 5,000l. out of the surplus income towards the erection of a hospital for infectious and contagious diseases, and 1,000l. for the improvement of Park-lane, between Forrest-street and Greetham-street, purchasing 124 yards of land on the north side of Blundell-street for 300l. Both the proposals were agreed to. The markets' committee recommended application to Parliament for powers to purchase a block of property bounded on the north by St. John's-lane, south by Charles-street, west by Hood-street, and east by Roe-street, containing 10,640 square yards, at an estimated cost of 87,875l. for the purpose of forming a wholesale fruit and vegetable market. Some discussion took place, and ultimately it was agreed to adjourn the subject for a month. Upon the recommendation of the improvement committee, it was agreed to include in the next improvement Bill a scheme for the widening of Cazrean-street and Belle-street, and the construction of a new street from the north end of Belle-street to Scotland-road, at an estimated cost of 42,000l.; and to purchase at once some property required for the improvement of the south-east end of Everton-road, at a cost of 1,300l.

DWELLINGS FOR THE WORKING CLASSES.—The fourth half-yearly meeting of the company set on foot by Mr. Alderman Waterlow, to provide the working classes in the metropolis with suitable dwellings at easy rents, has been held in the Mansion House, Lord Stanley, M.P., the chairman of the company, presiding. The directors' report stated that the subscribed capital, 30,000l., has been paid up, less 150l. The sum of 23,542l. has been expended in the purchase of land and in the erection of buildings, and it is expected that the balance will in a few weeks be absorbed in completing the undertakings now in hand. At Tower-buildings, Brewhouse-lane, Wapping, nearly the whole of the sixty dwellings for families are occupied. The block of buildings at King's Cross-road, Bagnidge-wells, has been named "Coldden-buildings." The dwellings there have been occupied for a few weeks, and the shops on the ground-floor are also let. Of the five blocks in Old St. Pancras-road, two were fully occupied in the first week of the present month. It is expected that two others will be ready for occupation in a few weeks, and the fifth will be completed in October. These five blocks, which have been named "Stanley-buildings," provide ample accommodation for 100 families. From the experience of the working

of the company up to the present time, the directors believe that a *minimum* dividend of 5 per cent. per annum may be permanently relied upon. Mr. Alderman Waterlow has recently been in communication with the Government, and has succeeded in obtaining from the Lords of the Treasury a promise to introduce, at the opening of the next session of Parliament, a Bill to enable the Public Works Loan Commissioners to advance money at 3½ per cent. interest upon the mortgage of improved dwellings for the labouring classes; and in order to enable the company to avail itself of favourable opportunities of borrowing money upon security of its property, a resolution was passed authorizing the directors to mortgage the company's property to such an extent as they may deem advisable. A dividend of 5 per cent. per annum on the paid-up capital was declared.

RAILWAY MATTERS.—The demolition of 150 houses in Coppice-row, Ray-street, Vineyard-walk, Wood-street, Exmouth-street, and the intersecting courts and by-streets, has made a very extensive opening in Clerkenwell, and workmen have commenced removing the interior of a large number of houses to the northward of Exmouth-street, and extending as far as Baker-street, Lloyd-square, many of the houses in which have been razed to the ground. The houses to the eastward of Clerkenwell work-house, extending to Wood-street, have disappeared, and preparations are being made for the extension towards King's Cross of the London, Chatham, and Dover Railway, and the widening of the Metropolitan Railway. Nearly 350 houses will have been pulled down in this way. Great increase of traffic is anticipated on the completion of the dead meat and poultry markets. A great line of railway was to be completed from New York to New Orleans by the 15th of July. Its completion will be the signal for a grand movement of all the cotton and tobacco now stored between Chattanooga and Alexandria towards Baltimore and New York. The traffic receipts of railways in the United Kingdom amounted, for the week ending the 8th of July, on 12,075 miles, to 710,941l., and for the corresponding week of last year, on 11,674 miles, to 675,792l., showing an increase of 401 miles, and of 35,149l.

MANUFACTURE OF PLATE-GLASS.—A paper has been issued by Mr. Howard, of Plaistow, giving some statistics of plate-glass. It appears that this manufacture amounted, in 1836, to only about 7,000 ft. per week, in consequence of the enormous excise duty which was imposed upon it, which amounted at that time to no less than 60s. per cwt. In 1845 the duty was abolished, and at the same time other materials of a much less costly description began to be used. Sand, the base of the manufactured article, is 3s. 6d. per ton, against the former price of 18s.; labour, formerly 1s. 6d. per superficial foot, is now 6d.; and coal, formerly 1s. 10d. per foot, is now about 2d. The cost is thus reduced to about that of the common window glass of thirty years ago, and in consequence the manufacture has increased from 7,000 superficial feet per week, sold at from 20s. to 25s. per foot, to 140,000 ft., sold at 2s. and upwards, according to quality. The finest qualities are imported from France and Belgium, at the rate of 16,000 ft. per week; but the export of the English commoner make has increased tenfold since 1849. From the opening up of the China and Japan trade, even this enormous increase is by no means the limit which may be attained. The material is, moreover, applied to a variety of purposes, such as flooring and the sheathing of iron ships, so that there appears practically no limit to the development of which the manufacture is susceptible.

CROYDON WORKMEN'S CLUB.—According to the report read at a general meeting, the committee, in completing the first year of the existence of the Croydon Workmen's Club, feel there is fair cause for congratulation to all interested in its prosperity, in the extent to which the institution has answered its intended purposes, and in the cordial support accorded to it by all classes. The amount received for members' subscriptions during the year is nearly 100l., giving an average number of subscribers of about 450. During the winter months, the club has been attended by as many as the rooms will comfortably accommodate; and the privilege of a commodious room well warmed and lighted, and abundantly supplied with newspapers, games, and other means of rational enjoyment,

for the small charge of 1d. per week, has evidently been appreciated by the members. For the convenience of employers wanting men, and of men seeking employment, a registry, on the plan of the houses of call, but open to all branches of trade, will shortly be established at the club, and it is hoped, will prove useful to the members. In the refreshment department, upwards of 100l. have been received during the twelve months. As a large cup of coffee and ½ lb. of cake only cost 2d., on a moderate calculation, 12,000 individuals have patronised this department during the year.

TENDERS

For the erection of a small house at Baldock, Herts, for Mr. Chalkley. Mr. J. Shilcock, architect:—
Williamson.....£12 0 0
Warren & Son (accepted).....245 0 0

For building and completing Minerva College, Stroud Green-lane. Mr. J. G. Turner, architect. Quantities supplied:—
Richards.....£3,097 0 0
Hall & Son.....2,679 0 0
Hawkes.....2,950 0 0
Carter & Son.....2,370 0 0
Williams.....2,419 0 0

For alterations and repairs at the Prince of Wales Hotel, Bishop's-road, Paddington. Mr. Isaac Bird, architect. Quantities supplied:—
Henshaw.....£2,487 0 0
Williams.....2,437 0 0
Newman & Mann.....2,445 0 0
Rubs & Son.....2,419 0 0
Brown.....2,350 0 0

For erection of house for Mr. Fred. Bigg, Maze Hill, St. Leonard-on-Sea. Mr. F. H. Fowler, architect. Quantities by Mr. Harris:—
Hughes.....£2,589 0 0
Kenwood.....2,477 0 0

For a villa residence at Farnham, for Mr. J. M'Cutchan. Messrs. Eggar & Stapley, architects:—
Geo. Goddard.....£289 0 0
Duke.....853 0 0
John Goddard & Son.....848 0 0
Goddard & Wickham (accepted).....798 0 0

For painting and decorating the Downham Arms Inn, Downham Road, Idington, for Mr. George Garrett. Mr. J. S. Gomme, architect:—
Warne.....£249 0 0
Ballard.....235 0 0
Bishop.....198 10 0
Vidler (accepted).....165 9 2

For three warehouses, Southwark-street, for Mr. W. Haynes. Mr. Robert W. Edin, architect:—
Brass.....£8,987 0 0
Colls & Son.....9,732 0 0
Hardiman & Sandon.....8,530 0 0
Hoyne & Robinson.....8,479 0 0
King & Sons.....8,248 0 0
Sharpiington & Cole.....8,187 0 0
Conder.....8,090 0 0

For additions to the Royal Berkshire Hospital, Reading. Mr. Jos. Morris, architect. Quantities supplied by Mr. Fred. Walcott:—
Sheppard.....£2,742 0 0
Wheeler & Co.....2,700 0 0
Simmonds.....2,659 0 0
Summs & Martin.....2,500 0 0
Biggs.....2,500 0 0
Matthews.....2,462 0 0
Sharpiington & Cole.....2,444 0 0
Kenwood.....2,234 0 0
Sawyer.....2,280 0 0
Strong.....2,175 0 0
Barnical.....2,137 0 0
Wheeler, Brothers.....2,132 0 0

For building new infirmaries and covered ways at Hendon, for the Hendon Union. Mr. Rowland Plumb, architect. Quantities by Mr. R. J. Hodgson:—
Infirmaries.....Covered Ways.....
Hart.....£2,314 0 0.....£228 0 0
Wickes.....2,194 1 0.....629 14 0
Summs & Martin.....2,081 1 0.....598 0 0
Chapman.....2,026 0 0.....556 0 0
Bilton.....1,988 0 0.....692 0 0
Sawyer.....1,970 0 0.....674 0 0
Langmead & Way.....1,959 0 0 (accepted) 631 0 0

For additional wards, &c., St. Mary's Hospital, Paddington. Mr. W. Young, architect:—
Nichols.....£12,000 0 0
Hill & Keddell.....8,198 0 0
Hart.....8,750 0 0
Sawyer.....8,550 0 0

For new infirmary at Edgeware, for the Board of Guardians for the Hendon Union. Mr. R. Plumb, architect:—
Hart.....£2,912 0 0
Wickes.....2,922 0 0
Chapman.....2,953 0 0
Bilton.....2,550 0 0
Sawyer.....2,914 0 0
Langmead.....2,890 0 0

For new warehouse in Southwark-street, for Mr. J. K. Farlow. Messrs. Wimble & Taylor, architects:—
Gammou.....£3,745 0 0
Brass.....8,235 0 0
Colls & Son.....8,242 0 0
Hill & Son.....8,137 0 0
Gulland & Thompson.....7,930 0 0
Wiles.....7,650 0 0
Kibby.....7,653 0 0
Hart.....7,670 0 0
Adamson & Son.....7,900 0 0

WANTED A MAN TO TAKE CHARGE OF THE WORK AND MANAGEMENT OF THE GASWORKS at Holbeach, in the county of Lincoln, making about 2,000,000 feet of gas annually. He must be fully competent to lay main and service pipes where required, and to alter and extend the 18-in. of meters. He must be able to do all the work of the house and garden (rent free), coals, and gaslight. Apply, in the first instance, by letter, with testimonials, to RICHARD PARN, Esq. Solicitor, Holbeach, Clerk to the Holbeach Gas and Ice Company (Limited).

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The Builder.

VOL. XXIII.—No. 1173.

Florence, from a Sanitary Point of View.



EW cities are so advantageously situated as regards natural beauties as the new capital of Italy, with its enchanting amphitheatre of mountains, sloping down almost to the very gates of the city, and ending in lovely hills, dotted over with villas, in the midst of their *poderi* of graceful perennial olive-trees, vineyards, and cornfields. It has its river, flowing through the centre of the city, its gloriously blue sky, its never-ending beauty of colour and effects.

It is situated between 43° and 44° north latitude; between 11° and 12° east longitude; the height above the

level of the sea is 800 ft.; mean temperature, 13° to 14° Reaum., 62° Fahr.; mean cold, in ten years, 5° to 6° Reaum., 45° Fahr.; mean heat, 28° to 29° Reaum., 96° Fahr.; extreme

heat, 35° Reaum., 110° Fahr. In the middle of the day last week the thermometer stood at 40°!

Florence is in one of the most rainy zones of Italy. The winds that prevail are those of the south-east, which pass through the upper valley of the Arno; the south-west, that sweep through the lower vale; and in their order through the near, north, east, north-east, west, south. The east and south winds are tempered somewhat by the heights that surround the city; unfortunately, nothing intervenes to temper that coming from the north, causing frequent variations that lower the temperature suddenly. Through the predominance of the south wind, arise those humid vapours and frequent dense clouds that fill a sky at times as deep a blue as that of the Apennines, and at times as pale as that of Milan.

Taken on the whole, the climate of Florence is not of the happiest. Its changeableness is its principal characteristic. The frequently gathering clouds; the rising mists towards evening, especially in summer; the burning heats, so unfavourable, even for the native inhabitants. Still, if the difference in the aspect and vigour of the country people around Florence be compared with that of the citizens, it may be attributed more to the habits of the latter, than to the climate, which can vary but so little at so short a distance. Dr. Carrière, writing from a medical point of view, of the climate of Florence, says,—“It may be most healthful for those who suffer from nervous prostration, of lymphatic, torpid temperament. For such the exciting air, the bright colouring, the brilliant skies, the walks, the art attractions, the monuments, the surrounding country, sown with villas, are permanent stimulants, that, exciting the curiosity, impel to occupation and activity. The winter and intermediate seasons are the most favourable for such temperaments; in summer to take flight to some cooler region, and do most of the citizens themselves.” In general, the medical men do not find Florence to offer real advantage to the invalid beyond

its pleasurable distractions. She is a tempting Syren for that colony of invalids who flock from every part to Pisa; but oft the invalid, tempted to visit Florence, returns, and pitches his tent there, finding it more gay, certainly, but receiving less salutary benefit, than from the warm, tranquil clime of Pisa. If we enter Florence by one of the gates of the walls forming a girdle round the city eight miles in extent, but which are to be levelled as soon as arrangements for collecting the octroi are made, in order to enlarge the city, and traverse its streets, in general narrow and tortuous, but which are being widened wherever practicable, and pass first through the new quarters of the city, where we find newly-built palaces, aiming in style at something like national architecture, regularly built square piazze, with their straight by-streets, built wider than those of old, all respond to the needs of modern Florentine life; whereas, if we pass through the old quarters, with their huge old stone palaces, black with age, rising like proud potatoes in the midst of their vassals, the smaller palaces; the wretched old houses of the poor, in close proximity; and see those groups of still more wretched hovels called *Camaldoli*, the habitations of the poorest classes, and enter the palace and the hotel, we are struck with the utter unsuitableness of both to the requirements of modern life in the too large, superfluous space of the one, and the narrow straitened size of the other. There are exceptions; but this will be found to be in general the character of the old parts of the city.

The pavement of the streets is good; but has both economic and sanitary disadvantages. The stone, which is sandy, becomes during the day so thoroughly heated by the sun, that it is a multiplier and retainer of a heat that the freshness of night rarely serves to cool. This makes it particularly painful to the feet and trying to the health when passing from a heated passage to one to which the sun has no access during the whole day. (Thin or patent boots are unwearable in summer.) Hence, also, is caused an inordinate amount of dust, which, even on calm days, can be seen hanging like a cloud over the city, and covers the pedestrian as it rises with a shower at once stifling and blinding. It is to be hoped, with the multifarious new introductions, a method may be included of cleaning the streets of dust at other times than in the middle of the day, when one now meets a row of men armed with birches, a yard in length, pertinaciously driving heaps of dust before them to a far-off focus, to the detriment of the clothes and sight of the passers-by.

The new piazze of the city are very fine; but in this city of flowers there seems to be a peculiar antagonism to trees, and the largest piazze, “dell’ Indipendenza,” formerly “Maria Antonia,”—the north-west of the city, is like an Arabian desert: no repose for the eye from the glaring white of the houses. Milan and Turin adopt the mode of their French neighbours, and plant trees around all their piazze,—and Florence may with advantage do the same.

The drinking-water, either from the common or artesian wells, is not considered good. From analysis it is found to contain carbonate of lime in the proportion of 610 grains to 100 lb. (Italian 12 oz. to the pound). As a comparison, the Pisan water contains 37 grains to the 100 lb. An aqueduct was made from Pratolino some time since; but the water obtained thence was frittered away in watering, &c., not restricted to the uses of the table; and the supply apparently failing, the people returned to their wells and hard, raw water. Could good drinking-water be obtained from without (for which numerous schemes are being now discussed), the city might then afford to adorn its public places with fountains, of which now there are but very few, and those very rarely are seen to play.

The Arno, before it can be of any use to the city, must be greatly modified by art and science. There is a somewhat exaggerated notion in the minds of foreigners about this river. It is almost dry the greater part of the summer, and the exhalations from the stagnant waters are not the most agreeable or wholesome. The frequent inundations in the rainy season, and at the melting of the snows on the mountains, may be added to the detracations of this river. The inundations of last autumn, causing much destruction and misery, have roused the Government to consider what scientific means can be adopted against a recurrence so disastrous. The sufferings from loss of property and disease, incurred by the damp effusions remaining after the waters had sunk, are felt now, and will continue to be felt by many.

In December, the sand taken from the houses in cartloads was thrown into the Arno. In summer, men are labouring at the sand-banks some 5 ft. high, left dry by the receding of the waters, to remove the sand for building purposes.

There is no system of sewerage throughout the city. The Lung’ Arno—that is, the continuous row of houses on each side of the river—has a sewer emptying into the river; the sewage of the rest of the town is carried away in covered carts, and employed for manure. In one part of the city, now remote, but which, in the new order of things, will soon be in the centre, are numerous tanyards and a colony of tanners; the operation of cleaning the skins, &c., is carried on in canals leading into the river. There are also, on its shores, tallow and wax candle manufactories. These, if removed without the city, would add to the salutary condition of the inhabitants. Public decency and morality must go hand in hand, and much must be done to promote the former—more utterly disregarded here than in any city of Italy—before morality and health can flourish.

The Florentine lives sparingly, mostly on vegetables, paste, sweets, as candied fruits, pastry, &c. The parsimony of the Florentine of old was proverbial, contrasting strongly with that of the Roman. The great abundance and small cost of vegetables and fruit in Florence make them the principal food of the inhabitants; but it is a climate that necessitates the use of animal food, to render the body strong enough for manual labour; and this, owing to the importation of foreign meat, is now more generally eaten. The oil, which is of the most delicious and nutritive kind, is plentifully used in the Florentine kitchen. The wines of Tuscany are famous for their excellence—the Chianti, Montepulciano among the rough wines, the Moscadolo, Malvasia among the sweet.

The habits of the Florentines are extremely inactive: no gymnastic exercises are in vogue. The “Pallone,” a mild kind of football play, and bowls, are their chief games of amusement.

Riding and driving are the *sine quâ non* of the Italians, for those who can afford them: for those who cannot, sitting the whole evening in the open air, generally on the parapet of the low wall built by the side of the Arno, serves as a substitute.

This custom of sitting out in the open air as a diversion is not modern only. “L’Osservatore Fiorentino” tells us that, in the Piazza di Sta. Liberata, between the ancient Temple of Mars (now St. Giovanni, or the Baptistery) and the Duomo, there was a staircase of marble, the lower step being wide and spacious, on which the youth of the city were wont to sit in the extreme heats (the white marble retaining the heat less, and there being always a fresh breeze blowing at this spot), to discuss the news of the day. Here also met the learned of that time, the poet, the musician. Mirth and jollity were not excluded; but all was tempered with the most perfect decorum and propriety. These

meetings were common in Naples and other parts of Italy,—in Florence, not later than the sixteenth century.

There is a great want of public baths here now. From the names of many of the streets, *Via dei Thermi* and *Via Stufa*, baths must have been as numerous and luxurious, we may imagine, as in Rome. This want is to be supplied, among the many requisitions of the new capital.

From the statistical accounts, we fear the abstemiousness we mentioned above does not extend to alcoholic drinks. Drunkenness is scarcely seen; but there is a system, among the poor especially, of having constant recourse to small libations of rum, "*rosolio*," &c. Failure of the vines, of course, causes a greater consumption of the stronger liquors; for instance, whereas, in 1851, a good vintage, 404,978 quarts of rum only were brought into Florence; in 1854 were imported 1,023,307.

Smoking is carried on to excess. The Government have the monopoly of the manufacturing of tobacco.

The maladies most prevalent among the Florentines are rheumatism, catarrh, tumours of all kinds, especially of the bone, &c. Affections of the eyes are very prevalent, probably caused by the sudden changes of the atmosphere, the glare and dust from the pavements. There are the normal diseases attendant on extreme poverty,—nervous diseases, epilepsy, cutaneous affections, pulmonary complaints, and scrofula in its worst form, especially among the poor, deprived of nourishing aliment, and dwelling in damp houses.

This account might, taken in detail, give a disadvantageous idea of the salutary state of Florence, especially as the statistics of births and deaths, if correct, would prove to the contrary. The particulars stated are, we believe, quite true. The inferences thence must be drawn. There is no doubt of the preference of the present suburbs to the city, in point of salubrity.

The municipality, however, aided by the citizens, are doing everything that can be done for the amelioration of the city, and for providing against the demands of the extended capital. New baths, new markets (those now existing are of the foulest kind), introduction of good drinking-water, examination of food sold, increase of public schools, establishment of hospitals for special diseases, the forming of a Board of Health, arrangements for clearing the city of all accumulations of dirt and putrid matters, common chiefly in the suburbs, strenuous endeavours to be made to decrease intemperance and immorality,—these and many more are the works begun, or about to be begun, in Florence, promising for that city, if successfully carried out, as brilliant a future as ever dawned on the capital of a new kingdom.

ARCHITECTURAL REVERIES.

THE ROOF AND THE SPIRE.

ONE of the most strikingly elegant features of the ecclesiastical architecture of central and western Europe in the fourteenth and fifteenth centuries is undoubtedly the spire. Nevertheless, it is but a merely parasitic and decorative adjunct to the tower, which, as a structure devised for the reception of a peal of bells, either as a detached building or as forming an integral part of the sacred edifice, existed many centuries before its spiral completion was realised by the bold and graceful designs of the architects of Germany and France. In Italy, while the Middle-age architect often lavished his choicest devices on the bell tower or campanile, which was generally detached from the main building, the spire never developed itself in its true Gothic glory of tracery and pinnacle, as at Antwerp or Strasbourg. In southern Italy, indeed, even the original germ of the spire, the acutely-pointed roof, seldom developed itself as an apex to the tower; the roof being, as a general rule,

nearly flat, and almost invisible from below. This is the case in the marvellously beautiful detached campanile of the Duomo at Florence, which the Emperor Charles V. regarded as a vast jewel, which, despite its dimensions, should be shielded, like some precious piece of goldsmith's work, by a covering of glass; but further north, as in the campanile of the Piazza San Marco, at Venice, a high and acutely-pointed roof rises from the top of the tower,—and tower-roofs of this kind are, undoubtedly, the germs of the true spire. In Italy, however, the germ appears to have possessed but a weak principle of vitality; and it never developed itself into architectural life; while in central and western Europe,—in Germany, France, and Flanders,—the true germination took place, and plant-like, shot aloft into those exquisitely beautiful ramifications that rival the intricacy and beauty of natural vegetation itself. Whether in leadwork or slate-work, or, more boldly composed of solid stone, the pointed roof may be traced in the Gothic edifices of central and western Europe through every gradation of its progress, from the merely exaggerated roof, as an adjunct and climax to the tower, till it finally assumed the form of the perfectly-defined spire; when it became the chief instead of the secondary feature, the tower, which, in the new combination, sank into the inferior position of a mere base or pedestal to its own ambitious superstructure. The spire must therefore be considered as but a happy exaggeration of an ordinary roof, just as the steeple-shaped head-gear of the ladies of the fifteenth century was a fashionable exaltation of the simple cap of earlier periods; or the high-peaked hat of the Puritan a similar extension upward of the low close-fitting bonnet that had preceded it.

In tracing the history of architectural progress we shall often find that it is in exaggerations of this kind, where some prominent feature of a building has been carried beyond its positive and necessary limits into fanciful proportions, and where those new forms and limits have become dependent on the individual taste of the designer, that some of the most graceful features in the art have been originated; and in proportion to the appropriateness and the grace with which the earlier innovators in any branch of art have invested their innovations, such divergencies have become more or less permanent features in the class of art to which they belong.

Pointed roofs of slate, as they grew higher and higher, under the guidance of the quaint designs of the Flemish architects, offer some of the most remarkable varieties of the steeple form in its transition from the high-peaked roof to the positive spire. After starting with gradual culmination towards a point, those ingenious slaters would, for instance, entirely change the direction of the ascending line, and make it suddenly bulge out, like the capital of a Hindoo column, or the massive shoulders of a Dutch figure, expanding above the scarcely adequate support of a slender waist. The bulge would then, perhaps, be narrowed again, to a second waist, or rather neck, swelling, at last, into the final head, which probably would assume the form of an inverted pear, the narrow part of which being upwards, and terminating, as it were, in the stalk, the staff of the weathercock was thus achieved as the crowning feature of the device; and here we have a high-peaked Dutch or Flemish roof, almost worthy, by the ingenuity of its design and structure, and by the variety of its outline, to be recognised as an actual spire.

But it was only when greater architectural skill and boldness ventured to construct the lofty and decorative roof entirely of stone, that the genuine character of the true spire developed itself; and having once developed itself, blossomed, as it were, into so many forms of beauty, such intricacy, and such complicated and almost endless perforations, that the idea of a mere roof was no longer suggested by its aspect, any more than the rich colonnade and cornice of a Corinthian temple suggest the idea of the timber beams and props of which they are the artificially-developed exaggerations, or, to use a simile from a merely mechanical art, than a power-loom, with all its recent improvements and complications, for stocking weaving, recalls the simple device of the original knitting-pins. This last is, however, not an accurate simile, inasmuch as the developments of the loom have each had their allotted function to perform, neither more nor less; while many if not most of the architectural features alluded to are almost entirely parasitic or decorative.

The humble origin of the spire is forgotten in the contemplation of its varied richness and beauty, and its original purpose, as the mere roof or cap of the building is entirely overlooked, just as in admiring the coronet of a peer, rich with its gold and gems, we are apt to overlook in a similar manner the equally simple fact that, after all, it is but an ornamented cap or hat, which the goldsmith and jeweller have by degrees converted into an elaborate piece of head-gear, in which the original purpose appears so utterly ignored, that it seems to have become a mere decorative object for heralds to paint on coach-panels, as a means of defining various gradations of rank, instead of being of any sort of use as hat, cap, or even helmet.

In art matters, retrospection, especially historical retrospection, is always instructive. By teaching us the original uses of features which have obscured, or turned to actually new purposes, it forces us to become acquainted with the true spirit of those features, and creates in the mind of the art-student a natural tendency to treat them with that sentiment of their origin and history which is sure to lead to a more intelligent view of design than those impressions and convictions which found themselves upon the mere externals of existing models, without a knowledge of what may be termed their vital principle, and the nature of the germ from which they have sprung. Thus, a young architect fully imbued with the knowledge that the spire was in its origin merely the roof of the tower, will design his steeple or spire with a certain definite feeling arising from his knowledge of its pedigree, that is sure to impart to it a more consistent and appropriate character than he would have given to it if in utter ignorance of its origin. For instance, if he should choose to make his design consist of successive stories, the acornation being rendered gradual by a series of slender pinnacles, and delicately-worked miniatures of flying buttresses, as in the graceful spire of the Hôtel de Ville at Brussels, he will then give to his perforations more absolutely the character of lateral windows, while, if he should greatly simplify his design, making the acornation continuous to the apex, and only enriched at the ridges by the usual decorations, then, when he proceeds to certain number of perforations, he will give to those apertures the character of dormer windows, which in fact they are; such openings in many of our English village steeples, showing by their character that they were intended to simulate the smaller dormer windows that, whether for use or ornament, are generally found in the high-pitched roofs of Gothic buildings of the fourteenth and fifteenth centuries. Even when the design of a spire is most complicated and intricate, as is that of Antwerp and others that might be cited, the original roof character may still be traced, though not so obviously; and in modern designs it may be asserted as a principle, that in proportion as the original roof feeling is preserved in sentiment, however veiled by the beauties and intricacies of profuse decoration, so the design of a modern spire will have stamped upon it the seal of true art feeling, or the reverse; for mere idle device, not inspired by the life-breath of original purpose, will become tame, and seem wanting in a living something that no idle elaboration can supply, however profusely resorted to.

From the tower-roof that in its richest form developed itself into the spire, the dreamer of architectural dreams, or *reverer* of architectural reveries, is led to the subject of roofs in general, the history of which is not so satisfactory, inasmuch as, after having arrived at a certain degree of development in the principles of structure, and in artistic beauty, that branch of the noble art gradually declined, especially in this country, and the roof, which should be the crowning feature of the edifice as the most intrinsically important feature of all, was made to sink out of sight behind the parapet, or offended the eye of taste by its unsightly aspect and the absence of any attempt whatever at artistic treatment.

In order to fully appreciate the nature of this retrogression, it is necessary to consider the nature and purport of the roof in its original and rudely primal character; and it will appear at first a somewhat paradoxical statement when it is asserted that roofs were built before walls,—that the roof was not only the most important part of the building, but the only part; so that there were, in fact, roofs without walls to carry them, and moreover, never requiring walls to carry them. Not to

be enigmatical, it may be as well to state at once that the earliest known form of a constructed dwelling was the Tent form, which is, necessarily, all roof. Taking it for granted that Central Asia was the cradle of (at all events, for a branch of) the human race, and that all our forms of civilization have travelled to us from thence,—a theory more and more firmly established by the successive discoveries of recent times,—we must accept the Tent as the first form of a constructive human dwelling,—a form in which, as we have seen, the building was simply roof, all roof, and nothing but the roof. As more permanent forms of dwellings developed themselves in the East with increasing population and increasing civilization, the roof remained still, if not the sole, at all events the principal, feature of the more permanent forms of human abode. In the East, it was shade rather than any other form of protection that was chiefly sought, and therefore the roof was carried far beyond the nucleus, or enclosed portion of the dwelling, and supported at its farthest extent by a series of props or columns. So that, without retiring within the walls of the dwelling, which was probably only done at night, shade and comparative coolness might be enjoyed, at all events on two sides of the building, during the whole of the day by means of the far extending eaves of the roof. This was little more than a permanent form of Tent, and was entirely composed of timber, and yet it contained the germ of all the main features of the Greek temple, which, in its completest form, offers one of the most perfect and magnificent results that the art of building has ever produced. In that form of structure, in its highest state, the roof was frequently composed of stone like the walls and columns, and was consequently an important and conspicuous feature in the building; the pediments or gables becoming the field on which those sculptural displays were exhibited, the remains of which are the chief glories of ancient art.

In Roman times richly-decorated roofs are described by many ancient writers, and so conspicuous and important a feature were they considered, in an artistic point of view, that they were frequently composed entirely of bronze, highly wrought with decorative detail, and profusely, or entirely, gilt. Such was the roof of the Pantheon. With the fall of the Roman empire, the art of constructing semicircular or vaulted roofs of stone, or of brick, covered with the famous Roman cement, seems to have been lost; and, in the unsettled periods which followed, the use of bronze for that purpose would have been simply inviting the attack of those wandering hordes who lived upon the plunder of ancient European civilization before they settled down upon their conquests, and grew into those nations who have created a modern civilization more thorough and complete than the one they destroyed, or was ever dreamed of in the palmiest days of Greek or Roman supremacy.

As the modern nations of Europe began to assume form and consistency, the art which their ancestors had destroyed began to revive, and a new architecture suited to the age, combining itself with many of the ancient forms, soon began to display original power. The stone or bronze roof, however, did not reappear. Solid walls, and columns more or less decorative, were the simple forms of architectural work which could be achieved by builders who were relearning a nearly lost art; but stone vaulting or doming was beyond their skill, and the roof became a light timber one, with a second roof above to shoot off the wet. The roof had, therefore, fallen from its high estate as the principal part of the building, to be treated as the most conspicuous and the most beautiful feature, and had sunk to the position of a secondary member of the structure. This change of character was partly the result of difference of climate. The north-west of Europe had become the centre of the new civilization, and in those regions other conditions were rendered necessary. In the south and east, shelter from the sun was chiefly sought, while in the new centres of human activity shelter from the keen north wind, the driving rain, and the winter snows were the chief objects sought in constructing either domestic dwellings or public edifices; and the walls had become fully as important as the roof, inasmuch as the protection of the dwelling was sought inside the walls, and not outside them, as in the south, so that projected eaves supported on columns did not reappear in the modern architecture. The northern roof could not extend beyond the wall, and the ex-

ternal columns of southern and eastern countries were transferred to the interior of public buildings to support the greater expanse of roof between the external walls.

Even in the great churches the roofs were at first of wood, protected outside by the slopes of lead and other contrivances; but eventually the internal roof, or ceiling, was composed entirely of stone by a system of vaulting more perfect in principle, perhaps, than any known to the architects of Greece or Rome; but even when this great triumph of masonry was effected, many of the examples of what are perfect masterpieces both of construction and decorative design—even then, no generally prevalent attempt was made to produce an equally solid, perfect, and dignified external roof. This feature still remained a mere substitute for a true roof, tiles or lead supported on steeply-pitched rafters being the highest form it attained to, even when the interior ceilings of stone or timber forming the support of the shabby external covering of lead or tiles had attained to their greatest perfection and beauty. It is true that the external ridges were sometimes ornamented with a slight crest of ornamental metal-work, but, as a rule, the external roofs, even of our grandest cathedrals, were a poor pretence and temporary expedient, as it were, for a true roof—not much nearer to the real object that ought to have been attained than the temporary rick-cloth of the former is to the permanent thatch of the hay or corn stacks for which it is the momentary substitute.

The roof, then, did not in our sacred structures during the Medieval periods, become the crown and glory of the building, as in the temples and other public buildings of the Classical epochs of civilization: that is to say, as a general rule. A few examples might perhaps be cited of solid stone roofs. We remember, however, chiefly one worthy of being brought forward as an example of anything like a perfect result; but that one is a glorious piece of work, grand, massive, ornamental, and of a form and structure that might have endured almost for ever, as against the wear and tear of the elements; but the more destructive hand of man found means, in one day's work of fire and sword, to reduce the structure to the grand ruin which it now remains. We allude to the noblest of Irish ecclesiastical monuments, the remains of the magnificent church at the Rock of Cashel, in Tipperary. The scale of this grand pile of conventual buildings, including the church, is most noble, and the situation, perhaps, unrivalled. The nucleus of the building is probably of as early date as the seventh century, and consisted originally of a small church, around which all the subsequent buildings successively grouped themselves. The curious ornaments of this most ancient part of the building are of the style found in the singularly curious and beautiful Irish manuscripts of that period. The dimensions of this portion of the building are, in fact, comparatively small; and it forms but a kind of recessed altar to the vast and lofty church (of probably the fourteenth century), which was eventually added to it. It is this latter portion of the building that is massively crowned with an external roof of stone, of wonderfully skilful structure. The slabs are 2 in. or 3 in. thick, and of a very hard and compact kind of stone, on which the action of the air does not appear to produce the slightest effect. They are alternately toothed and grooved, so as to overlap each other in a very perfect manner; channels being cut down the exposed surface of each, to carry off the great bulk of the rain-fall. The gutters at the foot of the slope are of similar structure, the whole of the massive stone roof being in all respects fitted to resist the wear and tear of a long series of centuries. As almost a solitary instance of a Medieval stone roof of grand architectural character, it is well worth an express trip to Ireland to examine it.

But, while in our sacred buildings, during the Medieval epochs, we did not develop the principle of a decorative external roof, except in the almost solitary example above described, yet, in domestic dwellings and in public buildings of a secular character, much more was achieved in that direction. In the serried lines of street houses, the gable end of the roof was made a highly decorative feature; and if the flank of the roof had to be presented to the eye of a spectator in the street in case of wide buildings, then, a succession of richly-decorated dormer windows supplied the place of the ornamental gable; and the ridge of the roof, which had in all cases become steeply pitched, to prevent the

accumulation of snow in our northern climates, was frequently enriched with a crest of richly-wrought metalwork. In public buildings in a more or less detached position, when the great expanse of one or both sides of the high roof were in view, the monotonous effect of so large an undecorated space was agreeably broken up by ranges of prettily-designed dormer windows, the upper rows being introduced, perhaps, only for effect, while the apparent expanse was further reduced by a high parapet, great part of which consisted of rich open work in stone, which was often a very important feature in Medieval buildings of this class, particularly in Germany. At a somewhat later period, in France more especially, the architects of the French châteaux of the epoch known as that of the Renaissance, perceived the value of the roof as a feature by means of which a fine variety of "sky-lines" might be achieved, and great nobleness of general effect imparted to the building.

Of this feature in the epoch referred to, the roofs of the old Louvre and the Tuileries might be cited as well-known examples, though there are many better; and also of somewhat similar kind, though inferior in scale and treatment, some of our own mansions of the reigns of Elizabeth and James. But the roof, in this form, though of imposing general effect, and forming, as it ought, a conspicuous feature in the general design, is yet unsatisfactory, as being of less durable materials than the rest of the building; while, as its crown and completion, it should be of fully equal if not superior character, as to durability and massively monumental aspect.

In some of our vast new London hotels, the Louvre style of roof is being successfully enough adopted; but beyond this there does not as yet appear to be a disposition on the part of our architects to advance. But they must eventually do so. It is well known what would be the arguments used against an advance in the direction required, and that those arguments would refer to "the great weight of such roofs," and the "vast increase required in the thickness of walls," and much more of the same kind. But all this plausible talk will have to be given up, and the real thing done. For, until the roof—which should be to the main building what the capital is to the columns—has become of equal importance, solidity, and permanent monumental aspect, to the main walls of the structure, our architecture will remain in a comparatively rude and incomplete state. In what precise way this may come about is not at present very clear; but that the rick-cloth system, as a substitute for a roof, cannot last, is clear enough. Rafters, clothed with either tiles or slate, will have to give place to something of far more solid and permanent character.

AN ARCHITECT'S NOTES IN AMERICA.

LABOUR-SAVING APPLIANCES.

OUR American consins, despite their general "tall talk," have certainly set us many examples, from which it would be unwise not to learn the lesson. The dearth of labour and the scarcity of good domestic servants have set the Yankee brain working to lessen the need of "hands" in all the operations of the building craft, whilst Yankee housekeepers have been equally on the alert to point out how the domestic machinery may, as much as possible, be made a thing of mechanical contrivance, so as to get over the work easily, and with independence of hired help. It is no unusual thing to find a large and well-appointed house apparently well controlled by the aid of at most two servants, and still more frequently of but one; whilst every carpenter's and mason's shop, even in a small village, abounds in labour-saving appliances that are almost unknown to this side of the Atlantic, excepting in the yards of our largest contractors, and by no means universally had recourse to even in those.

It is probably doubtful if many of the American machines are really of trans-Atlantic origin: the Yankee is quick at appropriating and adapting, but certainly every one who has had the opportunity of becoming acquainted with American building processes, and has remained long enough in the country to view and judge things as they really are, must be surprised on his return home to find how the world seems to have stood still, and how very slowly good things force their claim upon public notice here.

A brief sketch of the *modus operandi* ordinarily used in the erection of American buildings may be interesting; taking, as an example, a dwelling near some provincial town, and contrasting it with one similarly situated here.

In America, an architect's plans having been procured,—and it should be remarked, by way of parenthesis, that the services of the profession are quite as much in demand there as here,—the contractor would set his brain to work to see whether special machinery could be contrived to aid him in what he had undertaken to do, and very probably some ingenious combination of contrivances would be the result. Of course all his joiner's work would be done by machinery,—his stuff previously "kiln-dried" and well seasoned; his doors, skirtings, and all moulded work run through the engine in the rough, and coming out sharp, and clean, and beautifully smooth by one passage; all his outline work, such as outside wooden brackets (of which Americans are extravagantly fond) would be cut out in a few seconds by a "jumping Johnny," as a plate sawing machine is called; and as far as the woodwork of the building was concerned, very little would be required but the putting up. For the masonry, the excavations would be rapidly scooped out by a plough and scraper worked by oxen; and a tram-way would be rudely but effectively contrived, with a running or sliding track to supply the stone and bricks. A head of water would early be sought for, and an effective hydrant brought to bear upon the spot at once; and a mill worked by oxen, by steam, or by water, set up for the mortar, and for driving other machinery required on the ground.

As the work progressed, the visitor would find rough hemlock floors laid immediately the joists were in their place, and the deafening duly filled in between; these floors forming an underlining, the pine floor being laid the very last thing (always in narrow widths, and blind nailed), after all dirt of plasterers had been cleared away. He would remark how much more thoroughly cross-bridged, and how much deeper, the floor-joists were, than are usually to be seen at home; and he would notice that the external walls were all provided with wall-strips for furring off on their inside face. A simple mode for excluding rats and mice would then be remarked, namely, a course of small bits of slate, not necessarily more than three or four inches wide, laid under the first tier of wall-strips, under which cement would be filled in against the wall, and left full to the back of the surbase of the room, continuing down between the ends of the joists to a similar strip on their under side.

As the internal work progressed, a different mode of preparing the walls and ceilings for "hard finish" would strike him; for Americans rarely have their walls papered or painted at first, but prefer a smooth marble-like finish instead, which certainly makes, after a year's use, a beautiful surface for papering or painting. Formerly Americans used to content themselves with the bare dead-white walls thus described, and rarely enlivened them by paper or painting; but a great change may now be seen in this respect, and in New York the rage has run into the other extreme, and painting and elaborate embellishment are found in profusion.

Continuing the observation of the building supposed to be under way, the visitor's attention would be drawn to the large and well-hung sliding doors he would be sure to find dividing the large parlours, and to the cedar-wood closets in the bedrooms, to save the woollen and fur articles from the moth. The perfect supply of hot and cold water to every bedroom, the liberal provisions for bathing-rooms, and pantries would be sure to surprise any one educated in the belief that these appliances of comfort were only to be found in English homes.

Briefly, the inside of the building would be found to abound in labour-saving appliances for the inmates,—servants and family alike;—and the dwelling would be erected by means of mechanism, applied with shrewd judgment and effectiveness, that would save labour, time, and cost.

The appliances in every-day use are, first, the power-driven machinery (generally portable and erected on the spot), consisting of a circular saw, for cutting logs rapidly into any thickness of plank; a planing-machine; one for moulding, supplied with knives made to cut any pattern the working drawings required; a mortising machine, cross-cut-saw, and the universal plate-saw before alluded to.

The implements and tools for hand use are generally better adapted to their purposes than those in use with us. The American wheelbarrow is singularly convenient in form and light in draft, and the "Collins" axes, in endless variety of size and form, from the pretty toy-like "Shingle," one of 2 in. or 3 in. blade, to the huge lumberer's broad axe, have a world-wide reputation.

In large land operations continuous cement drains are made with great rapidity, and seem to be of satisfactory durability; and a turf-cutter, drawn by oxen, may frequently be seen in use, turning up the sod in convenient widths, and cutting it with an even depth unattainable by modes generally in use.

The American builders in town or country use scaffolding much more thorough than with us, and the stages at the different heights are always neatly laid with rough boards securely fastened, so that even a lady would get about (as may often be seen to be the case), with perfect safety and tolerable comfort.

Where so much work is done by machinery, it may naturally be thought that stiffness and tedious uniformity would be the result; but such is by no means the fact, and an architect's details are carried out with commendable fidelity. As an example:—In a Gothic church, under direction of an English architect, the inside woodwork showed all the edges chamfered and stopped, the stops being tolerably elaborate, and considerably varied in outline. As there was a large quantity of panelling so treated, the ends of seats, wall lining, and so forth, the carpenter did not rest satisfied, until he had made his machinery capable of doing this somewhat unusual work, and the result was most truthful and satisfactory.

Woodwork is turned into hexagonal, square, or octagonal forms, nearly as cheaply as circular, thus affording an opportunity of embellished construction, of which designers are quick to take advantage.

Nor are these facilities confined to working in wood. Some really wonderful operations upon freestone, marble, and granite, may be seen; and in the recent works at the Capitol extension, at Washington, huge stones are turned into shafts for columns, with a facility and dexterity that are marvellous. The American pick has, it is true, been introduced into many large yards here, but as yet has not become generally used, owing possibly to the want of knowing the secret process by which the tools are tempered to retain their cutting edge. The present writer believes that this secret consists in heating the tool to a dull red heat, and then allowing it to cool in a bath of quicksilver, repeating the process twice or thrice, according to the tough hardness required.

In conclusion, although it is not intended to speak of the ethics of architecture in America, it should fairly be said that much commendable progress has been made in design during the past twelve years, and the profession is pretty well represented in the Northern States. In the appliances to save labour, however, so much exemplary ingenuity has been shown that, now that travel has again been resumed its mutual course, we may hope inquiring builders will learn by observation the facts that have thus briefly been called to their notice.

THE HEALTH OF THE METROPOLIS. THREATENED EPIDEMIC.

THE last week's return of the Registrar-General affords ground for anxiety. The deaths from diarrhoea were 280 in number, and we fear that, if the present heat continue, we shall have a further increase; but at this time of the year the mortality from this disease is usually high. The certificates of medical authorities forwarded to Somerset House announce that the chief part of these deaths have happened to children; and it has been with peculiar pain that we have inquired into the particulars of several that have occurred during the last few weeks. The similarity of the symptoms in all these cases seems remarkable to the non-professional observer, and the conditions of bad air, overcrowding, and indifferently ventilation are common in each. First appears a languid state of the body of infants,—that dullness, heaviness, and paleness of the face to which we have elsewhere referred,—then looseness of the bowels, convulsion fits; a state of rapid decline and utter insensibility and prostration; and then generally death takes place

without seeming pain: in fact, so gently does the great change occur, that it is not easy for the watchers to tell when the end has come.

The bill of health for last week also announces eighteen deaths from cholera; and the situations of the dwellings, and the class of persons who have been attacked fatally, are just what past experience teaches us to expect. Seven of the deaths from cholera occurred at the ages of twenty-nine years and upwards. On the 15th, a garden labourer died at Marsh-lane, Greenwich, aged forty-four years; on the 19th inst., at 34, Prebend-street, Islington, a man aged seventy-seven; on the 17th inst., at Hayes-place, West Hackney, a brush-maker, aged seventy-eight, cholera three days; on the 8th inst., in the workhouse, Westminster, a labourer, sixty-seven years old: this death is certified as being from Asiatic cholera; on the 18th, at 9, Culvert-cottages, St. Pancras, a "glass coachman" in a stable-yard, aged forty, choleraic diarrhoea seven days; on the 18th, at 28, Wellington-street, Bethnal-green, a fish-salesman, aged twenty-seven years, cholera, *thirty hours*; on the 19th, at 15, Cavendish-grove, Wandsworth-road, the widow of an army captain, aged seventy-eight.

In connexion with the deaths attributed to diarrhoea and to cholera, the Registrar-General would do good service to direct attention, somewhat in detail, to the localities in which they have occurred, and to give timely note in case cholera should appear in other neighbourhoods; and it would be also well if the coroners were to make investigation in some especial instances.

At present the death-rate of London and ten other large towns in the United Kingdom is large. In London, the excessive deaths during the last week in the metropolis were 159. Last week the deaths in London were 25 per 1,000, in Edinburgh 26, in Liverpool (as we have the figures) 39! This is a black number: when will efficient means be used for getting rid of the cellar dwellings there? The deaths at Manchester are 32 in the 1,000, a little in favour of this great town. We have no doubt, however, that when a thorough system of drainage is carried out, when the cellar dwellings and ash-pit system are disused, and other social and sanitary improvements are carried out, the death-rate there will rightly carried out, the death-rate there will not be more than 20 in the 1,000. There are 36 deaths in the 1,000 in Leeds; in Dublin, only 21 deaths in the 1,000. The expressive figures of the Registrar-General ought to cause the inhabitants of our great towns to get themselves to change conditions which are disgraceful.

The Privy Council, suggesting the adoption of precautionary measures against the spread of cholera or other epidemic disease, has made public a paper of suggestions. The memorandum re-urges the steps we have again and again pointed out as necessary:—

"In order to guard against the harm which sometimes arises from disturbing heaps of offensive matter, it is often necessary to combine the use of chemical disinfectants with such means as are taken for the removal of filth; and in cases where removal is for the time impossible, or inexpedient, the filth should always be disinfected. Disinfection is likewise desirable for unpaved earth close to dwellings, if it be sodden with slops and filth. Generally, where cholera or typhoid fever is in a house, the privy requires to be disinfected.

Sources of water-supply should be well examined. Those which are in any way tainted by animal or vegetable refuse, above all those into which there is any leakage or filtration from sewers, drains, cesspools, or foul ditches, ought no longer to be drunk from. Especially where the disease is cholera, diarrhoea, or typhoid fever, it is essential that no foul water be drunk.

The washing and lime-whiting of uncleanly premises, especially of such as are densely occupied, should be pressed with all practicable despatch. Overcrowding should be prevented. Especially where disease has begun, the sick room should, as far as possible, be free from persons who are not of use or comfort to the patient.

Ample ventilation should be enforced. It should be seen that window-frames are made to open, and that windows are sufficiently opened. Especially where any kind of infective fever has begun, it is essential, both for patients and for persons who are about them, that the sick room and the sick house be constantly well traversed by streams of fresh air.

The cleanliest domestic habits should be enjoined. Refuse matters which have to be cast away should never be left lying within doors; and things which have to be disinfected or cleansed, should always be disinfected or cleansed without delay."

By taking these and other proper measures, we may prevent altogether an attack of the dreaded pestilence; or if that cannot be done, at any rate the evil will be much mitigated if we are prepared.

The directions of the Council are similar to

* One who knows assures us that repeated doses of a few drops of clove oil, in which camphor has been dissolved, form an excellent cure for incipient bowel complaints. One pennyworth of the oil will dissolve about a pennyworth of the camphor.

those issued in 1859, and are very simple and much to the point; in fact, many of them are matters which should be strictly attended to, whether we have the dread of pestilence before us or not. Some of the main points are, the necessity of applying, on the threatening of cholera, diphtheria, typhus, and other epidemic diseases, the powers conferred by the Nuisances Removal Act, and the various other laws which are in force for the protection of the public health. These Acts are,—"The Nuisances Removal Act for England, 1855, 18 & 19 Vict., cap. 116;" "Diseases Prevention Act, 1855;" "Nuisances Removal and Diseases Prevention Acts of 1855—Amendment Act." These Acts give extensive powers to the guardians of parishes, and in some instances to other bodies; and there can be no doubt that if the provisions of those laws were rightly carried out, we should hear of a great improvement in the general health. These enactments can deal with any premises in such a state as to be a nuisance and injurious to health; any pool, ditch, gutter, watercourse, privy, urinal, cesspool, drain, or asphalt, so foul as to be a nuisance and injurious to health; any animal so kept as to be a nuisance and injurious to health; and, in the same way, any accumulation or deposit. (There are some exceptions respecting these.)

Penalties are imposed for disobeying the orders of the justices; for causing water to be fouled by gas-washings; for the continuance of such offences; for the sale of unwholesome food; for carrying on offensive trades; for permitting the overcrowding of residences; for obstructing persons in the execution of these Acts; for obstructing the owner of premises in obeying the provisions of the Act. Section 23, of 24 Vict., cap. 77, provides against the damaging or fouling of any fountain of water; and in various parts throughout those enactments there are forms, &c., of the manner of proceeding, which can be readily understood by persons of ordinary sense. Section 13, of 23 Vict., cap. 77, enables any inhabitant in a parish to obtain an order from the justices for the removal of any nuisance, and empowers the justices to order an examination of the premises, and an entry thereon, as well as to enforce the order, and to charge costs to the party on whom the order is made. This is a most important power, for it enables any person, in cases of neglect by the parochial or other health officers, to obtain redress in instances of sanitary neglect.

In the Government memorandum persons are reminded that artificial disinfectants cannot supply the place of cleanliness, ventilation, and drainage. Notwithstanding, the application of disinfectants must not be neglected. Respecting these remarks of Professor Miller are valuable, because, in sick-rooms, especially, damage is frequently caused by the improper use of them. We have often seen the polished metals of fire-places, and even glass, corroded and drilled by the fumes of chlorine, when used in too large quantities, and the lungs and throats of delicate persons have also been so seriously affected that the attempt at cure was almost as bad as the sanitary derangement which was sought to be set right. Professor Miller says that the artificial disinfectants most commonly used are chloride of lime, quick-lime, and Condry's manganic compounds, metallic salts, especially perchloride of iron, sulphate of iron, and chloride of zinc; in certain cases chlorine gas or sulphurous acid gas may be advantageously used, and, in certain cases, powdered charcoal and fresh earth.

The common solution of perchloride of iron should be diluted with eight or ten times its bulk of water. Sulphate of iron, or the chloride of lime, may be used in the proportion of a pound to a gallon of water, taking care that the water completely dissolves the sulphate of iron, or has the chloride of lime thoroughly mixed with it. Condry's stronger fluid may be mixed with fifty times its bulk of water.

In the ordinary emptying of privies or cess-pools, when disease is present, the use of chloride of lime or lime is recommended; and in using disinfectants in connexion with night-stools, &c., it is the most effective plan to place the disinfectant in the bottom of the vessel before it is used.

In the case of manure or other heaps of refuse which it might at a particular season be considered unadvisable to remove, they should be covered to the depth of 2 in. or 3 in. with a layer of freshly-burnt vegetable charcoal, in powder. Freshly-burnt lime may be used in the same way. Charcoal, is, however, best; but if neither of these can be conveniently had, matters

of this kind may be covered, several inches thick, with a layer of clean dry earth. Professor Miller advises that earth near dwellings, if it has become offensive, should be treated in the same manner as the dung-heaps, &c.

Woollens, bedding, or clothing which cannot be washed should be disinfected by being exposed for two or three or more hours in chambers constructed for that purpose, and heated to from 210 to 250 degrees Fahrenheit.

In the prisons, in some of the London work-houses, and in certain of the hospitals, there are ovens for the disinfection of matters of this kind, and also for the destruction of vermin; and it would no doubt be an advantage in the great parishes of the metropolis, and in large towns such as Manchester and Liverpool, if there was the provision of distinct establishments where operations of this kind could be carried out at a reasonable but moderate cost. In cases of typhus and scarlet fever, small-pox, &c., there should be a power to impound the clothing and destroy it, in case proper means are not used for its restoration to cleanliness.

For fumigating rooms, use may be made of sulphurous acid gas, prepared by burning in the room an ounce or two of flowers of sulphur in a pipkin;—or of chlorine gas, which may be generated by setting in the room a dish containing a quarter of a pound of finely-powdered black oxide of manganese, over which is poured half a pint of muriatic acid, previously mixed with a quarter of a pint of water. Of course, during this process, which is the more effectual the longer it is continued, doors, windows, and chimneys must be closed. This is most useful teaching; and it is also advised that while all classes should take sanitary care, the authorities, on the approach of pestilence, should avail themselves of the best medical advice; and let us hope that they will devote their attention especially to the poorer people in the courts and alleys of towns, and in the labourers' cottages of country districts, to the common lodging-houses, and to houses which are sublet into several small holdings.

THE COFFER-DAM, BLACKFRIARS BRIDGE.

The coffer-dam within which the first stone of the new Blackfriars Bridge, designed by Mr. Cubitt and Mr. Carr, was laid on the 20th inst., as notified in our last, differs but little from the ordinary construction of such works. A few correct particulars, however, will be interesting. The dimensions are 110 ft. in length by 50 ft. in width; the heads of the piles are 4 ft. above Trinity high-water; and the intended level of foundation was 27 ft. below. In some parts, however, it was found requisite to excavate 6 ft. lower, or 33 ft. below Trinity high water, in order to lay bare the solid London clay upon which the whole foundation now rests.

The dam consists of a single row of piles of whole balk on the river face and west end; the east end, which is connected with the works of the temporary bridge, is formed of two rows of piles with clay between. The single portion of the dam was put in by excavating a trench about 15 ft. deep down to the clay. Within this trench, the dam piles were driven, and the exterior portion was filled in with puddle. The upper portion of the piling above the ground-line is made tight by calking. This mode of construction has proved successful and economical. The excavation of the trench was rendered requisite from there being a hard bed of conglomerate like concrete some 3 ft. thick, through which it was all but impossible to drive piles.

The land side of the dam is made good with half balks driven down as the excavation proceeded, the depth of the excavation being 50 ft. below the old surface of road. The cross strutting of the dam is of the ordinary kind, but as the width, 50 ft., is considerable, piles were driven in the middle of the dam, against which the struts abut: each strut is thus divided into two lengths of 25 ft. each, instead of being in one length of 50 ft., which would be apt to buckle.

The foundation now laid in is of blue lime concrete, varying from 8 ft. to 14 ft. in thickness; upon this the abutment of granite, backed with brickwork, will be built. Woodford's patent pumps have been used in this dam, with satisfactory results. Why is it that the patent Flood Pump, of which we gave particulars some long time ago (by its simplicity of construction and absence of valves so well adapted for works of this kind), is not brought more largely into use?

We may mention, in connexion with the ceremony of laying the first stone of the new bridge, that Messrs. H. Piggett & Sons, of Bishopsgate, erected the marquee, and executed all the required decorations. The flags, we may add, were well disposed and grouped.

FOGS IN A METROPOLITAN LIGHT.

LAST week parts of London were shrouded in fog. Somewhat unusual in July.

There can be no doubt that the progress of drainage works, both near and at a distance, in all directions around the metropolis, has been a means of preventing fogs from being so frequent as formerly. During the last twenty years, however, we remember London fogs which have caused both inconvenience and mischief, and an amount of expense far greater than might at a first glance be imagined. Some of these fogs have continued without interruption for three or even four days, and each day, as a natural consequence, the atmosphere has become more dense and polluted by the accumulations of soot and other unpleasant and unwholesome matters. During a fog of this description, labour of many kinds is entirely suspended. On the Thames, in the docks and canals, work is almost stopped; the great shops, in order to bear up against the dulling effect of the fog, have to throw on their goods the most brilliant and powerful artificial light; but at the distance of a few feet all this blaze is absorbed by the peculiar kind of darkness which prevails; and so deceiving is the glimmer, that it would not be easy for the proprietors and others connected with premises, or for the oldest inhabitant of a neighbourhood, to distinguish, without some scrutiny, one shop from another.

The "book-worms" who haunt the reading-room of the British Museum, are on these occasions left without the means of pursuing their various avocations. Many of this industrious and useful community leave the beautiful dome, which in this light has a dim, lurid, and somewhat ghastly appearance, and grope their way homeward; a few, more persevering than others, having with difficulty managed to extract the names and particulars of a few books from the catalogue; and in the hope of the air clearing up, sit with patience, waiting until the painting attendants have, in the colossal space of the King's Library, or some of the other mighty lines of book-shelves, by the aid of lanterns, carefully locked and strongly protected with glass or crystal, provided the volumes wanted. But no candle-light, lamp-light, or gas-light can, under present arrangements, be allowed to the student at the national library, although the plan has been tried with so much success at Kensington and elsewhere. As matters are, however, the party who has written for the books wastes his own time and also that of others. And it is to be regretted that, in addition to the hours lost by the casual fogs, there are the long and pleasant summer mornings and evenings, which are also lost to the student. This magnificent collection might be usefully thrown open during the evenings to thousands without risk from fire. An enormous amount of capital has been invested in this public establishment—in which one feels a national pride—and which, taking into consideration the number and extent of its departments, is now one of the world's wonders.

Within Mr. Carpenter's precincts in the Museum building, during the time of London fogs, the wonders of Albert Durer, Rembrandt, Woollett, Strange, and other remarkable men, whose cunning hand-work has been the means of reproducing and multiplying the choice performances of illustrious painters, lie dormant,—a matter to be regretted, when we consider the limited extent of the number of admissions, the short hours at which, in comparison with the Reading-room, the Print-room is open during the day throughout the year, and the long closing in each September.

One of the unpleasant phases of English fogs, especially when they happen in towns, is the indescribable feeling of uncertainty, and optical oppression, which often affect the nerves to a greater extent than the most intense night darkness. It may, however, be noticed that the effect of fogs in many parts of London is both curious and picturesque, as in the galleries of the British Museum, in company with the Assyrian, Egyptian, and other sculptured kings of old.

It is no easy matter to keep a London fog out of art-galleries, churches, music-halls,

theatres, hospitals,—in fact, large buildings of all descriptions, and although the intrusion is not agreeable, the introduction of a certain amount of fog shows some degree of ventilation by the outer air, which will be useful on general occasions. It also, however, gives evidence that in far too many instances the air lodged in interiors is too slowly removed. We have seen the interior of St. Paul's Cathedral filled with fog; and after the outside air had been clear, the atmosphere within the building has remained hazy for several days, especially within the painted part of the dome. Into Westminster Abbey the fog does not seem to make its way so rapidly as into St. Paul's; but even in the former its damp lodgment in parts must have an injurious effect upon a decaying building.

In theatres, the intended glittering effects of transformation and other scenes have often been marred by the fog making an unpleasant appearance upon the stage; and now that there is a growing inclination to erect lecture and concert rooms and places for public meetings on a far larger scale than was formerly thought of, it is worth while to consider if it would not be possible to devise some means whereby, in case a fog should suddenly come on, either during daylight or during night, there would not be a possibility of one-half of the company being invisible to the other.

If we had the means of estimating the cost in the metropolis of a single day's fog, the sum would be found to be enormous. Amongst the items to be considered would be the charge of the entire gaslighting of London for even only an extra twelve hours. There is also the loss to cab and omnibus people,—for even cabs cannot at such times ply with either profit or safety.

No lady would think of going shopping; and so there is a diminished profit in that way. The work of the costermongers is at an end; and carriers and others who are employed in public and private ways, find it difficult to go on, in consequence of the prowling about of shoals of thieves, who, in spite of the police, make a harvest out of that peculiar kind of air which sets at defiance the energies of the modern officers of the law as well as of the gaslights.

Down Bethnal-green way, in Whitechapel, and in other parts in the same direction, a day's fog deprives thousands of families of the miserable supply of food which they usually have. We have recollections of places in the East, where families depending on needle-work, or the making of linen, lucifer-matches, cheap toys, and a hundred other articles that might be mentioned, are deprived of the light which would have enabled them to earn the miserable profits of their work.

Meanwhile, as is the nature of Englishmen, many make a jolly thing even of a fog, going forth for amusement, under the guidance of two or three link-boys, or by the aid of torches purchased from the oil-shops. Strange are the effects of these fogs, such as the sounding of invisible feet and no less invisible carriage-wheels; and then the flashes of torches, which seem to dash suddenly out of the solid-like air into one's face; and the vain attempts by the united aid of many lights to read the names of streets at a corner; and then come thoughts of the effect upon health of this compression and defilement of the air, and, afterwards, these jottings, the object of which is to induce all steps that may tend to prevent the recurrence of fogs as far as possible.

THE LENS FAMILY.

CONSEQUENT on our recent mention of the portrait-painter Lens, some inquiries have been made of us, to which we say,—

Bernard Lens, painter, died Feb. 5th, 1708, aged 77, and was buried in St. Bride's, Fleet-street.

Bernard Lens, engraver, son of the painter, died April 28th, 1725, aged 66.

Bernard Lens, the famous miniature-painter, died at Knightsbridge, in Middlesex, December 30th, 1741. (*Gentleman's Magazine* for 1741, p. 50.)

Lens made two sales of his pictures, and died at Knightsbridge, whither he had retired from business, about 1741. He had three sons, two that followed his profession, of whom one is yet [178—] living. (*Walpole*, "Anecdotes," Ed. Wornum, p. 751.)

Bernard Lens, the miniature-painter, resided at Knightsbridge, in this parish [Kensington],

and died there in 1741. He is said to have been buried at Kensington, but his name is not to be found in the register. (Lysons's "Engravers of London," iii. 182; adding, in a foot-note, as his authority, "Vertue's MSS. in the Earl of Oxford's collection.")

We are not aware of the relationship (if any, indeed) between the Lens family referred to in these quotations, and the late Mr. Serjeant Lens to whom our correspondent refers. Let him consult the wills of the Lens family in Doctors' Commons.

PROFESSIONAL CHARGES OF ARCHITECTS PRACTISING IN MONTREAL.

The following document, agreed on in February last by those who have signed it, is hung in a conspicuous place in every architect's office in Montreal. It is interesting in several points of view:—

	Per Cent.
1. Public buildings and private residences, commission on the cost thereof	5
2. Block of 2 houses of similar design, commission on the cost thereof ...	4
3. Block of 3, 4, or 5 houses of similar design, commission on the cost thereof	3
4. Block of 6 or more houses of similar design, commission on the cost thereof	2½
5. Stores and warehouses, commission on the cost thereof	4
6. Block of 2 stores or warehouses of similar design, commission on the cost thereof	3
7. Block of 3 or more stores or warehouses of similar design, commission on the cost thereof	2½
8. Items of charge comprised in 5 per cent. commission: preliminary sketches, working drawings, and specifications sufficient for an estimate and contract	2½
Detailed drawings	1
General superintendence (exclusive of clerk of the works), examining and passing the accounts (exclusive of measuring and making out extras and omissions)	1½
9. N.B.—The foregoing subdivision of charges to apply proportionately to stores and warehouses, &c.	
10. For works in the alteration of premises the remuneration to be increased according to the time, skill, and trouble involved.	
11. Taking out quantities from plans for a detailed estimate, commission on the amount thereof of	1½
12. Measuring and valuing artificers' work done for any amount under \$1,000	2
Over \$1,000, and under \$4,000	1½
Over \$4,000	1¼
13. For services by time at per day	\$10
14. N.B.—All travelling expenses to be charged extra.	
15. No charge to be made for a rough estimate obtained by cubing out the contents. If a detailed estimate be requested by the proprietor, a charge therefor is to be made as above.	
16. An architect is bound under the full per-centage charge to provide one set of drawings and one set of tracings with duplicate specifications; it being understood that the architect is paid for the use only of the drawings and specifications, and that these, in the event of his carrying out the works to completion, are to remain his property.	

V. BOURGEAU. J. NELSON.
JOHN EINHART. H. M. PERHAULT.
HENRY J. FOUQUAR. JOS. BIELLE.
T. FAHRLANZ. VICTOR ROY.
WM. FOOTNER. J. SAVAGE.
ALEX. G. LOWLER. JAMES H. SPRINGLE.
JAMES GAWEN, JUN. THOS. S. SCOTT.
JNO. WM. HOPKINS. C. P. THOMAS.
ALEX. C. HUTCHINSON. WY. T. THOMAS.
NARCISSE LABUE. A. B. TAFT.
FREDK. LAWFORD. JAS. WELLS.
ADOLPHE LÉVÊQUE. R. O. WINDSOR.
CHAS. MARCOTTE.

A ROMANCE IN REAL LIFE.

DURING the occupation of Northern Germany by the French in 1810-11, the young Count Londy was a lieutenant in the army which occupied the department de l'Elbe, of which the city of Hamburg was the centre, and where Marshal Davoust, Prince of Eckmühl, reigned with a terror and cruelty which even now is but too vividly remembered by the "oldest inhabitant." Then came the Russian campaign, and the subsequent retreat of the French in 1812. Fifteen years later, a youth of unknown parentage was apprenticed to a Hamburg builder. Step by step he rose, until at last he himself became a master builder, and practised as such in his native city. The terrible fire of 1842, which reduced two-thirds of the place to ashes, brought great activity into the building trade as a natural consequence; and Mr. Londy, combining the work of contractor and house speculator with his profession, gradually became a rich man, and is now one of the most extensive contractors of Hamburg. The young lieutenant of fifty years ago had, in the meantime, become an old man, and is still alive. Happening one day to take up a German newspaper, he found a person bearing his name mentioned as taking an active part in some improvements at Hamburg. His name is an uncommon one, and he was struck with it as occurring in a place where, fifty years ago, he was quartered for several months. Could he have left his name there in a manner which sometimes will occur? The thing haunted him, and at last he determined to find out beyond all doubt. He did so, and the result of his inquiries was that Mr. Londy, the builder, proved to be the count's son. He has since been formally acknowledged as such, and will succeed the rich and hitherto childless old count in his honours, titles, and property. What a subject for a *Scribe* to work up into an *opéra comique*! Yet we have a positive assurance that the whole story is true.

FRANCE.

A NEW library has been established in the Ninth Arrondissement, Paris, for placing good literary works, &c., at the disposal of the working classes. The monthly subscription is 50 centimes for men, and 25 centimes for females. The library is open every day from 8 a.m. till 10 p.m., and on Sundays from 10 a.m. till mid-day. Books can either be consulted at the library, or taken home to be read in the family. There are more than 400 subscribers, and 2,000 volumes, a great many publishers, authors, financiers, &c., having assisted this good work by donations of books or money. The library and offices are situated in the Rue Mansart, No. 15.

The present Halle aux Cuirs is in the Quartier du Temple, and is to be demolished, to make way for the prolongation of the Rue des Cours, as far as the Place des Victoires. An interesting architectural relic will be brought to light by the demolition of the ancient Halle aux Cuirs. It is built on the site of the Hôtel du Bourgoyne, the ancient Hôtel d'Artois; and, in clearing away the last vestiges of this mansion, the donjon, or square tower, will be brought to light, which Jean Sans Peur caused to be constructed in his hôtel in 1408, after the assassination of the Duke of Orleans, to guard himself against the widow's vengeance. It is hoped that it will be preserved and surrounded by a square, as they have done with the Tour St. Jacques. It is one of the few specimens of the military architecture of the fifteenth century remaining in Paris, and deserves to be spared, if possible.

M. Gouverneur, a Norman journalist, chief editor of the *Nogentais*, aided by Messrs. Butler & Eichelbrenner, has invented a very ingenious apparatus for manufacturing gas from the lees or residue of apples and pears, after the cider or perry has been extracted. It gives a perfectly clear light, equal at least to that of coal gas, without smoke or odour, a kilogram of dried lees furnishing by distillation 170 litres (9 cubic feet) of gas. Thus a substance, hitherto useless and often obnoxious, can be utilized as an illuminating power, and even made to supply Lenoir's gas-engine. The entrance to the Industrial Exhibition lately held at Alençon, was brilliantly lighted with this new gas by a simple and economical apparatus. The inventor promises to go farther in the economy of the machine, and cause it to yield gas for nothing. While the process of distillation is going on in

the retorts, excellent residues are obtained, which are of more value than the gas itself, tar and acetic acid being furnished in large quantities and of superior quality.

The railway tunnel under the Pyrenees is being actively pushed forward. There are at this moment more than 1,000 workmen employed between Villejuie and the frontier. Hard granite was the first rock which presented itself; now, the ground has completely changed, and the headings are being driven in limestone, through which also the shafts are being sunk. Hence the work will proceed rapidly.

STATISTICS OF LIGHTNING.

M. Boudin, Paris, has published the following notes on accidents from lightning:—During the period from 1835 to 1863, there were 2,238 persons killed on the spot in France by the electric fluid, the annual maximum having been 111, and the minimum 48. In estimating the number of persons injured at double those killed, the total number of victims is, during the above time, 6,714, or 230 per year. From 1854 to 1863, out of 880 victims to lightning strokes, only 243 persons, or 26·7 per cent., were females. In England, this proportion is only 21·6 per cent. In several cases the lightning striking upon groups consisting of both sexes, has particularly struck the male individuals, thus sparing the female portion more or less. In a great number of cases, the lightning struck and killed flocks of more than 100 animals without touching the shepherds, though the latter were in the midst of the animals. There exist many examples of beech-trees struck, so that Mr. Maxwell was wrong in proclaiming the immunity of this tree from lightning, at the Manchester Scientific Congress.

There were at least two instances of persons who had been struck several times during their life; one of these had been wounded twice, on the left foot, within a period of fifteen years; another was visited three times in different dwellings. In 1853, out of 34 persons killed in the fields, 15, or about one-half, perished while taking shelter under trees: from 1841 to 1853, out of 107 killed, 21 were struck under trees. In only estimating at 25 per cent. the proportion of victims struck while under trees, we find that out of 6,714 sufferers from 1841 to 1853, 1,678, or nearly 1,700 persons, could have escaped accident or death by avoiding the neighbourhood of trees during the storm.

LECTURES ON THE SPOT FOR THE WORKING CLASSES.

OBSERVING the numbers of the working classes who visit the windows in Glasgow Cathedral, and look at them with interest, Mr. Wilson some time since proposed to give them an explanatory lecture, supposing that he might gather one or two hundred in the cathedral to listen to what he had to say. A small committee was formed, and advertisements issued, and his surprise, not to say alarm, was great, when he was informed that in a few days about 5,500 applications for tickets had been made, and that before the day of lecture these had increased to nearly 6,000. 1,500 were actually issued; but the lecturer found that his voice, in that lofty nave, did not reach the outer circles of this number, and, by request, subsequently addressed a smaller number.

This experience of the interest taken by the working classes in such subjects has led Mr. Wilson to suggest to us that the idea should be followed up by gatherings in Westminster Abbey and other remarkable monuments. By this means the people would be led to feel an interest and to reverence and preserve the monuments themselves—to feel a pride in them.

With these ideas he suggests popular lectures in public monuments, as Westminster, St. Paul's, the Houses of Parliament, and others, on the architecture and the works of art contained within them, and on the historic ideas and facts connected with them. The lectures should be gratuitous. The committees should be composed of working men, associated with one or two professional men. The lecturers, artists, architects, sculptors, painters, with literary lecturers, to take up the historic questions.

He hopes this will not be considered Utopian. He has tried it, and succeeded.

COMPETITIONS.

THE BELFAST ALBERT MEMORIAL.

SIR,—The Institute has declined to adjudicate in this matter, but has suggested to the Belfast Committee a course which, it is hoped, will lead to a just conclusion.

The publication of my letter to the Institute in your columns has produced from Mr. Lynn, the partner of Mr. Lanyon, a letter, in which he claims to refute some of the statements contained in my epistle. I there put forward a condensed narrative of the proceedings, taken from the speech of a respectable and independent member of the Belfast Committee. Mr. Lynn's additions confirm that narrative, and refute nothing. I suggest that the Belfast Committee, quite unintentionally, had drifted into an unequal position, and that among them Mr. Lanyon, though unintentionally, was most unfairly situated, as being also a competitor. If it had been worth while for me to quote, from what Mr. Lynn considers the overdone newspaper correspondence, Mr. Lanyon's letters to his committee, it would only have shown, as Mr. Lynn's letter now does, that he was sensibly alive to the awkwardness of the position, and anxious to extricate himself and the committee, and that he did everything which could be done to effect this, except taking the one effectual step of retiring from his position as a competitor. Unless it were to repeat my acknowledgment of the fairness of Mr. Lanyon's intentions, I should not have troubled you on Mr. Lynn's letter, but having now before me the subject of the Belfast competition, I venture to suggest a course arising out of it, but referring to competitions in general, which I think would be useful.

In most cases it would be very desirable to limit the number of competitors. It is now eight years since I had submitted a competition design, and so thoroughly have I been satisfied of the almost universal evil of the system, that I had well nigh concluded never again to engage in anything of the kind. Tempted, however, by the proposal of a professional reference, and the idea which I formed that the competitors would not be so numerous as to make the chances worse than fifteen or twenty to one, I entered upon this. Probably similar considerations weighed with very many others, so that the number of the competitors was unusually small, and reduced the chances to seventy-six to one, opposing all upon equal ground. It rarely happens that all can be on equal ground. Those connected with the locality cannot with any justice be excluded, but manifestly must have far better opportunities of knowing how the wants of the committee are to be fulfilled than those who are remote. Without any suggestion of unfairness, the local men must therefore in many cases be successful. Let then a number of strangers be spared the useless labour of hazarding their loss of time at far more odds than a chance of seventy or eighty to one. A competition advertisement should with this object state that upon receiving the names of architects willing to compete, the committee will select, say ten names.

It seems, however, still further necessary that some authoritative reference for adjudication of designs should be accessible. I should propose that the Institute should appoint three referees to adjudicate on all cases which might be submitted to them, and to advise the committee beforehand as to the nature of the terms to be stipulated. The referees to put forward a scale of fees for their services, approved by the Institute, and to advertise at least for a time, in the competition column of the building periodicals, the nature of their office and duties. I believe it would soon happen that no respectable projects would be advertised without reference to them; and no respectable architects would compete unless subject to their arbitration.

GODFRED M. HILLS.

To get rid of the difficulty which has occurred, a general meeting of subscribers to the Belfast Albert Memorial was held on Monday at the Town-hall, and they unanimously resolved to uphold the opinion of the "Committee of Selection" and confirm their recommendation. The general committee, it will be remembered, reversed the order of merit in which the "Committee of Selection" had placed the designs of Messrs. Lanyon, Lynn, & Lanyon, and Mr. W. J. Barre. The design of the latter gentleman is now to be carried out, in cut stone, at the cost of 1,800*l*.

BRADFORD BATHS AND WASH-HOUSES.

THE Corporation of Bradford have converted the old water-works company's offices, in Thornton-road, into public baths and wash-houses, which have just been opened. Externally, the building has not been much altered. A chimney, in connexion with the wash-house boilers, has been erected.

The whole establishment covers an area of about 1,100 square yards, including the ladies' and gentlemen's baths, each first and second class, Turkish bath, washing department, engine and boiler house, and a residence for the superintendent. The ladies' baths are entered from Thornton-road, on the left side of the building, by a hall and staircase 15½ ft. by 13½ ft. The ladies' plunge-bath, occupies a room 24 ft. long by 21½ ft. wide, vaulted over in three bays: the bath itself is 24 ft. long and 13½ ft. wide, and contains when full about 13,509 gallons of water: the dressing closets along the side of it are arranged for six bathers.

The men's baths have a separate entrance and staircase of the same size as before, at the opposite end of the building. The two swimming-baths are placed on the ground-floor of two apartments, occupying together an area

of about 558 square yards, covered with iron roofs of light construction, the upper portions of which are glazed and provided with openings for ventilation, covering about 300 square feet. The baths themselves are 54 ft. long and 24 ft. wide, the average depth of water being about 4 ft. 6 in. Each bath contains nearly 50,000 gallons when filled.

The Turkish bath has separate entrances, and appears to be intended for ladies on certain days, and for gentlemen at other times. The saloon is 60 ft. long and 22 ft. wide.

In the wash-house there are thirteen stands for washerwomen. In the basement below the drying-house are two Cornish boilers, 7 ft. 6 in. diameter.

The architects who designed and carried out the works were Messrs. Milnes & France, of Bradford; and the original contractors were,—for the masons' and bricklayers' work, Messrs. Thornton, Brothers; carpenters' and joiners' work, Messrs. Ives & Son; plumbers' and glaziers' (including all the fittings and baths), Mr. C. Nelson; plasterers' work, Mr. J. Duckworth; painters' work, Mr. N. Taylor; slaters' work, Messrs. Hill & Nelson; ironfounders' work, Mr. Jas. Halliday; and for the engineers' work, Messrs. Lord & Robertshaw. The total cost will be about 7,000*l*.

It is intended to place two drinking-fountains in the entrances, where a draught of pure water can be obtained either before or after bathing. This, we believe, is now considered almost essential to the full development of the healthy properties of a bath.

THE BUILDING TRADE.

IN pursuance of a resolution adopted at the meeting of the masters on Monday last, on Tuesday printed notices were posted by the various firms that on the 28th of August next the advance of a halfpenny per hour would be given to the men on condition that the strike against Messrs. Cubitt's firm was withdrawn by the 29th inst. On Wednesday night a delegated meeting of the carpenters and joiners was held at the Cambridge Hall, Newman-street, to take the above notice into consideration. The delegate from Cubitt's men on strike stated that a meeting of the men had been held that morning, and he was instructed to say that they were willing to resume work on Monday morning next on the understanding that the advance of ½d. per hour be conceded to them at once, with a six months' notice to be given for the other ½d. They did not think, so far as their firm was concerned, they ought to go back to work on the terms against which they had struck. Some few of the delegates were against accepting anything less than the ½d. advance at once; but the great majority were for accepting the offer made by the masters, of ½d. advance on the 28th of August, with a six months' notice for the other ½d. After a long discussion, the following resolution was ultimately adopted:—

"That we, the delegates, on behalf of our constituents, accept the advance of ½d. per hour, as offered by the masters, on the 28th of August next, on condition that the other ½d. per hour be given on the 1st of March next; and also provided that Cubitt's men be paid the advance of ½d. per hour upon resuming work on Monday morning next."

It was also resolved that deputations of the men in the respective shops should wait upon the employers this (Thursday) morning, and inform them of the above resolution, requesting a reply by Friday morning.

A deputation, consisting of three of the old hands of Messrs. Cubitt & Co., waited on the firm on Thursday, to ask if they would give 7½d. to all carpenters and joiners who are worth it, at once, and 7½d. in March. The firm replied that they would give 7½d. at once to all carpenters and joiners who are worth it, but that the other part of the request concerned the whole trade, and was a trade question, to which they could not reply. The three men said that a delegate meeting was to be held on this Friday evening, to hear the answer of the masters, and that they would wait upon the firm on Saturday morning to inform them the result of the delegates' meeting.

The strike of the housejoiners, masons, and bricklayers of Sunderland has terminated by the masters acceding to the request of the men, who asked for the half-holiday on Saturdays after twelve o'clock. The masters have granted the holiday from one o'clock, but as equivalent for the other hour, they have

agreed that the work shall not commence until seven o'clock a.m., instead of six, on Monday.

The Paris stone-masons, who struck for an increase of their pay from 5*l.* 5*s.* 6*d.* per day to 6*l.* 5*s.* 6*d.*, with certain other concessions, have returned to their work, the master builders having agreed to advance their wages. All passed off quietly. Others, it is said, are bent on following the example of the masons.

THE PAINTERS.

Sir,—Will you kindly favour me with space in the columns of your paper, to inform the master builders and painters that the following firms, Mr. Watts, builder, Motcomb-street, Finsbury; Mr. Clarke, builder, Desborough House, Harrow-road; and Mr. Thiele, decorator, Edward-street, Portman-square, have commenced paying the advanced rate of wages, viz.—7*d.* per hour. Other firms have agreed to pay the advance on the 7th of August next.

F. DAVIS, Secretary.

DEATH IN THE BRITISH MUSEUM.

The newspapers have given very unsatisfactory accounts of the death-rate of the officials of this establishment. Within a very short time a considerable number of deaths has taken place. We have not ourselves the exact rate of mortality of one year or the average over a period of, say, ten years; but what has taken place shows that those figures ought to be forthcoming, and at once laid before the public. Not only the nation at large, but those pent-up men who for so many hours in each week-day labour in the various departments of this great institution, should know the death-rate for the past ten years, the age and length of service of each person who has died, and the complaints to which the deaths have been attributed.

We have at various times directed attention to the state of the atmosphere of this building. We have seen young men come here to duty the very incarnation of health; but soon the colour of the skin has faded, until their faces presented something of the tint of the parchment records which are preserved in the apartments around.

The ventilation of the old reading-room was abominable—enough to kill both readers and attendants, and in other parts the air was and is dry and congested. Take the King's Library, for instance; the smell of leather does not seem to have been moved for years, and it is certain that if the air be good for books it is not so for man. We all know how great a boon the new circular reading-room is; but even the planting of this in the open space of the quadrangle is not good for the ventilation of the great mass of the building; nor have we faith in the pumping system of ventilation which is practised here.

It is now more than a quarter of a century since the writer of this first began to study within the walls of the Museum, and never on any occasion, from the heads of the establishment down to the most humble official, has he received anything except the most patient civility and attention; and, as a natural consequence, he has acquired a degree of liking for the people here, and feels it to be but fair to see that they do not suffer avoidably in health while attending to their duty. Of late years extra hours of labour have been put upon them for the advantage of the public. Has the extra pay been fair and honest? We hope that the trustees will not delay in fully inquiring into this matter. We have an impression that too tight a rule has been put upon the officers, which, for the sake of justice, health, and even life, must be relaxed. The public will not begrudge the cost of extra attendance, rather than risk the lives of trustworthy, civil, and attentive public servants.

FROM SCOTLAND.

Edinburgh.—The foundation stone of Queensberry Lodge, for the "safe accommodation and reformation of females in a respectable position in society addicted to habits of drunkenness," has been laid by the Lord Provost. The institution is intended as yet only as an experiment. It lies contiguous to the back of the House of Refuge, the front looking into South Back Canongate; and, although it is quite a distinct institution, it will be under the management of the directors of the House of Refuge. The house will be a plain building, three stories high, and in the Scotch Baronial style. It will be about 43 ft. high to the ridge of the roof, 151 ft. 4 in. in length, and 46 ft. 4 in. in breadth. The

works have already been commenced. On the ground-floor are arrangements for working. On the two upper floors there are general sitting-rooms, and arrangements are made to provide a separate private room for each of the patients. On each floor bath-rooms and all other necessary conveniences are provided. A lift or hoist is to run from the ground flat to the top floor. A spiral stair is surmounted by a tower 65 ft. high, running from the ground flat to the top, and conducting to a flat roof, for air and exercise without leaving the house. The estimated cost of the building is 3,079*l.* The architect is Mr. J. W. Smith.

Dundee.—On opening the tenders for the Albert Institute, it was found that, for the first section of the building, the lowest tenders were 2,000*l.* or 3,000*l.* above Mr. Gilbert Scott's estimate, and nearly as much above the funds at the directors' disposal. The external staircase will cost, according to the tenders, about 1,000*l.* The directors have deferred accepting the tenders till they see whether there is any prospect of such assistance being given as will enable them to proceed with the design in its unstinted proportions, floors, staircase, and all.

Kelso.—An interesting antiquarian discovery has been made about 6 miles south-west of Kelso. A large portion of an ancient stone-paved road or causeway, close to the point where the old Roman road from the south, of which it is evidently a continuation, crosses the Oxnam Water, has been found on the farm of Crailing Hall. It had formerly been buried under gravel to the depth of 5 ft., but this had all been washed away by heavy floods which occurred in Teviotdale last May. It is even still, however, in excellent preservation, the mason work being as solid and complete as though finished only yesterday. A piece of horse-shoe and a portion of a curiously-made dagger, both of iron, were got among the soil on the pavement. They were much rusted, the horse-shoe being covered with a hard incrustation of sand and pebbles. The valley of the Oxnam, we may mention, is rich in remains of Druidical circles and old camps, but its chief antiquarian relic is the old Roman road, which bounds the parish along the whole length of its north-eastern limits. This is still used as a drove road.

Denholm.—There has been a grand demonstration at Denholm on the occasion of opening the new bridge over the Teviot, the road to Hassendean Railway-station, and that effecting a more direct junction than previously existed with the Teviot-side road, leading by the north bank of the river to Ancrum. The want of a bridge to accommodate the traffic between Denholm and the surrounding districts and the Hassendean Railway-station was much felt.

THE PHILHARMONIC ROOMS, SOUTHAMPTON.

By the enterprise of Mr. F. Strange, a hall for musical entertainments has been provided for Southampton, at a cost of about 8,000*l.* We publish a view of the entrance front, which is faced with stone, Portland being used from the pavement to the first floor, and Bath above. The elevation has on the ground floor, in the centre, a double entrance and slightly projecting portico. Over the double column on the outside are vases, and over the centre one dividing the entrances a figure of Apollo, set up since our view was made. On each side of the portico are circular-headed windows, which light the retiring-rooms. There are key stones to these windows, and also to the entrances, on the face of which are carved Prince of Wales's feathers; in the spandrels over the windows are figures. On the first floor are recessed windows, also with circular heads. The piers between the windows have on their face, from the sill to the springing of arch, raised and moulded panels with carved clusters of fruit and flowers; in the spandrels formed by the arches are medallions, with figures playing on instruments in bas-relief; the frames are moulded and carved; the key-stones are formed of three carved brackets, having the cornice dividing the stories continued round over them on the circle. To the two outer windows, at either end, the angles of the jambs are chamfered, and flower and fruit ornaments introduced. The upper floor has seven windows, under the eills of which are carved in relief some good specimens of the vine, beech, birch, lime, &c. The principal cornice is rich in detail; over the pilasters below are carved figures holding swags of fruit and flowers. The whole is

surmounted with a blocking and balustrade, except the projecting centre, which is carried higher, and has on its face a carved scroll; vases on the centre and angle piers completing the elevation.

Of the interior we would add a few words. In the basement are provided kitchens, stores, cellars, retiring-rooms for the performers, with separate staircases leading from each room up to the orchestra or platform in the ball-room. On the ground-floor, the entrance-hall occupies the centre of the building, the walls being formed into compartments, with columns. On the caps of columns are figures with musical instruments; a richly-carved cornice runs round the ceiling, and which divides the same into panels; in the centre of each panel is a flower ornament, from which is suspended a glass lantern. The whole of the plastering in the hall is done in Parian cement; the floor being laid to a design by Messrs. Maw & Co. with encaustic tiles. On each side of the entrance-hall are retiring-rooms. At the end of the hall is the staircase leading to the club-rooms, which are provided on the two upper floors, consisting of club-room, billiard-room, smoking-room, &c. Passing the staircase, we enter the ball-room. The walls are divided by piers and arches. On the piers are columns (fluted), carried on carved brackets projecting from the walls; the caps are of foliage, and on the top of each are well-formed figures, each differing in design, having musical instruments. Over the centre of the arches are placed the heads of composers and authors; and on each side of the same, in moulded panels, are figures of birds. Above this again are panels raised, on which are musical instruments placed to a design. From the cornice immediately above these last-mentioned panels springs a large cove up to the ceiling; through this cove, which is panelled, is obtained the light for the hall, every other panel being filled in with figured embossed glass. The ceiling is divided into five compartments, three of which are the entire width of the level ceiling, and the remaining two are devoted to very large ventilating flowers. Ventilation is also provided for by having an open enriched scroll running completely round the ceiling, just at the top of the cove. The ceiling is formed at the level of the tie-beams to the roof, Hartley's fluted glass being used on iron rafter water-bars, to admit light through the cove of the ceiling. A narrow gallery is carried down the two sides of the room, and a deep one at the end. The front of the galleries is O G in shape, and finished with Messrs. Jackson & Sons' patent composition, the design being wreaths of flowers and fruit, festooned and connected at equal distances to harps and other devices. Figures are introduced on the festoons in various positions. The proscenium and front of the orchestra are also completed in the same materials. The lighting was executed by Messrs. Kent & Dain, of Southampton.

Mr. A. Bedborough was the architect; and Messrs. Bull & Sons were the builders.

PROPOSED "HOLBORN THEATRE ROYAL."

ALL the necessary arrangements being concluded for the site, the building of the proposed new theatre will be commenced forthwith, with the intention of opening it before Christmas, under the management of Mr. Sefton Parry. The site is that of the old stable-yard formerly known as Warwick Mews, and is inclosed by the backs of the houses of Brownlow-street, those of Warwick-court, and those of Holborn. The dimensions of the land appropriated are 70 ft. in width by 150 ft. in length. There will be an open area round the building, which will be 55 ft. wide, and 120 ft. long.

The theatre will be approached through No. 43, Holborn, and Nos. 1 and 2, Brownlow-mews. The passages will be fireproof, the staircases of stone. Each part of the house will have its distinct access and egress, and both entrances can be made available for either purposes. The plans have been prepared by Messrs. Finch Hill & Paraire, and have been approved of by the Lord Chamberlain.

DUNDALK.—Mr. T. Creaser, of Drogheda, has taken the contract for the extension of Dundalk Barracks for the sum of 6,700*l.* A church is to be erected, as well as quatering for married soldiers. There will also be a parade ground.



PHILHARMONIC ROOM, 20, F. ... — W. A. FRANKLIN, ARCHT.

THE CAUSE AND PREVENTION OF FIRES.

Sir,—On reading the clauses of the Metropolitan Fire Brigade Act, I perceive that no provision is made for inquiries to inquire into the causes of fires. I believe that the Corporation of the City of London have power to institute inquiries, when property to any large extent has been destroyed by fire (irrespective of any loss of life): if similar power were given to the Metropolitan Board of Works, very valuable and scientific information would be obtained, and eventually convert the "theories" of causes of fires into facts.

The number of "unknown" causes returned by the officers of the brigades is very large, nearly all of which are to be accounted for, if a scientific and practical person were empowered to inquire into them: the advantages of such a department to the fire insurance companies would be apparent, and the knowledge that certain storages, &c., cause large fires; that certain buildings are only suited to certain businesses, &c., would reduce the frequency of fires. Whatever experience may be gained by the present limited inquiries made by the fire brigades, it is not circulated among those who would gladly guard against a repetition of like dangers, and thus the willing are left in a state of ignorance.

The construction of buildings, the proximity of hazardous businesses, the situations, the probable amount of destruction that would be caused by fire, &c., should be a department under the new bill; and I would suggest that the Metropolitan Board of Works should have power to publicly inquire into all fires that destroyed property to the extent of 1,000l. and upwards, and into any other case that they might think would conduce to the public benefit.

Such fires as those of Gresham-street and New Southwark-street, in which goods were deposited in fancied "fire-proof" buildings, with solid masonry, lofty floors, iron grilles, extra thick party walls, fire-concreted arched ceilings, &c., do not seem to teach architects and builders any lesson. Leviathan buildings are daily constructed upon those principles that builders and others persist are "fire-proof." All buildings are fire-proof, so long as goods are not stored therein; but experience has taught the fire companies that these "fire-proof" (?) buildings burn more furiously, rapidly, and destroy every vestige of their contents (even that which is considered incombustible) than ordinary buildings that are not considered fire-proof; and from the massive and weighty materials used in their construction, they have in every case caused the entire building (from cellar to roof) to be so destroyed as to necessitate rebuilding. It is from such experiences that many evils might be avoided, and large fires reduced to a minimum. I would urge upon the Metropolitan Board of Works and the fire insurance companies, the desirability of conjointly appointing a gentleman, practically used to the devastation of fires, who should survey the dangers of the present buildings, and watch the construction of the future ones; and I believe such supervision would be of incalculable advantage to both bodies. It has often occurred that the injudicious placing of an opening for a door or window during construction has defied the efforts of the fire brigades, and made the insurance companies and the public suffer by losses of thousands of pounds.

LEWIS M. BECKER.

M'INTOSH v. THE GREAT WESTERN RAILWAY COMPANY.

At Vice-Chancellor Stuart's Court, on the 20th inst., Mr. Bacon, for the Company, moved that his Honour would make an order to stay the payment of the sum of 148,000l. to the plaintiff, as there could be no harm done in delaying for a short time the execution of the decree, pending a proposed appeal to the Lords Justices. He also urged that bringing the amount into court would incur a cost to the Company of upwards of 600l. Mr. Malins followed on the same side. The Attorney-General and others were for the plaintiffs, but were not called upon for a reply. His Honour refused the motion, with costs, stating that in his opinion the money had been a great deal too long, upwards of twenty years, in the pockets of the Company. As to bringing the money into court, that was not the order made; the order was, to pay 148,000l. odd to the plaintiff.

ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

The programme has been issued for the annual meeting at Dorchester, commencing Tuesday, August 1st, and terminating August 8th.

August 1st.—The inaugural meeting will take place at the Town-hall, and the Rev. C. W. Bingham will give an introductory sketch of the antiquities of the county. At the close of the meeting the Museum will be opened, and a party will be formed to visit the antiquities of the town. Evening meeting for papers.

2nd.—Amongst others, papers will be read by the Rev. W. Barnes on "Ancient Dorset;" and by Professor Willis on "Sherborne Abbey Church." In the afternoon, an excursion will be made to Maiden Castle, where the Rev. W. Barnes will offer some remarks upon its date and construction. Evening meeting.

3rd.—Excursions to Sherborne, where the Rev. Professor Willis will accompany the visitors in the examination of the buildings. Mr. G. D. Wingfield Digby will entertain the party at Sherborne Castle. *Conversations.*

4th.—Papers will be read by the Very Rev. the Dean of Chichester on the "Life of Cardinal Morton;" by Charles T. Newton, Esq., on "Phœnician Art;" and by the Rev. Professor Willis on "Glastonbury Abbey." Evening meeting, when Mr. T. Bond, F.S.A., will read a paper on the "History of Corfe Castle."

5th.—Excursion to Wareham, Corfe Castle, and Wimborne Minster. Mr. J. H. Parker will discourse upon the architectural features of Corfe Castle, and Mr. E. A. Freeman upon those of Wimborne. *Conversations.*

7th.—Excursion to Athelhampton, Milton Abbey, Bingham's Melcombe, and Walterston. The Baron Hambro will entertain the party at Milton Abbey. *Conversations.*

8th.—Annual meeting of members. Meeting for reading memoirs of interest, for which time may have previously been insufficient.

RAIN GAUGES.

The vast importance of storing and economizing our rainfall is beginning to be very generally admitted. Many of the Lancashire towns are at present suffering much inconvenience from the scarcity of water, and, should the drought continue, the supply for all manufacturing purposes must be cut off. The question of how much cotton have we in stock will be almost secondary to the question of how much water we have. Every engineer engaged in questions of water supply and drainage has felt the want there is of an organized system of registering the rainfall of the country. There are rain-gauges here and there, but it too frequently happens that in the more rural districts whence the supplies are really drawn, there is no reliable register, and the rain-gauge of the nearest town is often the only guide.

I beg to suggest that every corporation and local board should at once procure and fix in a suitable position a rain-gauge of the best description, and cause a daily record to be kept: it would be easy to record the temperature at the same time. The whole of the apparatus could be procured for about fifteen shillings, and the daily entries on a simple form would cost nothing; but they would be exceedingly valuable, whether in connexion with local questions, or in the aggregate, as giving a somewhat accurate account of the rainfall of the kingdom, which statistics, whether considered in an agricultural, engineering, or commercial view, would be of the greatest value. JOSEPH BRIERLEY.

LINCOLN'S-INN-FIELDS AND THE THOROUGHFARES.

I was under the impression that in connexion with the New Courts of Law to be erected on the Carey-street site, there was to be an opening up of Lincoln's-inn-fields through the stiles to Holborn; and I think this was repeatedly stated by those having charge of the Bills which passed the Legislature. I was therefore surprised in passing through Gate-street to-day to find the foundations of a new house being prepared at right angles with the Messrs. Day's premises, and of course barring the proposed thoroughfare. It was stated by a person living in the neighbourhood that the house was intended as an addition to their premises; and if it be of like

altitude, the cost of its removal will be a somewhat serious addition to the expense of the proposed new street, which, if made at all, ought to be nearly in the direction of the present passage. If this were done at once, before further buildings are erected, the cost would not be excessive. Suppose the curve to commence at the corner of the windowed portion of the lithographic establishment and end at the corner of the second house east of Mr. Weston's, some four or five houses would require to have the fronts set back from 1 to 20 ft. If to this were added the Telegraph Office on the other side, and some rounding and paring in rear of it, there would then be a fine sweeping roadway of some 40 ft. in width.

I cannot close this note without expressing regret that so fine an open space as Lincoln's-inn-fields is not more regarded. I know of no place in London so capable of improvement. Look at the forecourts on the south and west sides, so irregular and dilapidated, and the access on all sides so poor and mean contrasted with the extent and beauty of the enclosed grounds and the noble hall and other buildings of the Society. I wish my voice could reach the members of that honourable body. I would urge them to undertake a thorough re-arrangement of the whole neighbourhood, which could be made, for a comparatively moderate sum, one of the finest in the metropolis. J. W.

PRIVATE BARS PUBLIC NUISANCES.

BARNETT'S GROVE, STONE NEWINGTON.

Sir,—Can anything be done to lessen the increasing, rather than decreasing, nuisance of private bars? Why, for example, should it be left to the discretion of an impertinent fellow in charge of a bar at the end of the road mentioned above whether or not I am to be forced to go a quarter of a mile out of my way? On some of the older estates, in the W. and W.C. districts, for example, the nuisance is intolerable. It is all very well to talk of private rights; but, as respects the thoroughfares of a great city, the public wants should be considered. Carry out the system of the owner putting a bar at the end of each street over which he has power, and we must all come to a dead-lock. Q.

METROPOLITAN BOARD OF WORKS.

Improvement of the Woolwich Main Sewers.

At last meeting, Mr. Doulton, M.P., said, in reference to the sewage question, the Board had received another plan that morning from Mr. Shields, for utilising the sewage of the south side of the Thames. He did not see that the Board should go out of its way to consider this tender. Mr. Nicholay suggested that no tender be received after the time advertised.

The chairman then opened the following tenders for the construction and diversion of the Woolwich main sewers: W. Dethick, 9,101; E. Thirk, 9,340; and Messrs. Hill & Keddell, 9,910. The Board decided that the tender of Messrs. Hill & Keddell be accepted, subject to the usual inquiries.

The Southern Embankment.

A report was brought up from the Thames Embankment Committee, stating "That, after full inquiries, they are not prepared to recommend the Board to accept the tender of Messrs. Ridley & Mearns for the execution of the works of the Southern Embankment."

The report recommended that the tender of Mr. Wm. Webster for the erection of the works of the Southern Embankment, for the sum of 900,000l., be accepted, subject to the usual inquiries.

On the motion that the report be adopted, Mr. Shaw moved that the Board re-advertise for tenders for this work. The motion, however, was withdrawn.

During a discussion which ensued, it was stated that the tender of Messrs. Ridley & Mearns was the lowest by 30,000l., and that no sufficient reason had been given why that tender should be refused.

Mr. Westerton, in moving that Messrs. Ridley & Mearns's tender be received, said he did not see why 30,000l. should be lost to the ratepayers. The amendment, however, was negatived by 16 to 11.

It was then moved that the Board re-advertise for tenders.

Mr. Doulton, M.P., said, in future the Board would be better serving the interests of the public by selecting a certain number of contractors of well-known character, and giving the contract to the lowest tender. The result of re-advertising, he thought, would be that the Board would have to pay considerably more than Mr. Webster's tender. If Mr. Webster's tender had exceeded the estimate of the engineer, then he should say let them re-advertise, but when that tender was 11,000l. below the estimate of the Board's engineer, he did not think that they should do so. It had been said, that Mr. Webster was the favoured contractor of the Board, and that the Board had better adopt as a motto, "Webster, Furness, & Co." Mr. Webster was only favoured because he had done his work well.

Mr. H. L. Taylor said, the right course would be not to accept the tender of Mr. Webster.

After some further discussion, the amendment was lost by 16 to 11.

A resolution that the report be referred back to the committee for further consideration was carried.

PAWNBROKERS.

UNDER the brilliant lights which glisten in the windows, the sham jewelry, duffing watches, and other articles, although of but trifling value, in comparison with those things that deck the shop-windows of the West-end and City jewellers, look quite as bright to the eyes of the uninitiated in Somers-town, the Borough, Bethnal-green, and other parts of the vast metropolis, and are often attended with as much mischief to those of low degree as are the articles of higher value in more fashionable situations. The tinsel butterflyes, designed and wrought in Birmingham, and disposed of by hundreds of grosses in the Minories and Houndsditch, have as ardent admirers as those which are delicately wrought by cunning artists, in gold and silver, and are set with diamonds, rubies, and jewels of great price. Still, if in the day the sunlight be exaggerated, and in the evening the gas be used in the most scientific and ingenious manner, to our view the shops of the London pawnbrokers are amongst the very darkest of those which are to be met with in the wide area of London. Much has been already written on the subject, but we may, with a sanitary view, glance at it once more, and note one or two of the peculiarities of this trade, which has grown to vast proportions, and in which capital to an enormous extent is invested.

There is no end to the ways in which the means of living in London are obtained, and in pursuing their calling many of the workers have peculiar opportunities of observing important phases of London society. Take, for instance, the district surgeons, the relieving officers, the house-surgeons, the masters and other officials of parishes, the magistrates and their clerks, missionaries, lady visitors, medical attendants, nurses in hospitals, rent collectors, certain members of the police, and many besides; but few of these have greater facilities for the observation of the peculiarities of human nature than the pawnbroker; and when we have seen extracts from the note-books of detective police officers published, we have wondered that the experience of the pawnbroker should have been so long withheld.

From eight o'clock in the morning until eight in the evening, in the summer months, and till seven in the evening in the winter season, the pawnbroker and his assistants have constantly before them a moving and ever-changing series of human forms; and all of these, more or less, impress the visitor who may be allowed the opportunity of seeing them, with sensations of a painful nature. Here, amongst the earliest customers, are mothers or other members of families who are obliged to dispose of some article of small value before the children can have breakfast; there are, also, people who hurry to the pawnbroker's for the means of rushing to the nearest public house,—the articles which are offered being what the assistant, with an ominous shake of the head, calls "miserable pledges;" others are pronounced to be of no value, and with a sorrowful face, which indicates a heavy heart, the owner retires with the bundle either to the wretched home or else to the leaving shop, in the hope that a trifle may be obtained there for the articles. The solemn-looking assistant looks upon some goods presented as "cholera or fever pledges," and recommends that they should be taken away and washed: and certainly the danger of infection must be great in those shops, not only to those who are engaged in the business, but also to those who have called for the purpose of parting with or getting back their property.

The place wherein we make the present observations is situated in an important thoroughfare, from which branch several streets of a respectable character; but, hidden from the general view, there are extensive back slums, thickly inhabited by the very poor, and, it is feared, in many instances, persons of doubtful character. As the morning advances articles of furniture, carpets, clothing, &c., are displayed for sale outside the premises; the window is dressed for the day; and the customers become more varied and numerous. Some make as stealthy and bashful an entrance as though they were about to commit a crime, instead of dealing with their own property. Taxes or rent which must be settled is called for, so that personal ornaments, rings, pieces of plate, are brought for the purpose of raising money to meet the pressing occasion. Servants and other persons who may be trusted not only with the articles, but, what is of more conse-

quence, with the secret of the poverty which it is hoped will prove of but temporary duration, come with dresses and more bulky matters. The young medical practitioner, pressed by some sudden call when struggling for that eminence which we trust he will ere long arrive at, leaves his gold watch, ring, or some other valuable, in the keeping of this representative of one of the Lombardy merchants. The truth of the old proverb that necessity brings us into the close neighbourhood of strange fellows, is here verified. In the same coffin-like box where a young and anxious-looking person is unwillingly parting with some books, is a drunken, vulgar-looking woman, who is waiting to pawn her flannel petticoat, of which she has just stripped herself.

The articles which are offered as pledges are of such a varied character, that we cannot but wonder how it is that pawnbrokers are able to estimate their true value. Referring to articles of clothing: the fashions are so ever changing, that in the lapse of twelve months some dresses in London may not be worth the cost of the materials of which they are made. There is, however, generally a market to which such matters as these can go, where the fashion is not especially considered; so that in England, Ireland, and places abroad a purchaser can be found for articles of this description. Moreover, the pawnbroker endeavours to keep himself safe by offering but little more than

Some pawnbrokers understand the value of art manufactures, antiquities, pictures, rare books, and articles of curiosity; but generally those engaged in the trade do not profess this knowledge, and are not anxious to deal in or touch those things, lest their fingers should be burnt.* Notwithstanding, strange articles find their way into the stocks of these traders, and there will be found those who will make advances upon the skins of lions, tigers, bears, boa-constrictors, the skulls and ornaments of savage people, their weapons, and many other odds and ends; but pictures, especially those of a grey and moonlight effect, are not desirable. "You see, sir, a bit of bright colour catches the eye and pleases those who are not judges."

To those who have no knowledge of the dealings of the modern Lombards, the estimate of the value which they put upon many articles causes surprise: take, for instance, little fancy rings, brooches, ear-rings, lockets, &c., which, in the jewellers' shops, have been bought at from a pound to thirty shillings, but would not be considered as a pledge worth more than 3s. or 4s. each. The fashion in jewelry of this kind changes rapidly, and most of the articles are valued at about the price of the gold and silver, or stones which they may contain. Thousands of those things which were highly prized, as being the gift of some long-lost friend, or tokens of affection from those who are far away, are mingled



Close Packing for Man and Goods.

one-half of what he considers the worth of the goods taken in pledge; so that if they are not redeemed, backed for the payment of a sum for three months beyond the term allowed, or the interest paid for another twelve months, and a fresh ticket obtained, he is likely to be still a gainer. Sheets, bed-covers, feather-beds, blankets, table-cloths, shirts, and other kinds of under-clothing, have a more certain value. But many pawnbrokers must have been much puzzled by the changes which took place in consequence of the cotton famine. In Manchester, and most of the towns in the Lancashire district, the premises of the money-lenders were so stocked with the household property of the distressed workers and those who were in various branches of business connected with them, that some were obliged to extend their premises, and several to refuse altogether to take particular articles. To meet emergencies of this kind, to manage business in times when extensive strikes, the scarcity and dearness of provisions, money panics, &c., affect trade and press to a greater or less extent upon the industrious classes of the community, and many other considerations, make it necessary that the pawnbroker should be a man of general intelligence, who is able to look forward, and so trim his affairs, that if his management be hard upon the poor people who deal with him, he seldom fails to secure prosperity, as is shown by the circumstance that but few pawnbrokers appear in the list of bankrupts. Nor is this to be wondered at, when we consider the enormous profits which are gained; and that, if he do not understand the actual worth of goods, he does not offer such a sum as is likely to bring him to harm.*

up yearly, melted, and disposed of for other uses. We are, however, bewildered by the variety of the people who come, and the number of their wares—the expostulations of those who are dissatisfied—the hurrying of women who have probably left their children crying and weaned for at home—the ribald conversation of those assembled in a large box which contains from twenty to thirty people—the mysterious conversation of the assistants and the principal of cabalistic letters as representations of value. In the meanwhile, higher and higher have the parcels been piled upon the back counters, on the floor, and other parts, waiting to be entered in a book which is at all times accessible to the police, or persons who can show good reasons for making inquiry, under numbers which run consecutively. The ticket and duplicate are filled in with pen and ink, cut in two, dusted with pounce, and the one is attached to the article left and the other taken away by the owner of the goods; and here it may be noted that the names of the parties pledging are not, in the generality of instances, carefully attended to, nor are the addressee of the pledges so distinctly marked as they should be; nor is that useful law which directs, under a penalty, that no article shall be taken from male or female who does not appear to be over the age of 16 years, always attended to.

We have before hinted at the risk of the propagation of infectious disorders by the introduction of the left-off clothing of the dead and sick; and this becomes all the

* The *Pawnbroker's Gazette*, a well-directed class journal, circulates amongst the trade, and contains much reliable information.

* We know the fact that a fine painting, by an old Italian artist, which has since been sold for between 700*l.* and 800*l.*, was offered for 5*l.* to a West-end pawnbroker, and declined; and in other instances, pictures, which have produced considerable sums since, have been valued at less than the cost of the frames by pawnbrokers.

more evident, as we look around in the hot summer weather at the numerous persons who crowd the insufficient space, and notice that no care has been taken to provide ventilation in premises where it is so particularly needed. Those who enter by the front will find themselves in a very narrow passage. In the wooden partition there are several doors: one opens to a space near the window, which is generally used by those who are purchasing goods. Further on are the doors of the coffin-shaped boxes; and further still is the large box in which the poorest part of the customers are thickly assembled together. In other parts of what may be called the shop, shelves are placed in every available part for the reception of goods, and this still further occupies the breathing-space. Below the counters there are large numbers of flat irons, copper pans, coal-scuttles, sets of fire-irons, and many other articles. Certain small spaces are less closely packed; and here it is that even now it will be found pawnbrokers' assistants are lodged in larger numbers than we like to think of, partly from carelessness of the consequences of forcing young men to sleep in such situations, and from the want of accommodation in other parts of the premises. There is no room for them upstairs, where every inch is occupied by goods, so that the wonder is how others can so had that although somewhat seasoned by the inspection of similar places, we must go out for the purpose of breathing a little that is freer; asking, before we go, for some consideration for the health of the pawnbroker's assistant.

BORING MACHINE AT CARDIFF.

THE steam artesian well-boring machine, belonging to Messrs. Mathan & Platt, of Manchester, has been at work for some weeks at a Cardiff brewery, in order to procure water for cooling, &c. Day after day passed away without any signs of water, the huge machine bringing up tons of solid rock. After boring to the depth of 290 ft., an apparently inexhaustible supply of water, of excellent quality, was got. Steam-pumps arrived from Manchester, and 160,000 gallons were brought up in twelve hours. The machine's mode of operation is by a circular row of chisels, with an inner row, standing in an oblique direction, and then falling on a mass of stone with the force of several tons, breaking the stones into small fragments, which are then drawn up by an exhausted receiver, and the chisels are then made to work on a fresh surface. The diameter of the hole is regulated by the circumference of the socket holding the chisels. The machine can bore a hole 4 ft. in diameter, but the wider the surface the force is the more diminished. In the present instance the bore was only 18 in. An average of 27 ft. 8 in. of well was sunk per week during the operation of the machine. The cost per foot was 19s. 4d. The cost of the machine was 600l., but it was let, including boiler, at the rate of 6l. a week. In Yorkshire the machine had bored through 40 ft. of hard stone, used as mill-stones. In boring for any great depth, it was found cheaper, after boring 300 or 400 ft., to reduce the diameter from 18 in. to 15 in. The machine has bored wells of 4 ft. in diameter and 50 ft. deep, as at Birkenhead. The cost was not increased in the same ratio as the diameter. If required to sink a pit shaft 12 ft. or 18 ft. in diameter, a series of holes 2 ft. in diameter would be sunk, as the practical limit of the machine is regarded as being 2 ft. in sinking a single hole.

PROVINCIAL NEWS.

Wooton (Isle of Wight).—At the last monthly meeting of the commissioners of the highways of the Isle of Wight, the plans and specifications prepared by Mr. A. Giles, of Southampton, for taking down the recently-erected bridge at Wooton, and erecting another in its room, were laid before the meeting, the former embracing a temporary structure whilst the latter was constructing, and, after a long discussion, it was agreed that the plans, &c., should be received and adopted, and that tenders to carry out the work should be invited by the next meeting, to be held on Wednesday, the 2nd day of August next.

Stratford and West Ham.—A company is now in course of formation for the erection of a music-hall in the High-street, Stratford, on the north side of the road and opposite Charles-

street. It is to be composed of iron, and the proposed outlay is 10,000l. The workmen's hall and club-rooms are now in course of erection, near the north end of West Ham-lane, and contiguous to the site selected for the proposed town-hall and public offices. The building was designed by Mr. J. G. Marshall, surveyor to the West Ham Local Board of Health, who will also superintend the erection.

Miscellaneous.—A scheme has been proposed, and steps have been taken, for increasing the funds to erect an idiot asylum for the counties of York, Lancashire, Cheshire, Cumberland, Westmoreland, and Northumberland.

CHURCH-BUILDING NEWS.

St. Leonard's (Shoreditch).—The district church of St. Andrew's, Hoxton, has been consecrated, by the Bishop of London. The church will accommodate about 980 persons. The style of architecture is Early English, from the design of Mr. Caesar A. Long, of London, and contains chancel, chancel aisles, nave, north and south aisles, organ-chamber, and vestry. The material used is chiefly brick, with coloured arches and string-courses, relieved with stone dressings. The interior is in some parts plastered, the east and west ends and the arches to windows, &c., being brickwork, exposed and pointed. The chancel arch is of gauged brickwork, executed in coloured bricks and stone. The roof is open, and of stained deal. The arches supporting the main roof are also of stained deal, supported on iron columns. The aisles are paved with tiles. The seats are open and of stained deal, as also the pulpit. At the north end corner of the building is a square tower, carried up a portion only of its height, for want of funds. The cost of the building is about 3,200l. The builders were Messrs. Hardiman & Sandou, of London; and the gasfittings were provided by Mr. Tilley, also of London.

Chinnor (Oxon).—The ancient church here has been re-opened, after having been closed for purposes of restoration, for eighteen months. A piece of ground, recently attached to the churchyard, to enlarge it, was consecrated by the bishop of the diocese, at the re-opening. The church, which dates from the latter part of the thirteenth century, has undergone a renovation, both internally and externally. All the old rough cast which covered the external surface of the walls has been removed, exposing to view the natural flint face of the walls. All the stonework of the buttresses, water-tables, quoins, and parapets, has been restored with Headington stone. The churchyard has been attended to, by the formation of gravel paths, and the partial levelling of grave-mounds. Internally, the old flat roofs of the nave and chancel have been replaced by sharp-pitched roofs of yellow deal, boarded on the top side of the rafters, and having circular ribbed trusses, with carved bosses, all timber being exposed to view. The plastering has been removed from the roofs of the north and south aisles, and the timbers repaired and exposed to view. The old high-backed pews have been replaced with massive deal benches, stained and varnished. The belfry-floor has been raised above the apex of the tower-arch. A vestry has been formed at the west end of the south aisle. All the whitewash has been removed from the surface of the stonework, which has been restored, and the walls stripped of plaster and stuccoed. Two new bells have been added to the peal, and three of the old ones have been spliced, by Messrs. Mears, of Whitechapel. The church is heated by hot water, with apparatus supplied by Messrs. Jones, Banks & Co. The east window has been filled with stained glass, by Messrs. Clayton & Bell, of London. Two old stained-glass windows have been restored by the same artists, and refixed in the side window of the chancel. The architect was Mr. E. Banks, of Wolverhampton. Mr. Geo. Cooper, of Aylesbury, was the contractor. The cost of restoration is about 2,500l.

Kenilworth.—The parish church, which has lately undergone a restoration, has been re-opened for divine service. The edifice had for many years been in a very dilapidated state. The interior has been refitted throughout with modern pews: there are a carved roof, new organ, and pulpit, and several other new interior arrangements. The edifice itself has undergone considerable enlargement, the new features being a chancel arch, an east window, and a chancel aisle and south transept. The architect, from whose design and under whose superin-

tendence the work has been carried out, was Mr. W. Smith, of London. The builder was Mr. J. Marriott, of Coventry. The total cost of the work has been between 3,000l. and 4,000l. The enlargement and re-arrangement of the church have increased the number of sittings to 800, of which three-fifths are free.

Weston (Hampshire).—Holy Trinity Church has been consecrated. This church has been erected at the sole expense of the Rev. W. P. Hulton, of Barnfield, Weston, on land given by Mr. Thomas Chamberlayne. The design was prepared by Mr. Bedborough, architect, Southampton. Mr. Snook, of Southampton, was the builder. The church consists of a chancel, nave, north aisle, tower, and spire. The paving is laid throughout with Minton's tiles. The walls are faced with Swange stone and Bath stone dressings. The spire is of Bath stone, and has three heights of lucerns. Internally the windows and doors, pews, arches, &c., are finished in Bath stone. The pulpit and front are of stone and Aberdeen granite. The roofs are open stained and varnished. The windows are all of stained glass, by Messrs. O'Connor, of London. The tracery of the east window illustrates the name of the Holy Trinity. The four-light window illustrates the Lord's Supper, and the two side lights the Nativity and Agony of our Lord; the west window the Day of Pentecost; and the north aisle the Baptism of our Lord; the two lower windows the Blessing of the Children, and Christ disputing in the Temple. The side windows in the nave and aisle are in diaper.

Hartfield (Sussex).—In accordance with plans by Messrs. Parsons & Sons, of Lewes, the old-fashioned high pews of the old church of Hartfield have been changed into open seats, the gallery removed, opened out, and three windows brought to view. The south aisle has been re-roofed, the plates and rafters having been found to be in a very dangerous state. The ceiling of the nave and chancel has been removed, exhibiting the roof, which, with that of the aisle, will correspond in tint with the seats, the number of which will be increased by the alteration. The cost will be upwards of 760l., including the expense of warming.

DISSENTING CHURCH-BUILDING NEWS.

Ormskirk.—The foundation stone of a new Wesleyan chapel has been laid at Blaguenate, Skelmerdale, near Ormskirk. The site of the proposed edifice is at Sandy-lane Head, Blaguenate, near the new Roman Catholic Chapel, being in the centre of this now populous village. The style of the edifice is Grecian, the plans having been supplied by the Rev. R. J. T. Hawksley, of Leigh. The chapel is to be built of brick and stone at a cost of about 450l., and will afford accommodation for about 200 persons. The dimensions are 45 ft. 9 in. by 34 ft., the elevation being 17 ft., and the vestry will be 13 ft. by 10 ft., and 10 ft. in height. The contractor is Mr. T. Bridge, of Burrough.

Longtown.—The foundation stone of a new chapel, in connexion with the United Methodist Free Church, has been laid here. It will stand to the right of the road coming into the town from Carlisle, and north and south; the entrance will be from the north side. The inside measurement is 47 ft. long, by 32 ft. broad, and the chapel will be lighted by five windows on either side and two large windows at either end. The work will be executed by Mr. Metcalfe, mason; Mr. Davidson, joiner; and Mr. Nanson, slater,—all of Carlisle; the painting, by Mr. Thos. Hill, of Longtown.

Manningham (Yorkshire).—The Wesleyan Chapel has been re-opened. The schools will be formally opened shortly. Originally, a building, about 53 ft. wide and 91 ft. long, contained both the chapel and the schools; now, the whole of it has been devoted to the chapel, and new schools have been built on a plot of ground to the rear of, and connected with, the chapel. The increased accommodation gained is about 118 on the ground-floor and 148 in the gallery. The schools are in the Elizabethan style of architecture, and contain, on the ground-floor (which is nearly level with the basement on the chapel), separate entrances for boys and girls, chapel), four good-sized class-rooms, and a band-room; on the upper floor is the school-room, 44½ ft. wide and 49½ ft. long, and 36 ft. high to the ridge: two eight-light bay windows form prominent features in this room. There are adjoining it one class-room and staircase leading to the

next floor (over the entrances only), which contains a library and singers' vestry. Both schools and chapel are warmed by hot water. The works have been carried out under the superintendence and from the designs of Messrs. Milnes & France, architects. The contractors are as follows:—masons, Messrs. R. Crabtree & Co.; joiners, Messrs. Thos. Taylor & Son; plumber, Mr. John Schofield; plasterer, Mr. S. Laycock; painter, Mr. Wallace; and for decorating the chapel and organ, Mr. E. Haley,—all of Bradford.

RAILWAY COMPENSATION CASES.

Smee v. The Metropolitan Railway Company.—The Value of Public-house Property.—This was a railway compensation case (in the Lord Mayor's court, July 24th), for several houses in Liverpool-street and Broad-street Buildings, in the city of London.

The claim, as presented, was for 36,353l., with 10 per cent. The value of the property was called 39,049l. On the part of the railway, the valuation was, with the 10 per-centage for compulsory sale, 14,614l., exclusive of the Railway Tavern. Several surveyors for the company gave the value of the property as between 6,000l. and 7,000l. The Railway Tavern was let on a lease for 550l. a year; and Mr. Ferrow, the proprietor, had laid out 1,400l., and expected a large business, as the termini of four different railways were now in the course of construction. Mr. Cronin, the public-house valuer, was called on the part of the claimant, and considered that the house would fetch a premium of 5,000l. with the rent of 550l. a year. He had had considerable experience. The value of the tavern was estimated at 10,206l. On the part of the company, Mr. Orgill, Mr. Haines, and Mr. Lovejoy, public-house valuers, were examined, and were of opinion that the Railway Tavern at 550l. was a most excessive rent, and that it could not realise any premium; without the railway, the house, Mr. Orgill said, was not worth 50l. a year.

Several witnesses proved the great increase in the value of property, and one of the surveyors declared that property which was worth 2,000l. as ground-rent three years ago was now worth 4,000l. Property had gone up, and was still increasing in value, and might go on increasing. Numerous witnesses were called on both sides, and the evidence was very conflicting as to the value of the property in question. Mr. Smee had given nearly 27,000l. for the property, and had raised 20,000l. on it. Some of the houses had been let at very small rentals by the City of London when they were worth considerably more, as stated by the surveyors.

It was urged on the part of the railway company that the claim as presented was quite "appalling," and that if such claims were allowed there was no knowing where they would end.

Mr. Commissioner Kerr, in placing the case before the jury, declared that it was the most extraordinary one he had ever heard, and would become a "model" compensation case. What were they to think of the value of scientific evidence when there was such a difference as more than 20,000l. in the evidence of the surveyors and valuers? "What," added the Commissioner, "scientific evidence will come to by and by it will be impossible to say." In this case the valuation was on one hand about 36,000l., and on the other under 14,000l. It was certainly a most remarkable case, and the jury must settle it between themselves.

The jury assessed the compensation at 29,650l.

RECENT PATENTS CONNECTED WITH BUILDING.*

MANUFACTURE OF BRICKS, &c.—*J. Jones.* Dated April 21, 1864.—This invention consists, essentially, in moulding clays, earths, and other materials capable of being so treated, in a dry, or comparatively dry, state, by passing the material through a furnace, and thence through a machine by which it is moulded.

ORNAMENTAL BRICKS.—*F. Potts & C. Harvey.* Dated April 21, 1864.—This invention consists in moulding from suitable clay bricks of any ornamental or irregular shape, and when partially dry, the patentees propose pressing them in suitable moulds, so as to condense and press the clay into a hard and compact mass of the

desired design; or this pressing may be performed with the clay in a dry, wet, or partially wet state, according to the strength or power or convenient means of pressing. Bricks thus formed they propose (after burning in a kiln in some instances) to glaze on the surface with any suitable glass enamel, or any suitable coatings, and these bricks they propose using for garden borders, and other like or suitable purposes to which such bricks may be used or applied.

BRICK-MAKING MACHINERY.—*J. M. Pratt.* Dated April 23, 1864.—The patentee claims the construction and use of machinery in which an endless band or chain bears or carries brick moulds, and a rotating wheel or drums, give pressure to form bricks in the said moulds, as described.

IMPROVEMENTS IN APPARATUS FOR HEATING AIR, AND IN VALVES FOR ADMITTING HEATED AND COLD AIR, AND REGULATING THE SUPPLY THEREOF.—*T. Waller.* Dated March 30, 1864.—The first part of this invention consists in the employment of a metal box or case at, or connected to, the back of stoves, with an inlet at the bottom or sides, and with one, two, or more outlets from the top or upper part of the case. The patentee fixes inclined metal plates inside the box to afford additional heating medium, and to cause the air to traverse an extended surface, and thereby become heated before issuing from the outlets. He connects a pipe or pipes to the outlets, and causes the mouth thereof to direct the heated air to any point required. The second part of the invention consists in constructing ventilators to admit and regulate the admission of heated air and cold air, or to shut off either heated or cold air. The ventilators consist of a cylinder held by and free to revolve in a casting, with parts cut away from each cylinder. He places this ventilator at the outlet from a heated air duct, pipe, or flue, and from a cold air duct, pipe, or flue, a division separating the two ducts; or they may enter the ventilator from different points. He connects an open-work plate and handle to the cylinder, which is free to revolve, and by turning the handle the admission of heated or cold air alone may be stopped or effected, or both heated and cold air may be admitted at the same time. Instead of employing an open-work plate, he sometimes uses a solid porcelain or other plate, and admits the air passing through the ventilator into the apartment to be ventilated, round the edge and back of the plate.

APPARATUS FOR CURING SMOKY CHIMNEYS.—*J. Copper.* Dated April 2, 1864.—This invention consists of constructing the upper portions of terminations, or parts near thereto, of chimneys, or of chimney-pots, with a large number of small openings or apertures throughout. Such small openings or apertures can conveniently be obtained by making a chimney-pot, say, cylindrical in section and open at both ends, of sheet metal, perforated all over, or by adding or attaching to a chimney-pot a piece of perforated metal of the same character as that above named, and formed into the same sectional outline as the chimney-top to which it is to be attached.

CONSTRUCTION OF ROOFS FOR SHEDS, RAILWAY STATIONS, &c.—*T. Bouch.* Dated December 30, 1864.—This invention relates to certain improvements in the construction of roofs for sheds, railway stations, and other similar structures, the chief feature of which consists in the application of a compression bar upon the top side of the ridges forming the roof, and running transversely along them, the bar being fixed to the apices of the ridges by a saddle and bolts, or cotters, or in any other way that may be found suitable.

CONSTRUCTION OF PUBLIC HOUSES AND OTHER HOUSES OF ENTERTAINMENT.—*W. Muir.* Dated January 2, 1865.—This invention consists in constructing the whole of the front of public houses, and other houses of entertainment (where men and women mix indiscriminately together), of plate glass, to enable persons outside to see those within. Ingress and egress passages of about 2 ft. wide are provided to admit customers, but to impede and prevent, as far as is possible, the entrance of females wearing steel corsets (&c.). A space is left between the front of the house of entertainment and the footpath of not less than 3 ft. wide, under which passes a heated flue: this space is intended to afford shelter and warmth to destitute poor during the night. When the house is closed at night, and on Sundays, a public fountain, provided with a filter, supplied with water from the house, is turned on for the benefit of the public.

Books Received.

Report on the Cheap Wines from France, Italy, Austria, Greece, and Hungary. By ROBERT DRUITT, M.D., &c. Renshaw, Strand, London.

DR. DRUITT, who is medical officer of health to St. George's, Hanover-square, informs us in the preface to this little volume, that the subject of intemperance has for some years engaged his attention; and, feeling desirous of ascertaining whether any, or which, of the cheap wines were good and recommendable for use in diet and medicine, he investigated the subject, and the results he here presents to the public in a separate form, although they first appeared in the *Medical Times and Gazette*. He is of opinion, not speaking of the intemperate here, that "there is a large number of persons who are not well off with beer, or port and sherry; and these are the persons for whose sake we want the wine which France, Germany, Greece, and Hungary supply." As for port and sherry,—the port and sherry get-at-able by the general public at least,—he has a very low opinion of these, and regards them as drugged wines, or rather as disguised drams, which, indeed, they notoriously are. Of the cheap wines which he recommends, the first, he thinks, that deserve attention are those of Bordeaux; and although he speaks highly of many others, these rank highest in his estimation, speaking as a dietist and physician. In fact, he becomes quite warm and eloquent in their praise, under their own genial influence, no doubt, for he wrote of wines with a bottle of each, as he wrote about it, before him, and a glass or two within him. After extolling his favourite cheap wine pretty fully, he says:—

"So much for Bordeaux wine, on which I love to linger. It is such a model of purity and freshness; so little prone to disagree with any one; so well adapted as a beverage for all ages and all conditions. To me it resembles young, fresh, laughing, innocent girlhood. But there is a something beyond even this. We may admire the rosebud and the snowdrop, but there is a place in our affections for something fuller, warmer, rounder, and more voluptuous. As is Aphrodite to a wood-nymph, or the Olympic Jove to Apollo, or Jeremy Taylor to Bunyan, so are they wines, O Burgundy, to those of thy sister Bordeaux!"

This is a useful (as well as entertaining) little volume, and not the less so perhaps that it must benefit certain wine merchants whose wines are spoken well of, and whose business addresses are given,—no doubt in the public interest much rather than in the private.

The Law relating to Benefit Building Societies.

By W. TIDD PRATT, Barrister-at-Law. London: Longman, Green, & Co. 1865.

THE increase in the number of Benefit Building Societies has led Mr. W. Tidd Pratt, the son of the Registrar of Friendly Societies, to issue a second edition of his digest of the Law relating to them. He has added the various cases affecting them that have been decided up to this time, inserted the clauses of former Acts applicable to these societies, and made a volume that is indispensable to all who are connected with them.

VARIORUM.

BACON'S Historical and Archaeological Map of England and Wales will be found very useful by readers of English history. It shows the Anglo-Saxon and Danish kingdoms and Great Britain, and all places of historic interest to the close of the civil wars. The Mediaeval names are placed over the modern. — "Malcolm's Genealogical Tree of the Royal Family," issued by the same publisher (Bacon), commences with the first King of England (827), the first King of Scotland (843), and the first Duke of Normandy (912). Without pledging ourselves for its entire accuracy, we can state that what it says it says very clearly, and that the picture presented is very suggestive and interesting.

Miscellaneous.

NEW PROTESTANT CHURCH AT ASPINWALL.—The American Protestant Church at Aspinwall was consecrated on the 15th of June, the ceremony being performed by Bishop Potter, of Pennsylvania. This is the first Protestant church ever erected on the isthmus of Panama. It is built of stone brought from the Pacific Railroad Company's quarry on the isthmus, and has been erected at the sole cost of the company.

* Selected from the *Engineer's* lists.

GIFT TO THE TOWN OF DERBY.—The town council of Derby have had conveyed to them 6 acres of the Holmes, for a public recreation ground. The donor is Mr. Bass, M.P. In addition to the cost of the land, 3,000*l.*, he is about to set it out and plant it, at a further expense of 1,000*l.*, making the gift to the working classes of this town 4,000*l.*

ST. ALBAN'S ARCHITECTURAL ASSOCIATION.—At the annual meeting of this Association recently held, the Rev. O. W. Davys read a paper on St. Helen's church, Wheathampstead, which he described as being one of the most remarkable churches in this kingdom. After giving an architectural and historical description of the church, Mr. Davys said, that in restoring it they were endeavouring to reproduce it as at the period of its greatest beauty and perfection; and he hoped the work would be found to have been done in a conservative spirit.

VESTRY-HALL FOR SHOREDITCH.—A special meeting of the vestrymen of the parish of St. Leonard, Shoreditch, was held on the 25th, to receive tenders for the erection of a vestry-hall. There were four presented as under:—

Messrs. Eaton & Chapman	£21,225
Messrs. Maers	20,920
Messrs. Simms & Harding	20,737
Messrs. John Perry & Co.	20,250

Mr. Deacon moved that the matter be referred back to the committee to ascertain and report upon the difference between the original estimate of the architect, Mr. C. A. Long—some 17,000*l.*, and the amount of the lowest tender, 20,250*l.* Some discussion ensued, and a formal division was taken, when the motion to accept the tender of Mr. Perry was carried by 34 against 4.

THE SCIARDA PALACE, ROME.—We learn by the Italian journals that the Sciarra palace, in Rome, was partially destroyed by fire on the 17th inst., but the picture gallery was fortunately saved. Among the most remarkable paintings in this collection are,—“Vanity and Modesty” by Leonardo da Vinci; the “Violin Player,” by Raffaello; a “San Sebastian,” by Perugini; a “Magdalen,” by Guido Reni; portraits of Titian and his family, by himself, &c. The Sciarra palace, situated on a piazza of the same name, on the Corso, dates from the commencement of the eighteenth century. Since the death of the Prince Sciarra, the gallery has been closed to the public, on account of a law-suit, now pending, between the heirs.

THE PROPOSED DIRECT ROUTE FROM ISLINGTON TO THE CITY.—At a meeting of the City Commissioners of Sewers, last week, a deputation attended with a memorial, presented on behalf of the vestry of the parish of St. Giles, Cripplegate, in favour of a direct route from Islington into the City. The line of the proposed new street was from Essex (formerly Lower) Road, Islington, through Packerington-street, Shepherdess-walk, Bath-street, Bunhill-row, Type-street, and Moor-lane, into Fore-street. It was urged that the new route would be a saving of at least half a mile. The commissioners were asked to give their support to the scheme, and especially to cause Moor-lane to be widened from 40 ft. to 50 ft. at the least. A plan of the proposed new street was laid on the table, and explained by Mr. Woodthorpe, architect. The subject was unanimously referred to the Improvement Committee for consideration and report.

APPREHENDED SCARCITY OF WATER AT LIVERPOOL.—At the recent meeting of the Liverpool Water Committee, Mr. Beloe, the chairman, said there was only about four weeks' supply in the Rivington reservoirs, and appealed to the inhabitants of the town to be economical in their consumption. The average yearly rainfall for the last fifteen years has been 47 in., while in 1864 the fall was only 38 in., and for the first six months of the present year only 14 in. The reservoirs had never been so low for six years. The total quantity of water required each week is 40,000,000 gallons from the Sandstone Wells (pumped), 78,000,000 gallons from Rivington, and 60,000,000 gallons for compensation, being a total of 178,000,000 gallons per week. It requires a fall of rain equal to an inch in twenty-four hours to have any important effect upon the reservoirs. The committee agreed to recommend the town council to erect an additional reservoir at Rivington, at an expense of 100,000*l.*, to catch the water which at present runs to waste. The scarcity of water in the reservoirs is caused by the unusual dryness of the last two years.

THE BRADFORD SURVEYORSHIP.—The salary of Mr. Gott, the borough surveyor of Bradford, has been increased from 300*l.* to 400*l.* a year. The resolution was carried by a majority of 17 to 8. The entire services of Mr. Gott will thus be retained for the corporation works.

DANGEROUS ORNAMENTATION OF HOUSES.—Last week a fatal accident happened in the Strand, through the fall of an ornament from the top of Haxell's Hotel, next Exeter Hall. The top of this house is decorated with large vases, part of one of which fell to the ground, striking a passenger, who was so dangerously injured that he was taken to Charing-cross Hospital, where he died. At the inquest it appeared in evidence that a workman had touched the vase in passing along the roof, which he was repairing. A verdict of “Accidental death” was given.

THE FATAL FALL OF HOUSES IN CHANDOS-STREET, COVENT GARDEN.—Mr. S. F. Langham, the deputy-cornet for Westminster, has opened an inquiry at Westminster Hospital, touching the death of Andrew Dawson, twenty-nine years of age, who lost his life by the fall of the houses in Chandos-street, Covent Garden, on Tuesday evening in last week. Mr. Lewis, jun., of Ely-place, appeared for Mr. Howes, the builder, who was taking down the houses in question. After several witnesses were examined, one of whom, a park constable, saw the walls bulge, and the fall instantly afterwards, the inquiry was adjourned in order that a surveyor should be engaged to view and examine the place, and to make such observations to the jury as would lead them to a proper verdict.

TELEGRAPHIC PROGRESS.—The shore end of the Atlantic cable has been safely laid, the ocean line united with it, and the *Great Eastern* is now laying it down. The shore end of the cable from the main land to deep water is protected by an arch of solid masonry, to prevent chafing or damage from boats or shingle. In laying the ocean line a hitch unfortunately occurred at the outset, but this was soon put right. When 150 miles were laid, however, some fear began to be entertained that the line, at the rate of its expenditure, would run short; but it is to be hoped the 700 spare miles of line on board will be sufficient.

PHOTOGRAPHIC PROGRESS.—We are pleased to observe that a suggestion of ours for the attainment of a true surface for photographs by the use of thin sheets of gelatine has been realized. The inventor of this special process is Mr. Burgess, who calls it the “Eburnum” process. It is said to produce the utmost delicacy and clearness of tone, with a softness, roundness, and gradation of half-tints, such as have never hitherto been seen in photographs. The ink-printing process of Mr. Pouncy, of Dorchester, which we have repeatedly brought under the favourable notice of our readers, has just attained for him a prize medal at the Berlin International Photographic Exhibition. French and Scottish institutions long since awarded him substantial prizes and medals; but he seems to be destined, like the prophet, to meet with honour anywhere but in his own country. Doubtless, John Bull regards this denial of his approval as a token of his superior acuteness; but, although we do not quite agree with Carlyle in regarding our countrymen as being “mostly fools,” we certainly look upon this sort of token as one which indicates stolidity much rather than acuteness.

RAILWAY MATTERS.—For the Waterloo and Whitehall Pneumatic Railway, Messrs. Brassey & Company's workmen have already begun boring in the enclosed ground on the north side of the Waterloo terminus of the London and South-Western Railway, close to the steps leading to the platform of the Richmond and Windsor branch line. Their purpose is to ascertain the nature of the soil at that spot preparatory to the commencement of the works.—A special assembly of the proprietors of the Thames Tunnel have approved of the agreement entered into with the East London Railway Company, for the sale of the tunnel for 100,000*l.* in ten annual instalments. Power was also given to the directors to apply for an Act of Parliament to wind up the railways in the United Kingdom amounted, for the week ending July 15th, on 12,075 miles, to 718,860*l.*, and for the corresponding week of last year, on 11,674 miles, to 697,520*l.*, showing an increase of 401 miles, and of 21,340*l.*

FRENCH MACHINERY FOR ENGLAND.—We have been informed, says *L'Industrie*, that M. Quillaecq, mechanical engineer, of Anzin Nord, has received an order to make a powerful pumping-machine for a coal-mine near Newcastle. This will be the first machine of the kind ever sent from France to England.

PORCHESTER CHURCH.—St. Mary's, Portchester, one of the most interesting Norman buildings in the country, has been restored to a considerable extent, and was lately re-opened for service. It stands within the walls of the castle, a structure of very early foundation. The four fine arches which sustain the tower are, with their columns, now revealed in all their imposing effect; and the north transept, with its sculpture, is properly seen.

LIGHTNING.—On the 10th inst., the Antwerp terminus of the state railway was struck by lightning. After having made a hole as large as a crown-piece in the roof of the goods shed, it followed the cast-iron ribs, descended by one of the telegraph wires, and disappeared in the direction of the Zoological Gardens, which border the station. No one was injured. The building was furnished with lightning conductors; but, as the account says, they seem to have forgotten, on this occasion, to do their duty.

THE NEW ACT ON ROAD LOCOMOTIVES.—The new Act for regulating locomotives on turnpike and other roads will come into operation on the 1st of September. Three persons are to work a locomotive, and one is to proceed on foot with a red flag, as notice of the approach of the locomotive. On a turnpike road, or public highway, a locomotive is not to proceed at a greater speed than four miles an hour; and in a city, town, or village, at not more than two miles an hour. The city of London, the Metropolitan Board of Works, and other local authorities, are to appoint the hours during which the locomotives may pass through the streets. The Act is only to continue in force for two years, and may be regarded as an “experiment” on locomotives in public thoroughfares, both in the metropolis and in the country.

THE GENERAL ESTATES COMPANY (LIMITED).—This undertaking has been introduced with a view of acquiring and developing all descriptions of landed property in or near London, creating ground-rents by advances to respectable contractors or builders, and to carry out other matters connected with land which may offer the prospect of a safe and remunerative investment. The directors, in their prospectus, refer to the success which has attended companies formed for similar purposes, one having lately declared a dividend of 20 per cent. The company has already entered into provisional agreements for the immediate purchase of six properties, comprising several blocks of offices, chambers, and warehouses in the City; and some estates in Surrey, within easy access of the metropolis. The capital is 250,000*l.*, in 12,500 shares of 20*l.* each, but the first issue will be confined to 6,269 shares.

THE ELECTRIC LIGHT AT SEA.—Some experiments have just been made at Lorient, on board the *Coligny*, the object of which is to utilise the electric light at sea. By means of a submarine reflector, the water was illuminated to a great depth, so that it was possible to look down from the deck and see the fish, attracted by the light, swimming round the lamp as if in an aquarium. A diving-bell, with a large glass eye in one side, and arranged to supply air to a diver, was also let down to the depth of 38 fathoms. This apparatus is designed to inspect submarine constructions, to fish coral, &c., and recover wrecked property.

PROGRESS IN JAPAN.—The *Japan Herald* says:—“A railroad, with a locomotive engine and tender, is in operation on the Bund, at Nagasaki, and excites a great deal of attention among the Japanese, who come from far and near to see it. Prince Satsuma has planted 40,000 mulberry-trees during the past year, a significant fact, which shows his estimation of foreign commerce. He is also making considerable preparations for the improved manufacture of sugar at the Loo-choos, and we are credibly informed, has engaged a Scotch overseer for the works there, and improved the latest improved machinery.” A civil war, it is said, however, has recently broken out, doubtless between the party unfavourable, and the one favourable, to foreign commerce.

THE PETROLEUM MANIA.—This mania in America has completely subsided. There are now scarcely any new companies, and the stocks of the existing ones are not in demand. The industry will now come under the usual normal conditions of other pursuits. The yield in 1864 was 87,000,000 of gallons, of a money value of 20,000,000 dollars. This amount of crude oil yielded 62,000,000 gallons of refined oil, the value of the refined being 40,000,000 dollars.

THE BRISTOL SOCIETY OF ARCHITECTS.—The members of this Society, accompanied by some friends, have made their first excursion for the present season. They visited Mangotsfield, Siston, Pucklechurch, Westerleigh, Tormarton, Acton-Turville, and Old Sodbury, at all of which places the churches were inspected. The party then partook of a cold dinner at the Cross Hands Inn, and afterwards visited the old Roman camp at Sodbury, before returning to Bristol. The next out-door meeting of the Society is fixed for Saturday, the 19th of August, when Salisbury and Berkeley will be visited.

GAS.—For some years the propriety of removing the Ashford Gas Works to a situation more remote from the town has been mooted. It has now been decided to erect new and larger premises on a site in the Beaver fields, in what is called Bull Meadow. A siding is also to be constructed from the South-Eastern Railway to the gas works. To carry out the proposed scheme, it has been resolved to dissolve the old Gas Company, and to transfer its business to a new one, to be called the Ashford Gas and Coke Company (Limited).—The new Gas Company, at Kingston, which has been formed in order to supply the town with a better quality of gas at a cheaper rate, has commenced its works on a piece of ground near the railway station. The erection of the works is under the management of Mr. Mansfield, of Kingston, contractor.—At Adelaide the price of gas has been reduced to 18s. per thousand cubic feet.

TOBACCO AND ITS PRODUCTS.—The consumption of tobacco in France is annually 27,000 to 28,000 tons, or about 800 grammes (1 lb. 12½ oz.) per head of the population. In England the annual consumption was, in 1859, 18,000 tons, or about 700 grammes (1 lb. 8½ oz.) per head on an average. The quantity annually consumed by the whole world is actually 275,000 tons. Between French and English, a cloud of carbonic acid is generated which weighs nearly 100,000 tons; and all countries united produce, according to the calculations of Professor Schloiden, a quantity of carbonic acid from this source weighing no less than 500,000 tons annually. The proportion of nicotine, or poisonous essence of the plant, varies from 2 to 10 per cent., according to the circumstances of its growth. In France, that of the department of Lot is richest of all in the poison, having 8 per cent.; in the Nord, it is 6½; in the Pas de Calais, nearly 5 per cent.; in Alsace, the tobacco grown contains only 3½ per cent.; that of Virginia, 6.9 per cent.; Maryland, 3½; Havannah, only 2 per cent. of poison.

THE LONDON BRIDGE.—On Friday, May 19th, 99,236 foot passengers crossed London Bridge in the twenty-four hours, and 65,756 persons in vehicles or on horseback. It was a fine day. On Tuesday, 23rd May (morning fine, but raining heavily between 4 and 5 p.m.), there were 91,060 foot passengers, and 72,559 in vehicles. Half the vehicles belonged to Borough traffic, rather more than a quarter to railway traffic, nearly a quarter to Tooley-street traffic. In the half-year after the opening of Southwark Bridge toll free, to 7th May, 1865, 2,359,312 foot passengers crossed the bridge. In the half-year from 8th November, 1863, to May 7th, 1864, when there was a penny toll, the number of foot passengers was 257,016. On Friday, 9th June, 48,572 foot passengers crossed Blackfriars Bridge in the twenty-four hours, and 30,141 persons in vehicles: between eight and nine in the evening the number of foot passengers reached 5,096. In the year ending 23rd February, 5,111,368 foot passengers paid a halfpenny toll and crossed Waterloo Bridge. In the eight months from 1st September to 30th April, 1,294,246 passengers paid a halfpenny toll and crossed Hungerford Bridge: the average was 5,348 a day. On 11th June, 47,062 foot passengers crossed Westminster Bridge in the twenty-four hours, two-thirds using the north footway: 13,119 vehicles also crossed. The traffic over Lambeth Bridge, a toll-bridge, is at the rate of about 1,300,000 persons annually.

TENDERS

For erecting a warehouse, in Southwark-street, for Mr. Andrew Dunn. Messrs. Newman & Billies architects. Quantities supplied by Mr. Young. The prices do not include castings and ironwork:—	
Dove, Butcher.....	£6,370 0 0
Hill & Keddell.....	5,625 0 0
J. & P. Coleman.....	5,440 0 0
Axford & Co.....	5,400 0 0
Little.....	5,249 0 0
Rider.....	5,220 0 0
Downs.....	5,198 0 0
Thompson.....	5,140 0 0
Kynoch.....	5,110 0 0
Wells.....	5,017 0 0
Wills.....	4,987 0 0
Simms & Marten.....	4,888 0 0
Brass (accepted).....	4,883 0 0
Peake.....	4,447 0 0

For the new Wesleyan College, at Belfast. Mr. William Fogarty, architect. Quantities supplied by Mr. Gribben:—	
Meads.....	£15,736 0 0
M'Laughlin & Harvey.....	13,600 0 0
Williams.....	13,185 0 0
Fitzpatrick, Brothers.....	12,750 0 0
Henry (accepted).....	12,688 0 0

For additions to Wesleyan Chapel, Liverpool-street, King's Cross. Messrs. Searle, Son, & Yelf, architects:—	
Colls & Son.....	£23,015 0 0
Sharpling & Cole.....	5,658 0 0
Turner & Son.....	3,570 0 0
Dove, Brothers.....	3,510 0 0
Macey.....	3,450 0 0
Howard.....	3,378 0 0
Sawyer.....	3,330 0 0
Clements.....	3,225 0 0

For St. Olave's Rectory House, Southwark. Messrs. Newman & Billing, architects. Quantities supplied by Mr. Edsall:—	
Downs.....	£2,730 0 0
Coleman.....	2,675 0 0
Simms & Marten.....	2,645 0 0
Dove, Brothers.....	2,495 0 0
Brighton.....	2,452 0 0
Peake.....	2,430 0 0
Dale.....	2,389 0 0
Wills.....	2,371 0 0
Wells.....	2,317 0 0
Thompson.....	2,260 0 0

For Primitive Methodist Chapel, at Goolie. Mr. Joseph Wright, architect:—	
Messrs. Kassell (accepted).....	£430 0 0

For new billiard-room, &c., at the Bell Hotel, Driffield. Mr. Joseph Wright, architect:—	
Berry.....	£148 10 0
Hewson.....	432 0 0
Clarke (accepted).....	433 0 0

For new homestead and cottages, to Chislet Court Farm, near Canterbury. Messrs. Clutton, architects. Quantities supplied by Mr. Stephen Shrubsole:—	
Bonnett.....	£2,557 0 0
Shrubsole.....	2,408 0 0
Eppe (accepted).....	2,475 0 0

For alterations and additions, at No. 9, Lower Berkeley-street, Portman-square, for Mr. H. Bosanquet. Messrs. Mayhew & Knight, architects:—	
Phillips.....	£582 4 0
Messrs. Bywaters.....	559 0 0
Rhodes & Roberts.....	631 0 0

Accepted for the enlargement of Primitive Methodist Chapel, and erection of schools, Curzon-street, Leicester. Mr. W. S. Burton, architect. Quantities supplied:—	
---	--

Bricklayer's Work.	
Johnson.....	£340 17 6
Mason's Work.	
Harford, Brothers.....	29 8 6
Slater's Work.	
Shenton.....	54 0 0
Plasterer's Work.	
Southern.....	75 0 0
Carpenter and Joiner's Work.	
Grundy.....	469 10 0
Plumber, Glazier, and Painter's Work.	
Widdowson.....	45 10 0

For the erection of warehouse, Globe-street, Wapping, for Capt. Page. Mr. Fricelat, architect:—	
Hack & Son.....	£3,712 0 0
Browne & Robinson.....	3,610 0 0
Kilby.....	3,583 0 0
King & Sons.....	3,444 0 0
Easton & Chapman.....	3,327 0 0
Macees.....	3,273 0 0

For six labourers' cottages, at Grimsdon, Leicestershire, for Mr. T. Sharp. Mr. W. S. Burton, architect. Quantities not supplied:—	
Groves.....	£404 6 0
Radcliff.....	368 14 0
Mason & Hill (accepted).....	348 14 0

For house and premises, at Aussy, Leicestershire, for Mr. D. P. Pettifor. Mr. W. S. Burton, architect. Quantities supplied:—	
Moss.....	£367 0 0
Russell.....	505 0 0
Groves.....	504 0 0
Eagle.....	504 0 0
Freeman.....	535 7 6
Johnson.....	550 0 0
Glover.....	519 10 0
Neal.....	503 7 5
Bacon.....	487 3 0
Kellett.....	484 0 0
Middleton.....	475 15 0
Winkles (accepted).....	473 19 8

For house and shop, Humberstone-road, Leicester, for Mr. W. Rimmington. Mr. W. S. Burton, architect. Quantities supplied:—	
Porter.....	£337 0 0
Johnson.....	299 5 6
Beaver.....	298 12 0
Wakerley.....	287 5 10
Freeman.....	292 10 0
Middleton.....	288 17 8
Flude.....	282 8 0
Broom.....	271 10 0
Eagle (accepted).....	270 0 0
Plumber, Glazier, and Painter's Work.	
Freeman (accepted).....	50 5 0

For the erection of villa residence, at Down's Wood, Beckenham, for Mr. James Wilson Holme. Mr. R. Roberts, architect:—	
Colls & Son.....	£2,338 0 0
Cox.....	2,450 0 0

For rebuilding premises, No. 63, Bishopsgate-street. Mr. T. C. Clarke, architect:—	
Turner & Son.....	£2,590 0 0
Hack & Son.....	2,588 0 0
Colls & Son.....	2,584 0 0
Hill & Sons.....	2,577 0 0
King & Son.....	2,538 0 0
Browne & Robinson.....	2,513 0 0
Forster.....	2,497 0 0
Brass.....	2,495 0 0
Scriveners & White.....	2,278 0 0

For the erection of two new wings to the House of Correction, Coldbath-fields, Clerkenwell. Mr. F. H. Pownall, architect:—	
Sawyer (accepted).....	£31,746 0 0

For finishing a residence, at Upper Tooting, for Mr. Herbert Taylor. Messrs. Wimbly & Taylor, architects:—	
Tys & Andrews.....	£295 0 0
Kilby.....	287 0 0
Adamson & Son.....	310 0 0
Gulland & Thompson.....	775 0 0

For alterations at No. 8, Little Knightbridge-street, Doctors' Commons. Messrs. Wimbly & Taylor, architects:—	
Axford & Co.....	£280 0 0
Ramsay.....	268 0 0
Colls & Son.....	225 0 0

For the erection of a workmen's club and lodging-house, Old Eye-street, Westminster. Mr. H. M. Eytton, architect:—	
Blair.....	£8,700 0 0
Richardson.....	6,000 0 0
Brass.....	5,990 0 0

TO CORRESPONDENTS.

Solled Engravings.—A correspondent wants to know the best mode of clearing solled engravings from ordinary dirt. Florence (black has not arrived).—T. R.—Dr. T.—H. F. J.—R. L. R.—S. S.—T. C.—H. D.—L. M. E.—Mr. R.—H. C.—G. H. T.—J. B.—Messrs. N.—R. C.—W. F.—W. W.—John Faithful.—T. R.—G. W.—P. C.—W. & T.—C. & Son.—J. W. S.—W. S.—R. W. S.—M.—Jez Talbot.—T. R.—F. I. (we shall be glad to hear from him).—F. R. W. (thanks).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

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[ADVERTISEMENT.]

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The Builder.

VOL. XXIII.—No. 1174.

Proposed
Portrait Exhibition
at the South Kensington
Museum.

It is proposed, as our readers know, to form at South Kensington, for the London season of 1866,—

"In what far country doth that morrow lie?"—

a Loan Exhibition of Portraits of Illustrations and interesting Englishmen, Scotchmen, and Irishmen no longer in the flesh among us.

When, eleven years ago (1854), that well-informed and pleasant travelling and table companion, Dr. Waagen, "Director of the Royal Gallery of Pictures, Berlin," published his second and enlarged edition of his "Treasures of Art in Great Britain," he had to lament that, with the unusual advantages he had of seeing, or of being allowed to see, whatever (Lord Ashburnham's collection in part excepted) he wished of England's wealth in accumulated art, having a liberal publisher to pay his expenses, yet he left Dover for Calais with a full sense that he had left much that he would have liked to have seen, unseen.

In cataloguing the Art-Treasures of Great Britain, one of Dr. Waagen's deficiencies was one that would be common to every foreigner. He knew little more than an educated German would know of England's worthies: for instance, he naturally cared more for that marvel in art, Vandyc's so-called head of Gevartius, in our National Gallery, than for Vandyc's twin portraits of Stratford and his secretary, at Lord Fitzwilliam's, in Yorkshire. Lord Macaulay had no like feeling; Mr. Hallam had no like feeling; Mr. Carlyle would have no like feeling: these great men would appreciate the art, not with Dr. Waagen's knowledge, it is true; but it was the history of the man they read, or would read, on the foreboding brow of Stratford, that would make them linger, "with how sad steps and slow," before that masterpiece in art.

In selecting portraits for the approaching exhibition at South Kensington, the "Committee of Council on Education," under whose control the exhibition is to be formed, will be wise in drawing up certain rules for the guidance of those who are to select the portraits. Authenticity must come first,—art second. Nor should they forget that the likenesses of infamous men who acted conspicuous parts in English History would be especially interesting. A contemporary portrait of Perkin Warbeck would attract the eyes of the whole body of the Society of Antiquaries. A genuine Guy Faux would, on the 5th of November day, bring to the exchange

* Cowley.

of the Kensington Museum almost countless shillings, and some squibs from our contemporary Mr. Punch. Mrs. Montagu, by Sir Joshua, would bring all the chimney-sweeps of London to the Museum on May Day. A row of the Lord Mayors of London, with a genuine portrait of Whittington, and a still more genuine portrait of his cat, would be sure to carry all the dowager duchesses we have, and all the aged female housekeepers in the three kingdoms to the Brompton Boilers. Old Pa's would look with reverence on old, very old Parr; and old Ma's on the old, very old Countess of Desmond. Then a quiet nook of all the lovely Maids of Honour, ennobled or disgraced, from Anne Boleyn with her eyes of Gospel light, from her (Elizabeth Throgmorton) who won Sir Walter Raleigh's heart, down to Tom Killigrew's Cecilia Crofts,—to Anne Vane:—

"Yet Vane could tell what ills from beauty spring;—"

and Molly Lepel and Kitty Dashwood, and the charming Lady Fanny Cowper, who still looks "ever blooming ever fair" in Leslie's fine picture of Queen Victoria's Coronation, would attract thousands.

Then we would move (make) the Marquis Townshend to let us have from Raynham that roomful of full-lengths of the Elizabethan soldiers who trailed pikes in the Low Country wars under Sir Francis Vere and Sir Horatio Vere. A more interesting English portrait-room for the soldier and the student of Hume is not to be found, and we have seen it with pride and emotion. "The Duke's Flagmen of 1665" now unhappily and stupidly separated at Hampton Court and Greenwich, should be once more united and seen with some of Benbow's men and Duncan's Camperdown men, and Nelson's Nile and Trafalgar men.

All the Kit-kat Club portraits should come on loan from that delightful roomful of the portraits of the Kit-kat Club to be seen at Bayfordbury, in Herts. This should be our Queen Anne Room, and all the furniture and fittings and decorations should remind us of Will's Coffee-house, Button's Coffee-house, Covent Garden, and Old Drury. Addison's writing-table, once at Holland House, should have a railed-off nook for itself in the corner of this room. Here Mr. Crace might have undisturbed control. How William Makepeace Thackeray would have lingered in a room such as we desire to see.

There are many fine storehouses of old English portraits from which to ask for loans. We have instanced Raynham as rich, Bayfordbury as very rich. The royal collections, the guildhalls, college-halls, even vestry-rooms, would be found to yield goodly fruit. No one English scholar in art and biography and localities can be supposed to be fully up to the mark of forming such a collection, unequalled as the auspices are under which he will have to seek and doubtless to obtain. What, to use Inigo Jones's favourite language, seems "feasible and conducive to the design" of the committee, would be, to obtain the paid labour of some one person or two in forming a catalogue of wants and of what can be obtained, to set the rough catalogue up in print, for private circulation among skilled scholars, asking for additions, corrections, and hearty co-operation.

Where several or indeed more than one genuine portrait exist of the same person, this rule of selection is to be obeyed. That one should be asked for which carries an anecdote with it. We will give an example. In choosing a portrait of King James II. (1684-5—1688), we should select the famous knee-piece by Kneller of the king, for which he was sitting when he heard for the first time that his son-in-law, William of Orange, had landed at Torbay, and was on his road to Whitehall. The news was bad enough; yet the king continued to sit, for he would not, he said, disappoint his good friend Mr. Pepys. This highly English historical por-

trait was bought in at the Pepys-Cockerell sale at Christie's, some ten years ago. We saw it at Christie's on the occasion, and, remembering the story connected with it, thought of Feversham and St. Germain's. The lineaments are without any trace of emotion, fear, alarm, or abdication; on the contrary, they exhibit a determination of purpose unknown to his timid grandfather.

Of the pleasure arising from the contemplation of a gallery of portraits, a striking illustration has been preserved by M. Guizot. The scene of the anecdote is in Kensington, in the gallery of Holland House; the *dramatis personee*, are old Lady Holland and M. Guizot himself. The French minister and historian asks the widowed lady of the house if she ever found herself alone when at home and without conversation. "No, very seldom," was the reply; "but when it occurs I am not without resources; and [pointing to the portraits, she observed] I entreat the friends you see there to descend from above. I know the place that each preferred,—the armchair in which he was accustomed to sit. They come. I find myself again with Fox, Romilly, Mackintosh, Sheridan, and Horner: they speak to me, and I am no longer by myself."

That the principle to be adopted and followed rigidly in the "hanging" of the pictures in the coming exhibition should be chronological and historical, and not according to heraldry and the Book of Dignities, seems to us essential to the full educational success of the scheme; and we confess to a surprise at finding Mr. Scharf, the director of the National Portrait Gallery, in favour of a capricious and not a chronological arrangement.

When Sir Walter Scott was collecting pictures for the walls of Abbotsford, he looked for portraits, and portraits alone. The heads of Dryden and Dundee are to be seen at Abbotsford. Portraits in a profusion of good taste line the galleries of Sir Bulwer Lytton's mansion of Knebworth. The great Lord Chancellor Clarendon's fine house in Piccadilly was "bravely furnished" says Evelyn, "with the pictures of most of our ancient and modern wits, poets, philosophers, famous and learned Englishmen."

"There were at full length," he says in a letter to gossiping Mr. Pepys (to which we referred lately in our gossip about "The Grove," at Watford) "the great Duke of Buckingham, the brave Sir Horace and Sir Francis Vere, Sir Walter Raleigh, Sir Philip Sidney, the great Earl of Leicester, Treasurer Buckhurst, Burleigh, Walsingham, Cecil, Lord Chancellor Bacon, and what was most agreeable to his lordship's general humour, old Chaucer, Shakspeare, Beaumont and Fletcher (who were both in one piece), Spenser, Mr. Waller, Cowley, Hudibras, which last he placed in the room where he used to eat and dine in public." Even better companions, to our thinking, than a "Morning" or "Evening" by Claude Lorraine, a wild landscape with robbers by Salvator, or a castle-crowned distance by Poussin. The Minister, Sir Robert Peel, collected portraits of eminent Englishmen, and assigned the place of honour in his house at Whitehall to the portrait of Samuel Johnson by Sir Joshua Reynolds.

Collectors are difficult to move, and require a great deal of coaxing: no time should, therefore, be lost in forming a list of wants, and of written promises to lend, for the purposes of the "proposed exhibition," when wanted.

In the meantime, we repeat that a catalogue of what can be had is an immediate necessity.

OUR MUSEUMS AND ART GALLERIES.

QUESTIONS connected with the local habitation of the national collections of art-works, and specimens pertaining to different branches of science, have been long kept undecided: six months at least must elapse before they can be revived in Parliament; but so much entangle-

ment has accrued, that the time is not too much for the consideration due, and which even yet they have not received. Hitherto the questions have been discussed with an appreciation of the interests bound up with them, that has been second in importance to the indulgence of personal and political animosities; and it has been impossible to recognise in the Legislature any definite aim, or the assertion of an accepted principle. Each Government, indeed, has made attempts to provide for the location of a portion of the collections; but it has usually had to "bow" to a "decision of Parliament," made in direct contradiction to a decision registered some short time previously. All that can be said in defence of the unsatisfactory position, is that it may be in part due to the manner in which we became possessed of the first instalments of the collections. It has not been till quite recently that the importance in a national point of view, of the several kinds of works and specimens, arranged in galleries or museums, has been felt; and, now, the inferiority of our appliances for study and progress is most evinced by a comparison of those which we maintain in the Museum of Patents—which is devoted to the very matters that there has not been much difficulty in showing are intimately connected with the national welfare—with the appliances as they are in that noble institution the Conservatoire des Arts et Métiers, held up indeed as the model after many years as we can recollect. The separate institutions of the British Museum, the Jermyn-street Museum and School of Mines, the National Gallery, and the South Kensington Museum and Schools,—the last-named museum embracing a great variety of objects,—neither include the whole domain of the arts and sciences, nor exist as accordant with any classification. Geological specimens are to be found in two places; and works of art are in the British Museum. One institution, containing objects that, if destroyed, would be irreplaceable, is open on certain evenings; other institutions are not so open, reason given being the impossibility of completely guarding against fire. All the institutions are closed on Sundays; whilst galleries out of London, as at Hampton Court, and even the Painted Hall, Greenwich, are open. For the National Gallery, or the works of the old masters,—to be appreciated chiefly by artists and connoisseurs, and liable to be injured by dust or the consequent cleansing,—a central locality is deemed important: for the South Kensington collections, interesting to all persons, and for the schools offering education to students many of whom must be resident in Islington and the eastern part of London, a similar locality is not thought essential. Connected with some of these circumstances are questions which we do not now attempt to solve; but we mention the facts altogether as showing the absence of system in the conception and maintenance of the institutions, that prevails.

What should be taken as the value of public opinion on any question, after the recent melancholy exhibition in the elections, or what the wisdom of a body of legislators so chosen, we hardly dare to inquire; but now that it is to be hoped there is a cessation of that throwing of eggs, soot, and stones, which appears to be considered part of the cherished liberty of the British subject, we trust attention may be given to some of those questions that concern the welfare of the nation, and for the calm discussion of which Parliament is usually found unprepared. It is merely evident to us, that the whole of the working class is not incapable of dispassionately considering subjects relating to the interests of the community; and there has lately been proof of this in the discussions that have taken place at Exeter Hall, promoted by the Working Men's Club and Institute Union, and referred to by us on several occasions.

The matter of one of these discussions pertains immediately to the present subject. In a recent number we gave a condensed report of the address wherewith the discussion was opened, but only alluded to the speeches which followed. It was impossible to listen to those speeches without feeling the great value of such discussions, for the solution of any difficulty wherein the Government may be placed, animated by the desire to do that which is right, but checked by an unreasoning opposition. All that has been done or initiated by Mr. Cowper, since he came into office, may not meet with approval; but we must give praise to the First Commissioner of Her Majesty's Works, for his intention to open the proceedings to which we have alluded, and

at which, by accident, he could not be present. Mr. Layard was a very efficient substitute; and we should have had no hesitation in saying,—had not he himself said as much,—that he went away from the discussion benefited by, as well as gratified at, the direction it took. The questions submitted by Mr. Layard, it was however plain, would have served for several evenings, and might with advantage have been placed before a larger meeting than could be got together on the occasion. We would endeavour to remedy the defect by recalling them to our reader's attention; and we hope that the result will be some assistance in the questions; which we must in due course revert to. We are not at present disposed to register conclusions on some of them, or at least on one which has been placed in the front, we mean the Sunday opening of the National Gallery and the museums. We avail ourselves of our own extended but unpublished notes as foundation for what we may have to say.

Mr. Layard submitted several questions to the meeting. He grouped them under four heads. They related to opening the British Museum, and impliedly the other collections, on Sundays, to the opening at nights, to the proposed separation of the Natural History collections of the British Museum from the art and archaeological collections and the library, to the interval that should be left between the period of one local industrial exhibition and another, and to the locality for the museum now at South Kensington, and to the maintenance of a distinctive character in that museum as a museum of art.

In his opening remarks, however, he placed the questions more clearly in order than they were stated in the conclusion of his address. He endeavoured to show that there were three classes of subjects to be provided for by museums and galleries, in London, which should demand as many separate kinds of buildings. The British Museum he would devote to archaeology and art historically considered, or to the history of man's development. Natural history and science, or the illustration of the world's development, as totally distinct from the other, he would locate elsewhere. The South Kensington Museum he would, as we understood, devote to the arts applied. The British Museum was already too vast: for logical accuracy, the works already too vast: for logical accuracy, the works in the National Gallery, and those in the British Museum, should be together; and eventually no building would suffice for all the objects. Now we may say, it is much easier to admit difficulty of a sufficient extension of the area of the British Museum, than to accept the distinction here pronounced as existing between nature and science on the one hand and art on the other. Art is indeed man's work; but applied art, though distinct from nature, is founded upon the latter, and fashioned out of the materials of it: more over art comes into form by making use of science. Our special art, and all the family of arts belonging to the fitting and furnishing of buildings, as well as those belonging to personal adornment, have their very existence so much in relation with science, that it has always been difficult to say what is purely science and what merely art. The relative proportions of use and structure, and that which appeals to sentiment, vary with the work in hand: sometimes the use will predominate, and a latent grace be suffused with it: sometimes the purpose will be directly the gratification of sentiment. In any case, the requirements of construction, and the conditions imposed by the properties of materials, are such that they must needs either limit the design, or be taken as part of the foundation of the art and beauty of it. The artist-architect therefore will be precisely he who is acquainted with the science of building, and with the materials, whether those of the mineral and vegetable kingdoms, or of the other kingdom falling under natural history. The designer of patterns for furniture, ceramic manufactures, or textile fabrics, will be one acquainted with that which the material and manufacture will allow him to do. Each will produce the best art, because of the combined possession of the knowledge and of the feeling or sentiment. Classification, however necessary, it must be recollected is not defined by lines in nature. There, every object, and every field of man's science or art, exists in a relation with everything else, and is incomplete without it. So that the architect might well approach his profession with awe. Feeble his strength, and infantine his mental grasp, in presence of the demands in that which he presumes to designate as his vocation!

The errors that have been made in art-design

as applied to manufactures, have mostly resulted from some omission of attention to the properties or conditions of the material or vehicle used; and less attention seems to be paid in the teaching of the Department of Art, to such points, than was at one time given. Many of the objects in the South Kensington Museum are rather to be condemned, than taken as models; and some of them would, according to Mr. Layard's principle, be placed in the British Museum, rather than in his museum of applied art. We do not see, however, how the separation is to be effected in either of the museums, between the objects assumed of one class, and those of the other. The recognition of the two principles in the arrangement would be desirable; but to be efficient, objects in each collection should be represented in the classification of the other, by casts or photographs, correctly placed in the series, and bearing a reference to the originals. Supplemented as we have said, the classification shadowed forth by Mr. Layard would be most instructive. Buildings quite as extensive as any that have been proposed, might be necessary; but probably no sum would be too great to pay for the educational and other results accruing.

The arguments which there are in favour of a non-restriction of study on the part of any professor of art or science, to his particular profession, might be taken as showing the desirableness of keeping the natural history collections of the British Museum where they are. But, it must be confessed that the increased and increasing demands of the different collections might result in a building on such an extended plan, that the association in idea would be largely interfered with by a disconnection in fact. Any diminution of the importance attached to specimens of natural history by the public, should be striven against; but we are open to argument that the separation might on the whole be desirable. Whether the removal should be to South Kensington, however, is another matter. Before noting how that question stands, we may refer to observations by Mr. Layard on some other points.

Mr. Layard spoke of the opinion of the French artisans, in 1862, of the progress made in art in this country in ten years. As these opinions are frequently quoted, and have been so indeed by ourselves, we should observe that there is danger of attaching too much importance to them. If the French have made sufficient progress in mechanical engineering, to be able to supply this country with locomotive engines occasionally, we have not reason to be satisfied; and we must recollect that the discovery of an advance on our side, in art, is being met with the accustomed alacrity of the French, in the improvement of their already good educational institutions.

Relative to the question of opening the British Museum at night, we have to observe that recent investigation into the causes of fires, has shown more and more, the danger from the desecration of inflammable material in buildings lighted by gas, as well as the fact that buildings called "fire-proof" are really far from being so, or are in some respects peculiarly favourable to the communication of fire. There are ways, however, of meeting the want.

On the question of a considerable division of the contents of the British Museum, in order to form museums in different parts of the metropolis; Mr. Layard's appreciation of the value of chronological sequence in the arrangement of the works of art, led him to deprecate scattering the works of that class; but he considered local museums desirable, and thought there might be an Ethnological Museum in eastern London, and an Indian Museum south. But he did not advert to objection that might with some reason be raised on the part of the inhabitants of western and northern London, to such location, resembling that made to the position of the establishment at South Kensington. There are strong arguments in favour of special museums; and one of these, devoted to watchmaking, might be well placed in Clerkenwell; but we see no argument in favour of placing an Ethnological Museum out of the centre of London.

Mr. Layard seemed to feel that there was reason in the objection to the distance of South Kensington, repeated by several speakers; and a remark that the middle and upper classes had need of education in art, and that the interests of the working men required chiefly that there should be such education, might be considered admission of this.

In the course of the discussion, it appeared to

be admitted that in view of the danger from fire, no case could be made out for the immediate opening of the British Museum and National Gallery in the evenings. But it was asked whether there were no means discoverable for lighting, if not by the electric light, by arranging the gas-burners outside the building, the light coming through the windows. Mr. Lucraft said, the working-classes had no desire to remove the South Kensington Museum, but showed from his experience of the time and trouble of getting to it from Hoxton, the impossibility of their deriving due advantage from it. Speaking in favour of local and special museums, he instanced a naval museum as the right thing for the east of London, and a museum of cabinet-making for his own neighbourhood. As to the proposed Sunday opening, he condemned it, as did several speakers, preferring that efforts were put forth to get the Saturday half-holiday made general.

Mr. Layard, in replying to observations on the subject of the Industrial Exhibitions, much corresponding with those which have appeared in the *Builder*, contended that the working-man should not be confined to his work of trade, and said he would rather promote his employing his spare hours on something else. He also thought that the working-man, fatigued with his labour, would not be able to appreciate the British Museum in the evening. Mr. Layard distinctly expressed an opinion in favour of the Patent Museum being in the centre of London. Mr. Hart, R.A., speaking previously, had observed that paintings could not be properly seen by gas-light, and had remarked on the impossibility for the working-man, of receiving the impressions that objects in the Museums and National Gallery could afford, after a hard day's work.

The question of the designs to be submitted to Parliament, for the proposed Natural History Museum on the site of the building of 1862, has got into a curious position; and the facts are little known. After the competition, the designs which had received premiums were sent to the trustees of the British Museum for their opinion. It does not appear that the trustees had been consulted before the competition; so that none of the competitors were officially informed of the importance attached to a well-lighted basement, to be used for storage, and by naturalists even for examination of specimens, and having a tramway. Neither does it appear that the judges were prepared by any such knowledge of the requirements. When the trustees received the designs, they looked first at little more than the perspective views; and therefore, we are told, were not disposed to accord with the decision of the judges. But they remitted the whole question to their officers; who, comparing the plans and arrangement of the designs that had received first and second premiums, reported unanimously in favour of design No. 2. The trustees sent the report to the Government with observations of their own. Afterwards the discussion came on in the House of Commons, which we reported in May last. A combination was advised of the external character of the design No. 1, Captain Fowke's, with the arrangement on plan of No. 2, Professor Kerr's. Our readers may be able to say what would be the chance of success of such a combination, or whether it could be even made. That immediately came of the suggestion, we do not know; but the Government were soon advising the trustees to reconsider their decision, regarding what Captain Fowke might have to say to them. The trustees replied that they would be willing to hear Captain Fowke, provided they might also hear Professor Kerr. A meeting of the trustees was accordingly held, when the authors of the two designs were called in separately. Mr. Cowper was present. There was no definite result; but, as we are informed, the First Commissioner said that Capt. Fowke's design having been accepted in the first instance, it could not be cast aside, and that it would be sent to the trustees, altered from time to time, till it met with their approval. Thereupon, the trustees said that there was a design, No. 2, that met their views, and that the author of it was entitled to consideration. Since that, they are not aware that any progress has been made; but Mr. Kerr has claimed several distinctive principles of the design No. 2 as his own.

The whole of the questions connected with the National museums and art-galleries, are in a very unsatisfactory position; and much requires to be settled, before a design can have the chance of adoption by the House of Commons.

FOOD FOR THE CONVALESCENT SICK.

ALL who have looked with care at those parts of the metropolis in which large multitudes of the struggling classes of this great community live, cannot fail to have noticed with pain the peculiar and unsatisfactory appearance of the people who are pent up in the ill-conditioned and overcrowded dwellings, which are a chief source of ill-health, imbecility, deterioration of the human physical powers, increased death-rates, and of vice and misery, to an extent which can only be judged of by those who have performed the painful duty of investigating a subject which must, ere long, force itself on the especial consideration of the power and intelligence of the country.

We have no doubt whatever that the condition of the dwellings of the industrious classes, in both town and country, is a main source of mischief; but it would be ridiculous, in the earnest advocacy of reform in this way, to neglect other matters, which are causing serious evil amongst immense numbers of our population, and which, by destroying the strength and intelligence of those upon whose exertions the real power of the nation so much depends, are causing a danger which the statesmen of the present day have not yet sufficiently estimated.

Now is the time when the members of both Houses of Legislature will leave the bustle and whirl of the capital, for their quiet and beautiful rural homes. We can fancy that most of these in the coming months will meet in delightful spots which are pleasant recollections even amongst the countless rows of bricks and mortar, full of pale anxious-looking faces, even in the midst of the most healthy air. In the rural schools, where the children are massed together, the careful observer will notice the extraordinary extent of those low states of health which constitute one of the main proximate causes of fever, cholera, and other pestilences; and we ask those who will exercise such a degree of observation, to take the further trouble of viewing the houses in which those pale-faced children live,—to look into the sanitary state of their homes, and inquire to what extent the earnings of the people are actually sufficient for the proper nourishment of the bodies of those who labour in various ways upon the land. A comparison of such conditions, with others which are enjoyed by persons who are more fortunately circumstanced, and then a thought about the different degrees of health and general appearance of each class, should stir those who are placed in positions of influence, to use exertions for the removal of those causes which are sapping and destroying the national strength, and creating an amount of misery and trouble which is not sufficiently appreciated.

Not long since, we took an opportunity of calling at the Field-lane Infant Ragged School. The time of our visit was about that for the dismissal of the children. Here the experienced eye might have noticed the efforts which had been made under circumstances of difficulty to give the children a neat and clean appearance. The general supply of shoes was better than might have been expected, but there were several barefooted pupils: there were little toddlers barely able to walk, and infants in arms. Hats, and any other covering for the head, were scarce, and some of the small monitors within the groups by which they were surrounded formed singular pictures of a particular phase of London society. Then the smaller children had to be taken to their homes, through dangerous thoroughfares, by the elder scholars. But what on this occasion, as in other similar situations, struck us was, that although there was a marked improvement in the dress and manners of the children, there were to be seen in almost every countenance a peculiar ghastly paleness, a dull, watery, unmeaning expression of the eye, a wasted appearance of the limbs, and other indications which showed the deterioration of the system from slow poisoning by means of impure air and insufficient and improper food. On such materials it does not require the practised eye of the physician to judge how fatally epidemic diseases must rage. In such a school as this, the labour of the mistress and her assistant is a hard one; for the ignorance which is to be encountered is worse to manage in the low state of the strength of the pupils than it would be otherwise. The scholars of this establishment are not so numerous as they used to be: from the streets and courts adjoining numbers have been re-

moved by local changes; but even with a large complement of children the ventilation of this school, plain in appearance and unadorned as it is, is excellent for the purposes of health. We walk with some of those children to the places of their residence. In front of one house, at but a very short distance from the doorway, there are three gully-holes, slaughter-houses and cow-sheds not far off, and the effluvia is at times unbearable. There are the usual accompaniments of short water and extra overcrowding; and we here meet with children in a much worse state than those who have been assembled in the ragged-school,—in fact, the children sent to the ragged-schools seem to be the cream of the juvenile population of very extensive neighbourhoods. In these homes, grovelling in the dirty streets, playing about the gully-holes, lying sick upon shavings and truckle-beds, may be seen, so far as the proportionate numbers go, the future hope of England. The doctor is going his round and pointing to those sick and feeble children; to women who, although unfit for the purpose, are attempting to suckle infants; and to rooms where there is no food in the cupboard, or other comforts which are needful for the sick who live in such rooms. Some of the inmates have been in hospitals and discharged either as cured or incurable. There will be met with people of all ages, the instances of persons of advanced years being a rare exception; "but," says the kindly doctor, "of what avail is the use of physic here? If we give tonics, they will be of doubtful effect, for there is neither food nor air to follow them up with."

When pestilence is threatening our coasts,—when in some of the cities of the East the cholera, or whatever particular kind of plague it may be, is ravaging certain towns in a comparatively mild way, the daily number of deaths, in proportion to the population, would, if we take the people of London at about three millions, be here about six thousand in each day, or forty-two thousand deaths in the week caused by the pestilence, without taking into account other fatal disorders. In Italy and other parts nearer home the authorities are using the doubtful plan of stopping trade and general communication: they would have been wiser by far if they had before now made sanitary improvements and regulations in Tuscany, Sicily, and elsewhere. Nor should we be ourselves blind and heedless, for although much has been done, and is still in progress; when we look at those conditions at which we have once more hinted, we cannot resist feeling much anxiety. If we should be spared from what is threatening, it will be wise to use vigilance and to encourage all those means which are at our disposal for the purpose of checking disease and strengthening those who are predisposed by weakness and constitutional imperfections to those epidemics which spread death and terror around.

So great is the extent of London, so enormous are the requirements which are needed to meet the evils of artificial conditions, that many are disheartened at the magnitude of the task of even dealing with a section; but past experience shows that this should not be so, for by the earnestly-directed exertion of single individuals,—some of them possessed of no great amount of riches or interest,—some of our most useful institutions have been founded and brought into permanent operation. Some day we may find space for notes on the origin and growth of the great metropolitan charities, and make a few observations on their present condition, adding a few notes respecting their future advancement; but just now we will direct attention to a new, and what is yet but a very small, attempt to provide for a great want.

With thoughts of those faces which we have lately seen in the places indicated, we are induced to wander to the south side of New St. Pancras Church; to Woburn-buildings; in various directions through mews; in fragments of Agar Town; about the Brill, and other parts of Somers Town; in St. Jude's district; in Draper's-place, and elsewhere, where there are multitudes of the sick poor. The population of Draper's-place, in proportion to the size of the houses, is enormous.*

In Woburn-buildings, in front of one of the houses, at the basement, over the door of a shop, is printed, "The Invalids' Dinner-table," insti-

* It would be well if the officers of health were to direct special attention to this spot, and to regulate the extent of the dwellers in cellars here; to consider how insufficient a cistern of not more than 2 ft. 6 in. square is for the supply of the families who live in each of those houses; and see to other matters of sanitary derangement.

tuted for relieving the sick and convalescent poor. That which had been formerly used as a shop has been neatly fitted with appropriate texts, the word "Welcome," a few prints, an aquarium, and some other things, which make the place look pleasant. At the back there is a nice view of some gardens and green trees; and care has been taken to ventilate this extemporised dining apartment. From some other regions there comes a most savoury smell of cooking meats; and on a table-cloth, as white as snow, there are laid knives and forks, little drinking-mugs, decanters of water filtered with charcoal, and other preparations for a feast. At about a quarter to twelve o'clock, children begin to drop in and quietly take their places at the table. Mr. G. M. Hicks (who has been the chief means of opening this table), this gentleman's wife, and some ladies who seem most heartily in favour of the movement, also come. Soon in their places there are gathered nearly twenty-five children. One who was rickety had been first carried here to dine; then, in iron, he had with help been enabled to walk; now the boy comes without these aids, and there seems but little doubt that the food supplied here has been a chief means of producing those results. Sickness is marked on the faces of the other guests, and some of the countenances present such an interesting, but also anxious appearance, that an artist could not well resist the inclination of making notes of them in his sketch-book. There can be no possible mistake about the good which is done here. Food of the most wholesome kind, well cooked, is served in ample quantity. Grace is said. The matron, who appears well fitted for the post which she here holds, assisted by the lady visitors, serves the excellent hot roast beef, vegetables, and so forth; and it is as pleasant a sight as can be met with to see how the company enjoy the food. During the dinner a well-tuned musical instrument plays popular tunes; the knives and forks go merrily to "The regular Cure;" and in due time the dinner is finished; and then, with thankfulness, and better in strength, the party leave to be replaced by another company of sick and convalescent poor of different ages, who, having been provided with tickets, can be accommodated at this establishment with a dinner for a week or two. The persons who are to dine are asked to leave the tickets in the morning, so that the matron may know how many persons to provide for. The food must be got from the best and cheapest markets. All must be recommended by a subscriber or some society, and each must pay 2d., the remainder of the cost of the dinner being defrayed out of donations and subscriptions. It is guaranteed that the full amount of the subscriptions is spent on food, without any deduction for rent or for management. The payment of the 2d. gives an idea of the persons who come not actually receiving charity. Every person relieved is known to be deserving, by the personal visitation of those who make it their kind office to see the poor at their own houses.

It is so arranged that, when a larger attendance is secured, all the working expenses, including rent and management, will be defrayed by the persons who are themselves benefited. At present the number of persons who dine, on the average, is about thirty: at the same cost, so far as the management is concerned, fifty persons might be provided for. For the purpose of carrying on the establishment, subscribers are asked to purchase forty dinner-tickets for one guinea. Each subscriber of the above sum receives a book which contains the tickets, which, in food, represent the sum subscribed for distribution. Donations which are made to the institution are also distributed in tickets, which admit either to the youthful or the adult dinner-table; or, in cases where sickness prevents those who need food from coming, it may be taken home from the Wolburn-buildings table. This is, no doubt, in certain cases a useful exception, but in many instances, that which is needed for the purpose of helping one person amongst the family that real good will be prevented. There are also arrangements made for the distribution of wine, jinglass, and other things, needful for the sick, which do not come within the arrangements of the out-door relief of the hospitals and dispensaries.

It seems extraordinary, when we consider how much benefit has been done, how small the cost has been. According to a recent annual report, the receipts have been,—donations, 132l. 18s. 6d.; annual subscriptions, 51l. 3s.; invalids' and

poor's pence, 53l. 4s. 4d.; in all, 237l. 5s. 10d. The outlay has been,—for furnishing, &c., about 47l.; rent, 26l.; matron, 15l. 12s.; a balance at banker's, 58l. 12s.; and 3,231 dinners, &c. In order to show how the tickets have been disposed of, it is worth while to mention that the subscribers have sent in 1,059; the district clergy, 712; the district hospital, 308; the medical gentlemen of the district, 125; the Bible mission, 450; and societies for relieving the poor, 547.

We are disposed to hope that institutions founded on the same principle will rise, and that as aids to the medical charities, and even independently of them, they will be of great advantage. The medical attendants of the poor and those connected with the hospitals know how many cases are brought before their notice in connexion with which a dozen good and well-cooked dinners would prove of far more advantage than the drugs which are at their disposal. Moreover, it should not be forgotten that the method of cooking food properly amongst a very large part of the poorer and many of the industrious classes of the community is not well understood; and indeed, as our readers know, the means of cooking are not always available. Besides the purposes of dining, Mr. Hicks has caused the place to be opened in the evening as a working-men's club and reading-room. The charge for admission to this is 2d. a week. Tea, coffee, &c., may be had; and in connexion with the club there are a sick and provident fund, a penny bank, a register for men out of work, and an arrangement for the payment of wages.

CLUB CHAMBERS FOR THE WORKING CLASSES IN THE METROPOLIS.

THOUGH many are the forms in which model dwellings have been devised for the benefit of the London working population, I am not aware that any combination has been tried of the nature briefly described in the present paper, which, if you should think it likely to prove suggestively useful, you will perhaps do me the favour to insert in your valuable journal. My view is to meet on a large scale, and by that means on a sound financial basis, a certain portion of the mass of misery entailed on the working classes of the metropolis, by the growing deficiency of suitable dwellings, leaving other portions to be met by other special remedies.*

I would suggest the formation, under the Limited Liability Act, of "Club Buildings Co-operative Companies," on the following principles:—

1. In order to secure the harmonious working of the club arrangements described further on, numerous companies would be constituted, each for supplying one or more establishments calculated to meet the wants, notions, and jealousies, and thus to secure the patronage and co-operation of a particular category or group of the industrious classes, whether lower, middling, or higher paid, whether or not requiring special accommodation for the pursuit of their calling, whether wanting urban or suburban accommodation, to say nothing of distinctions of race, denomination, &c. Of course, it would be essential that at the head of each company there should be persons whose names might be a guarantee, on the one hand to the shareholders against fraud and mismanagement, and on the other hand to the public against all abuse of the power of association for party purposes. The capital and accounts of each company would be necessarily distinct, yet means might be devised for maintaining a suitable connexion between these several branches of one great scheme, so as to secure uniformity of principle and concerted action.

2. Everything would be done to secure the financial participation of the working classes themselves. Thus there might be special working-men's shares of say 1l. each, of which the dividends would be payable half-yearly, or if possible quarterly, to shareholders residing in the respective buildings, to whom would be allowed a certain bonus on the amount of each

dividend, or some equivalent advantages. It has been suggested that legal facilities should be afforded to the working classes for acquiring the proprietorship of distinct tenements in buildings containing a number of them; but independently of the awkwardness which might in many instances result to the workman from being thus bound to a particular locality, it would be next to impossible to conciliate his rights with the due maintenance of sanitary and social regulations for his own benefit and the general good of the establishment. I consider, therefore, that whilst it is very desirable that small houses should be the property of their occupiers, in localities where this does not place them too much at the mercy of their employers, the participation of the working classes in the building movement, as regards tenements built in blocks, would be more beneficial if managed on the proposed plan of co-operation by means of shares in the undertaking, offering a safe and convenient investment for savings and a resource which could be readily realized.

3. Working men would be enabled to content themselves with a small amount of ordinary accommodation for themselves and their families, and to pay a remunerative rent for it by having placed at their disposal all those advantages which a judicious club system might afford, if carried out on a large scale, and with a view to industrial as well as social comforts. I will here only advert to one of them, namely, well-lighted and well-ventilated workshops for those branches of industry which are susceptible of being carried on at home. The importance of accommodation of this kind is beginning to be so well appreciated in this country, that a proposal was lately made at one of the London vestries for its being provided at public expense.

4. Another essential feature would be the supplying of furnished rooms,—a kind of accommodation greatly needed by thousands of families, specially of the poorer classes. In order to overcome the difficulty which there is in preventing the pawning of blankets and other analogous articles, where they are directly supplied by a society or company, and for other reasons, it is proposed to organize a system of sub-letting in its present form. Groups of rooms, with conveniences in common for each group, would be let unfurnished to suitable persons of known respectability who might be called *renters*, and who, occupying a room or two, would sublet the remainder furnished to tenants. These *renters* would be allowed to bring in any furniture of their own, subject to sanitary control; but the normal plan would be, that they should rent furniture provided by the company, the charge being, perhaps, such, that after a time it would become their property. The company's direct tenants would also have the privilege of renting the company's furniture, provided they were shareholders, or could otherwise give good security. One of the advantages of this system would be to favour the adoption by the working classes of furniture more conformable to sanitary and economic principles than that which is now generally found in their habitations.

Other innovations will become apparent as I enumerate in succession the various parts of one of the proposed buildings which, by way of illustration, we will assume to be about 360 ft. long by 36 ft. deep, with five stories above the ground floor, besides the attic. It might be partly on the external gallery system with light iron columns, and partly on that of internal corridors, as adopted in recent buildings by Mr. Darbishire, except that the necessity for sacrificing here and there a certain amount of building space for the sake of affording light to the corridors, might be superseded by a system of oblique mirrors; or again, it might be partly laid out in flats with two three-room tenements in each. The staircases might be constructed in various ways, but they should be fireproof and, if possible, not winding. One of them, at or near the centre of the building, should have a hoist. Two others would be at the two extremities, and by means of the fireproof galleries and corridors, would present a sure means of escape in case of fire, wherever it might break out.

The Basement.—To be partly used as a cellarage for co-operative stores. In a club building for co-operators, whose requirements are the more deserving of attention because their calling is objected to at some of the existing model establishments, accommodation for trunks, dogkeys, and stock, might, by good contrivance, be very well afforded in the basement, if space should not allow of it in the yard.

* Lord Shaftesbury recently stated in the House of Lords that the number of persons who had been displaced in the present year by the railway and other Acts was no less than 20,000, and that the number of houses to be pulled down was 3,600. The persons thus affected consisted chiefly of skilled artisans and day-labourers, and no provision existed either in the model lodging-houses, or in the old kind of houses, suitable to such persons or within their means as dwellings. Indeed, such houses as are at present to be let would in some moderate one-hundredth part of the numbers displaced.—*Builder*, April 8, 1865.

The ground-floor, to be chiefly occupied in commercial thoroughfares by shops, to each of which would be annexed a small tenement on the first floor, with communication by a private staircase. They would be, as far as possible, on the co-operative system, or otherwise calculated to afford convenience or benefit to the inmates of the building, and they should include a chemist's shop, a surgery, and, if possible, a dispensary. The ground floor, and first floor in connexion with it, would also contain the company's offices, the dwellings of the secretary and officials, and the porter's lodge. The latter would be contiguous to the sole public entrance at the centre of the building. The porter would have at his service an errand lad for conveying letters, parcels, &c., to the inmates. A letter-box would be at the lodge.

The body of the building, that is to say, the four stories above the two floors already mentioned, would consist partly of groups of tenements to be let to *renters* for being sublet, furnished as explained above, and partly of single tenements for being let either unfurnished or furnished to tenants direct by the company. As regards the style and amount of accommodation, the provision which would have to be made in different buildings for different grades of the working population would vary considerably. The art-workman, shopman, or clerk will require his three rooms with scullery, &c., distinct and complete; and, with such inducements as a club building can legitimately offer him, he will find it well answer his purpose to pay a weekly rent, which may equally answer the purpose of the company. The case will be totally different with the ill-paid labouring man. On the one hand, he can with difficulty pay even the lowest remunerative charge for lodging, either furnished or unfurnished, so that it must be necessarily reduced to a single room, with conveniences in common to a group of rooms. On the other hand, he will, in most instances, scarcely care for more; for a single room to himself, his wife, and his children will be quite as much as he has been accustomed to, and singularly strong are the predilections engendered by habit. If the children are small there is no question of improvidence; and if they are big they will, whether boys or girls, be specially provided for in the arrangements which we shall find at the top of the building. As regards *breathing space*, I have reason to believe, that by means of a peculiar system of ventilation, of which the practicability has been recognised by one of the most competent of the London architects, a room 14 ft. by 10 ft., and only 7 ft. 6 in. high, might be made perfectly suitable for a small family, without any of those direct draughts which are sometimes a reason, and often an excuse, for the closing of ventilators by those whom they are intended to benefit. I am having a model of the proposed contrivance made for being deposited in my Museum of Domestic and Sanitary Economy, where special departments are assigned to the various devices by which the health and comfort of the working classes may be promoted.

The *Attic Floor*.—It is here that would be chiefly gathered together the resources obtainable by an application of the club principle on a large scale, and by means of which it would be made profitable to the working-man to pay a good price for a small tenement. It must be understood that part of the items of accommodation which I am about to enumerate, would be paid for in the charge for the tenement in the body of the building, though others would be made self-supporting by payments proportioned to the use made of them.

It would equally be in the resources gathered together at the top of the building that we should find a powerful leverage for moral and physical, intellectual and technical improvement. Much valuable co-operation could doubtless be obtained from societies and individuals engaged in propagating useful knowledge and spare literature for the proper furnishing of the common rooms, which would contain, *inter alia*:—Select books and periodicals; prints and other ornaments, calculated to show how decoration might be at once tasteful and instructive; diagrams and apparatus for lectures and classes; collections illustrative of domestic and sanitary economy, natural history, and other useful and entertaining branches of knowledge, formed by the joint exertions of the inmates of the establishment; working men's master-pieces of skill and perseverance, with everything else likely to encourage industry and emulation, and to pro-

mote technical cleverness. I trust that some of the club buildings might well deserve the patronage and support of trades' corporations, of large employers of skilled labour, and of others especially interested in fostering the technical efficiency of our artisans.

Taking the length of the building to be, as I have said, about 360 ft., we shall find it convenient to allot about 160 ft. at one end to accommodations of various kinds for males, and an equal length at the other end for females, leaving in the middle a space roofed over, but open at front and back for exercise and recreation. I will not name all the details given in the drawing which I have prepared, but may briefly state that, beginning at the extremity of the female department, we find in succession an infirmary, a dormitory and infant nursery, and work and school room for young girls; a work-room; a small dormitory, in proximity to the rooms occupied by the matron and attendants; a cook's shop, scullery, and sundry conveniences; a washhouse; a drying-room and four baths. Here comes the central space for recreation, provided with gymnastic appliances. Then, progressing onwards, we find in the male department:—A reading-room, at the corner of which would be partitioned off a small office for a savings-bank, accessible from without; a club and lecture room; a cook's shop, &c.; rooms for the foreman and attendants, and a small dormitory for boys near them; a work-room, and work and school room for boys; a dormitory for boys; an infirmary for men and boys.

Lofts.—Above the attic-floor, in the central part of the building, would be two lofts, one for the general depot of the company's furniture, with a workshop for repairs, &c.; the other for the purifying and airing of furniture used during any illness of a suspicious character.

In writing the foregoing, my object has merely been to throw out for the consideration of architects, builders, and capitalists, suggestions which, if found worthy of attention, their special abilities might convert into a practicable scheme, and their joint action might work out into a reality. It is, therefore, not my province to go into detailed calculations of cost and return, which had best be founded on more fully elaborate data; but there are certain conclusions which seem, at all events, likely to be realized. A company formed to supply club buildings for one of the lower paid categories of artisans and labourers, would have to collect at first nearly all its capital among those wealthy and disinterested friends of the working classes who, with a view to a great public good, would be willing to limit the interest on their investments to 5 per cent., whereby the important resource of Government loans, at 3½ per cent., which are expected to be granted on that condition, would become available. The shares taken by the tenants themselves, though a great social stage, and likely to grow considerably in time, would not be of immediate financial importance. But, passing to club-buildings for the higher classes of the working community, we shall find that the financial participation of these will augment as we ascend, and that the profits will increase; and above a certain level we shall find philanthropy unnecessary, and speculation flourishing.

I shall be happy to show and explain the rough drawings which I have prepared, and the information which I have collected, to any person who may wish either to study the capabilities of the proposed scheme as a whole, or to apply separately any of the features of which it is composed to other model buildings, existing or projected.

THOMAS TWING.

MR. FERGUSSON ON THE HOLY SEPULCHRE.

The third and last series of arguments by which Mr. Fergusson endeavours to establish his case, consists of those which can be drawn from history and tradition.

Eusebius, while describing the buildings of Constantine and his mother St. Helena, relates how the emperor began the new city opposite to that which had existed in ancient times. Now, in his times, the ruins of the walls and palaces, and great buildings which had been inclosed within them, must have been much more distinguishable than they are at the present day, when time and the hand of man have either destroyed them, or covered them with mounds of accumulated rubbish; yet, even at this time, we are informed by Mr. Fergusson, sufficient

remains to facilitate the decision of the true course of the walls and the bounds of the ancient city; and these have been determined by writers such as Shultz, Clarke, Robinson, and others, as including the present Church of the Holy Sepulchre, which cannot, therefore, answer to the description of Eusebius in being placed over against ancient Jerusalem.

The position of the Dome of the Rock is, however, in exact accordance with the words of the historian; since, according to Mr. Fergusson, it was without the inclosure of the temple, and the city springing up around it would be opposite to the old city, occupying the slopes of the valley of Jehoshaphat, which bounds the plateau on which the present city stands, dividing it from the Mount of Olives on the east.

A second argument, which has been often brought forward against Mr. Fergusson's views, is that of the position of the Nablous Gate; for the Bordeaux Pilgrim, an ancient writer who visited Jerusalem in the year 333, seven years after the discovery of the cross, while the Church of Constantine was yet in building, states that, while leaving Zion and proceeding to the Porta Neapolitana, he had the Holy Sepulchre on his left, and the Prætorium of Pilate (the Tower of Antonia) on his right. Now, if, as is generally supposed, the Nablous Gate is the same as the Gate of Damascus, the principal entrance of the north wall of the city, situated about half-way between the Haram inclosure and the present traditional Church of the Holy Sepulchre, the words of the pilgrim can only apply to the present building; but this supposition Mr. Fergusson states to be founded solely on the fact that the city of Nablous is north of Jerusalem. If, on the other hand, this gate was, as Mr. Fergusson suggests, one of those on the western wall of the new city, the pilgrim, on entering it, would have the Prætorium of Pilate on his right on the south, and the Holy Sepulchre, or Dome of the Rock, on his left to the north.

Another of the many Medieval writers who visited and described Jerusalem from the fourth to the seventh century, speaks of the subterranean communication between the church of Golgotha and the Pool of Siloam. Near the altar of this chapel was a crevice into which if anything were thrown it would be found again at the Pool of Siloam, on the east side of Jerusalem. Now under the Haram have been found rock-cut cisterns, and enormous caverns of ancient date, filled with water in the hottest part of the summer, and a communication between them and the underground passages which connect the upper and lower pools of Siloam has been long suspected, and according to Mr. Fergusson has been recently discovered by Dr. Barclay and M. Pierotti, while no such communication exists between them and the present church of the Holy Sepulchre. Thus only to a church situated within the Haram and near the Basilica and Church of the Anastasis, as placed by Mr. Fergusson, could the words of the writer apply.

The entire destruction of the Buildings of Constantine by fire, during the siege of the Persians, has often been made use of by the supporters of the traditional site; but of the little damage done by this fire Mr. Fergusson finds evidence in the fact that the whole was so quickly restored to its pristine magnificence by Modestus, a simple monk, without riches or any means.

Another negative proof is derived from Arnulfus, who wrote towards the close of the seventh century, and who has given rough plans of the buildings as they existed in his day; for although he mentions a square house of prayer erected by the Mohammedans on the ruins of the temple, yet he says nothing of the Dome of the Rock, unless indeed it be under the name of the Church of the Holy Sepulchre.

The building which was really erected by Omar in Jerusalem, Mr. Fergusson considers to be the same as that which now exists on the south wall of the Haram, and which forms part of the Mosque El Aksah. In this view he considers that he is borne out by the writings of Saracenic historians. On the day of his entry into the city Omar requested the Patriarch to conduct him to the temple of David, upon which that dignitary brought him first to the Church of the Holy Sepulchre and afterwards to that of Mount Zion, which however Omar knew not to be on the site of the temple; and proceeding to the Gate of Mohamed, which was choked almost entirely with rubbish, he crept in on his hands and knees, and went on till he found the sacrah, when he exclaimed, "Allah Akbah! by him who

holds my soul in his hands this is the temple of David." Now this discovery on the ruins of the temple of an underground sacrah, Mr. Fergusson considers totally inapplicable to the present sacred stone standing in the centre of the upper platform of the Haram, and in a part not occupied by the temple according to his restoration. The attempt of the patriarch would have been useless, he considers, unless the church had been near to the true site of the temple.

Such are the principal arguments which Mr. Fergusson draws from history and tradition.

Of the three paths, all leading to the same point, namely, architecture, topography, and history, Mr. Fergusson has attached most importance to the first; but the value of history must not be under-estimated; and it is doubtful whether more attention ought not to be paid to it than to the architectural arguments; for so little is known, and there is so much confusion and difficulty in the architecture of the times of which he is speaking, that it is but a faulty guide; whereas, on the other hand, the testimony of history is abundant.

1. With regard, first, to the relative positions of the old and new city, it must be remarked that no ancient remains have been found to the west of the traditional Church of the Holy Sepulchre in such a position as to show that it was ever inclosed within the walls of the ancient city; while Dr. Shultz has discovered remains of a wall excluding it altogether; and M. Vogüé has found the ruins of two different styles corresponding to those of the Haram, namely, the rebated and the Roman masonry, all to the east of the present church. Thus, it is by no means clear that the traditional site is situated within the old city; and it stands in a part of the town which Mr. Fergusson himself says appears always to have been the Christian quarter. On the other hand, what could be more conclusive than the position of the Mosque of Omar and the Golden Gate, in the very middle of an inclosure of ancient masonry, and, as before shown, included in the area of Antonia, if not of the temple—in the very heart of the great citadel of the ancient city. That a new town should arise on this side is almost impossible, for to the west it would be bounded by the walls of the old city, and to the east by the abrupt ascent of Olivet, with the Brook of Kedron forming a natural boundary. On the east there was hardly any ground unoccupied; on the west there was a long flat plateau, uninclosed by the ancient walls.

2. Of all the works of antiquity, roads are perhaps the most durable: new thoroughfares may be made, but the old roads of a country are rarely, if ever, destroyed; and thus, wherever we find a great highway, we may be tolerably certain that it has been the means of communication between one city and another from the earliest times: hence it arises that wherever a road enters a town, the remains of ancient gates are generally to be found on which the present portals have been erected, as is the case in many gates of Jerusalem; and wherever a path is found ending under the walls with apparently no object, it is probable that a gate anciently existed. From the roads the gates took their names, and the roads were named from the cities to which they led: thus, when there is only one communicating road between two cities, it may be safely inferred that the gate through which it enters is the only one that has ever received the name of the city from which the pathway comes.

Now there is only one road which leads from Jerusalem to Nablous, which is the same as that leading to Damascus. It enters the capital through the Damascus Gate, one of the most ancient and important of all which exist in Jerusalem. Thus it is not merely from the fact that Nablous is north of the city that it has been concluded that the Damascus and Nablous Gates are identical. If it be so, the testimony of the Bordeaux Pilgrim is conclusive against Mr. Fergusson's views, since it is impossible that he could have referred to any other building except the traditional church.

3. The subterranean communication between the Temple and Siloam has, according to Mr. Fergusson, been discovered by Dr. Barclay and M. Pierotti. The former gentleman has discovered a great cistern under the Temple, and a communication between the upper and lower pools of Siloam, but has not found any other remains. With regard to the latter, it is, perhaps, not unfair to remind Mr. Fergusson that he himself stated that M. Pierotti has not established his right to be quoted as an authority.

Whatever communication may exist, the description of a rent in the rock near the altar of Mount Calvary is not by any means answered by the mouth of an artificial cistern, which is the only opening to be found within the Haram.

The crevice, or "crepatura," of which the Pilgrim speaks was in the Rock of Golgotha, in which the chapel was cut out; for, although there is no certain evidence that Calvary was really a hill, yet it is indubitable that it was considered to have been such in the Middle Ages. Accordingly, in such an eminence the church was hewn; and the fact that the whole of the Haram is one plain surface is again unfavourable to Mr. Fergusson's views. The traditional Chapel of Golgotha is built on a small hill, and part of it, known at present as the Chapel of Adam, is hewn in the rock itself; while over its altar is the famous "rent in the rock," supposed to be just under the site of the erection of the cross. This crevice is said to be unfathomable, and to it the tradition in question might well have been attached, while it answers much better to the words of the writer than anything found in the Haram inclosure.

4. That the Basilica of Constantine was totally destroyed by Chosroës, the Persian, is admitted by Mr. Fergusson, who resorts to the hypothesis that the Church of the Anastasis was held in higher veneration by them than the basilica, and was left uninjured; but M. Vogüé has shown that the church and the basilica were parts of the same building, and, therefore, the whole of Constantine's buildings must have perished entirely. Mr. Fergusson says that they were restored to their pristine magnificence by Modestus, a simple monk; but this pious prelate was already superior of the Convent of Theodosia, and was afterwards made patriarch of Jerusalem. He was aided by John, the Almoner, patriarch of Alexandria, and the churches were raised through the permission of Chosroës, granted at the intercession of his Christian wife, the sister of the Emperor of the East, who in all probability lent her aid in their reconstruction. Even with these means Modestus was unable to rebuild the original church, and was content to replace it by four small chapels, described by Arculphus, and of them also M. Vogüé has made careful restorations.

5. With regard to the Mohamedan house of prayer, it need only be remarked that the Mosque of Omar would contain three thousand people, and that it is much nearer to a square in shape than the Mosque El Aksah, an irregular building, capable of containing six or seven thousand, which would not therefore be naturally described as containing a number comparatively so small.

6. The smaller mosque, which Mr. Fergusson considers to be the only one erected in Jerusalem by Omar, is an ill-built edifice (attached to the eastern wall of the Mosque El Aksah), which it may be remarked M. Vogüé has set down as evidently of much later date than any building of Omar's time. In the description of the finding of the sacrah, and the subsequent erection of the mosque, there is nothing which would not apply to the Dome of the Rock; there is nothing to show that the sacrah was subterranean, and much from which it may be inferred that it was not. In the smaller mosque of Omar, there exists no sacrah, and the vaults in which Mr. Fergusson supposes the sacred rock to be found do not traverse any part under the smaller building. Omar entered by the Gate of Mohamed, from which a vaulted passage leads to the upper level of the Haram, about half-way between El Aksah and the Dome of the Rock. This is the only natural entrance into the inclosure from the side of Zion; while the argument that the Church of the Holy Sepulchre must have been near the true site of the temple, is invalidated by the fact that the Church of Zion was also pointed out as the real site. Finally, it may be remarked, that the Dome of the Rock is quite as near in the temple as is the smaller mosque of Omar.

The history of the Church of the Holy Sepulchre is briefly this. St. Helena, an aged lady of eighty, firm in her confidence of the monks, discovered the true site of the cross through the confessions of a tortured Jew. Thus all arguments concerning the judicious choice of the site by Constantine, who was in Europe at the time, must be altogether laid aside. The church he erected was one, as has been proved by M. Vogüé; it was totally burnt by Chosroës, and was replaced by four small chapels by Modestus. Thus the writings of Arculphus do

not refer to any buildings of Constantine's, but only to later restorations.

There are two questions,—two distinct subjects,—which Mr. Fergusson has not separated. First, is the Dome of the Rock the true sepulchre? Secondly, is it the site of the holy sepulchre of Constantine? Concerning the first, it is impossible that the tomb should have been within the temple; concerning the second, the restorations of M. Vogüé leave hardly any doubt when coupled with the words of the Bordeaux Pilgrim.

Mr. Fergusson remarks that if a change in tradition be found, it is immaterial at what time that change took place; but if there is no evidence of a change at any time, and no break where the tradition is lost, it may be inferred that no change has taken place. Now, there is no evidence of any change either in the Christian traditions since the time of Constantine concerning the site of the holy sepulchre, or in the Mohamedan traditions concerning the site of the edifice erected by Omar; or, lastly, in the Jewish and Mussulman traditions of the extent of the ancient temple, and there is no time when such a change could have occurred. It may, therefore, be inferred that no such change has taken place, that the church of Constantine was on the site of the present church, the mosque of Omar on the same spot as the Dome of the Rock, and that the temple occupied the whole of the great platform of the Haram es Sherief.

With regard to the descriptions of Eusebius, it must be remarked that Mr. Fergusson's plans do not in any way agree with them. In no passage is an octagonal church mentioned, or a separate basilica, or a chapel of Golgotha (which was built by Modestus); and the atrium of Eusebius is wanting in these plans altogether.

Finally, a few remarks may be made on the history of the Kubbet es Sacrah. Above the arches springing from the wooden entablature previously mentioned are inscriptions in Cufic characters, giving the date of its erection in the year of the Hegira 72, by the Caliph Abd [Allah El Mamoun]. The words in brackets are a falsification of a much later date, and the original inscription appears to have contained the name of Abd El Malek. This inscription Mr. Fergusson lays aside, saying that the date may be falsified as well as the name, and ascribing the whole to the time of Saladin; but it is evident that El Mamoun's name is of later date than the rest of the inscription, for it is on a ground of blue of a different shade to the rest, and his full title, containing two more syllables than that of El Malek, is written in smaller letters crowded closely together. That it is earlier than Saladin is evident from other inscriptions stating that the original ones were restored by that monarch. The date is not falsified; and this is the most important part, for, coupled with the architecture and with the descriptions given by Arabian authors of Omar's mosque with the treasury Kubbet es Silsilieh,—the Dome of the Chain,—to the east of it, which was completed in the year 72 of the Hegira, would have been considered sufficient evidence of the date of the Dome of the Rock had not Mr. Fergusson brought forward his present theory.

There are two apparently conclusive arguments on the subject: one fixing the position of Constantine's building, the other the date of the Dome of the Rock. The first is the description of the Bordeaux Pilgrim; the second, the unfalsified date on the Kubbet es Sacrah.

As long as these two remain unanswered, Mr. Fergusson's theory must be considered as disproved.

C. R. C.

MONUMENT TO THE LATE SIR JOSEPH PAXTON.

A large number of noblemen and gentlemen have formed themselves into a committee, with the purpose of erecting a monument to the memory of Sir Joseph Paxton. Among the names are those of the Dukes of Devonshire and Sutherland, Earl Granville, Lord Palmerston, Lord Egerton of Tatton, the Speaker, Mr. Gladstone, Lord Elcho, Mr. S. Laing, Mr. A. H. Layard, Sir S. M. Peto, and of various artists, literary men, and others well known. They propose to open a general subscription-list; that the memorial shall be a marble statue, which might be placed on a chosen position in the English landscape garden of the Crystal Palace; and that the commission for the statue should be entrusted to Mr. Spence, of Rome, to whom Sir Joseph sent for his bust but a few months before his death. Mr. George Grove, of the Crystal Palace, is the secretary.

APPROPRIATION OF A DESIGN FOR THE
PARIS EXHIBITION OF 1867.

In our number for February 16th, 1861, we published a design for an Exhibition Building, with suggestions for method of classifying the contents, submitted to us by Mr. G. Maw and Mr. Edward J. Payne, the main feature of which was the combination of a geographical and general classification; that is, that in one and the same arrangement objects relating to the same subject should be placed in juxtaposition, whilst the various products of the same locality should, as far as possible, also be contiguous.

The designers said,—

"It is proposed that the building should be circular, or of some form related to the circle, as the ellipse, although this is not essential to the system advocated; and that, instead of dividing it into courts, as in the Exhibition of 1851, by which a great loss of space was entailed, the spaces actually occupied by the objects shall be narrow blocks of the form indicated by a shading on three quarters of the diagram; these blocks being defined by a double system of intersecting avenues representing the lines of classification; one system distinguished by letters A, B, C, D, E, &c., radiating, which it is proposed to call the geographical classification; and the other, which, objects from the same locality would be congregated. The specific system would be represented by the circumferential lines distinguished by figures, along which objects relating to kindred subjects would be arranged."

Supposing there are sixteen radiating or geographical avenues, they would provide thirty-two sides, or lines, of geographical classification; and supposing every place or country occupied the whole of a line, they would accommodate thirty-two geographical divisions; but, as each of these lines intersects thirty-four lines of specific classification, representing as many different branches of manufactures, it is evident that the whole length of each radial line will not be occupied by a single town or district, few places producing so great a variety of manufactures, but might be appropriated to six or seven distinct places that do not send identical manufactures. Thus, Birmingham, producing glass and hardware, might share the same geographical line with Coventry, sending silks, the Staffordshire Potteries, porcelain, and Manchester, cotton goods; each on the proper specific lines without interfering with any other. Again, it is improbable that the whole of one of the specific lines would be required for a single subject, and it might be divided into any number of parts to suit necessity; the only condition being that the whole of the towns or countries producing a particular manufacture shall be placed on the radial line that are within the range of that part of the circle appropriated to it."

This design, the cleverness of which was admitted at the time, has been coolly appropriated by the French authorities, without one word of acknowledgment either to us or to the designers. "The proposed building for the coming Exhibition," says the *Siccle*,—

"Will have, as already mentioned, the form of a broad ellipse, and will be surrounded by a green sward to cover the whole extent of the Champ-de-Mars. In the centre of the building will be laid out a garden, from which will radiate avenues to the circumference; they being intersected by circular avenues running around the whole building. The radii from the centre will serve to distinguish the different countries, as each nation will have appropriated to it a number in proportion to its importance, while the circular passages will be devoted to products of the same kind. So that to examine the different productions of a country the visitor must pass from the centre to the circumference, or vice versa, while to examine the same products as manufactured by different states—silks for instance—he will have to follow the circular avenue reserved for that article; he can thus pass in review the display of that kind of goods of all the different countries. As the circular passages become smaller by degrees as they approach the circumference, the valuable objects and those which occupy the least space, will be contained in the inner circles, and the passages nearer the circumference will be reserved for the articles of greater bulk. Consequently, the works of art will occupy the first gallery around the garden; and the next will be reserved for artistic manufactures; then will come furniture, next the gallery devoted to articles of clothing, in silk, wool, linen, or cotton, and this will be successively followed by those of raw materials, instruments and modes of production, articles of food, &c."

Mr. Maw and Mr. Payne have made claim for recognition through Lord Cowley, who has kindly interfered for them, and will, we sincerely trust, for the sake of the French Commissioners, obtain it. A more complete plagiarism has been seldom seen.

WAGES IN PARIS.

THE Paris stone-cutters having requested the syndical chamber of masonry contractors of the Seine to interfere between them and the contractors, with a view of obtaining a rise of salary and the abolition of task-work, the secretary to the chambers replied in a letter of the 28th ult., communicating its refusal to interfere. He, however, observes, that for the last twenty-five years an increase of wages of building operatives, and especially stone-cutters, has gradually and steadily been obtained without strikes, or the intervention of the syndical chambers, by force of free competition,—that is to say, of offer and demand. From 1840 to 1846 the mean price of the day's work of stone-cutters, was from 3*fr.* 75*c.* to 4*fr.*; in 1847, from 4*fr.* 25*c.* to 4*fr.* 50*c.*; from 1849 to 1856, it was 4*fr.* 50*c.*; in 1857, from

4*fr.* 50*c.* to 4*fr.* 75*c.*; from 1858 to 1860, from 4*fr.* 50*c.* to 5*fr.*; from 1861 to 1863, it was from 4*fr.* 75*c.* to 5*fr.*; lastly, from 1864 to this day the average is 5*fr.* 50*c.* Thus, within the space of twenty-five years the wages have increased more than 40 per cent. The profits of contractors are fixed in principle, in every branch of public works and buildings, at one-tenth of the actual outlay. Therefore the contractors' benefits are augmented according as the men's wages are increased. If then the contractors refuse the increase of wages demanded, it is only because they find it out of their power to augment them at this moment. When the proper time arrives it will take place of its own accord, as it has done during the last twenty-five years.

ROOFS ON THE SUSPENSION PRINCIPLE.
SOCIETY OF CIVIL ENGINEERS OF FRANCE.

At a recent meeting M. Lehaître brought forward a notice of the system of suspended roofing proposed by MM. Lehaître and de Mondésir.

It is very evident that it would be a great improvement to be able to cover large spaces, as market-places, railway stations, hippodromes, &c., without the use of intermediate supports, which represent a host of inconveniences. MM. Lehaître and de Mondésir have sought the solution of the difficulty in the use of suspending cables.

The principal difficulties which attend the use of cables in suspension bridges completely disappear from their use for roofing. The strain they have to sustain being no longer variable, there is no fear of those oscillating movements which are so dangerous, and which considerably increase the cost of maintenance of the flooring. The roofing cables can always be made fast to open work inside the bearing walls.

MM. Lehaître and de Mondésir compute approximately that such a structure might be erected at less than half the cost of ordinary market and assembly places.

All the estimates would, of course, be lowered if, instead of zinc, freestone, and cast metal, there were employed bituminised pasteboard, and deal for the timber work.

M. Flachet also read, on the same topic, a paper entitled "Considerations on the Projects of Applying Metallic Suspension to Roofs of Large Span."

WELLS IN ALGIERS.

For the last four years the French Government has been actively occupied in the establishment of artesian wells in Algiers, principally in that part of the territory of the three provinces which borders on the desert, and where no water-courses exist.

In the provinces of Algiers, the borings, up to the end of 1864, have yielded three supplies of water, furnishing about 3,742,000 gallons to 3,962,000 gallons of spring water of great purity, in twenty-four hours, and it may be presumed that the works in progress since last year have doubled the amount.

In the province of Oran three wells have been sunk; that of the grand lake, near Oran, has already arrived at a depth of 389 yards; the second, at Mou-el-gue-touta, on the road from Tiarret to Laghouat, was suspended at the breaking-out of the last insurrection, but is shortly to be continued: the same is the case with the third boring, on the plain of Eghris, near Mascara, which was temporarily stopped at a depth of 280 yards.

The Constantine province has been more successful than the other two in receiving water supply. Between Biskra and Tougourt forty-seven wells have been sunk, furnishing daily 19,299,000 gallons. At Tougourt and in the oasis twenty-four Arab wells have been completed, yielding for the irrigation of the gardens 1,100,000 gallons per day. Beyond this, towards the south, four wells give 124,360 gallons. Lastly, in the fertile plains of Hodna, celebrated during the dominion of the ancient Romans, for its magnificent cultivation, sixteen wells have been sunk, furnishing per day 1,513,000 gallons. Altogether there have been bored in the province of Constantine, up to the present day, ninety-one wells, furnishing daily 25,000,000 gallons allowed to flow freely over the surface. Some of these are of sufficient yield to irrigate large areas of

* The *Engineer* contains a pretty full report of these papers.

cultivated land; but they happen to be situated in a part of the desert where European colonisation is impossible. Nevertheless, the principal end of the establishment of these sources is attained. The desert is perfectly joined to the province of Constantine: the ancient oases are enlivened and new ones created, to the great blessing of the populations.

RAILWAYS IN FRANCE.

THE following is the actual state of railway communication in France as compiled from public documents:—From 1823 to the end of 1860, 2,190 miles of railway lines had been conceded; thence up to the end of 1860, 7,078 miles. From this period up to the end of 1864, 3,149 miles, or, in total, 12,417 miles definitely conceded up to the beginning of the present year. Adding to this 499 miles of lines decreed but not yet definitely conceded at the end of 1864, we have a total of 12,916 miles from 1823 to the end of 1864. Of this total length, 8,113 had been opened for traffic at the beginning of 1865, leaving 4,803 miles not yet constructed; seventy-three miles, however, from Guincamp to Brest (see *Builder*, 13th May, 1865, p. 343), have been added in April last, thus leaving only 4,730 miles to be constructed out of the number conceded up to 1st January, 1865.

Some of the *through speeds* of continental travelling, taken from the time-tables of different companies, are as follows:—Paris to Marseilles, 536 miles; evening express No. 3, in 16 h. 15 m., giving 35.05 miles per hour; express No. 5, in 19 h. 40 m., or 27.27 per hour; express No. 11, in 19 h. 15 m., or 27.86 per hour. Paris to Calais (mail to England), 203 miles in 5 h. 50 m., or 34.8 miles per hour. Paris to Strasbourg, 312 miles; express No. 1, in 10 h. 10 m., or 30.7 miles per hour; mail train, 10 h. 45 m., or 29.0 miles per hour. Paris to Cherbourg, 230½ miles; express in 10 h. 5 m., or 22.86 miles per hour. Paris to Brest, 387 miles; express in 16 h. 10 m., or 23.94 miles per hour. Paris to Rennes (part of Brest line), 231½ miles; express in 8 h. 15 m., or 28.06 miles per hour. Paris to Bordeaux, 361½ miles; express in 11 h. 30 m., or 31.6 per hour; mail in 10 h. 50 m., or 33.55 per hour. Paris to Frankfort, 458 miles; express in 18 h. 20 m., or 24.98 per hour. *Through speeds* from London (including sea passage).—To Paris, 304 miles, in 10 h. 35 m., or 28.75 miles per hour. London to Bile, 635 miles, in 25 h. 15 m. (including two hours' rest in Paris), or 25.14 miles per hour. London to Frankfort (from 7.25 a.m. till 6.50 p.m. the next day), 762 miles, in 35 h. 25 m., or 21.5 miles per hour, including two hours' rest in Paris (from 6 till 8 p.m.).

RAILWAYS AS VIEWED BY NATIVE
INDIANS.

THE *Calcutta Engineers' Journal* prints the following translation of an anonymous petition addressed to the Government, as indicating from a native point of view some of the defects of our railways:—

"For the comfort and convenience of the people travelling on the old road, serases, with puraoos or plains attached to them, have been established at every stage; wells constructed, trees grown on the sides of the road; and chowkees, for the protection of the travellers, appointed, through the kind attention of the Government. Now, however, since the construction of railways in this country, the people, with a view to reach speedily the places of their destination, travel by rail, and have, therefore, deserted the old road which possesses all the advantages described above. Travelling by rail subjects the people to the following three kinds of inconvenience, viz.—

- 1st. That there is no well close to the station from which the travellers can drink water.
- 2ndly. That there is no serae adjacent to the station for the traveller to rest at night.
- 3rdly. That there is no purao or plain close to the station where travellers may cook their meals.

I therefore suggest that the same improvements may be made in the railway stations as have been done in the old roads for the comforts of the people.

The troubles and inconveniences to which the natives travelling by rail are subject may be removed in two ways:—

- 1st. The railway authorities should charge half an anna on every rupee above the usual

fare, and from this income they should have a well constructed at every third station, establish at the distance of every 200 miles a serae, and secure close to it a plain of two acres with some shoddy trees thereon.

2nd. A notice should be issued to the effect that those who may from virtue's sake be inclined to construct wells or establish seraes by the railway stations, shall apply to the railway authorities, who will pay every attention to such applications."

DORCHESTER CORN EXCHANGE COMPETITION.

COMPETITION designs for the Corn Exchange and Market, seven in number, were sent in under the following mottoes and devices, and in the following order, viz.—1. Fides. 2. Agate. 3. Experience and Economy. 4. Labor omnia Vincit. 5. This. 6. Free Trade and Protection. 7. Espérance.

Several of the designs were well adapted to the purpose contemplated, and especially that of "Agate," in case a removal of the present Guildhall had been intended; but, as we learn from the town clerk, after a full consideration, the first premium of 21l. was awarded to design No. 6, prepared by Mr. H. Hall, of Duke-street, Adelphi; and the second, of 5l. 5s., to design No. 4, of which Mr. J. Jowett, the borough surveyor, is the author.

KEIGHLEY TOWN HALL COMPETITION.

THE Board has awarded to Mr. Geo. R. Green, of London, the premium of 20l. for the best design for the town-hall; and to Messrs. Bulmer & Holton, of Dewsbury, the premium of 10l. for the second best design.

SOUTHAMPTON NEW WORKHOUSE COMPETITION.

A MEETING of the Southampton Board of Guardians was held on Monday last, at the present house, to select one of the plans submitted in competition. After considerable discussion, the design bearing the motto, "*Fortuna Cetera Mando*," was accepted, the author being Mr. A. Bidborough, of Southampton.

THE MEAT AND POULTRY MARKET, SMITHFIELD, COMPETITION.

THE first premium of 300l. for the above was awarded to Messrs. Knightley & Mew, architects, of Cannon-street; and the second to Mr. Isaacs, of Verulam-buildings.

An account of the designs was given by us some time ago.

PROPOSED ST. THOMAS'S HOSPITAL, LAMBETH.

THE General Court of Governors have approved the design by Mr. Henry Currey for the new hospital, and instructed the committee to proceed with the working drawings and contracts. The Metropolitan Board of Works have let their contract for the Southern Embankment of the Thames to Mr. Webster, and a condition in that contract is that the hospital site is to be enclosed with a dry dam in nine months, when operations will be commenced. We recently gave some particulars of the design, but as we now lay before our readers the plans, and a geometrical view of the front next the Thames, it is desirable to repeat partly what we have already said, adding some further details. The pavilions, it will be seen, are placed at a distance of 125 ft. from each other, the centre court being increased to 200 ft. Corridors run the whole length of the hospital on the ground and one-pair stories, and connect the several blocks of wards or pavilions. These corridors are lighted by large windows on both sides; and, in the event of its being deemed necessary to isolate any particular block, it can be done by putting screens across the corridors and removing the sashes from the windows. These corridors are not carried higher than the one-pair story, but the flat roof over forms a means of communication to the several blocks on the two-pair story. The pavilions are placed at right angles to the corridor, from which a passage leads direct to the wards, and on one side of which is the staircase.

The wards are designed to be 28 ft. in width by 120 ft. in length, and 15 ft. in height, and will accommodate twenty-eight beds, giving a cubic capacity for each patient of 1,800 ft. The beds are placed at distances of 8 ft. from centre to centre, and the windows are arranged alternately with the beds, at a level, to enable a patient to look out of them. Small wards for two beds, immediately contiguous to, but not communicating with, the general wards, are provided in each block for the reception of special cases, which it may be deemed desirable to separate from the other patients. These wards also afford a cubic capacity of 1,800 ft. per bed, or of 3,600 ft. when used for a single patient. On the other side of the passage are placed the sisters' room, the ward kitchen, and a room for the medical officers' consultation. The well-holes of the staircases are occupied by large lifts and ventilating shafts.

The water-closets, lavatories, and bath-rooms attached to each ward, are projected from the main building, and are cut off from the ward by intercepting lobbies, with windows on both sides.

The main hospital may be said to commence on the first floor, and consists of three tiers of wards, there being four smaller wards provided on the ground-floor for the reception of accidents. The accommodation afforded is as follows:—

Ground story,	3 wards, 20 each	60
"	1 " 16	16
"	4 " 28	112
One-pair story,	6 " 28	168
"	1 " 16	16
"	6 " 28	168
Two-pair story,	1 " 28	28
"	6 " 16	96
"	2 " 28	56
Three-pair story	5 " 28	140
"	1 " 16	16
"	6 " 28	168
		688

The general entrance to the hospital is placed in the centre, and will be approached from the Palace New-road. The entrance-hall is capacious, forming the sub-structure of the chapel. The steward's, or superintendent's, offices, are placed immediately in front of the entrance-hall, so that everything passing in and out of the hospital will be under his supervision. From each side of the entrance-hall branch off the main corridors of communication, connecting all the different departments.

The ground-floor of the first pavilion, to the right, is appropriated to the kitchen department, as being as nearly central as possible. It comprises kitchen, scullery, and cooks' rooms, with larder, bread-room, &c., on the basement immediately under. A serving-place is provided where the patients' food would be distributed; it will then pass along the corridor to the different pavilions, and be conveyed up the small lifts to the several stories or wards.

The ground-floor of the first pavilion, to the left, is appropriated to the matron's department, with a commodious room for linen stores. The basement of this wing is appropriated for matron's extra stores, and for day and dining rooms for the Nightingale probationer nurses.

On the right of the entrance-hall is placed the principal staircase, which leads direct to the corridor on the one-pair story. It communicates directly with the resident medical officers' apartments, which are placed in the central block, and consist of sixteen rooms, including a common room and another for the use of the medical and surgical staff of the hospital, the exact position of which may be hereafter determined as convenience may dictate. Two operating theatres are provided, communicating with the corridors, of ample dimensions, to admit of a large attendance of pupils. A private room is attached to each theatre for the operator, with a second room in which a patient may be temporarily placed after an operation.

The dispensary and surgery are placed in the main corridor (the medicines and appliances being conveyed by the small lifts to the various wards), and the out-patients (who are more particularly referred to hereafter) are supplied from the opposite side. The laboratory, the drug examination, and store rooms, are placed in the basement story, immediately under the dispensary, and are approached from a staircase leading out of the dispensary; external entrances for the receipt of stores being also provided.

All applicants for relief at the hospital would enter at the covered porch in Palace New-road, near to Crozier-street, and would be received in one of the admission-rooms, according to sex. They would be then informed whether they

would be admitted into the hospital, or be treated as "casualty patients" or as "out-patients." If admitted, they would be passed through the hospital corridor to the wards.

The administration block is placed at the Westminster Bridge end, approached from the bridge. The one-pair story, which may be called the bridge level, is designed to provide entrance-hall and principal staircase, waiting-room, counting-house, receiver's room, strong-room, almoner's room, and a suite of unappropriated offices. On the next floor is provided the governors' hall and committee-room, with waiting-rooms, &c., the remainder of the block being appropriated to the treasurer's residence. A staircase leads direct from the treasurer's house to the main corridor of the hospital. The two lower stories of this block are appropriated as residences for three porters, and for the domestic offices of the treasurer's house. A kitchen is also provided for serving the diners to the governors' hall, without interference with the hospital kitchen. A fourth porter's residence is provided in the lower story of the extreme southernmost block.

Four houses are provided for the resident officers, containing eight rooms each, exclusive of domestic offices. They are approached from the Palace New-road, and communicate in the rear with the main corridors of the hospital.

The chapel, in the centre of the building, is designed to give 300 sittings. The museums, school buildings, lecture theatres, &c., are proposed to be placed at the southern end of the ground, but are not shown on the plans. The warming is intended to be effected by open fireplaces, aided in cold weather by an auxiliary system of hot-water.

The building is to have fireproof floors throughout, formed with wrought and rolled iron joists, and concrete. The floors will be of oak, and the wall surfaces finished with Koenig's or Parian cement. The terrace towards the river is proposed to be kept 4 ft. above the public footway. This, with the height of the parapet (3 ft. 6 in.), will prevent any overlooking by the public.

The whole building, or rather pile of buildings, will probably be faced with stone, and the cost in that case is estimated at 360,000l.

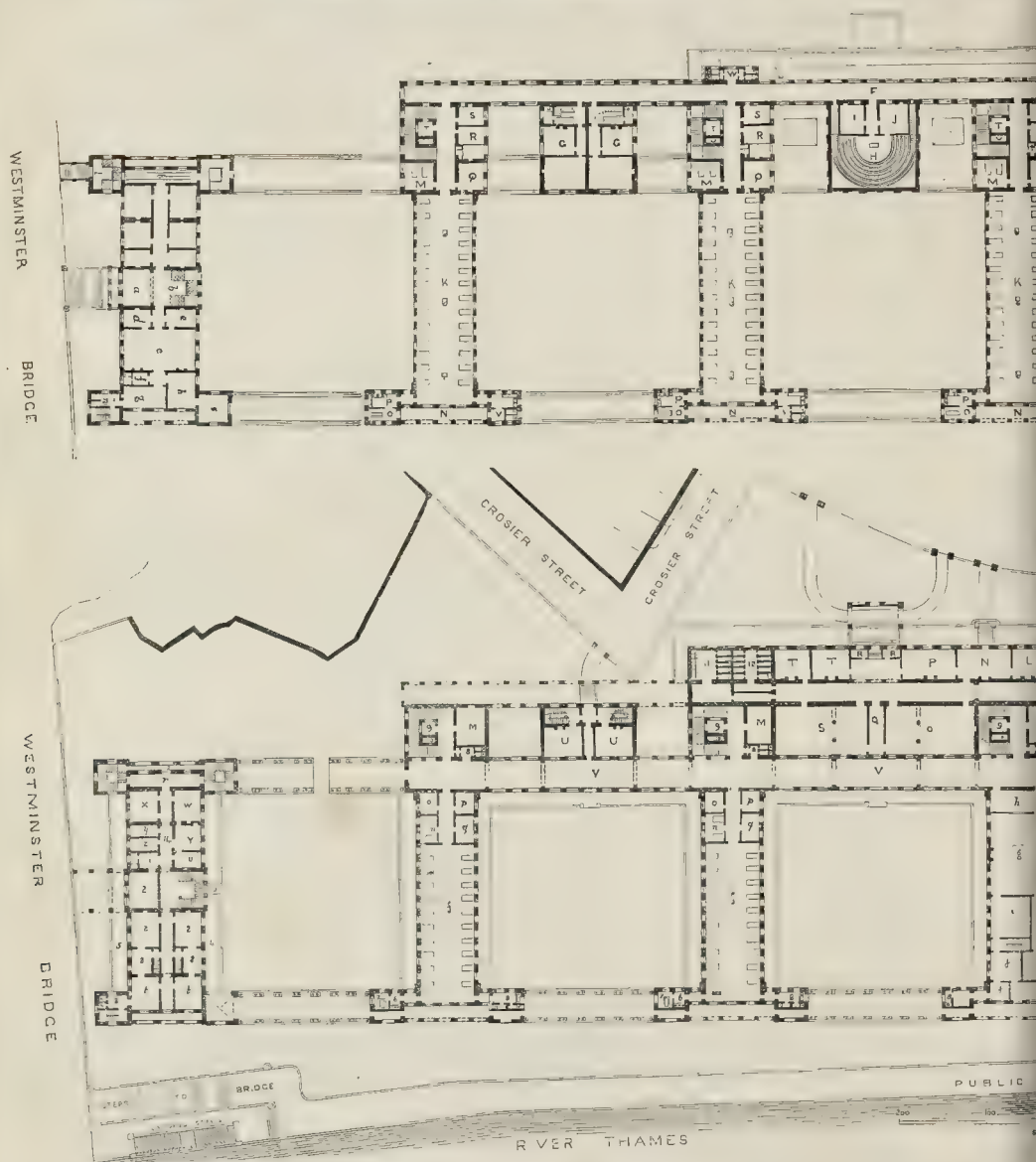
REFERENCE TO PLANS.

GROUND STORY.

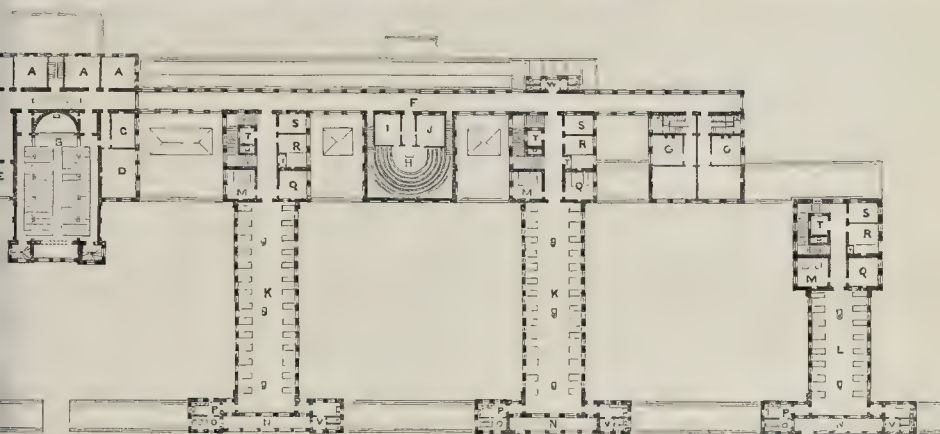
A. Portico.	e. Wards. 16 beds.
B. Entrance-hall.	f. Wards. 20 beds.
C. Stewards' Office, &c.	g. Kitchen.
D. Surgery.	h. Berthing-room.
E. Wine, &c. Office.	i. Scullery.
F. Waiting-room.	j. Cooks' Rooms.
G. Extra Room.	k. Linen-room.
H. Waiting-room, Male Casualties.	l. Assistant Matron.
I. Surgery Man's Room.	m. Matron's Offices.
J. Splint-room.	n. Small Ward.
K. Surgery, Males.	o. Ward Kitchen.
L. Surgical Appliances.	p. Consulting-room.
M. Patients' Closets.	q. Sisters' Room.
N. Surgery, Females.	r. Passage.
O. Admission-room, Males.	s. Bed-room.
P. Waiting-room, Female Casualties.	t. Sitting-room.
Q. Receiving-room, Accidents.	u. Pantry.
R. Porter.	v. Scullery.
S. Admission-room, Females.	w. Larder.
T. Consulting-room, Females, Lying-in, &c.	x. Store-room.
U. Officers' Residences.	y. Wine-cellar.
V. Corridor.	z. Beer-cellar.
W. Dispensary.	1. Entrance to Treasurer's Rooms on lower level.
A. Room for Patients waiting for medicine, &c., with Out-Patients' Exit.	2. No. 1 Porter's Residence.
Y. Dressers' Room.	3. No. 2 Porter's Residence.
Z. Out-Patients' Waiting-room.	4. Lavatory.
a. Physicians' and Surgeons' Rooms, and Entrance.	5. Bath.
b. Out-Patients' Entrance.	6. W.C.
c. Officers' Residences.	7. W.C.
d. Serving-rooms.	8. Lift.

ONE-PAIR STORY.

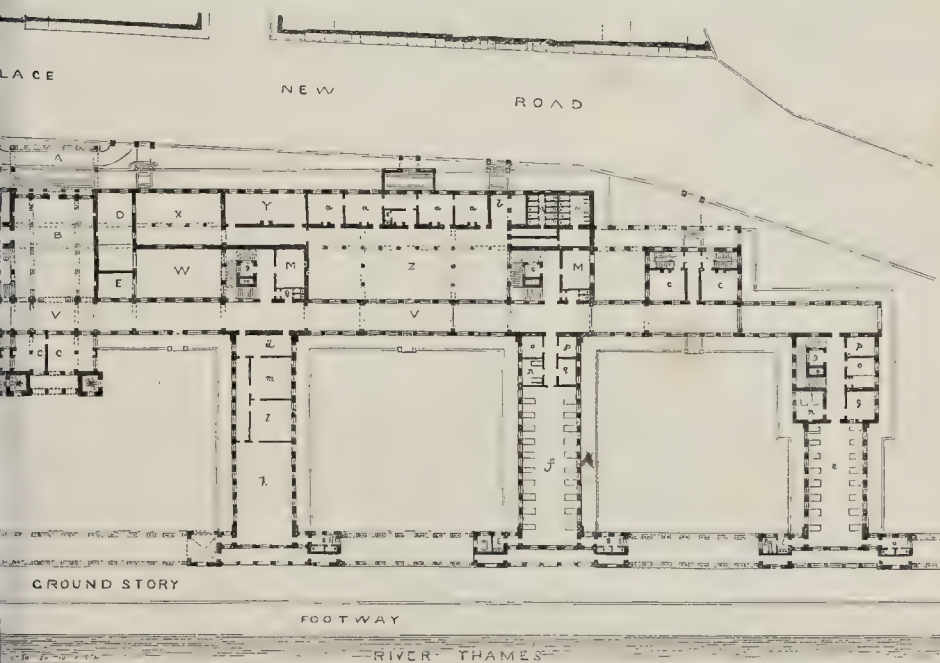
A. Resident House Physicians and House Surgeons' Apartments.	R. Ward Kitchen.
B. Chapel.	S. Consultation-room.
C. Vestry.	T. Larder.
D. Communion Room.	U. Shaft.
E. Medical Committee-rooms.	V. W.C.
F. Corridor.	W. Nurses' W.C.
G. Officers' Residences.	a. Hall.
H. Operating Theatre.	b. Staircase.
I. Operators' Room.	c. Waiting-room.
J. Patients' Room.	d. Porter.
K. Wards. 28 beds.	e. Counting-house.
L. Wards. 16 beds.	f. Lavatory.
M. Small Wards.	g. Treasurer and Almoner.
N. Balcony.	h. Receiver.
O. Bath.	i. Strong-room.
P. Lavatory.	j. Unappropriated Offices.
Q. Sisters' Room.	k. Entrance to Treasurer's House.



PROPOSED ST. THOMAS'S HOSPITAL



OF ONE PAIR STORY.



MR. HENRY CURREY, ARCHITECT.

THE BUILDING TRADES.

A GENERAL meeting of the men on strike at Cabitt's firm, 400 in number, was held on Saturday, when resolutions of the delegates adopted on Friday evening for closing the strike, and also the decision of the firms to give the Old. They were highly pleased with the result, and a resolution was unanimously passed to take in their tools on Monday morning, when they accordingly resumed work at the advance rate of wages of 7½d. per hour. About 400 men struck, and about 300 resumed work, the remainder having obtained employment elsewhere. The question as to an additional farthing per hour after six months' notice of course stands over in the meantime, as the masters have not yet agreed to that. Indeed, no official notices as to it have been given by the men to the masters, who have therefore postponed consideration of it in the meantime.

We may here state that we have received a letter from Mr. John Brien, on the part of the Painters' Advance of Wages Committee, reporting the progress made by the painters in their endeavour to obtain an advance; but, as it has already appeared in the daily papers, it is unnecessary for us to print it.

In Huddersfield, a new element has been brought into play for the settlement of differences between employers and workmen. The painters in that borough, who have been on strike since May, have memorialised the council of the local chamber of commerce to take the post of arbitrators, and to this request the council has consented, provided both employers and employed agree to the appointment, and resolve to abide by the decision which may be made. The masons in the same borough have been on strike for three months, and the masters have invited them to a meeting for the discussion of grievances.

The *Wolverhampton Chronicle* inserts a letter from a correspondent, who says—"I wish to give the public a specimen of the tyrannical and illegal manner in which the present strike is being conducted by the Bricklayers' Trade Union. Yesterday morning, a man whom I was employing, was coming from Godsal to his work, when he was waylaid and stopped by two bricklayers of Tetterhall. They took his victuals from him, and forced him to go to the railway station, when his fare was paid, and he was sent off to a distant town. The man was willing and content to remain at my work at high wages, but he is not permitted to do so."

The lamentable results of strikes are forcibly shown by the fact that the loss sustained in the iron trade by workmen in Staffordshire alone during the recent conflict between the masters and their hands is estimated at 500,000l., the loss to the miners being 200,000l., and to the men engaged in the manufacture of iron 300,000l. This is known, but there is a vast amount of collateral loss and consequent privation which can never be estimated.

The wood-turners and chair-makers of Lyons have struck for the suppression of a custom whereby a deduction of 3 francs a month was made from their wages for the carriage of their work home. Their wages are from 3s. 9d. to 5s. 4d.

THE FALL OF WALL IN CHANDOS STREET.

At the adjourned inquiry into the circumstances connected with the death of Andrew Dawson, the carpenter, who was killed by the falling of two houses in Chandos-street, previously alluded to, Mr. Dent, the surveyor appointed by the coroner to examine the site of material, presented his report. After a careful investigation, in making which, he said, he had received assistance on the part of Mr. Howes, he could not assign any reason for the fall of the houses; and, looking to the evidence already given, he thought it would be most unnecessary to say that there had been any want of care on the part of those engaged on the houses. The coroner said that in an inquiry like this it was very important, both for the public benefit and for the information of those engaged about building, that all the circumstances of an accident should be fully sifted, in order to find out if any charge of negligence rested with any one. These inquiries were not mere matters of form; and if the jury had spent much time in sifting this case, it would doubtless be effected by impressing on those who had charge of works the neces-

sity for providing for the public safety. The jury at once returned a unanimous verdict that deceased met his death accidentally. Mr. Lewis, who attended for Mr. Howes, the builder, stated that his client, though he had no legal liability, had made a present of 100l. to the widow, after paying her expenses.

FROM SCOTLAND.

Arbroath.—The Directors of the Arbroath Public Buildings Company have accepted tenders for the erection of the new hall, museum, &c., according to the complete plans formerly approved of. The plans are now matured, and about to be carried out, comprise a hall for public meetings, a museum, library, reading-room, and a saloon, which may be used as a supper-room, or for day or evening meetings not requiring the accommodation of large numbers. The whole is comprised in a rectangular block of buildings 148 ft. long and 50 ft. wide, placed with its end to the High-street. The principal entrance is in the centre, but with a side entrance at each end of the front. The hall is an apartment 90 ft. long, 46 ft. wide, and 30 ft. high, and, exclusive of the platform, will seat 800 persons. The hall will be lighted by four large windows on either side, and two on the west, or platform end. On the first-floor is the saloon, or smaller hall, 46 ft. long by 24 ft. wide, and 20 ft. high. This room extends along the High-street front, and is lighted by five large windows to the street, and will form an assembly-room for ordinary meetings. On occasion of the large hall being used for balls, this would form the supper-room. Behind this room are three apartments for ladies' and gentlemen's rooms. Up another flight of the stairs is the museum, which extends to a length of 90 ft., and, by an adaptation of the Mansard roof, it will be divided into a series of bays or recesses along the sides, corresponding to the main couples of the roof, each recess being lighted up by a window, while the centre avenue of the Museum is lighted by three cupolas from above, and a triplet window in the west gable. The front to the High-street presents two stories in height, the doorway being recessed in the centre between Doric columns, with two windows on each side. The whole front is to be of polished aslar work, with plate-glass windows. The architect is Mr. James MacLaren, Dundee; and Mr. William Scott, Arbroath, is the contractor for the mason work; Mr. James Welsh, Wright; Mr. A. Wishart, Frickheim, slater; and Mr. D. Batchelor, Arbroath, plumber. The total amount of the contract is about 3,460l.

PROVINCIAL NEWS.

Romsey, Hants.—At a meeting of the Romsey Board of Guardians, held on Monday last, Mr. Bidborough, architect, attended with a design for the proposed new chapel for the use of the inmates, and which was approved and adopted. The building will be commenced immediately.

Plymouth.—The new convent in Wyndham-street has been completed. The building has been erected at a cost of 5,000l., defrayed by the lady superior of the community of Notre Dame. Mr. Joseph Hansom was the architect, and Messrs. Hallett & Jenkin were the contractors.

Walsall.—The foundation-stone of the new town-hall, Walsall, has been laid. The new edifice will be the third town-hall erected on the same site: it will cover the same area as the old one, but a much greater accommodation is afforded. The style is Italian, the chief façade being a composition based upon a study of the Doric and Ionic orders. The lower part is Doric, raised upon a rusticated and vermiculated plinth, and presents a centre slightly recessed, with two corresponding wings. The centre is flanked with three-quarter columns, and the wings with triple pilasters of the same order, supporting an entablature of the whole to be executed in stone. A mezzanine story has been introduced. The walling throughout is rusticated, and also the arches to the windows. The superior order is Ionic, forming an arcade in connexion with the wings of the five arches, the walling being executed in red brickwork. The main columns and pilasters are crowned with clusters of fruit and flowers, and so also are the arcade columns. The archivolts of the windows have moulded keystones, enriched with festoons of fruit and flowers. A niche will receive the statue of Justice from the old town-hall, and

above it will be the borough arms. The façade forming the Goodhall-street front is of the same character, to the extent of an arcade of three compartments: the remainder corresponds with the Free Library, which it is proposed at some future time to connect. The basement is occupied by thirteen cells, stores, heating apparatus, exercise yard, &c. The ground-floor comprises the court-room, witness-room, and the inland revenue office, the mezzanine floor being arranged for the grand jury room; the upper floor comprising the town council room, mayor's private room, town clerk's room, &c. The corporation offices comprise the weights and measures room, police offices, surveyor's offices, &c. The design is the production of Mr. G. B. Nichols, architect, West Bromwich, who designed the Free Library. For the buildings, which will cost 5,083l. Mr. Burdett, of Wolverhampton, is the contractor, and they will be erected under the superintendence of the architect.

Miscellaneous.—The Duchesse of Leeds has just laid the foundation stones of two orphanages at Pennybridge and Bletchingly, near Mayfield. The buildings will contain accommodation for 100 boys and the same number of girls. They are both in the Gothic style, and have been designed by Mr. E. Welby Pugin. The children who are received in these institutions will be provided for by her grace until they have been taught a trade. The cost of the buildings and endowment is estimated at about 70,000l.

CHURCH-BUILDING NEWS.

Hertford.—It has been determined, on plans prepared by Messrs. Smith & Son, architects, that the present pews in the area of All Saints Church shall be removed, and replaced by seats erected on one uniform plan, and fittings, at a cost of 900l.; and that one-third of the whole number be free and unappropriated.

Godalming.—The foundation stone of a new district church to be erected at Munstead has been laid. The church will cost about 3,000l., and we believe the cost of erection will be paid out of the Busbridge estate. Mr. Scott is the architect; and Messrs. Moon & Son, Guildford, are the contractors.

Freemantle.—Christ Church, Freemantle, which has just been completed, so far as the funds in hand will permit, has also been consecrated by the Bishop of Winchester. It is composed of a chancel, nave, and north and south aisles and transepts. The exterior is of stone, with Bath stone and red brick dressings; and the interior of white brick, with red brick square piers, arches, and dressings, the capitals being of moulded Bath stone, one being carved with a Lily, as a pattern, we suppose, for the decoration of all when funds shall be forthcoming. The roofs are open, of plain deal, and the benches of stained deal. The windows imitate the Decorated as nearly as any of the recognised styles of Gothic ecclesiastical architecture; but the heads present a heavy appearance, and there are no mouldings. The west window in the south aisle is a double lancet light, with a quatrefoil head, having, in stained glass, the Agnus Dei, the lights containing two figures with the text, "I am the Good Shepherd," and "Behold I stand at the door and knock." On each side of the south aisle entrance-porch are two small double lancet windows, containing the figures of St. James, St. John, St. Peter, and St. Andrew. At the end of this aisle, behind the seating of the choir in the chancel, is a double-light memorial window with a sexfoiled head, containing the representation of an angel ascending, with a babe in its arms. The lights have a series of figures, with the text, "Suffer little children to come unto me." There are six clerestory windows, three of a similar pattern on each side. The gas pendants, which are painted blue, hang from the centre of each arch.ittings are provided for 900 persons.

Rochford (near Tenbury, Worcestershire).—St. Michael's Church, Rochford, has been reopened. The edifice has been restored, enlarged, and refitted. Mr. Curzon, of London, was the architect; and Mr. H. Hewitt, of Tenbury, the carpenter; and Mr. G. Page, of the same place, executed the masonry. The church, which is chiefly of Norman work, and dated about 1150, is very small, and has a nave and chancel only, the chancel being separated from the nave by an ornamented arch. The old plaster ceiling has been removed, and in its stead a light open roof now presents itself. The western gallery has been taken away, and the nave extended

some 10 ft. westward, by means of which many additional sittings have been secured, and the church will now accommodate about 170 persons. A new plain glass window has also been placed at the west end. A new open-timbered porch of oak has been erected over the south doorway, and a new timbered bell-turret for two bells has also been erected at the east end, the turret being surmounted by a shingled spirelet. The chancel roof has been renovated and boarded underneath the timbers. In the east wall of the chancel a new window of stained glass has been inserted. The subject is the Nativity of Christ, by Messrs. Morris, Marshall, & Faulkner, of London, and was presented by Mr. Clarke, of Enfield, in memory of his deceased wife. A smaller stained-glass memorial window has been inserted in the south side: subject, St. John the Baptist; executed by Messrs. Heaton, Butler, & Bayne. The old pews are replaced by new seating. The sandstone used was procured from an adjacent quarry, and presented by the vicar; and the woodwork internally consists of stained deal, varnished. The cost of the restoration will be nearly 700l.

Defford (Worcestershire).—A new chancel has been added to the church of this place, at a cost of 250l., including a vestry. Messrs. Collins & Callis, of Tewkesbury, were the contractors, and Mr. Snellgrove clerk of the works. The new chancel gives 2 ft. or 3 ft. more length to the building. The old east window—a Perpendicular, three lights—has been reinscribed, and one of the old lancets in the north wall, the other windows being all new work. An open timber roof has been furnished to the chancel, and a pointed arch separates it from the nave, supported on dwarf marble shafts, resting on carved corbels. Open seats have been furnished for the chancel and upper part of the nave, and the floor laid with encaustic tiles.

Pattingham (Salop).—The parish church, which has for some time past been undergoing repairs and enlargement, under the direction of Mr. Scott, has been re-opened. For the old roof of the nave has been substituted a high-pitched open roof, covered with tiles. In the south aisle, besides the addition of the porch, the roof has been reconstructed; and the side and west windows filled with tracery corresponding in style with that at the east end, which is a four-light. The old stonework throughout has been repaired. The fittings are new, the seats being of the elbow pattern, without doors. The pulpit is partly of Caen stone, and partly of oak, with perforated panels and tracing. In the centre of the base is an octagonal shaft of Derbyshire marble. The aisles are paved with plain red and black quarry tiles, and a system of warming has been introduced. The peal of bells has been re-adjusted, and in part recast, by Messrs. Meares. The whole of the works have been performed by Messrs. G. & F. Higham, builders, Wolverhampton, who were selected without competition.

Boss.—Another advance towards the complete restoration of the church has recently been made by refilling three of the windows of the north aisle with tracery. These windows are of two lights each, and are of Early Geometric character. Early in the present century, the mullions and tracery were knocked out of these windows, the lower part built up with masonry, and the aperture thus formed glazed with square panes of clear glass, fixed to iron bars, a mode of restoration which seems to have commended itself so strongly to the parish authorities, that it was unhappily extended to the greater part of the windows in the church. It is fortunate, however, that some small pieces of the mullions and mouldings were left embedded in the wall, as these have been sufficient to give a clue to the original design, and to show that this part of the church must have been built during the latter part of the thirteenth century, in the time of Henry III. or Edward I. The cost has been defrayed by a parishioner, whose name has been withheld, and the work has been executed by Messrs. Pearson & Son, from the designs of Mr. E. Purchas, of London, architect.

Dulas (Herefordshire).—The chief stone of a new church has been laid at Dulas, near Pontrials, at the cost of Col. Feilden. The new church is to be erected on an elevated site, immediately parallel with that of the old one, and about one hundred yards distant. It will be built of local stone, with random rubble workings and Bath stone dressings. There will be an open Memel roof, covered with stone tiles. The church will consist of a porch, nave, chancel, and sacristy; and accommodation will be provided for eighty persons. The seats will be free. Oak stalls

will be placed in the chancel for the choir, and there will also be an altar-table and a moveable rail of the same material. It is intended to have an archway between the chancel and the sacristy in which an organ can be placed; and underneath the sacristy will be a heating chamber for warming the edifice by hot-water pipes. The church will be paved with Godwin's encaustic tiles, and the whole of the interior finished with hammer-dressed stone. The roof will be plastered between the rafters, excepting that portion over the sacristy, which is to be distinguished by a carved principal with a border of waggon shape on the under side. There will be a bell gable over the chancel arch for one bell. The east window is to be a three-light, and the west window a rose, placed over two small lancets. The windows on the north side of the nave are to be triplets, and those on the south side lancets. The whole character of the church will be Early English—plain and simple in detail. It is intended to restore and adapt some of the furniture of the old church. The font, too, which is Norman, will be restored and used in the new church. The cost of the work will be about 1,000l. Messrs. Elmalie, Francey, & Haddon, of Hereford, are the architects, and Mr. Thomas Santler, the builder.

Wismore (Herefordshire).—The church here has been restored and re-opened. The chancel has been re-arranged, and the altar-table raised and furnished with cross and lights. Some colour is given by wall-hangings. The chancel-arch is new. Mr. G. Bodley, of London, was the architect; and Mr. Mansfield the contractor. The cost of the restoration will be met by a loan of 500l., borrowed on the security of rates payable in twenty-four years, and by voluntary contribution.

Melins (Pembrokeshire).—The new church here has just been re-opened by the Bishop of St. David's. It is built on the same site as the old one, in a very secluded valley, from the designs of Mr. Withers, architect. The fabric consists of a nave 31 ft. by 17 ft. 9 in.; chancel, with an apsidal end, 20 ft. 4 in. by 14 ft. 6 in.; vestry and south porch, with a small bell gable over west end of nave. The material employed is the local limestone, with Box ground stone dressings. Quebec red pine is used throughout for all carpenters' and joiners' work, simply varnished. The style adopted is Geometrical Decorated. Sittings are provided for ninety adults, and the cost is about 500l. The builder was Mr. Hughes, of Newport, Pembrokeshire.

Chester.—The Lady Chapel in the cathedral, which has been closed during the last six weeks for the purpose of painting in mosaic the recesses (or lower part of the east wall), is now re-opened to the public. The mosaic has been executed by Messrs. Heaton, Butler, & Bayne, of London, under the direction of Mr. A. W. Blomfield, architect. It is 20 ft. long and 7 ft. high, and is supposed to contain nearly a million pieces of small squares of gold and enamel. The subjects (all on gold grounds) are the "Salutation," the "Annunciation," the "Birth," "Adoration," and "Flight into Egypt." The arms of the see are in the lower centre panel, but these will in time be hidden by the altar.

Altrincham (Cheshire).—The new district church of St. John, Altrincham, has just been begun. The site is the plot of land between the east end of the schools known as St. Margaret's, near the Bowdon Station and the Ashley-road. Accommodation is provided for about 950 persons, all of whom, except a few in a small gallery over the western porch, will be seated on the ground-floor. The plan consists of a broad nave of five bays, with north and south aisles, north and south transepts, and a large western porch; adjoining which, on the north, is the baptistery, which is marked off from the north aisle by a small triple arcade. On the south of this porch is the steeple. The chancel is of large dimensions, and terminates apsidally to the east. The seats are all open benches, with sloping seat-boards and backs. Places for hats, umbrellas, and books are provided. The arcades between the nave and aisles are of four arches each, of such width that there are considerably fewer pillars than usual for so large a church. The western gallery is not large, and comes over the porch, so that very few sittings are below it. It is so arranged that it shall not mutilate any window, arch, or other feature. The stairs to it are of stone, and the lower part of the balustrade is screened from sight from below. The style is Early Decorated. The material is stone, of three or four kinds for the outside, and for the pillars and other similar features inside. The contract

has been taken by Mr. Joseph Thompson, of Manchester, who is proceeding with the work under the direction of the architect, Mr. J. Medland Taylor, of Manchester.

Blackpool (Lancashire).—The foundation-stone of Christ Church, Blackpool, has been laid. Sittings for about 1,050 persons will be provided in the new edifice, the contract for which has been taken by Messrs. Knowles & Braithwaite for 3,450l., which includes the steeple and all the fittings complete. There is a broad nave with north and south aisles of two bays only, gabled transversely as a transept; a chancel, also with north and south aisles, the former of which is the vestry, and the latter the organ-chamber. At the western end of the nave is a porch with a wide double door. At the north-west corner is the tower, the basement of which serves as a north porch and as a staircase to the west gallery, which extends over the west porch. At the south-west corner is the baptistery. There are also galleries which do not project into the nave in the north and south nave aisles. Six external doors give ingress to and egress from the church, and the positions of these entrances are so arranged as that in stormy weather the doors to leeward only need be opened. A central and two side tiled passages up the nave give access to the seats, which are all open benches with sloping backs and seat-boards. The style of the church is Early Decorated. The walls are being built chiefly of red brick, with a facing of split granite boulders, and with windows and other dressings of Longridge stone. The east and west ends are lighted respectively by five and four light traceried windows. Elsewhere there are a circular rose window, several two-light traceried windows, and others lancets, single, or in pairs, and groups. The steeple has in its upper stage a belfry for six bells, and is covered with a steep-pitched quadrilateral slated roof. The church was designed by, and is being carried out under the superintendence of, Mr. J. Medland Taylor, of Manchester.

DISSENTING CHURCH-BUILDING NEWS.

Worcester.—The foundation stone of the new Presbyterian Church to be erected in Castle-street (Salt-lane), in this city, has been laid. The church will be in the Geometrical style. The principal front will have a central gable, five-light window with head tracery, and on the eastern side there will be a tower and spire rising to the height of 110 ft. The area of the floor will be 62 ft. 6 in. by 42 ft. 4 in., and the space will accommodate 460 adults, the galleries 180 adults and 140 children, making a total of 780 persons. At the south end there will be an apsidal recess for the platform and communion, and in the rear of the edifice a lecture-room and vestry. The architect is Mr. Bidlake, Wolverhampton; and the builders are Messrs. Wood & Sons, of this city.

Chester.—The Queen-street Congregational Chapel has been re-opened, after having been closed for thirteen weeks, for the purpose of cleaning and enlargement. A large recess has been erected behind the pulpit, over two new vestries, and approached by a short flight of stairs from the door of the deacon's vestry. A new organ is placed in the recess, which affords seats for a choir of twelve or fourteen persons. An arch, with cornice, surmounts this recess. The walls of the chapel, the ceiling, and the front of the gallery are painted French grey, tinted with a somewhat darker shade, and retinted in all mouldings with dead gold. The pews are of grained oak, as also those supporting the pulpit. The lighting is by one central and four lesser corner stars. Mr. T. Lockwood, of Chester, was the architect employed.

Scarborough.—The new Congregational Church, South Cliff, Scarborough, has been opened. The site, valued at 1,200l., was presented by Mr. Titus Salt, of Saltaire. The contract was entered into at the end of May, 1864, and although a total suspension of the work for a month, in consequence of a strike amongst the workpeople, took place soon after the building was commenced, the whole has been completed under fourteen months. The church, which stands in a very prominent position upon the South Cliff—exactly at the junction of several roads, and upon the highest point of the ground,—is in the Early Decorated style of Gothic architecture. It is built with nave, side aisles, and transepts, with an organ chapel as a continuation of the nave. At the south-east corner is placed the tower and

spire, 175 ft. in height. The side windows are three-light, filled with Geometrical tracery, deeply recessed, with shafts and carved capitals. The transepts are carried out the same height as the nave. The gables are finished with crocketed pinnacles. The transept windows are five-lights, filled in with moulded tracery. At the north end of the church are placed the vestries. These lower buildings are symmetrically grouped, and connected by an arcade with shafts and carved capitals. The benches are low and open. The roof timbers are exposed, and all the woodwork is stained and varnished. A small gallery over the entrance forms the only interruption to the perspective of the interior, with its moulded stone arches, and circular columns with carved capitals. The church is lighted by large coronas, suspended from the roof principals, decorated in colour, and by standard lights in the aisles corresponding with them. The circular windows at each end of the church, the clerestory windows, and the large transept windows, are filled with stained glass of Geometrical design. The church has been erected from the designs, and carried out under the superintendence, of Messrs. Lockwood & Mawson, of Bradford and London. The white stone is from Bolton's Whitty quarries. The stained glass has been supplied by Messrs. Wailes, of Newcastle; and the gas-fittings by Messrs. Skidmore, of Coventry. Mr. J. Barry, of Scarborough, was the contractor for the whole works; and Mr. Johnstone, clerk of works.

SCHOOL-BUILDING NEWS.

Highbury.—The chief stone of Highbury Wesleyan Chapel Schools has been laid, on a piece of ground adjoining the chapel, Holloway-road. Mr. Henshaw is the contractor for the work, and Mr. Quilter the architect.

Heybridge (Essex).—Mr. Walter Waring has given to this parish a school-house, as a memorial of his father, who for thirty-six years filled the office of vicar. The building is designed by Mr. W. Adams, of Maldon, architect; will be built of ornamental brickwork; and will be called St. Andrew's School, from the name of the church opposite to which it will be erected.

THE IRON TIES, CHICHESTER CATHEDRAL.

Sir,—In your notice of Chichester Cathedral, I observe that you remark that, in rebuilding, "iron bars tie the four arches of the tower together at the springing."

It was the very sagacious remark of Vignola, so long ago as the sixteenth century, that "*Che le fabbriche non si hanno da sostenere colle stringhe*;" a truly golden sentence.

I believe that to be a sound maxim, well worthy of the attention of every architect. I apprehend that the old builders would have scorned to erect masonry that needed iron ties to keep it together. Such ties may be all very well when an existing defect has to be counteracted, but to build new masonry in such a way as to need tying, is to act like the Chinese tailor who copied the patches in a European coat, thinking them part of the original tailor's work.

We all know that the spire of St. Bride's Church was nearly overturned by the exfoliation of iron ties used in its construction. A. Z.

LEAD PIPES.

I beg to call the attention of your readers to the regulations of the New River Company, in respect to the supply of water, which say that the pipe must be of lead. Now their own pipes are iron; and, there is an old adage, that what is good for the big goose cannot be so bad for the little gander. I have had my own pipes stolen twice, and am still compelled to fix lead again.

As this important monopoly supplies a large part of the city of London, it is quite necessary it should be perfectly understood that when you patronise the New River, you are bound to swallow a certain amount of lead with the draught that not inebriates but slowly poisons. I should certainly think that such a monstrous regulation as that is a fit subject for the consideration of the Board of Works.

I beg to add, cases of lead-poisoning can be detected by the blue appearance of the gums immediately next to the teeth.

LEX TALONIS.

CREMONA VIOLINS.

THE recollection of more than one interesting article in the *Builder* on the violin induces me to think that a suggestion for the improvement of the tones of violins may not be inadmissible to your columns. A friend of mine, who is an enthusiast in all that regards music, and amongst his numerous musical instruments has two Cremona violins, tells me that every peculiarity of the Cremona, with one exception, has been imitated, but without the obtaining of the fine tones for which Cremonas are celebrated. That one exception is in the varnish, a peculiarity of which is that it has not a resinous smell when heated, as other violin varnishes have.

Now a little reflection on the subject leads me to think that this last peculiarity of the Cremona violins may also be imitable; and in this way. It is a notable circumstance that frequently, after a violin has been played on, the resinous particles which fall from the bow arrange themselves on the violin in symmetrical curves, reminding one of similar curves in electrical or electro-magnetic experiments. Indeed, the friction of the bow upon the strings must, to a certain extent, develop electricity; and the connexion of electricity with sound is very obvious. Not only is the electric spark always accompanied by its own special sound, but we know that the most tremendous sounds ever heard by human ears are electrical: such is thunder or the sound of lightning.

May not the musical sounds of the violin, then, be to some small extent electrical? and may not the superiority of Cremona violins consist simply in this, that the varnish is not resinous but vitreous?

The electricities, positive and negative, themselves, by the way, used to be called the vitreous and the resinous electricity; and it was in the resinous amber, as every one knows, that electricity first of all was evoked and noticed by man as a special agency.

My suggestion, then, is, that the varnish of Cremona violins may be a flint varnish, composed of oil of flints, silicate of soda or of potash, or water-glass.

That a vitreous varnish will improve musical sounds there was evidence lately given in the *Builder* itself, where it was stated, in an article on church bells, that a peculiar mellowness of the tone of old bells was produced by the oxidation of the surface of the metal, forming a sort of glassy crust over it. Glass insulators, too, are said to improve the tones of pianos.

Not having either time or inclination to experiment on my suggestion, I present it to the public through the columns of the *Builder*, with this proviso, that should some one hereafter discover that a vitreous varnish produces a fine tone in violins, I shall be entitled to claim the suggestion as one that was first published in the *Builder*.

It is one, moreover, which leads to others, such as the probability that certain insulating materials, used where the fingers touch both violin and bow, and where the violin rests on the shoulder, may still further improve the tones of this favourite instrument. J. E. DOVE.

P.S.—Should any one experiment on the subject, it is to be hoped he will inform you of the result.

"RAIN GAUGES."

IN my former communication on this subject there is an obvious error. Instead of the cost of a rain-gauge being put down at fifteen shillings, it should be fifty shillings.

Already the effects of an inadequate water supply are being felt. Several manufactories and workshops in Lancashire are at a stand, and numbers of operatives out of work.

JOSEPH BRIERLEY.

"DIOCESAN ARCHITECTS."

Sir,—I wish some of your correspondents would inform us under what circumstances, and by what recommendation, the various gentlemen so styling themselves have been appointed. What powers have they really, and who gave them those powers? When this has been done, I may, perhaps, be led to state my own experience, in two or three cases, showing the result of these appointments (?) to the gentlemen so named, and to architects about them: to make evident, in fact, how "diocesan architects" affect architects of the diocese.

A CHURCH MOUSE.

HOLY TRINITY CHURCH, EDINBURGH.

Sir,—Upon reading your paper on "Edinburgh," and the account you there give us of the Church of the Holy Trinity, and the doings of the corporation of that city in relation thereto, the thought occurred to me that it might be practicable for some other community to secure so fine a sample of Mediaeval architecture to themselves and re-erect it in one of the many populous districts where church accommodation is so much and so loudly called for.

The cost of doing so would, of course, somewhat depend on the price to be paid for the stones in the first instance, and the greater or less distance to which they would then be removed; but, presuming the materials to be in a tolerably fair state of preservation, I should say that the expense of putting them together would not be equal to that entailed in constructing a far less commodious and less beautiful church. But, even if the cost of carrying out this suggestion should rather exceed the ordinary limits, we should be enabled to rejoice in the preservation of a very fine building for God's worship and our spiritual good in a time when money is too often little considered in other quarters and in the advancement of other ends.

ROBT. F. H.

LINCOLN'S INN FIELDS AND THE THOROUGHFARES.

IT was my intention to have directed your attention to this subject, but the letter from your correspondent "J. W." renders it now almost unnecessary. Beautiful and noble as are the "Fields," they are comparatively inaccessible to carriages: they can be reached from the West-end only by way of a very narrow thoroughfare—Duke-street—which terminates in a low and still narrower archway, under the Roman Catholic parsonage-house. Neither Duke-street nor the eastern end of Great Queen-street will be wide enough for the increased traffic when the new law-courts shall have been erected, and I was therefore sanguine enough to hope that the cutting through of Gate-street into Holborn was about to become a reality when the site at right angles to Messrs. Day's premises was cleared last year. I hear, indeed, that the site was offered as a free gift by Messrs. Day for this purpose, but that the Society of Lincoln's Inn was against the project. Nobody will blame Messrs. Day for utilising a site which the authorities have refused to accept. Oh, for a little of M. Hausmann's power! How good a little judicious use of it would be in London.

AN INHABITANT OF THE "FIELDS."

PEACE JUBILEE! ANGLO-FRENCH EXHIBITION.

Sir,—In the name, and on behalf of a committee of fifty workmen, who have spent much time and money in the promotion of a public undertaking, I respectfully ask your aid in making known the following. The "Golden Wedding" between France and England is to be celebrated in two ways. In the channel, in iron war vessels, amidst noise and smoke, with all the "pomp and circumstance of war," one Peace Jubilee (?) is to be held. The other will be at Sydenham, in the loveliest building in the world, where about a thousand skilled workmen are organising a display of the fruits of peaceful labour in honour of the same event. Here are thus to be reviews both of instruments of destruction and implements of production. If the first is appropriate and fitting to the occasion, we venture to think the second is not altogether inappropriate. Instead of going to war for an idea, a French and English committee of working men have, upon this occasion, gone to work for one—and that idea is, "From this time forward, Peace!"

A report has gone abroad which has been very injurious to us. It has been said that the Peace Jubilee at the Crystal Palace is a commercial speculation on the part of the company: an autumnal attraction, a sort of supplementary holiday. Allow me, sir, most emphatically to state that this is not the case. The Anglo-French Exhibition was begun, has been continued, and will be ended, without prompting or extraneous assistance, by men who are, in the usual and general acceptance of the term, working men. From their own pockets have the committee paid all preliminary expenses; and,

beyond a canvass for wealthy names to a guarantee fund—which has been very successful—patronage of every kind has been courteously and firmly declined. The Crystal Palace Company have let us a space, and in matters of detail have been most obliging; but our relations are strictly those of landlord and tenant.

Now, sir, we are anxious to see if the public will ratify the steps taken by the French and English committees, and, by coming to see our display, relieve us from a heavy responsibility. The exhibition will be opened on Monday, the 7th of August; and, without disrespect to the members of any class, we intend to open it ourselves. The English committee, with delegates from Paris, Lyons, Nantes, Rouen, and other French towns, will formally open the portion of the Crystal Palace containing the display at noon on the day named. We shall feel honoured to see public men of all parties present, and gentlemen willing to avail themselves of this invitation are respectfully requested to send their cards in at once. Trusting that our efforts in the direction of self-reliance will not be misinterpreted, and that you will forgive the length of this intrusion, I would only add that we are still receiving goods for exhibition.

ROBERT CONINGSBY,
Secretary, English Committee.

ESSEX ARCHAEOLOGICAL SOCIETY.

THE annual meeting and excursion of this society took place at Ingatstone. The Rev. L. Parkin read a paper on Mediaeval Brickwork in reference chiefly to the Tower of Ingatstone Church; and the Rev. L. Cutts followed up this paper with a description of many of the drawings on the walls of old works in brick. The members then visited the church, where a paper was read by the Rev. Mr. Parkin, on the building; and the Rev. Canon Last in the interior gave an explanatory statement as to the tombs of the Petre family. Omnibuses and other vehicles then conveyed the party to the Hall, the original seat of the Petres, as also the Roman Catholic Chapel, and a curious priest's hiding-place. The next point visited was Thoby Priory, at Mountnessing, now the seat of Mr. Vickerman, where the old monastic remains were inspected, and also some ancient coffins dug up on the domain. The party next proceeded to Blackmore church, where on the ground floor of the curious belfry the Rev. Mr. Spurrell read notes on Blackmore Church. Jericho House, close by, described in olden records as one of the houses of pleasure of Henry VIII., was explored, though the opinion was expressed that the present building is not the same as housed that monarch. Pursuing the tour, a short halt was made at Fryerning Church; and the party then proceeded to the Hyde, at Ingatstone, the seat of Mr. E. Disney, and rich in paintings. The last visit paid was to the curious little church of Margaretting, where the Rev. Mr. Spurrell read notes on Margaretting Church. The party then returned to Ingatstone, and closed the proceedings by dining together.

HOUSES FOR THE WORKING CLASSES.

THE Peabody trustees purchased the site of a pile of buildings known as Ward's-place, Essex-road, Islington, at that time densely occupied. The old houses were levelled, and the erection of a large structure, which is now rapidly approaching completion, was forthwith commenced. The building is constructed of brick, and is from a design by Mr. H. A. Darbishire, the builders being Messrs. Patman & Fotheringham, who, we are able to say from personal inspection, have executed the work exceedingly well. The buildings consist of four blocks of houses five stories in height, which will be let out in tenements of one, two, and three rooms, at an estimated rental of 2s., 3s., and 5s. per week respectively. Each block will afford accommodation for sixty families, or 240 in the aggregate. The attic of each block is paved with tiles from the Isle of Wight. There is also accommodation for washing, drying, &c., and at each end of the building is a cistern capable of containing 1,760 gallons of water. Everything has been done to render the sanitary arrangements complete in every respect. It is contemplated to erect workshops for the accommodation of the tenants on the east side of the blocks.

THE BUILDERS' BENEVOLENT INSTITUTION.

THE eighteenth annual general meeting of the subscribers and friends of the above Institution was held at the London Tavern on Thursday, the 27th ult., for the purpose of receiving the report for the past year, to elect the president and other officers for the year ensuing, and other matters connected with the welfare of the Institution. Mr. Thomas C. Lucas, the president, occupied the chair.

Mr. Harris (the secretary) read the following report:—

"The events of the past twelve months presenting no particular feature of interest to communicate to the friends and supporters of the Builders' Benevolent Institution, the directors content themselves in this report with assuring them that the interests of the charity are progressive and satisfactory. Two elections of pensioners have been held since the last report; the first in November, 1864, when 2 males and 1 female were elected from a list of 9 candidates; the other in May, 1865, at which 4 more were added to the number—3 males and 1 female—from a list of 11 candidates: total, 7 pensioners. The number of recipients is now 40—21 males and 19 females; and the amount paid to pensioners since the commencement of the Institution in 1847 to the present time is 9,814l. 3s. 4d. The directors have the satisfaction of stating that there is an increase in the annual subscriptions of 26l. 5s. 6d., and 859l. 7s. 8d. stock has been purchased in the Three per Cent. Consols, 770l. 5s. 9d. for the relief fund, and 89l. 1s. 11d. for the building fund: total, 10,722l. 18s. For the relief fund 8,102l. 17s. 7d. and 2,620l. 0s. 5d. for the building fund. The annual ball, held in February last, gave a profit of 84l. 16s. 6d., and the directors take this opportunity of thanking the hon. secretary, Mr. Joseph Bird, for his continued, kind, and efficient services. The sum received from this source since the first ball, given in 1848, amounts to 1,808l. 1s. 10d. There are, perhaps, few, if any, trades so subject to vicissitudes as that of the builder, and the directors earnestly appeal to all connected with the interests represented and relieved by the Builders' Benevolent Institution, for their charitable aid in support of their less fortunate brethren, and take leave to introduce for their kind consideration a suggestion made by the president, Thomas Lucas, esq., that a large addition might be made to the funds of the charity, were each of those gentlemen who have kindly contributed upon former occasions, either as subscribers or donors, to obtain 'one new annual subscriber;' by so doing the amount would be considerable, and enable the directors to greatly increase the sphere of their present usefulness, and elect, perhaps, the whole of the present deserving and necessitous candidates. In conclusion, they have the satisfaction of informing their friends and supporters that Joseph Rigby, esq., has kindly consented to become the president for the ensuing year; and avail themselves also of this opportunity to convey to Thomas C. Lucas, esq., their warmest thanks for his generous liberality and energetic support of the interests of the charity during his presidency of the Builders' Benevolent Institution."

On the motion of the Chairman, seconded by Mr. Plucknett, the report was unanimously adopted.

Mr. Joseph Bird said he wanted to bring before the members a subject which had been under consideration before, and that was respecting the amount standing in the name of the Building Fund. It had been resolved that when the amount reached 2,500l., a meeting of the subscribers should be called to say whether it should be merged into bricks and mortar or into the Relief Fund. Although the figures of the amount stood 2,613l. stock, that at 90, made only 2,340l., something considerably below the amount specified. The public ran away with the idea that they were dilly-dallying with the fund; but, as it had not arrived at the specified amount, they could not deal with it. He should like to satisfy the minds of the subscribers relative to that fund.

A vote of thanks was then passed to the patrons of the Institution, and the name of Mr. J. Hubbard added to their number.

Mr. Hall moved that the thanks of the subscribers be given to Mr. T. C. Lucas, the president, for his continued and energetic services during his presidency of the institution.

Mr. Plucknett, in seconding the motion, said

he personally felt indebted to Mr. Lucas for the liberality and spirit with which he had acted towards the Institution. The success of the past year had been owing to his exertions, and for many years the Institution had been indebted to the liberality of Mr. Lucas and his brother. He was not only expressing his own feelings, but the feelings of all present, in hoping that Mr. Lucas might live for many years.

The resolution having been unanimously carried,

Mr. Lucas returned most cordially his best thanks. He had done no more than his duty in supporting the Institution. It was not only an act of duty, but also of pleasure to support an institution which benefited the poorer members of the trade. Whether he was connected with the trade or not, this was one of the first institutions which would have a claim upon him. He would say that the Institution was much indebted to Mr. Plucknett, as no man had done more for it than he had. Whether they pulled together or not, he hoped to see the Institution for years to come as prosperous as it had been in past years.

Mr. Thorn moved that the thanks of the Institution be given to the treasurer, George Plucknett, esq., for his services, and that he be requested to continue his services for the ensuing year. He observed that Mr. Plucknett had served the Institution when his time was of great value to him. He hoped that for many years Mr. Plucknett might continue to be the treasurer to the Institution.

The motion was carried, and Mr. Plucknett said his connection with the Institution had given him much pleasure and satisfaction.

A vote of thanks was next passed to Mr. Bird, the hon. sec. of the ball committee.

The Chairman said they owed a debt of gratitude to Mr. Bird, the result of his exertions being the addition of a large sum to the fund.

Mr. Bird said, with respect to the case, he thought it was something which should be kept up, as in the summer the gentlemen had their dinner and the ladies expected a ball in the winter, which brought a number of subscribers into the fund.

The thanks of the Institution were then voted to the trustees, the directors of the Brighton branch, the auditors, and to the hon. solicitors.

The Chairman proposed that Mr. G. Rigby be the president for the ensuing year, and reminded the subscribers that there was an election coming off in November next.

Mr. Bird said there were now forty pensioners on the funds, which had been their largest number of recipients.

The motion was carried.

A vote of thanks having been passed to the chairman, that gentleman, in responding, expressed a hope that the suggestion he had thrown out last year, that each member would do his best to get at least one additional subscriber to the fund, would be followed out.

The proceedings then terminated.

ACTION ARISING OUT OF THE SUPPLY OF "QUANTITIES."

FUTCHER V. CLARKE.

At the Wilts Summer Assizes, Mr. Karlake (as reported in the *Salisbury Journal*) said the plaintiff in this case was Mr. Robert Futcher, who had carried on business as a builder for many years past in Salisbury, and the present action was brought by him against Mr. Clarke, who had established himself in Salisbury as an engineer and architect, and was employed by Mr. Robson, one of the guardians of the Earl of Pembroke's estates. The charge brought against him was that he had supplied Mr. Futcher with certain bills of quantities, which, from his want of skill, had not been properly calculated, and from which Mr. Futcher had sustained considerable damage. When the jury came to consider the case, which he would shortly refer to them, they would see that in consequence of the inaccuracy of these quantities, Mr. Futcher had a right to say he had sustained great damage. In September, 1862, by an advertisement which appeared in the *Salisbury Journal*, it was stated certain work was to be put up for public competition, for builders and others, to send in tenders to contract for. The work to be executed was the pulling down of an old and erecting a new homestead, together with a pair of cottages. On the advertisement appearing, it was stated

that applications were to be made to Mr. Clarke, of whom the plans and specifications might be had. When Mr. Bentlif, Mr. Fletcher's clerk, went to the architect's office, Mr. Clarke would not allow the plans and specifications to be taken away from the office, but told the clerk that he always provided bills of quantities himself, which would be found accurate, so as to enable persons to send in estimates as to what they would do the work in question for. Mr. Bentlif said he should like to see the plans and specifications, but Mr. Clarke told him he could not have him in his office, but that he would supply Mr. Fletcher with bills of quantities at a charge of 35*l*. Accordingly Mr. Fletcher agreed to this proposal, and Mr. Clarke sent in the bills of quantities, stating that "these quantities were carefully taken out, but were not guaranteed." Had there been any slight discrepancy, the plaintiff would have had little cause, perhaps, to complain; but the amount was so large that the plaintiff, he thought, was justly entitled to damages. After receiving the bills of quantities, Mr. Fletcher went through them carefully, and affixed against each sum the price which had been given to him, and sent in his tenders to execute the work at a sum of 1,415*l*. At an interview between Mr. Fletcher and Mr. Clarke, subsequent to the sending in of the tender, the latter had pledged himself that the quantities he had given would be found correct, and the contract was signed on the 29th of December, 1862. Some time after the contract was signed, the defendant was appointed architect for the work. The plaintiff at the outset of the work discovered that the quantities were extraordinarily incorrect, and saw Mr. Robson with respect to his going on with the work any further, as he was then working under heavy losses. It was afterwards agreed that the contract should be made out at the sum of 1,624*l*. Instead of this sum meeting the expenditure of the builder, he (Mr. Karlake) was prepared to show that the prime cost of the work was over 2,359*l*. This action was therefore brought to recover the difference between these sums. As Mr. Clarke had made out the quantities for Mr. Fletcher, and gave out himself as being a skilled architect, and received remuneration for the work, he was liable for the damage which his neglect had caused. It would be a question of great detail; but he trusted they would give it their serious attention, and he would have no difficulty in proving the case in favour of his client.

His Lordship.—Mr. Karlake, do you think you can?

Mr. Karlake said he could not disguise from himself the difficulty there would be in entering so deeply into these details. He had no objection to refer it.

Mr. Cleveridge would have been ready to agree to that course; but as fraud had been imputed to the defendant, he was bound to go into the case.

It was agreed, after a short conversation between the attorneys and counsel, that the count alleging fraud should be withdrawn, and a verdict for the plaintiff was recorded subject to reference.

LIGHT AND AIR CASE.

ROBSON v. WHITTINGHAM.—VICE-CHANCELLOR'S COURT.

THIS case was argued on the 19th and 20th ultimo, when his Honour, Kindersley, reserved his judgment. The plaintiffs, Messrs. Robson & Harris, were the owners of the house No. 17, Took's-court, Curstow-street, Chancery-lane, which they let to a wood engraver, and he underlet to a law-stationer and a boot-closer, himself occupying the first floor, and of course requiring the greatest light that could be obtained, and the others more or less a good light. The defendant was a printer just opposite, the width of the court being some 15 ft. or 16 ft. at that point. In August, 1864, the defendant pulled down his house and built a new one in the place of it, as was alleged, to a height of 5 ft. or 6 ft. above the original elevation; and not only so, but filled up laterally an open space which had existed to the north of it, a wall only rising 14 ft. of such space as the erection originally stood. The house being, in fact, built, after some correspondence, this bill was filed for an injunction, necessarily, therefore of a mandatory nature,—that is, if any relief was obtained, according to the old practice of this court, involving the pulling down such erection; but,

by the recent rules, being made a question of compensation by damages. A number of affidavits had been filed in the question of the diminution of the access of light and air occasioned by the new building, with plans and a model. The defendant contended that the damage was so inappreciable that it was not a case for damages at all.

His Honour now referred to the facts, and said that he had carefully considered the evidence and plans, with the assistance of the model, and was of opinion that the damage was not trivial; and that, if an action were brought, substantial and not merely nominal damages would be obtained. There must be the usual reference to chambers to inquire the amount of the damage, which, when ascertained, must be paid by the defendant, together with the costs.

CASES UNDER METROPOLITAN BUILDING ACT.

Walls.—At the Hammersmith Police-court, Mr. Thomas Slatery, of Keith-terrace, Uxbridge-road, was summoned by Mr. Knightley, the district surveyor of Hammersmith. It appeared that the defendant had departed from the original plan in the erection of the building, by adding another story, the Act requiring in that case a different thickness of the walls. The defendant denied that he had built an additional story, as the rooms were only intended as box rooms in the roof; but he admitted that there were windows in them, and that they could be used as sleeping-rooms.

Mr. Ingham made an order for the defendant to make the two end walls and back walls 13 in. thick in fourteen days, and to pay 2*s*. costs.

Wooden Buildings.—Mr. H. J. Cheese, of the "Brewery" Tavern, New-road, was summoned for erecting a wooden building in his grounds, contrary to the terms of the Act. Mr. Knightley said the erection of wooden buildings in the district was a source of great annoyance and trouble. He had caused several to be pulled down, and therefore he could not excuse the defendant. He believed it had been put up by the defendant to accommodate persons who used his grounds. He was willing that the building should be retained until the end of the season, and then to be pulled down. It was contended for the other side that it was not a building within the Act of Parliament.

Mr. Ingham mentioned that several cases of the kind had been brought before him, and he held that every structure which was fixed in the ground was a building within the meaning of the Act.

The magistrate then proceeded to the grounds, where he was met by the parties on both sides; and after inspecting the structure, he decided that it was a building, and made an order for its removal on the 1st of November next.

Penalty for not giving Notice.—At the Thames Police-court, Mr. William Howard, builder, of Chancery-street, Covent Garden, was charged, on a summons, with commencing the building of a church in the East India-road, at the corner of Upper North-street, before giving notice to the district surveyor.

Mr. J. H. Goode said the new church which the defendant had contracted to build was in the parish of All Saints, Poplar. Considerable progress had been made in the construction of the sacred edifice, which would be an important addition to the churches of the metropolis. It was being erected under the auspices of the Diocesan Church Building Society. No notice had been forwarded to him by the defendant, in compliance with the terms of the Building Act, and there had not been any inspection.

The defendant's foreman said he had been to the district surveyor's office, and could find no one there on whom to serve a notice.

Mr. Partridge said the defence was one he could not receive. It would have been very easy to forward a written notice by post, or put it in Mr. Goode's letter-box. He fined the defendant 5*l*. and costs.

Size of Manufactories.—At the Greenwich police court, Captain Blakely, of the Blakely Ordnance Company, Greenwich Marshes, and Messrs. Aird & Son, builders, of the Belvedere-road, Lambeth, appeared to summonses, at the instance of Mr. E. F. Browne, the district surveyor for Greenwich, charging them respectively with erecting certain buildings without party walls, the cubical contents of which exceed 216,000 cubic feet, contrary to the provisions of the Metropolitan Building Act. The buildings in question consist of the works of the Blakely Ordnance Company, and a resort-house being erected by the Messrs. Aird for the Phoenix Gas Company, and it was stated on the part of the district surveyor, that he had only brought the present cases forward in the

strict performance of his duty, as required by the Act of Parliament.

Captain Blakely urged that his worship would consent to adjourn making any order in the case until the Metropolitan Board of Works should be enabled to obtain the passing of an Act in the next session of Parliament, placing it within the power of that Board to sanction such buildings as those now complained of. It was the intention of the company themselves to have obtained such an Act in the last session, but they were persuaded by the Metropolitan Board of Works not to do so, as that Board had then a bill prepared containing a clause which would meet the case, but which bill had unfortunately, through some cause or other, not been introduced.

A gentleman who represented the Phoenix Gas Company made a similar request on the part of Messrs. Aird, observing that prior to 1856 the gas companies had the power of leaving such cases to the decision of referees; and that as it was a question which affected all the great gas companies in the metropolis, he should be prepared, if the Metropolitan Board of Works did not bring forward their proposed bill, to agitate the gas companies, and to obtain a private Act of Parliament of their own.

Mr. Maude said he had been waiting year after year, expecting such an Act of Parliament to be passed. The question had before been brought before that court, and the difficulties in carrying on trade by marine engineers had been found so great under the provisions of the Act of Parliament referred to, that they (the marine engineers) had applied to Parliament, and now possessed a bill which exempting them from the particular provision of the Building Act upon which the present complaints were founded. He should have no objection to adjourn the summonses, with the consent of the surveyor, for the purpose named, and his advice was not for any private Act of Parliament to be applied for and obtained, but that those interested in obtaining an alteration in the law should press their claims upon the authorities in Spring-garden, and thus obtain the passing of an Act applying to the metropolis generally.

The summonses were then adjourned, as understood, *sine die*.

BULL'S GARDENS, CHELSEA, AND THE FIGS.

SIR,—There is great rejoicing in Chelsea. Bull's Gardens have been cleared of their pigs! Bull's Gardens-green, and its immediate neighbourhood, should be constantly watched by the inspectors, for such streets as Caroline-place, Smith-street, Ives-street, &c., are anything but up to the mark in sanitary matters, though the pigs are to go. The fear which comes over me is, that the pigs may come back with the cold weather, and that by next year there may be as many as ever; yet Mr. Selfe's decision seems to be conclusive that pigs shall not be kept in Bull's Gardens. Mr. Arnold, on the 14th of May, 1862, ordered the removal of the pigs from No. 14, Bull's Gardens, and yet they came back; and a fortnight since there were no less than fifteen pigs at that one house, in a wretched hovel built out in front. I wish you could spare time to inspect the place.

THE PERSON WHO LODGED THE COMPLAINT.

THE DUST-HOLES.

A CORRESPONDENT asks attention to a subject on which we have again and again spoken, the necessity of preventing the accumulation of decaying matter in the dust-bins, often the source of disease in a house. The writer points to the Rag Collecting Brigade as a legitimate medium for the utilization and disposal of these commodities, which are either wantonly wasted, or made the means of unauthorized profit. "Sanitary inspectors" or "inspectors of nuisances" should be empowered to enter premises in order to ascertain the state of the dust receptacles, and report if need be: there is no necessity to deposit anything in the dust-bin but ashes; and, with good management, the kitchen refuse can be disposed of without the aid of the "PIG-TUB DEALER." With a due regard to economy, and a consideration for the wants of the poor, the odds and ends can be used in a variety of ways, besides making excellent soup. At any rate, keep the dust-bin clear.

ACCIDENTS.

IN excavating recently near Sheffield, a couple of labourers were buried beneath an immense mass of earth which had unexpectedly broken away. The bodies were extricated with all haste, when one of the men was found to be dead, and the other most severely injured. This land-slip is believed to have been caused by the unsuspected presence of a small spring of water.

The building of the South Shields new theatre has had rather an inauspicious commencement, the process of excavating the foundation having resulted in endangering the adjoining building, the gable of which has fallen, while a considerable part of the rest of the house was left in such a state that it might fall at any moment. The foundations had been partially undermined by the excavations.

The accident at the Gateshead Cement Works has been followed by an inquest on the bodies of the two persons who lost their lives by the bursting of the water-tank. Mr. John Lamb, the borough engineer, said the cement was defective, owing to bad sand. The bricks, too, were soft,

but the cement had not set sufficiently. A long waste-pipe had been substituted for a short one, thus increasing the weight of water from 13 to 20 tons, and the pressure burst out one of the sides of the ill-cemented tank. Other evidence was led, and the jury returned a verdict to the effect that the deaths arose through injuries received by the bursting of the tank, which was imperfectly constructed, and gave way under the weight of water put into it.

At a coal-pit, near Wigan, two men were employed in the shaft, when the brickwork that lined the sides began to fall in, and before the men could be hauled up, the weight of falling bricks broke the rope that held the platform on which they stood. The men were precipitated to the bottom, and covered with the fallen material. They were taken out dead.

MUSIC AND THE STAGE.

Royal Gallery of Illustration.—A third season of Opera di Camera will be inaugurated on the 14th of this month, with two novelties in the shape of an opéra (the libretto by Hamilton Ayde) by Miss Virginia Gabriel, and one of the most popular of M. Offenbach's comic pieces. The latter, in addition to a great success in Paris, is recommended to an English audience by a libretto from the pen of Mr. William Brough. The action takes place in the Flowering Land, in which a Scot sighs to return to the Land o' Cakes; and the opera is entitled "Ching-Chow-Hi, or a Piece of China."

Mr. Mellon's Concerts.—At the Royal Italian Opera-house, Covent Garden, Mr. Alfred Mellon will commence his fifth annual series of concerts on Monday evening next. A special feature will be the production of a grand orchestral selection from Meyerbeer's latest *chef d'œuvre*, *L'Africaine*. Mademoiselle Carlotta Patti, Mademoiselle Liebhart, Signor Ferranti, Mademoiselle Marie Krebs, Signor Bottesini, and two young female violinists are amongst the engagements.

The Haymarket.—Mr. Walter Montgomery has collected a very good company, intending to play the legitimate drama, with burlesque for after-piece. The public were glad to see him and Miss Heath in the "Lady of Lyons."

St. James's Hall.—Conjuror Anderson has added to his company a clever mimic and ventriloquist, Mr. Frederic Maccabe, whose performances evidently please, and deserve to do so.

Mills Van der Meersch's Birds.—And very clever little birds they are. Although the *modus* is simple by which they answer all questions, namely, pecking out the right card from a bundle in a tray, who shall tell, save Mademoiselle, the pains, art, and patience that have been used up in teaching it to them? These birds and their mistress are an additional inducement to visit the Polytechnic.

RECENT PATENTS CONNECTED WITH BUILDING.*

WINDOW SASHES.—*W. Holbrook.* Dated March 31, 1864.—The patentee claims the method of controlling the rising and falling of window sashes, wherever applied, by the application of biting rollers on the surfaces of circular or semicircular india-rubber, together with the arrangement of counterbalancing the weight of heavy sashes, as above described.

MACHINERY TO BE USED IN THE MANUFACTURE OF ENAMEL WARES.—*B. Baugh.* Dated December 29, 1864.—The patentee claims, first, machinery in which the powdered glass or enamel is carried in a hopper or receptacle travelling over the articles to which the enamel powder is to be applied, the enamel powder being shaken from the said hopper by a series of blows given to the said hopper; also the modification described of the said parts. Secondly, machinery in which the articles to which the powdered glass or enamel is to be applied are supported on an endless band having an intermittent motion, the powdered glass or enamel being dredged on the articles by means of an inclined sieve, having a vibratory or reciprocating motion. Also the modification described of the said parts.

IMPROVEMENTS APPLICABLE TO FIREPLACES FOR HEATING APARTMENTS.—*W. E. Newton.* A communication. Dated November 21, 1864.—This invention consists in making the fire-dogs which

ordinarily serve only to support the fuel, the media for the supply of heated air, and its transmission into the apartment. For this purpose these dogs are made tubular instead of solid, as heretofore, throughout their whole length, and are open at both ends; the air enters cold at one end, and, on becoming heated during its passage under the fuel, issues in a heated state into the apartment, and is constantly replaced by a fresh draught of cold air passing through the tubes to be heated.

SUPPLYING WATER TO WATER-CLOSETS AND OTHER PLACES IN REGULATED QUANTITIES.—*T. Thompson and J. Murray.* Dated June 28, 1864. The water for the time to be used flows from a reservoir or other source to the interior of a spherical or other close chamber, through passages capable of being closed by a sliding cover affixed to the chamber, to which is also affixed the cover of other or outlet passages in communication with the pan of the closet or other place to be supplied. The sliding of the chamber in one direction admits water therein, while the air escapes by a float-valve from this chamber, until it is filled with water, and then the water acts on this float-valve to close it and retain the chamber filled. But on moving the chamber in the opposite direction, the inlet passages for the water thereto are closed, the air-valve and the outlet-passages for the water are opened, and the water flows from the chamber, and so on. The size of the chamber is the measure of the quantity of water employed each time of action, and, as such, the apparatus must be employed with a suitable index to indicate the times of motion for measuring water or other fluids. The chamber may be stationary, and the sliding motion be given to internal supply and outlet tubes, or cover or other valves may have motion given to them simultaneously through the chamber.

Books Received.

A Catechism of the Steam-engine, to which is prefixed an Introduction descriptive of all recent Improvements. By JOHN BOURNE, C.E. New edition. London: Longman & Co. 1865.

Recent Improvements in the Steam-engine; being an Introduction to the Catechism of the Steam-engine. By JOHN BOURNE, C.E. London: Longman & Co. 1865.

BOURNE'S "Catechism of the Steam-engine" is so well-known a treatise, and has passed through so many editions, that it needs no further recommendation as a reliable standard work. In this fresh edition the contents have been revised, so as to include the latest improvements in engineering practice, and the author has added an Introduction of nearly half the size of the work itself, in which he has endeavoured to collect all the most recent and valuable information connected with the steam-engine in its present most eligible developments. Numerous examples illustrative of recent progress in every class of engine have been introduced, so that the woodcuts in the Introduction considerably outnumber those in the original work. This Introduction has also been published separately, under the second of the titles which we have given, so that the possessors of previous editions of the Catechism, who do not desire the newer work, can have the Introduction as a separate treatise.

Homes without Hands; being an Account of the Habitations of various Animals. By the Rev. J. G. Wood, M.A., F.L.S. With very numerous illustrations. London: Longman, Green, Reader, & Dyer, Paternoster-row.

This curious and interesting work is now complete. Beginning with the simplest and most natural form of habitation, namely, a burrow in the ground, the work proceeds in the following order:—2nd, those creatures that suspend their homes in the air; 3rd, those that are real builders, forming their domiciles of mud, stones, sticks, and similar materials; 4th, those which make their habitations beneath the surface of the water, whether salt or fresh; 5th, those that live socially in communities; 6th, those which are parasitic upon animals or plants; 7th, those which build on branches. The last chapter treats of miscellaneous, or those habitations which could not be well classed in either of the preceding groups. Mr. Wood has produced a valuable volume. The illustrations,

which are profuse in number, are new designs, by W. F. Keyl and E. Smith, engraved on wood by Messrs. Pearson.

Miscellaneous.

NARROW ESCAPE OF THE LANGHAM HOTEL.—At the Langham Hotel, in Portland-place, smoke was, one day last week, seen issuing from one of the apartments. An immediate alarm was given. The firemen upon their arrival found that the intense heat caused by one of the sun-reflectors had ignited the ceiling and joists of the first-floor. The fire was happily confined to the apartment in which it originated.

SANITARY STATE OF BIRMINGHAM WORKHOUSE.—The recent outbreak of English cholera amongst the inmates of this workhouse has forcibly drawn the attention of the guardians to the evils occasioned by overcrowding, drainage, and ventilation. The official report of the Poor-law inspector, according to the local *Gazette*, confirms the unbiassed testimony of independent witnesses, that the workhouse is not in exactly the state that a model workhouse ought to be. The tramp wards are overcrowded; the probationary ward is not sufficiently ventilated; the main corridor, which is supposed to ventilate several of the dormitories, has not an open roof, and is effectually blocked up—for all purposes of ventilation—by the school buildings at one end, and the infirmary buildings at the other; the fever wards are badly ventilated; the old men's dormitories are overcrowded; and there is a privy in the yard immediately underneath the windows; in addition to which there are closets which discharge their effluvia into the dormitories; the nursery, too, is very much overcrowded, and not well ventilated. The board of guardians now await a report from their architects as to the cost of providing additional accommodation.

IMPROVED SURFACE CONSTRUCTION OF STREETS. Mr. Mitchell, C.E., Inverness, has been engaged in a series of experiments for constructing the surface of streets and roads subjected to heavy traffic, and is about to lay down a specimen of an invention of his in London. Mr. Mitchell formerly had the charge of the Parliamentary roads and bridges in the northern counties of Scotland, and has had many years' experience and practical knowledge of this subject. The wretched state to which the streets and thoroughfares of London are reduced in a wet day by mud and slush, suggested the possibility of adopting a material which, while it should be impervious to heat or wet, would retain sufficient resistance for the traffic brought upon it. Mr. Mitchell, therefore, contemplates constructing a solid rock-like road of a composition of broken stones, Roman and Portland cement, and sand, forming a complete road, fit for traffic in twenty-four hours, and not liable, it is alleged, to any disagreeable change from wet, although always retaining enough of dust to prevent slipping either while wet or dry. Mr. Mitchell has secured the right to his invention by patent.

ANOTHER CHANCE FOR AERIAL NAVIGATION. A flying machine is in process of construction at Hoboken for the United States Government. It is a cigar-shaped canoe, built of copper, with iron ribs, and was intended for use in the war, but will still be proceeded with. An engine is placed in the centre, with sufficient power to work a screw fan with 20-ft. blades. There are four fans connected with the engine—one below, one above, and one at each end. The upper and lower fans are worked together to produce an ascent; and the terminal fans are made to revolve together or separately in the same direction, or in opposite directions, for the purpose of propelling the craft horizontally. The weight of the whole, fully equipped and manned, is about 6 tons. It is claimed by those upon whose recommendation the machine is constructed, that it can be guided through the air with as much ease as a vessel through the water. This is conditional, of course, to some extent, upon the wind. An accomplished Government officer is superintending the work, and hopes to have it done in a month, when the pretensions of the new flying machine will be tested.—The machine noticed on a previous occasion has made an ascent from Cremona, and is believed to have been successfully steered at will, but we have seen no official report as yet of the result. Another ascent is to take place on Monday.

* Selected from the Engineer's Lists.

Gas.—The Wisbech Gas Company have declared a dividend of 9 per cent. for the last year, clear of income-tax; and the Boston Gas Company one of 8½ per cent. The Northampton Gas Light Company have reduced the price of their gas to 4s. per 1,000 cubic feet. At their annual meeting of the Newcastle-under-Lyme Gas Company, the chairman said that, although the company had reduced the price of gas to 30 per cent., and was now giving out nearly 3,000,000 in a new gas-work, and extensions in connexion therewith, they hoped at no very distant period to be able still further to reduce the price, and that without doing injustice to the shareholders. A dividend at the rate of 10 per cent. per annum was declared. The Taunton Gas Light and Coke Company have declared a dividend of 8 per cent. for the last year, free from income-tax. The annual report says, "the price of gas had been lowered from 5s. 6d. to 4s. 6d. per 1,000. Whilst the supply had increased, the amount paid into their exchequer by private consumers had also increased by the sum of 1,325*l.*; but instead of the gas being of the illuminating power of ten candles it was equal to fifteen candles. When they first took to the gas-works the leakage was nearly 25 per cent.; but in consequence of the alterations and improvements made it was under 6 per cent."

WORKSTER MODEL DWELLINGS ASSOCIATION. The annual meeting of this Association has been held at the Guildhall, Sir Charles Hastings presiding. The report of the proceedings during the last twelve months states that the financial position of the Association was not quite so satisfactory as last year, but the balance in hand would enable them to return a similar dividend, namely, 2 per cent. In October last a malt-house in Warmstry-alip had been purchased, and the Association's property thus rendered more complete and valuable. The rents of the tenants continued to be paid with punctuality. The mortality in the buildings had been somewhat larger than usual. The report was adopted, and a dividend of 2 per cent. on the capital for the year declared. Sir Charles Hastings suggested that the Corporation should be invited to co-operate, and that with their aid and comparatively valueless property might be converted into sanitary dwellings for the poor.

REPORT ON HOLBORN DISTRICT.—The ninth annual report of the medical officer of health to the Board of Works for the Holborn district has been printed. In this report Dr. Gibbon says:—"For the past three years, a high rate of mortality has prevailed in our district, as well as throughout the metropolis. In 1862 we had an epidemic of low fever, in 1863 of small-pox, and in 1864 one of measles, which last epidemic carried off 98 persons. On a comparison of the Mortality Tables, it will be seen that the excess of deaths (169) last year over those of the previous one occurred under the following heads:—measles, 77; tubercular diseases, 46; infantile diarrhoea and pneumonia, 21; congenital syphilis, 9. The 1,421 deaths were thus distributed: 574 in St. George the Martyr and St. Andrew's, western sub-district; 357 in St. Andrew's, eastern; 272 in the Saffron-hill; 34 in the liberty of Glasshouse-yard. These are in the proportion of 28.8 per 1,000 of the inhabitants of the first-named district, 31.0 of the second, 22.5 of the third, and 23.4 of the last. These rates are only relatively correct. In no previous year has there been such an access in the mortality of females (742) over that of males (679); last year they differed only by 1, but this they are in the proportion of 23 males to 25 females; while that for all England is 23 males to 21.6 females. As regards the ages at death, nearly 45 per cent. of all deaths were amongst children under 5 years of age. This is about 1 per cent. higher than the proportion for the whole of London, and 5 per cent. above that of England. The deaths under two years of age are more numerous than usual; in 1863 they amounted to 376, this year to 428."

CHEAPENING OF FOOD.—A new incubator for hatching the eggs of poultry and game birds, the subject of a patent by Mr. Mizani, is being talked about. The heat necessary for the incubation and rearing of the young chickens in the earlier stages of their growth is derived from gas, or from the combustion of naphtha in a lamp so constructed as not to require attention for many days. The heat so generated warms a reservoir of water, the underside of which is corrugated in a very ingenious manner, so as to support, by the aid of wires, a series of small narrow sandbags, against which the eggs are pressed. The Field says,—"The close contact of the whole of the eggs (whatever may be their variation in size) with the warm sand is insured by their resting on cushions of spiral springs; these are contained in drawers or sliding trays, which can be easily drawn out from under the incubator for the purpose of examination. As the eggs hatch they are removed to a part of the apparatus above the reservoir. This is most ingeniously constructed: there is a small tray for the chickens until such time as they are thoroughly dried and strong, when they are passed under a kind of artificial mother, which is peculiarly constructed in imitation of the plumage of the hen: it consists of a number of wooden wicks, each about 4 in. in length: these hang down loosely between the legs of low stools placed over the warm reservoir. The chickens nestle between the pendant locks of wool, which thus form an imitation of the warm feathery plumage of the parent hen. Connected with this part of the apparatus is a large feeding-cage, into which the chickens run for food, water, and exercise." An "artificial mother" is rather a good notion. The invention may, perhaps, be carried farther one day for the benefit of some of the poor children in our streets.

HISTORY OF COKE.—The following advertisement, given in *Notes and Queries*, fixing the period when coke first came into public use in this country, will no doubt be acceptable to any future historian of our coal trade:—

"There is a sort of Fewel made by Charking or Calcining *Wescott* coals which burns without smoke, without fouling the furniture; and altogether as sweet, much more lasting and profitable than Wood or Charcoal; it kindles suddenly, and is useful either for Chambers, Roasting of Meat, Drying of Malt or Hops, Woolcombing, Distilling, Pressing, or any such like employment. His Highness the Lord Protector, with the advice of his Council, have encouraged and authorised the making thereof in order to the preservation of the Woods of the Nation.

If any shall desire to make tryal of it for any of the use aforesaid, which will cost little or nothing the experiment, they may repair to London at *Northumberland Wharff*, near *Charing Cross*; and according to the satisfaction they receive therein, they may be supplied from time to time with what quantity they shall have occasion to use.

Those that have made tryal of it, finde it very profitable to all those uses abovementioned. It is also very useful for the Tobacco Pipe burners."—*Public Intelligence*, No. 139, from Monday, August 16, to Monday, August 23, 1668, p. 764.

This advertisement appears also in the succeeding number for August 30, but apparently not in any of the previous numbers.

REPORTS OF HEALTH OF LIVERPOOL.—The reports of Dr. Trench, the medical officer of health for the borough, for the March and June quarters of the present year, have been printed. During the March quarter, according to these reports, the total deaths amounted to 4,717, being an increase of 615 on the corrected averages of the corresponding periods of the preceding ten years, and making its death rate equal to 40 in the 1,000 per annum. Of these deaths, 1,771, or 37.5 per cent. were of children under 5 years of age. Zymotic diseases occasioned 1,386 deaths, being an increase of 510 on the corrected averages of the last 10 years, and 372 above the number registered in the same quarter of 1864,—a year of great sickness and mortality. Typhus fever occasioned 735 deaths, or 52.5 per cent. of those from zymotic diseases, being an increase of 553 above the average for the last 10 years. During the June quarter, the total deaths were 3,708, or 31.52 in the 1,000 per annum: 39.1 per cent. were of children under 5. Zymotic diseases occasioned 1,014 deaths. Of these, typhus and infantile fever caused 619 deaths, or 51.1 per cent. Tradesmen, better off than labourers, began to appear very largely in the death register from fever: there were 227 tradesmen and 211 labourers. A surgeon and a relieving officer had died of fever.

TENDERS

Accepted for building five houses on the London-road, South Leweston, for Mr. G. Augustus Balls. Mr. W. Oldham Chambers, architect:—

Bricklayer's, Plasterer's, and Slater's Work.	
Rix & Son	£254 0 0
Carpenter and Joiner's Work.	
Tuck	620 0 0
Plumber's, Glazier's and Painter's Work.	
C. Whinop	120 0 0

For alterations and additions to premises in Arthur-street West, for Mr. Lloyd. Mr. E. Nash, architect:—

Colls & Son	£391 0 0
Axford & Son	870 0 0
Greenwood	675 0 0

For villa at Stone, for Mr. William Saben. Mr. Chapman, architect:—

Barratt	£1,199 0 0
Bostock & Wood (accepted)	1,021 1 7

For farm-buildings, at Burton, near Stone, for Mr. W. Stubbs. Mr. Chapman, architect:—

Wood	£272 0 0
Barratt	626 11 0
Thorley	62 15 6
Barlow (accepted)	570 0 0
Turner	515 0 0

For alterations and additions to Budgeingham House, Avenue-road. Mr. Thomas Harris, architect. Quantities supplied by Mr. H. Saxon Snell:—

Macey	£1,087 0 0
Hale (accepted)	897 0 0
For alterations and additions at 6, Austin Friars, for Messrs. R. B. Butler. Messrs. Wimble & Taylor, architects:—	
Hill & Son	£2,400 0 0
Hart	2,353 0 0
Adamson & Son	2,197 0 0
Colls & Son	1,163 0 0
Hardiman & Sandon	2,129 0 0
Holmes	2,069 0 0
Morter	1,895 0 0

For stabling and coach-house, dwelling-rooms, &c., at Waddon. Mr. John Bernay, architect:—

Lose (accepted)	1,215 0 0
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For the superstructure of a building for chambers, in Chancery-lane. Mr. John Blyth, architect:—

Canon	£20,567 0 0
Hack & Son	20,300 0 0
Fatman & Fotheringham	20,196 0 0
Piper & Wheeler	19,997 0 0
Myers & Son	18,687 0 0

For alterations and additions to Grove Hall Lunatic Asylum. Mr. James Tolley, architect:—

Hill & Keddell	£1,300 0 0
Williams	1,293 0 0
Dorset	1,273 0 0
Perry & Co.	1,255 0 0
Hedges	1,239 0 0
Ennor (accepted)	1,197 0 0
For house at Beulah Hill. Mr. S. Dyball, architect:—	
Seymour (accepted)	£2,750 0 0

For villa at Upper Norwood. Mr. S. Dyball, architect:—

Sawyer	£1,743 0 0
Buck	1,683 0 0
Tarrant	1,600 0 0
Seymour (accepted)	1,631 0 0
Seymour (accepted)	1,375 0 0

For building a new Wesleyan Chapel, High Wycombe, Bucks. Messrs. Wilson & Wilcox, architects:—

Phillips	£2,388 0 0
Hobson & Layton	2,354 0 0
Reavell & Sons	2,375 0 0
Pierce	2,172 0 0

For building new house and stabling, at Binfield, Berks, for Mr. G. Lake. Mr. C. Smith, architect:—

Kendal	£4,100 0 0
Matthews	3,960 0 0
Woodruff	3,788 0 0
Simcock	3,763 0 0
Reavell & Sons	3,600 0 0
Biggs	3,390 0 0
Pilberr	2,965 8 4
Woodwell	2,700 0 0

For a villa at Pangbourne, Berks, for Mrs. Brendon. Mr. F. Newman, architect:—

Brown	£1,650 16 s
Levin	1,593 0 0
Brant	1,460 0 0
Sawyer	1,408 0 0
Reavell & Sons	1,379 0 0
Biggs	1,349 0 0

For chapel with school-room, and minister's house, at Croydon. Quantities not supplied. Mr. J. F. Mathews, architect:—

Chapel and school-room.	House.	Total.
Ward	£1,049 0 0	£394 0 0
Sheppard	1,055 0 0	350 0 0
Room	965 0 0	376 0 0
Crouch	985 0 0	287 0 0
Price	898 0 0	291 0 0
Hall	850 0 0	275 0 0

For alterations and repairs at the Crown Arms, Marshall's Golden-square, for Mr. Fleck. Mr. Eushell, architect:—

Saunders	£289 0 0
Foley	247 0 0
Wicks	245 0 0
Hyde	235 0 0

For building clergy residences at St. Paul's, Knights-bridge:—

Carter	£9,820 0 0
Clements	8,215 0 0
Macey	8,217 0 0
Pennington	7,887 0 0

TO CORRESPONDENTS.

H. E. L. (we cannot interfere in private disputes).—M. (ditto).—P. C. (Black has arrived).—J. J. B. (all right).—M. A. B.—G. M. P. S. (reply has been sent).—D. & Co. (old inhabitant).—E. W. L. (plaintiffs of the want of courtesy shown to competitors in the Swansea Infirmary competition).—F. G. (Charing Cross).—A. M. Messrs. S. T. H. (we are not able to recommend the material named).—K. & E. J. B.—G. W. T.—D. W. C.—W. R. C.—P. R. W.—J. B. P. M.—E. M. T. B.—J. F. M.—B. & Sons.—J. W. R.—M. C. W. H.—W. C. (next week).—J. B.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

The Builder.

VOL. XXIII.—No. 1175.

The Anglo-French Exhibition at the Crystal Palace.



HE "Peace Jubilee, 1865," or Anglo-French Working Class Exhibition of Skilled Work, was opened at the Crystal Palace on Monday, with a ceremony of inauguration, which took place in the central transept. The works exhibited are placed in one of the galleries in, and extending northward from, the transept. The arrangements on

Monday were marked by some of that incompleteness which has characterized each of the International Exhibitions; but the ceremony, however deficient in any *prestige* of names, had a peculiar interest: there were plenty of objects in the gallery deserving examination; and the number of these will have since increased,—many of the French contributions, on the opening day, being still unplaced. The Exhibition is stated to be promoted by working men, mainly, if not altogether; though we may say, that in the Paris Committee we find a considerable proportion of literary working-men, *rédauteurs* of journals, and of managers of societies and associations. Considering that the members of the English Committee generally are persons who cannot easily withdraw attention from daily labours, great credit is due to them, as well for the manner in which the conception has been realized, as for the idea itself. They say,—“To celebrate the fiftieth anniversary of peace between two powerful nations, in a manner at once appropriate and suggestive, is an idea for which we have gone—not to war,—but to work!” and judging from what was said on Monday by the few speakers who represented the French working-men, many of whom, however, were present, the idea was fully entered into by them.

The ceremony of the opening was conducted under the presidency of Mr. Herbert Maudslay. It took a religious character at the commencement. A prayer was offered up by the Rev. Dr. Emerson, wherein, after our own Queen, the Emperor of the French was named. The chairman then spoke; and the secretary read a letter from Mrs. Cobden, expressive of what would have been her husband's sympathy with an undertaking “designed to support the cause always so dear to his heart, of international peace and good-will, and so honourable to the men by whom it was originated, and by whom it is being carried out.” Mr. Coningsby, the secretary to the English Committee, in remarks following, said that the exhibition had been begun and carried out *bonâ fide* by working men, without patronage from any one; and that he hoped one of the effects of such undertakings

would be to break down the prejudices between classes, which were almost greater than those between nations. We had much to learn in this respect from what was to be seen in France, where master and workman could meet together,—the fault in our country being generally as much on the side of the workman as on that of the gentleman. In one respect, however, he thought the French might well imitate us—namely, in not allowing politics in public life to interfere with private friendships and discussions in social matters. He expressed a hope that all would unite in the proposition, which had been made by the committee, to invite the French exhibitors to a dinner at the Crystal Palace, and that in another year they would be able to organize an Anglo-Franco-American exhibition by working men.

M. Edmond Potonié, one of the French secretaries, and who is also one of the editors of the French co-operative journal, “*L'Association*,” next addressed the meeting in French as follows:—

“Mesdames and Messieurs,—Je me suis d'abord excusé de ne pas savoir assez l'anglais pour prononcer mon discours en cette langue. C'est avec un bien vif plaisir que nous avons en France reçu la délégation des ouvriers anglais, et que nous avons accepté de prendre part à la fête industrielle et pacifique à laquelle nous étions conviés. Avec les ouvriers anglais les ouvriers français sont heureux de célébrer l'anniversaire des 50 années de paix qui vient de s'écouler, qui préparent une paix plus complète encore; car il faut espérer qu'avec le temps nous bannirons même la crainte de la guerre et qu'alors les ruineuses et liberticides armées permanentes ne viendront plus comme un nuage assombrir la lumineuse paix de l'avenir.

“Pour cela il faut que les manifestations du genre de celles qui nous réunissent aujourd'hui se multiplient, il faut, peuple anglais et peuple français, saisir chaque occasion de vous serrer la main, car nous en sommes persuadés une seule chose est nécessaire pour que vous vous estimiez, que vous vous aimiez, une seule chose est nécessaire pour dissiper toute crainte de guerre future entre vous, français et anglais, et rendre inutile la paix armée qui fait dépenser à l'Europe stérilement des milliards qui, employés productivement, amélioreraient rapidement le bien-être social. Cette seule chose, c'est de mieux vous connaître.

“Voilà pourquoi nous ne saurions trop applaudir à l'exposition ouvrière Anglo-Française, et à l'aide de tous nos efforts; car tout en cimentant l'union par l'intérêt, en multipliant les échanges (les échanges qui sont la sauvegarde de la paix) elle donne cette occasion aux deux nations de mieux se connaître, donc de s'estimer mutuellement et de s'aimer. Si nous célébrons aujourd'hui et nous félicitons des 50 ans de *paix armée*, espérons que grâce aux expositions, et à tous les autres rapports que nous pourrions avoir, nous pourrions bientôt célébrer la paix fructueuse et véritable qui n'est pas appuyée sur les dispendieux armements.”

M. Potonié was followed by Mr. Henry Maudslay, who referred to the Dublin Exhibition as an instance of the successful labours of working men, and drew a contrast between the efforts of different nations to construct, at enormous cost, formidable ironclads, which were a terror to each other, and the peaceful and beneficent labours of the men who contributed to exhibitions of this kind.

There was also a speech in English by M. A. Talandier, of the College at Sandhurst. He said:—

“Few words are necessary when one has merely to express that which every one else feels and thinks. The origin, the aim, the spirit of this undertaking are clear and present

to the minds of all here. This is one of those exhibitions which one of your greatest statesmen, W. E. Gladstone, so happily and tersely styled the ‘festival of labour.’ But this one is something more than a festival of labour; it is also a festival of friendship and amity between two nations who, mostly, in former times, distinguished themselves by the tremendous wars they waged against each other. Rivals, I am afraid, we must be. The very word of rivalry, which etymologically means the state of those who dwell on opposite shores, points to the fact that naturally the position of England and France is one of rivalry. Let us then be rivals; but let that rivalry henceforward exert itself on the fields which industry, science, and the fine arts open to all.”

Referring to some portion of the previous proceedings, wherein he seemed to consider there had been political allusions, he said:—

“We are not met here to celebrate the glory of emperors, but the glory of labour, the glory of the people. Our aim is a perfectly definite one. We are here to celebrate the deeds not of the destructive, but of the creative spirit; not of the hating, but of the loving heart; not of the slaying, but of the feeding hand. More particularly, we are here, you Englishmen and we Frenchmen, to abjure our national hatreds and our long-standing prejudices, and to declare that the working classes of both countries have resolved never more to raise against each other a fratricidal hand. Long life, then, to this holy alliance, and may it be the harbinger of a still greater and holier one—the fraternal alliance of all the nations of the earth.”

After the translation had been read of a French song written for the occasion, the Hallelujah chorus was played on the organ, and the Exhibition was declared opened.

The Exhibition at present contains about a thousand objects, as numbered in the first edition of the catalogue; but we are told that the French exhibitors alone, at present not much more than fifty as the names are printed, will shortly amount to four or five hundred in number. Furniture, both the English and the French, forms the most conspicuous feature in the gallery; though, of course, the collection does not make up a fiftieth part of the extent of that of 1862. The productions, however, are exhibited by masters, as the French and Swiss manufacturers having establishments in London, rather than by workmen; and they are not good representatives of the French art-manufactures. Mr. Phillip's elaborate piece of work, the “Golden Eagle,” is in the gallery. One of the most interesting groups of objects, for our readers, is the collection of specimens of plumber's work exhibited by Mr. Lovegrove, plumber, of Spring Grove. There are specimens of lead-piping and joints of different dates, including work of the 14th, 15th, 16th, 17th, 18th, and 19th centuries. Mr. Robinson, of Fenchurch-street, exhibits some good enamelled slate chimney-pieces; and with them an arrangement for lavatory-basins, placed in the re-entering angles of divisions, that take a zigzag form on plan. Some capital turned-wood balusters are exhibited by Mr. T. G. Oiley. The illustrative model of Mr. R. B. Greenwood's improved means of preventing accidents upon railways deserves attention. Ordinarily the flanges of all the wheels of the carriages and engines on railways work inside the rails; but by the new system, out of six wheels, two, those in the centre, would have the flanges outside the rail. There is also a modification in the “points” for crossing, and there are other inventions explained by the model, each for a similar object.

The Exhibition will well repay a visit, even considering it apart from those noble aims of its promoters which are just now especially prominent.

RESTORATION OF CHURCHES IN ROME.

THE charm attaching to Rome's ancient basilicas is one felt by the imagination rather than acquiesced in by the judgment or taste. Presenting the only Christian style at all noble or impressive, that has ever been originated in this city, these edifices are, for the most part, plain even to sterility, more or less grievously injured by pseudo-restoration and mediocre artworks, sombre and forlorn in aspect, sometimes bearing the evidence of years of desolation and neglect; yet still so marked by a character of their own that, once seen, they cannot be forgotten; and, as illustrations to Christian history, their importance cannot be overlooked. In several of these old churches have been carried out, within recent years, works aiming at improvement or repair, in some instances (though not indeed always) directed with more intelligence than the wretched attempts of reconciling the ancient with the modern Italian style, whose results must be deplored in the local architecture of the sixteenth and seventeenth centuries. Since the completion of similar works at the extramural basilica of St. Laurence, the most noticeable of such undertakings still in progress are those at two of the more interesting among this characteristic class of monuments.—St. Maria in Trastevere, a basilica whose origin dates from the third century; and St. Prassede, on the Esquiline Hill, dedicated to the daughter of the Christian senator Pudens, the friend and host of the two apostles who founded Christianity in Rome.

The more conspicuous of these two churches, on the right bank of the Tiber, is the largest in that curiously-characterized quarter of Rome, and occupies the site of a primitive place of worship (probably but a small chapel) ascribed to Pope Calixtus I., who is said to have had it built about A.D. 222, after permission obtained from the Emperor Alexander Severus, through that memorable decision mentioned by Lampridius, which determined in favour of the Christians against the suit urged by the *poginarii* (tavern-keepers) for the right of occupation with intent, on the part of the former, to consecrate the ground in question. "*Quem Christiani?*" says that historian, "*quendam locum qui publicis fuerat occupasset, contra poginarii dicerent, sibi eum debere, rescriptis, melius esse ut quomodoque illic Deus colatur quam poginarii dedatur.*" But it is doubtful whether either the founding by Pope Calixtus or the date 222 can be assumed as historical with regard to this primitive edifice. The first authentic notice of a church on its site occurs in the acts of a council held by Pope Symmachus in 499, and under the name *titulus Sancti Julii*, ascribing to Pope Julius I. (337–354) the origin of the Transiberine basilica, afterwards raised to such conspicuous rank. Another tradition that seems, indeed, thoroughly admissible, is that respecting the preference of the early Christians for this site, under the belief in a legend that, in the time of Augustus, when the *taberna meritoria* (military hospice) stood here,—a building, perhaps, confounded with the *taverna* of later origin,—took place a miraculous event shortly before the birth of Christ: a fountain of oil gushing from the ground, and continuing to flow copiously from hence into the Tiber for one day; this being interpreted, as we find in the pages of Eutropius and Orosius, into a heaven-sent prognostic of His coming, who was pre-eminently the "anointed," from whom new blessings were to flow for the consolation of humanity; and to this day the legend has its written record in the actual church.

Whether or not this was the first church in Rome dedicated to the Virgin Mary, it may be held certain that in the year 340, Julius I. either founded or rebuilt it: that that earlier edifice was first restored by Gregory II., about 707, and about thirty years later entirely renewed from its foundations by Gregory III.,—who adorned its interior with paintings,—still, it seems, on a plan limited to a single nave; for we read that the two aisles were first added later in the eighth century, by Adrian I., the tribune and choir raised on steps, and a confessional, or crypt chapel, below the high altar, formed by Gregory IV., about 843, when the bodies of the Popes Calixtus and Cornelius were transferred hither from the catacombs. How defective was the masonry of those ancient constructions, we may infer from the report of Anastasius that, by the year 855, both portico and baptistery had become ruinous, and were rebuilt under Pope Benedict III. The chief restorer of this church was Innocent II.,

who, in the year 1139, shortly after the death of his rival, the antipope Anacletus,—therefore during one of the brief periods of repose enjoyed in his stormy pontificate,—undertook the complete rebuilding, which he did not, however, live to see brought to its accomplishment, though so far advanced as to allow him to consecrate the high altar; the works being subsequently resumed under Eugenius III. (1145–1159), and the entire church for the first time consecrated, perhaps in some details embellished by Innocent III., towards the end of the same century; and it is the structure of this period that still stands, with its distinguishing features and rich mosaic ornamentation, fortunately preserved from the twelfth century, now undergoing a restoration by the architect, Count Vespignani, whose results, seeing what similar enterprises have led to in the present aspects of Rome's churches, we cannot but fear may prove prejudicial to the olden dignity hitherto characterising the Transiberine basilica.

The very interesting mosaics on its apse and façade had suffered much, it is reported, before two successive restorations, one in the year 1702, the other ordered by Leo XII., between 1823–1829, and effected under the superintendence of Camuccini. Under Clement XI. had been carried out other restorations of architectural details, among which the most conspicuous modern addition was the actual portico, built in 1702, by Carlo Fontana, who probably preserved some of the granite columns from the antique compartments corresponding, to re-erect them in their present places.

We may, however, consider those treasures of Mediaeval art still left, essentially unaltered, to this fine old church. Below the summit of the gable-headed façade extends a very curious series of mosaics, begun either under Innocent II. or Eugenius III., and finished in the latter years of the thirteenth century, by the celebrated Pietro Cavallini,* their subjects,—at the entrance, the Virgin with the Child enthroned, and laterally ten females, of stately bearing and richly vested, some crowned, others veiled, all carrying large lamps, and approaching, five on each side, towards the throne of Mary; immediately beside which are, kneeling, two much smaller figures, in pontifical vestments, one with a blue, the other with a red chasuble over the priestly alb; probably intended for the two Popes Innocent and Eugenius; this whole composition reminding of the parable of the Ten Virgins,—yet that such cannot be the subject intended, though perhaps actually the artist's inspiring idea, seems evident in the circumstance that all the lamps are burning, except three, in the vessels carried by this fair company, and that all are alike distinguished by an aspect serenely devout as they draw near, evidently for worship, to the Virgin Mother with her Child. Another Madonna and Child, in mosaic, of equal antiquity, occupy a space under a marble canopy at the highest story of the tower, one of those fine examples of the square brick-built campanile, with arcade windows and terra-cotta cornices, of which there are several in Rome, ascribable to periods between the eighth and twelfth centuries. The interior of this church has a sombre majesty, a gorgeous gloom fraught with memories of the past that impress and fascinate; but we speak rather of what it was than what it is likely to become in the result of the works now disturbing its consecrated repose. With colonnades sustaining architraves, high aisles pierced by narrow arched windows, flat ceiling painted and gilt in coffers, elevated presbyterium and transepts, isolated high altar, and mosaic-clothed apse, where stands the antique episcopal throne of marble with Pagan chimæres chiselled on the arms, the whole interior has hitherto seemed a genuine monument of Rome's Middle Ages. Twenty-two columns of red and grey granite, most different in proportions, with capitals in part Ionic, in part Corinthian, all alike with the basements, inverted to their shafts, divide the nave and aisles; the architrave above surmounted by a frieze of classic

* Cavallini, born at Rome, 1279, was a pupil of Giotto, distinguished both in painting and mosaic, and principally engaged in this city; no fewer than 1,300 pictures being ascribed to him by some writers; his best performances in fresco, and among these to be classed, with honourable mention, two of "The Annunciation," on the walls of the atrium of the church above described,—both distinguished by grace and feeling; and in one is introduced the figure of a bishop carrying a banner, seated beside the Virgin; this singular novelty in the treatment of such a subject being explained by the supposition that Pope Calixtus I., as the church's original founder, is here introduced.

fragments, alike arbitrarily pieced together, portions of the cornice being all classic, and of the richest description. On the Ionic capitals are singular details, being the small heads of deities (assumed to be Isis, Serapis, and Harpocrates)—which, indeed, seems but conjecture in relief between the volutes. The pavement, of the time of Innocent II., is among the most beautiful examples of the *opus Alexandrinum*, or *intarsio*, in coloured marbles, porphyry and serpentine the most conspicuous, laid in circles, squares, hexagons, and bands, to be seen in any of Rome's churches; and we much regret to learn that this entire pavement is to be taken up, in order to lowering the whole interior levels, even though the assurance is given that its ancient material will be preserved and design reproduced in the proposed renovations. The mosaics of the twelfth and thirteenth centuries still occupy their original place above the tribune arch, within and laterally to the apse, on that higher surface over the vault, representing the four well-known symbols of the Evangelists, each holding a jewelled book (details set aside by later art); and at the centre, over the keystone, the cross with A. and W.; at the squaroids, the colossal figures of Isaiah and Jeremiah, each holding a scroll that displays words from their prophecies referring to the birth of Christ. Within the apse is the most striking and splendid mosaic group. The Son embraces the Mother with his right arm, and holds in the left hand an open book, showing the words, *Veni electa mea, et ponam in thyronum meum*; while she displays a kind of tablet, with the text from the Song of Solomon,—"*Lexa ejus sub capite meus*," &c.; and on either side are figures forming a stately group, of treatment admirable indeed, considering how early the art-period. Innocent II. (pontifically vested, but bare-headed, holding the model of his church), St. Lawrence (in rich deaconal vestments, with a back-slung cross), Calixtus I. (with a book), St. Peter (with a scroll), the Popes Cornelius and Julius I. (both with books), and Calepodius, a martyr, whose remains are in the confessional chapel below. In this group the pontiffs are alike vested in embroidered chasubles and stoles, but not mitres; St. Peter, in white robes of classic fashion, with the mystic tau on the hem of his toga-like mantle. Beneath is another series of mosaics, on a smaller scale, all ascribed to Cavallini, and supposed to be of about the date 1290: their subjects, the Birth of Mary, the Annunciation, the Nativity, the Adoration of the Magi, the Presentation in the Temple (or Circumcision), the Death (or, rather, Funeral) of Mary, attended by all the Apostles; at a lower level, within the curve of the apse, another group, comprising the half-length figures of Mary with the Child, SS. Peter and Paul on each side, and below, presented to the Virgin by the former apostle, a kneeling personage, with name inscribed,—*Beroldus Filius Petri*,—this being the portrait of Beroldo, son of Pietro Stefaneschi, who was major-domo to Pope Nicholas IV. at the time he ordered this *ex voto* picture, as well as all the others in mosaic of Cavallini's execution on the lower walls of the apse. In the foreground to that of the Nativity is the subject introduced as accessorial, of the miraculous oil-fountain, which appears gushing from below a tiny mansion (the *taberna*), and flowing into a river near the foot of a hill, this being explained by one of the lines of the poetic complements inscribed underneath all those mosaics on the lower range.*

As to types of countenance in these compositions, the larger heads display a degree of individuality and expressiveness remarkable for the period of the work: the Saviour's head, with dark hair and short beard, sternly characterized; the Virgin's, soft and pleasing, with long fair hair escaping from her jewelled diadem.

To report further on the works now progressing at this basilica, the interesting nature of which alone can justify us in bringing a subject otherwise so far from new before our readers: it was in the last winter this undertaking was commenced by order of Government, and with the designs of the architect so much engaged by Roman authorities. Much remains still to be done, and activity does not seem to flag in the prosecution of the task. Already has the interior assumed quite a new aspect,—less interesting, as it strikes us, than formerly. That beautiful pavement has been in great part re-

* Much better than in the originals may these minute details be appreciated, in a series of coloured drawings from the principal mosaics of Rome's churches, done by commission of Cardinal Barberini, in 1640, and now at the library of that family's palace.

moved, and the level lowered; a new lighting has been secured, by enlarging and adding to the number of the arched windows along the attics; and above the portals three such windows, instead of the single one formerly in their place, now contribute to dispel the harmonious twilight that used to prevail. The intervening spaces of the entire attic are divided by fluted pilasters and arched aisles, these to be eventually adorned with fresco-painting, not yet in any instance commenced, nor (we apprehend) likely to prove in accordance with the more antique features of this sacred building. The coffered ceiling, one of the most splendid examples of its kind, from designs by Domenichino, is also undergoing some renovation of its profuse gilt and coloured details.

As it is determined considerably to lower the entire pavement, and that fine old *intarsio* work has been already in great part taken up, we now see brought to light an interesting feature of the church anterior to the twelfth century, and at the same time a proof that even at that latter period a modernising taste had begun to sacrifice the distinctive features of Rome's earlier basilicas. Where the inlaid marble surface has been removed, near the present choir, are displayed below its level the foundations of the original chancel, advancing from the high altar nearly to the middle of the nave, with projecting wings on each side for ambones,—proof that the construction of this inclosed apartment must have been similar to that preserved to this day, happily unaltered, at St. Clemente, on the Coelian Hill (of the eleventh century), and, no doubt, like the latter, surrounded by marble screen-work with rich chiselling, affording ample space for the *schola cantorum*, in which choristers and clergy were entirely separate from the laity at worship. We may infer that it was in the church of the eighth century these features entered with such conspicuous character into the architectural plan, disregarded, with little of taste or intelligence, indeed, in the restorations of Innocent II.

The actual edifice is rich in sculptured monuments, of dates ranging between the fourteenth and sixteenth centuries. Especially noticeable among them is one, under a canopy, with recumbent statue and reliefs, to Cardinal Philip d'Alençon, nephew of the French king, Philip le Bel, and deceased 1397. This work, together with a richly-sculptured altar near it, erected by the name d'Alençon, in honour of SS. Philip and James, being given in engraving by Agincourt, and referred by him to the sculptor Paolo Romano, of the fifteenth century; though French critics (see the *Beschreibung Roms*) assume the altar to be the earlier, the monument a later and comparatively inferior art-work. Another monument, of the sixteenth century, has a bas-relief on the enamel, the Annunciation, said to be from a design of Michelangelo; and above this is set into the wall a specimen of very different art, here indeed inappropriate, but intrinsically valuable, two antique mosaics, attached though not belonging to each other; one a marine view with barks, fishermen dragging nets, dolphins, a portico on the distant shore; another representing aquatic birds, designed and coloured with much freedom and effect; both said to have been found among the ruins, or at least on the site, of the *taberna meritoria*, where invalid soldiers were quartered, and therefore referable perhaps to an early date under the Empire. It is satisfactory to perceive that the various monuments in this church are not likely to be exposed to any danger or disturbance from the works now progressing. St. Maria in Trastevere is a striking example of the somewhat barbaric magnificence and systematic spoliation of the antique, with and by means of which the Medieval popes raised such splendid temples for cathedral-worship; but it may be doubted whether the edifice invested with its characteristic features by Innocent II. will gain either in religious grandeur or symbolic beauty through the renovations under Pius IX.*

THE ART-UNION OF LONDON.—The Exhibition is now open. It contains paintings in oil and water-colours, and works of sculpture, that deserve examination.

* In a modern Italian "Guida di Roma," by Melchiorri, the theory is fearfully advanced that the supposed miraculous flow of oil on this site was a mere natural phenomenon; and to the credit of Rome's censorship, otherwise so utterly indefensible and hopelessly infatuated, it must be recollected that the voice of reason was thus allowed to make itself heard.

FROM ALTON TOWERS.

THE collection of works of art here, in aid of the funds for completing the erection of the Wedgwood Institute, and covering its face with chromo-ceramic decorations, has been open some weeks, and yet there is no catalogue of its most important feature, the assemblage of Wedgwood ware; while the list of paintings and drawings that is published is incorrect and poor. The management evidently has not been first-rate. Still there are many good things collected; and we sincerely hope, for the sake of its object, that the result will be satisfactory in a financial point of view. Amongst the Wedgwood works, Mr. Majoribanks's chimney-piece, composed of plaques of the ware let into white marble, the former wonderfully well preserved, crisp and beautiful, will give pleasure to all examiners. So, too, will the terra-cotta head of Flaxman by himself, and, as illustrating the admirable man at the bottom of the whole, Sir Joshua's picture of Wedgwood, and Fontana's bust of him. Two portraits of Flaxman, one by Derby, the other by the Academician Jackson, are widely unlike each other, but are both good pictures. The Chancellor of the Exchequer has sent a wonderful ewer of crystal and jewels; and Mr. Beresford Hope, who has set his heart on finishing the proposed Institute in ceramics, lends a few of his rare things to aid and brighten the collection. The South Kensington Museum is the chief contributor, and has done right well: some of the works by students, flower paintings, and has yet sent out. Mr. Leighton's Nicola Pisano (now executed in mosaics at Brompton), stands out finely; and many of the best water-colours are lent by the Museum.

Most of our readers will recollect that Alton Towers (Staffordshire is the county) is a modern Gothic pile, commenced at the beginning of this century, and continued by Pugin. We were about to say finished by him, but that would not be correct; for, the great hall remains half done, the handsome roof wall painted and gilt, the woodwork below, and the fireplaces, waiting completion. The house, for the most part, was dismantled by the antiquarian, unluckily, some few years ago; but the rooms themselves are quite sufficiently interesting to justify a visitor in getting admission to them. The time may come, let us hope, when the rooms will be again filled with rare and noble objects. The family motto scattered here and there over the building, says,—"*Prest d'accomplir*," we accept it as an omen.

Touching the grounds, we must use very much stronger language than in the case of the house: they are perfectly charming,—the Eden of Staffordshire. A wonderful irregularity of level, equal to mountain and valley; bright smooth sward and glittering water; a countless variety of exquisite and often rare trees; prim Italian gardens, and elsewhere a glorious wildness of affluent and most vigorous nature, conspire to make a whole scarcely to be surpassed. A forest is given on arriving at the railway-station, where an unfinished convent on the opposite side of the valley, high upreared on a rocky cliff, and embowered in foliage, makes a scene more like one on the Rhine or the Danube than in an English county. But the visitor must wait till he reach the terrace next the conservatories, and gaze thence into the valley below and up the sides of the hill above, before he can fully appreciate the beauties of this most lovely morsel of green and leafy England.

CYCLOPEAN MASONRY, AND THE BUILDINGS OF JERUSALEM.

IN the course of the articles that have appeared lately in our pages, on Mr. Fergusson's views concerning the Holy Sepulchre, mention was made of the masonry of the Haram. Some account of the masonry of the same description, and that which is analogous, may therefore be interesting to those who have not at hand, the works of Dodwell and others, and particulars of the researches in Palestine, of M. E. Renan, as given in the *Moniteur* about three years ago, and mentioned by us at the time. M. Renan paid particular attention to the rebated masonry, regarded as Phœnician.

The most ancient masonry of which any remains exist at the present day, is that which is found in the walls of one or two cities of Greece and Italy, unless indeed the Pyramids be ex-

cepted. The fortifications of Tiryns and Mycenæ, places noticed by Homer as famous for their strength, and to which he gives the appellations of *εὐρυστοιχος* and *ρεγίονος*, are of this style, which has received the name of Cyclopean. The ruins of their walls, which are the only remains, are formed of enormous blocks of uncut stone piled upon one another, the interstices being filled up with others of smaller size, and the whole resembling a dry-stone wall on a gigantic scale.

The great antiquity of these structures is attested by the absence of the true arch, and by the various primitive expedients adopted to compensate for the want of it. The most simple is that which is used at the Gate of Lions at Mycenæ, where the arched form is not even attempted; but two enormous blocks being set on end so as to form the two side piers of the doorway, a third block is superimposed, making a solid lintel, the height of which is double that of any other stone in the surrounding wall. At Tiryns, a second mode was adopted, as is seen in the galleries which form part of the fortifications, where the space from pier to pier is spanned by one great stone hollowed out underneath, in the shape of a pointed arch, while the whole is roofed in with similar blocks cut at an angle of forty-five degrees, so as to form a pyramidal vaulting. At Thorion is found a gateway cut in this manner, through three courses of stone; and at Arpino, the height of the entrance is equal to five. At Segni, in Latium, a compromise between the two methods is to be observed; and the arched form being given to the stones to the height of two or three courses, the whole is capped with a flat lintel of one block. Last of all these methods must be mentioned that which is found at Missolonghi, where the gateways are cut out of the wall in the shape of an isosceles triangle; and that which is used in Delos, where the galleries are roofed in with stones set lengthways, and meeting at an angle supported on others standing on end after the manner of posts. This last method approaches that which is used at Tiryns.

In the earliest specimens of this masonry, the art of cutting stone appears to have been almost unknown; and except in the cutting of the entrances and galleries of the walls, to have been hardly ever used. But with the gradual advance of skill in building, it became necessary that this art should be made use of, and accordingly the ancient builders began by degrees to fit the polygonal masses of stone, which they still retained, into one another, so as to form irregular joints, while at the same time the outer face of the block was reduced to something approaching a plain surface. Thus, without losing its original characteristic of the polygonal shape of the stones, and without improving the structure of its arches and entrances, the Cyclopean masonry was by degrees improved by a more extensive use of cut stones.

A second and more improved style is that which is generally known by the name of Etruscan. Though evidently and naturally derived from the Cyclopean, it is yet perfectly distinct, and shows a more advanced state of architectural knowledge. Specimens of this are to be found at Fiesole, Volterra, Cosa, and Populonia, and at Todi, where the masonry approaches nearer to the regular masonry of the Greeks.

It appears as though, when the cutting of stone became more generally used, the blocks were gradually shaped with more regularity, until at length nothing remained of the old polygonal style except in the irregularity of the joints, which were not vertical. Numerous examples of transitional styles are also to be found. At Cosa, the lower *strata* (for courses they cannot be called) are of the Cyclopean character, and the upper ones of a rough Etruscan style, formed of blocks little inferior to the former. At Populonia, the stones are roughly squared, but only partially formed in courses, while small stones are inserted in all parts, of a size which is not greater than that used in building at the present day. At Volterra, and other towns, some of the stones are square, and others have portions cut out of them at the corners, into which corresponding pieces, forming part of other blocks, are fitted. The structure of the entrances and false arches in the Etruscan is still the same as in the Cyclopean work, and the advance from one to the other will easily be seen, if the transitional examples be observed. One instance exists which, though belonging to the general class of gigantic masonry, yet stands almost alone by itself; it is

that of a wall in Peloponnesus, the upper courses of which are of a kind of Cyclopean, and the lower of a style even more advanced than the Etruscan, the joints being perpendicular, and the edges of the stones finished with a broad band of rebated work.

The greater part of the masonry in question is ascribed to the Cyclops of ancient mythology, a gigantic race, who inhabited part of Greece and Italy; and wherever in other countries besides these the remains of similar megalithic masonry is found, there will also be found traditions of an ancient race, now passed away or entirely destroyed, who surpassed in stature and strength the men of later time.

Although it has been doubted by modern architects, to what historical race to attribute the Grecian remains, yet one thing is evident, that they must have been the works of men who had either greater skill or greater strength than those who succeeded them; and the idea of any superior amount of knowledge or skill is precluded by the appearance of the ruins themselves, which, rough and unshaped, evidently belong to the very infancy of art, to a time of the most primitive ignorance; and thus the only means by which they could have been erected is the superior physical strength of their builders.

It might be expected that in Palestine, and especially in the neighbourhood of Jerusalem and Bashan, the stronghold of an historical race of giants, some remains of masonry similar to that already described should have been discovered; and this expectation is increased by the names yet lingering round the capital which connect it with the ancient race of the Rephaim, and by the unusual size of the masonry of later date which is found there, as well as in other parts of Palestine.

The walls of the famous Golden Gate show a curious mingling of masonry of different dates; they descend to the patchwork of the modern Arabs, and they go back to an unknown age; for, on each side of the entrance is an enormous block, more than 15 ft. in height, and with all its dimensions of corresponding magnitude. That these two are of greater antiquity than any works of Solomon is clearly proved by their present appearance, as will afterwards be shown; while in their proportions they throw into the shade all the works of the mythological giants already mentioned.

That the wandering tribes who inhabited Palestine from the times of the early patriarchs to the date of the final settlement of the Israelites, should have occupied themselves in any great architectural works, will only be received on sufficient evidence, and will not be taken for granted; but there are records of a more ancient race, the original inhabitants of Canaan, famous for the magnitude of their buildings and for the height of their walls. The children of Ahiman Sheshaiad Talmi, the sons of Anak, still dwell beyond Jordan in the days of Moses. The remnant of the Rephaim lingered about Jerusalem and in the country of Bashan. The Emims dwelt among the Moabites, and the Zamzummims remained in the country of the children of Ammon. All these were people great and strong, whose cities were walled to heaven.

According to the rabbinical writers, who hide under fables exaggerated and often ridiculous, a thread of history or tradition, the first ancestors of these races had become the servants of the family of Abraham; and being first subjugated by Noah, only rebelled against his descendants on their departure into Egypt. It was during this period of subjection of the gigantic race that Jerusalem was first built by Melchisedec, who is supposed to be the same as Shem, the son of Noah; and it is, therefore, not improbable the city was first fortified by the labours of the giants, and that the two great blocks before mentioned are the relics of their work.

It may, perhaps, be argued that it is impossible from so few remains to prove the origin of Jerusalem; yet it will appear but natural that hardly anything should be left of the buildings which existed before the invasion of the Israelites, if it be remembered that they were expressly enjoined to destroy utterly the heathen cities; so that the very scarcity of this masonry would furnish fresh proof of its date as being previous to the time of the exodus.

The history of megalithic masonry is carried on in Palestine until a style is found which connects the Cyclopean with the masonry of modern days.

It has been shown that in the Etruscan, the masonry had nothing left to show its origin, except the irregularity of its joints; and now in

Baalbec, Bashan, Hebron, Passargade, and Jerusalem is to be found the next step towards perfection.

The rebated masonry before mentioned as existing in Peloponnesus, is of this character, and its presence below as species of Cyclopean shows its great antiquity. The stones found in Palestine and the East are of a more finished character, beautifully grained and polished; while all round the edge of each block is a sunk band or border, that which is known by the name of rebating.

The stones are very long in comparison with their height, the depth of each course being less as it approaches nearer to the top of the wall; and in size they rival the Cyclopean. Marks of imperfection are still visible in the unequal lengths of the stones, and in the want of attention paid to the beds out of which they are cut; some being taken out of soft strata, appear to be of a great age, eaten out with the action of the weather, and crumbling in decay, while others, cut from more durable material, remain fresh and untouched, as if only just taken from the quarry. The arch is still either unknown, or at least never used, and the same method for covering the doorways is used as at Mycenæ; for, two great piers being built up are capped by a solid lintel, equalling in height two courses of the surrounding masonry; and in it, as at Mycenæ, the joint is broken by cutting it shorter, about half way up, so as to fit exactly into the stones of the parallel courses: thus the alternation of the joints is preserved, and the unpleasant appearance of one long vertical division is avoided.

Thus the rebated masonry of Palestine forms the next step in the advance of architectural skill. It is found at Passargade, in Persia, though of an inferior size, as late as the time of Cyrus; and it is still used in the palace of Hyrcanus, near Bashan, about a century before the time of Herod; but it disappears in the monuments erected in Jerusalem in his time. At Baalbec and Hebron, it goes back to an unknown date; and in the Holy City it is found in the oldest parts of the city and Temple. That it immediately succeeded the earlier masonry found at the Golden Gate, is evident from the presence of false joints made in the blocks, and simulating the rebating, which is the principal characteristic of this third style of megalithic masonry. From its appearance in the walls of the Temple inclosure, it must be referred to one of two periods, either to the time of Solomon, or to that of Herod; and since it disappears from the monuments of Herod's time, and is replaced by another and more advanced style, it can only be attributed to the time of Solomon.

The appearance of the rebated masonry gives two fresh indications of the truth of the theory that Jerusalem is to be classed amongst the cities of the giants. In the first place, it shows the antiquity of the former style, found at the Golden Gate, and refers it to an age previous to that of the Jewish supremacy in Palestine; and secondly, the size of the stones themselves seems to indicate some original gigantic style, from which the present one was copied: blocks of such a size that, as in Solomon's house and in the palace of Hyrcanus, in Bashan (the stronghold of the giants), the whole height of a lofty building was only equal to three courses, were above the strength of the men of Solomon's time, when only a remnant of the giants remained, and these for the most part destroyed by David's mighty men. And here, therefore, skill and knowledge are first found taking the place of human strength.

The great stones were cut and finished in the mountain quarries, moved on rollers, and raised by means of lewis-holes, as is still evident from their present appearance. But if it now required such labour and pains, why were such extraordinary dimensions still preserved? What could have been the reason that such colossal blocks should have been used in Palestine at a time when other nations built their strongest walls of brick, or of stones of ordinary size? Unless indeed the great monarch who first repaired the ancient Cyclopean walls which his father David was unable to rebuild, was unwilling to be inferior in massive grandeur and strength even to the ancient race of the giants.

If Solomon were unwilling to be surpassed by his predecessors, Herod was not less so to be inferior to Solomon. He could not surpass, but he could equal, the enormous size of his works. The beauty given to the walls by the break in the plain surface formed by the rebating was perhaps necessary to the unornamental architecture of the Hebrew masons, who had copied

the works of Solomon, and thus made them the foundation of a Jewish style; but with Herod a new spirit came in, and the rich mouldings and graceful orders of later Roman architecture forming sufficient ornamentation, he did away with the irregular appearance given by the unequal lengths of the stones and the consequent irregularity of distance between the vertical bands of the rebating, and substituted a style of colossal Roman masonry, plainer, indeed, than the Jewish, but more regular in its courses and in its joints.

Thus arose the fourth gigantic style found at the present day at Hebron, Jerusalem, and Herodium, a city entirely built by Herod. The stones of this masonry are nearly square, and some even deeper than they are long. They are all perfectly plain, well grained and polished, and laid in beds of equal depth, and not decreasing as they approach the top of the wall, as in the Jewish style. The joints are nearly at equal distances, and placed alternately in the courses, so that the masonry has reached a state almost of perfection. The clumsy expedients of his predecessors were at the same time laid aside by Herod, and domes and flat elliptical arches, bold vaults, and vaulted roofs appear in their stead. Roman orders, Roman mouldings succeeded the Jewish styles; great towers were built, fit to withstand the battering-rams of ancient warfare, with solid bases, to move one stone of which required the work of many days. In short, the colossal masonry has advanced by degrees until it has attained almost to perfection, and until it is only necessary to reduce its dimensions to find in it the masonry of modern times.

The fall of Jerusalem seems to be the close of its history; and, although Constantine's columns recalled those of the second temple, and the works of Justinian are described as gigantic, yet the walls of the former are only of ordinary proportions, and even the greatest works of the latter fall far short of the masonry of Herod and Solomon.

Thus the history of Cyclopean masonry has been traced from the first rude stone fences of Tyrris and Mycenæ, through the first advance of the Etruscan to the ornamental character of the Jewish, until it attains its highest point of perfection in the Roman of Herod. In doing so it has been gradually brought out that Jerusalem is to be classed amongst gigantic cities—a conclusion which is confirmed by the words of Scripture, and which gives additional interest and importance to the after-history of the Holy City.

PROFESSOR WILLIS ON SHERBORNE ABBEY CHURCH.

THE Archaeological Institute has wound up its congress at Dorchester. One of the principal features of the meeting was Professor Willis's description of Sherborne Abbey Church. We give a report from the *Sherborne Journal*.

Professor Willis said, he should bring forward documentary evidence relating to the church, which was a splendid example of the different architectural styles. It had an undoubted Norman tower, Norman transepts; a fine Perpendicular nave, with Decorated windows; a Norman porch, with a front containing a *medallion* of all the changes and additions, and ending with a Perpendicular window. There was this peculiarity distinguishing Sherborne Church; at the west end were the remains of a long wall, evidently the side wall of a church, authorising antiquaries to believe that a parish church stood adjoining the present structure; indeed, Hutchings, in an ancient map, indicates the ruins more distinctly, and marks them as "ruins of a parish church," showing that it must have been more perfect in his time. He then said the first documentary evidence was a dispute between the monks and the laity which led to the building of the present Perpendicular church. Hutchings gives another document from the record of Neville, Bishop of Salisbury. This was a mere abstract, and somewhat unintelligible, and he had, therefore, obtained a sight of the document, of which he read an abstract. It was an ordinance made by Neville, Bishop of Salisbury, "between the abbot and convent of Sherborne and the parishioners," dated January, 1436. It related to the well-known quarrel between the monks and the laity, respecting the administration of baptism and the ringing of bells. The bishop went on to say, he visited the town of Sherborne, desiring to be

informed of the matter; and, after investigation, ordered the new parochial baptismal font to be removed out of the church, and the monastery font to be restored to its pristine site and uses." In this document the curious word "clockum" occurred in reference to a *horologium*, or clock. The professor showed that the monks had been tampering with a door, so as to inconvenience the parishioners, proving that they (the monks) were as much to blame as the parishioners, a fact that had never been brought out before. They were given a twelve-month to enlarge the door; but the new parochial font was ordered to be forthwith removed. There was no doubt the monastery chancel served as the parochial church; but the monks, wishing to get rid of the parishioners, built them another church, but still kept the baptism to themselves, on account of the emoluments. He then quoted Leland in reference to the continuance of the quarrel between the monks and the townsmen, which ended in St. Mary's Church being set on fire and destroyed; here, however, Leland was mistaken, for a document still in existence informed us not that the church was destroyed, but that the fire consumed the choir and campanile. The church was restored by Abbot Bradford, who made the townsmen contribute towards the re-edifying of the church. The next abbot, Peter Ransome, built the west part, which was a complete unfeathered Perpendicular composition, not merely a Norman building, cased with Perpendicular work; it was dated, and therefore very valuable. The nave was peculiar, being a Norman skeleton with a Perpendicular skin, and had none of its opposite pier arches of the same size. He then referred to the Norman transcripts: there was a Norman chapel, containing Norman arcading of a curious kind. The church, about 1840, began to get into such a hopeless state of ruin, that it was perfectly imperative to get it restored in order to keep it at all. It had now been so restored, that on entering it appears as if it had just left the hands of the builders; and not only so, but all the ancient symbols and marks had been so perfectly preserved, that the different architectural changes could be most distinctly traced. He then entered into a history of the restoration of the church, which commenced in 1849, and was much indebted to the magnificent contributions of Earl Digby, who engaged to double whatever sum was subscribed by the public generally. The restoration of the chancel was also due to the singular munificence of Mr. Wingfield Digby.

Mr. P. Hope proposed a vote of thanks, and Mr. E. A. Freeman made some remarks on churches similar in arrangement to the church of Sherborne.

The Professor then entered into some details as to how Sherborne Church passed into the hands of the parishioners at the Reformation, having been sold by the king for that purpose.

A FEW NOTES ON PESTILENCES.

THERE has lately appeared, as every reader of the daily papers must know, in some of the dairies in and near London, a disease amongst the cattle, closely analogous to, if not the same as, that which has of late years prevailed extensively in Russia, Austria, and the eastern parts of Europe, and called the Cattle Plague, being a species of typhoid fever. The loss of animals caused by it in those countries has been very serious. In 1864, 159,476 cattle were attacked by this disease in Russia alone, out of which 104,714 died. Already 2,000 of our own metropolitan dairy cows have died in one month (July) of the same disease, and it is not only still raging in and about the metropolitan counties, but news is daily arriving in town from various parts of the country of the appearance of this pestilence in some new district. Such is the case, not only in England, but in Scotland also. Government have thought it full time to take up the question, and missives have been issued in which sanitary as well as other measures are urgently advised. In one letter, addressed to the president of the Royal Agricultural Society by the clerk of the Privy Council, it is recommended that "particular attention should be paid to the cleansing of all yards, sheds, and other places where cattle are kept; and this cleansing should be especially insisted upon where there has been any manifestation of this disease. These places should be disinfected by the free use of chloride of lime or other allied compounds."

Adverse as we have always been to the existence of cow-sheds at all in London, we have, nevertheless, often urged the sanitary improvement of those which do exist; and such instructions as those of the Privy Council, just quoted, we therefore hope will be promptly and generally acted on.

The disease made its first appearance in an Islington dairy, where, in a very short time last month, 115 cows died, or had to be killed, from having been attacked by the pestilence. Only three recovered after being attacked. The *Medical Times*, having made inquiries on the subject in Islington among the cow-keepers, states that in one of the largest sheds not a single case has happened, although, in other instances, not only have the dairy people suffered severely in Islington, but in one case every cow was lost. Of one or other of the exceptional cases, where many cows have been collected together and yet kept in health and free from the disease, it is very desirable to ascertain some details, particularly as to the means habitually adopted for keeping the cows in a generally healthy state, and more especially as regards cleanly wholesomeness and ventilation where so many animals are crowded together. That some such means have been long and habitually adopted in such exceptional cases we have not the least doubt.

One writer on the subject, in the daily press, says he believes that "the disease has been generated in the atmosphere, although there is no doubt that it is infectious now." Others blame the foreign cattle imported as having been infected or as having had the disease among them before they left the Continent. One newspaper correspondent considers that "the horrors of the middle passage," by sea, where the fearfully overcrowded cattle die by scores, are sufficient to account for the pestilence, even though the imported cattle quitted the Continent in a perfectly healthy condition; and we know that previously healthy emigrants have similarly suffered and died from virulent fever. Others maintain that the disease originated in the Islington cowsheds themselves. Professor Gamgee, of Edinburgh, however, who was the first to warn all interested of what was coming, and who has got up a new society in London for the prevention of cattle disease, is of opinion that there ought to be a foreign cattle quarantine.

As the disease is of the typhoid class, the serious question has been started, whether human beings may not suffer pathologically in consequence of its prevalence; and one physician writes to the *Star* to state that he knows, from domestic as well as professional experience, that infants fed on cow milk have lately been attacked with the typhoid symptoms, and that he has fed a kitten on contaminated milk from a cow now dead, and that the kitten very soon died with similar symptoms.

Meanwhile human beings in this country have another evil (if it be essentially another) to dread the appearance of,—namely, the virulent cholera. Although, in various parts of Egypt, the epidemic is on the decline, it is still making its appearance elsewhere, as at Constantinople, where it is to be feared it is fully establishing itself. A case or two has even occurred at Gibraltar, and it is alleged that twenty cases a day have occurred at Ancona in Italy, where there has since been a complete panic and flight: it is also reported that thirty cases have occurred at Valencia, in Spain. Without desiring to say anything of an alarmist character, therefore, it is full time we were literally as well as figuratively "setting our houses in order." We have already so fully referred to and quoted the excellent sanitary circular of the Privy Council, which responds so essentially to the sanitary advice we have for years reiterated dinned into the minds of the public as to cleanliness, ventilation, drainage, disinfectants, and as to overcrowding, and various other sanitary points, of importance at all times, but of the last importance at the present moment, that we need say no more just now on that head.

There is one point, however, on which we have something still to say. We have hinted at the possibility, suggested by some one, that human beings in this country may suffer pathologically in consequence of the prevalence of the cattle disease. Now, whether it was in consequence of a cattle disease having occurred in Egypt within a year or two of the appearance of cholera there, that cholera also appeared, it may be difficult to say; but such is now said to be the fact, that cholera did make its attack upon human beings in Egypt within a year or two after a

pestilence attacked Egyptian cattle; and such coincidences have before occurred, not only with reference to cholera, but other plagues. This cattle pestilence or murrain doubtless resembled our own; and if so, the conjuncture is an ominous one. The cattle disease is said to be typhoid in its nature. If there be a causal connexion between this cow plague and the human one, cholera, therefore,—a sort of connexion which it is not we, be it noted, who have suggested,—there may also be some foundation for what we have heretofore suggested, that human plague and cholera (plague being a disease of typhoid character) were like the hot fit and the cold fit of an ague, too tremendous and awful for mere mortals to be capable of suffering alternately, or both in succession, although it was a known fact that virulent cholera itself was on previous occasions sometimes preceded and sometimes succeeded by states of fever; and not seldom that persons who had survived the choleraic or cold stage were cut off by the subsequent fever or hot stage of reaction.

We do not hesitate to intrude our crude ideas on this subject into public notice under present circumstances, because, considering typhoid or intestinal fever to be within our own province, as sanitary pioneers, we do not regard ourselves as travelling out of that province in again offering our suggestion to those better able to decide than we are as to its merits. We need only add, that if the human cholera and the animal pestilence be causally connected, as suggested by others, and be both typhoid in general character (and, indeed, whether they be so or not), sanitary reformers, medical or non-medical, know at all events how to advise as to essential preventive measures.

CONSUMPTION AND DISEASES OF THE CHEST.

BROMPTON HOSPITAL.—TRADES DISEASES.

THE more that inquiry is made respecting the terrible disorder which the excellent institution at Brompton is intended to relieve, the more are we impressed with its awful extent, and with the necessity there is for greatly increased means, in addition to those at present at hand, for the purpose of enabling the poorer classes and others with limited incomes to battle with a chance of success against the attacks of this dread enemy, which destroys both old and young. Before our life and death statistics had been fairly arranged, as they are now at Somerset House, many thought that consumption was especially the means of destroying young life, at the ages of from about fourteen to twenty-five years. Now, however, it is clearly shown, that in the prime of middle life, at a time when the intellect is at the brightest, there is the largest account of sickness and death from this cause. In a recent report by the Registrar-General, it is stated that of the 65,000 deaths which occur every year in England and Wales from slow and lingering diseases, about 39,000 are probably due to pulmonary consumption. One-ninth of the total mortality of all ages, and more than one-fifth of that of adults, are due to this cause; and, as the average duration of this complaint is about two years, the report says, that almost 78,000 persons are constantly suffering from consumption, being at the rate of four persons in every one thousand of all ages, and more than eight in every thousand adults.

Again, of the 60,000 deaths occurring every year in the metropolis, about 7,500, or one-eighth of the total mortality of the metropolis at all ages, and little less than one-fifth of the mortality of adults, arise from this fatal disease; and upwards of 15,000 persons, being about one in 180 of the entire population of the metropolis, and more than one per cent. of the adults, are constantly wasting away under the attacks of this lingering malady; and, says the twenty-second annual report of the Consumption Hospital,—“Of these 15,000 cases, about three-fourths occur in males, of whom a large proportion are workmen, unable to provide for themselves and families, and uniting in their own persons every conceivable claim to sympathy and assistance. It may be well to add, that many,—very many,—of these poor sufferers are the acknowledged victims of unventilated workshops, over-crowded barracks, ill-constructed dwellings, vitiated atmosphere, long hours of work, and the want of open places for exercise and recreation.” Such are the causes of consumption as they are reported, after wide experience, by the management of this hospital. We do not find among the causes of

this sickness here adduced hereditary predisposition or peculiar malformation, but only those sanitary derangements and neglect which are such a main cause of all disorders, and to which we have for so many years directed attention.

In nine cases out of ten, the cure of this disorder depends on the early application of atmospheric influences, upon the regular provision and use of proper diet, and the use of those means which the medical profession have at their disposal to regulate nervous derangements, and to alleviate the pain and mental anxiety which are more or less attendant on this disease.

In most of the general hospitals in the metropolis there is an objection to receive consumptive patients, and the places in London in which the disease can be fairly treated are not sufficient for the demand there is upon them. We do not wish to detract from the value of the other institutions that are founded for the cure and relief of chest-diseases. We find from the numbers founded on the Report of the Registrar-General, that there are 15,000 cases of consumption which constantly need care in London, and we believe that this number is very much under the mark; but, if we admit these figures to be correct, it is probable that upwards of 12,000 of these persons belong to the industrious and poorer classes, to whom hospital assistance is of the utmost importance. We make this statement after long and careful observation and consideration. Let us, however, see to what extent the Brompton Consumption Hospital, which is looked to as the sheet-anchor in chest complaints, is able to afford in-door relief; and this, as we have said, is, in the present condition of so many tenement houses and workshops, almost the only chance of effectual good.

In the hospital, on the 31st Dec. 1861, there were 189 patients admitted; during 1862, 927; in all, 1,116; of whom were discharged, many materially benefited, 814; died, 123; and there remained in the house, on Dec. 31st, 1862, 179. In the year before, there were only 1,096 inmates admitted within the hospital; and it is satisfactory to note that the increase of the relief has been steadily progressive; but it is certain, notwithstanding, that there are numerous distressing cases which are waiting for admission, owing to the want of sufficiently-furnished space, and means for the support of in-patients. Besides, there is a constant increase of the population; and we fear that some time must elapse before we can look for relief from the improvement, to any sufficient extent, of the dwellings, &c., in which the chief part of consumptive cases are found to be working fatal effects. Of out-patients of the hospitals, the number in 1862 was 6,019; in 1861 there were 5,786; in 1858 the number of out-patients was only 3,971.

The expenses of in-door relief in connexion with the disease are very great, however careful and discreet the managers may be. Often have we been called to note the patient sufferings of those who are in this way afflicted; and we have, in homes where every endeavour has been made to cause the best appearance under wretched circumstances, seen sufferers, with a degree of melancholy patience which is indistinguishable, bearing up against the actual pain of that hunger which so often accompanies this disease. In workhouse infirmaries, too, we have seen men and women who were wolfishly hungry, but unable to take the ordinary workhouse fare. We have, in the course of our investigation, seen many sad sights; but few of them are more painful than to notice the sick who are not able to help themselves left without the means which would furnish them with the chance of renewed strength.

The revenue of the Brompton Hospital is of large amount, but it is not more than the revenue of many English gentlemen. Here a magnificent charity of princely extent is carried forward with the best medical advice, the most expensive medicine, and nutritious food in sufficient quantities. Moreover, there are many other items of an expensive character, the whole amounting to 21,933l. 19s. 7d.

The annual subscriptions, which are such a main dependence of this and all other establishments of this description, amount to 4,456l. 9s. 6d., and the donations in the year mentioned realised 2,211l. 11s. 6d. We wish particularly to direct attention to these items; for, as we have shown, the present means of the hospital are insufficient for the immense demand which there is for its aid; and we trust that these notes may be a means of leading especially to the increase of this part of the income.

The demands upon the resources of the hospital, as we have before said, grow from year to year; and extra beds have been put into every available space in the present building; so that, before long, this and the London hospitals which are the more especially devoted to the treatment of lung-diseases, must either be newly built or very much extended.

Here, as is the practice at most of the other hospitals, the payment of especial sums entitles the donors to recommend, in proportion to the amount, in-door or out-door patients. For instance, every minister of a church or chapel who, by preaching a sermon on behalf of the hospital, collects a sum of 31l. 10s., has, for every such sum, the power of recommending one in-patient and eight out-patients annually during five years, provided that such patients shall reside within the parish district in which the subscription has been made; and so on. Few London curates who work rightly amongst their flocks can fail to find many who might have been and, at the present time, could be greatly benefited by the means of such recommendations. And it must not be forgotten that it is not alone to the dwellers of the metropolis that the advantages of this institution extend; but many come from other towns or country districts on visits to friends who live here, for the purpose of getting the medical advice of the metropolitan hospitals. Since the establishment of the hospital large sums have been collected in the churches and chapels, but much more might be done in this way. For instance, from January 30, 1859, till the end of the year, the whole of the sermons preached on behalf of this charity were thirty-two; and it is curious to notice the varieties of the sums which have been collected. At St. John's, Paddington, after a sermon by the Bishop of Oxford, the subscription amounted to 221l. 9s. At another church, in Yorkshire, a ninth part of the subscription, which was sent from a church, was 1s. No doubt, however, the intention in the latter case was good. In 1860 the number of sermons preached was twenty-four. In the year ending 1862 the amount from charity sermons was 740l. 14s. 4d.; but far more than this might be gathered for the hospital if its interests were more generally advocated.

We have before directed attention to a series of letters on consumption, published by the daily press; but as this is, to a large number of our readers, a matter of life and death, we will again glean a few notes from these letters. The author refers, in addition to the production of this terrible disease by the inheritance of a small chest, or by catarrhal disease of the throat, or bronchial tubes,—also to the trades which predispose to consumption by work which cramps and confines the movements of the chest; for, it does not matter how large and well developed our lungs may be, if we cramp the chest and prevent the lungs from being filled with fresh air: they must soon become diseased (this fact, we hope, will not be overlooked by ladies, not only in connexion with their own dresses, but also with those of the children in their care). The purity of the blood, which is the chief means of health, depends on the quantity of air taken into the lungs; and, when the chest is cramped, sufficient air cannot be received to remove the carbon; and unless it be removed, tubercles, sooner or later, follow. From this cause shoemakers, tailors, weavers, and dressmakers, are all very prone to consumption, and all callings followed in close, badly ventilated rooms, are proximate causes of the disease; for it is essential to health of the lungs that the air should not only be received in sufficient quantity, but of proper purity. Its purity depends on its free circulation and frequent removal. The air of the largest counting-house speedily becomes foul unless a constant stream of fresh air is made to pass through it. Even the air of a yard, open to the heavens, when surrounded by buildings in such a manner as to exclude currents, becomes stagnant and unwholesome. The back part of a long room opening on the public street is always filled with impure air, even though the whole front be left open. Merchants and book-keepers are in this way constantly exposed to its enervating influence, and rendered liable to consumption. All this is absurdly wrong, since, by a simple system of ventilation, the smallest rooms can be kept comparatively pure; while, without it, the largest rooms, even with doors and windows open, become unfit for human habitation. Every room occupied by human beings, or even by brutes whose lives are valuable, should actually

be made to breathe; that is to say, should throw out a steady stream of foul air, and take in a steady stream of pure air. Where this is not attended to, the occupants soon become feeble; their cheeks lose freshness; their blood becomes thick, dark, and carbonaceous; and, ere long, their disregard of the laws of health is punished by a premature decline.

Amongst trades which expose the lungs to direct irritation, are those of stone-masons, miners, coalheavers, flax, cotton, and wool dressers, dressers of feathers and hair, brass and steel polishers, metal grinders and needle pointers, grainheavers, and rice-dressers: all these are particularly liable to consumption. The dusty atmosphere is the cause of this. Dr. Allison, of Edinburgh, says that there is hardly an instance of a mason, regularly engaged in cutting stone in that city, free from consumption at fifty years. Exposed to the inhalation of fine particles of sand, dust, and powdered stone, the masons generally die before they reach forty. An immense proportion of the miners of Cornwall, in England, are destroyed at an early age by chronic bronchitis and consumption.

The miners engaged in cutting mill-stones in the great quarries at Walschat on the Rhine, are all said to become consumptive. The quarrymen at St. Roch, in France, are so liable to consumption, that among them the disease is known by the name "*la maladie de St. Roch*;" and we are told that in the commune of Meuses it has increased to an alarming extent among the people who are engaged in the manufacture of flint. Sir James Clark says that in the two principal machine factories at Leeds, he only found two filers who had reached the age of forty-eight. The condition of the grinders is still worse. Dr. Knight found in Sheffield 2,500 of those workers: of these eighty men and seventy boys were fork grinders. They grind dry, as it is called, and die at from twenty-eight to thirty-two years of age. The razor-grinders grind both wet and dry; and they die at from forty to forty-five years of age. The table-knife grinders work on wet stones, and they live from forty to fifty years. The employment of flax and hair dressing is generally unhealthy; and in manufactures of this kind, as the atmosphere is more or less affected by the dusty particles, so are health and life of less or greater duration.

We are pleased to notice that medical practitioners of advanced intelligence are attaching more and more importance to sanitary means for the prevention and cure of the most fatal of those diseases which affect humanity; and that, instead of taking the blood away from sickly and weakly people, they are striving to make blood both more pure and more abundant,—not by copious draughts of drugs, but by regimen and by the administration of wholesome air in sufficient quantities.

THE SUPPLY OF WATER TO OUR TOWNS.

The subject of the supply of water to the metropolis, and to the different towns, continues forcing itself on public attention. In the metropolis, the quantity is deficient,—very much so indeed from the manner in which it is supplied,—and quality is becoming deteriorated by sewage of towns about the sources of supply. At the meeting of the Metropolitan Board of Works, on the 4th inst., Mr. Peck called attention to the inadequate supply of water to the inhabitants of Camberwell. Sir John Thwaites said the Board had no power to interfere with the companies. Mr. Legg said that a great quantity of water was allowed to run to waste, which, if collected, would remedy the evil; but Mr. Richardson said there was no water supplied between Saturday and Monday, and for forty-eight hours the public were without water.

At Bolton, the corporation have issued a notice calling attention to the low state of the corporation reservoirs, stating that the quantity of water was "now getting into so small a compass as to be quite alarming," and expressing fear that "the next move would be that they

* It was Dr. Allison's advice to stone-masons, as a preventive of dust-breathing, to wear their beards, especially the moustache, and which was quoted from the *Builder* throughout the newspaper press of the three kingdoms, together with our own remarks and recommendations, then and subsequently circulated in the same way, that originated what we then called "the moustache movement," which other periodicals, but, above all, our *Crutcher*, experienced, fostered and popularized, till King-land became what it may now be said to be, a bearded nation as of old.

would have to stop the supply for all manufacturing purposes." At present the reservoirs contain 68,000,000 gallons, which is 52,000,000 less than at the same time last year, and it is only equal to a month's supply at the ordinary rate of consumption.

Great efforts, however, are being made to amend a similar state of things in other towns.

The directors of the Sunderland and South Shields Water Company are taking steps to obtain another pumping station. In the company's Act of 1859 powers are given to purchase three additional sites. The company is now supplying upwards of three million gallons of water a day, pumped from the Humbleton, Fulwell, and Cleaton Stations. The towns and villages supplied are Sunderland, South Shields, Whiteburn, Boldon, Westoe, Jarrow, Jarrow Docks, the manufacturing establishments at Hebburn Quay, Southwick, &c., comprising a population of 150,000 people, and immense manufactories. The company have at present a supply more than ample for all demands; but, looking at the rapidly-increasing population within the area of supply, the directors are anticipating the requirements of the next eight or ten years. The new works will be a little to the south-west of the Stockton-road, leading out to Ryhope village, where a shaft will be sunk, and two pumping-engines, of 100-horse power, erected, and a reservoir capable of containing two million gallons of water will be proceeded with. An abundant supply of water exists, as it was met with in the sinking of the shaft of Ryhope Colliery. The works are expected to be completed in two years.

At Hawick the Water-works will be inaugurated in September. The ceremonial will take place at the reservoir on the banks of the Allan, about four miles from the town.

In Kelso, some time ago, a water tank was erected, and water forced up into it from the Tweed, at a cost to the town of about 3,000*l*. A good deal of discussion has taken place in the locality as to the quality of the water; and the Police Commission Board—the governing body—sent to Edinburgh two jars of the water in order to get it analysed by Dr. Stevenson Macadam. At a recent meeting of the commissioners the result of the analysis was made known, which would appear to be of rather an unfavourable character. The water in No. 1 jar, taken from the tank lately built, had of total saline and organic matters dissolved in one imperial gallon, 7·20 grains, and hardness 3". In No. 2 jar, the total saline and organic matters dissolved in one imperial gallon 6·88, and hardness 3"; the water in the last was taken from a pit in the Tweed, on the south-west side of the river. Though Dr. Macadam does not regard the water as positively unwholesome, he says it is "of inferior quality for general household use." In his reports he also alludes to the difficulty of purifying large volumes of water already contaminated with organic matter, and to the great expense of constructing and maintaining suitable filter beds, and recommends that search should be made for spring or at least purer water. Mr. Brunless states that the River Tweed produces a water much softer and purer than many English rivers, but that it requires filtering, and he submits a plan which would cost about 1,000*l*.

In Kirkcaldy a meeting has been held in the Town-hall on the subject of the water supply. The provost at the outset stated that a numerous-signed petition had been presented to him regarding the water-supply so far back as the month of September, 1864. At the time it was believed the water of the Tiel was quite good enough for all purposes, and that the supply to be obtained from that source would be ample. Subsequent investigations, however, had proved this to be a mistake. It was then thought that a supply might be got from Lochgelly; but it was found this water was only second-class. Then the Lothrie scheme had been proposed. This water, flowing in great abundance from the Lomond Hills, had been analysed by Professor Penny, of Glasgow, and Dr. Macadam, of Edinburgh, and had been found very superior to the others; indeed, it was everything that could be desired. The expense of bringing in the Lothrie water had been roughly estimated at 40,000*l*, giving 85 gallons a day for each person in the Parliamentary burghs of Kirkcaldy and Dysart; and the question was, How was this 40,000*l*. to be raised? Whether was it to be done by the formation of a water company, or by assessment? The provost's own opinion was, that it

ought to be done by assessment. After deliberation, the meeting decided in favour of the Lothrie scheme.

THE WELSH MEMORIAL OF THE LATE PRINCE CONSORT.

THE statue raised by the people of Wales in memory of "Albert the Good" is now unveiled, and stands a prominent object at Tenby, on the coast of South Wales. The weather at the inauguration by Prince Arthur on the part of Her Majesty was favourable, and the proceedings of the ceremony went off well. Thousands of people flocked to the town, and arrivals by steamer and train continued to pour in even after the ceremony had been concluded.

The monument consists of a statue of the prince, 8 ft. 9 in. high, carved from a block of the finest Sicilian marble. It stands upon a pedestal 18 ft. high, which is formed of grey marble (the native limestone of the district), and has four engraved panels of Sicilian marble. The figure stands with the head uncovered and baton in hand, attired in field marshal's uniform, and wearing the masonic and collar of the Order of the Garter. The artist was Mr. John Evan Thomas, a native of South Wales, and the work is spoken of as one of the finest of this artist's productions. The likeness is considered to be a striking one. The front panel forms a tablet, upon which the following inscription is engraved in large and ancient characters:—

"Albert Dda, Pryd Ein Gorhoffus Frenhng, Victoria (Albert the Good, Consort of our beloved Queen Victoria). This memorial of his Royal Highness Prince Albert was raised by the inhabitants of Wales, and inaugurated at Tenby, by his Royal Highness Prince Arthur, his third son, on the 2nd day of August, 1865."

The statue is placed in an elevated position on the Castle Hill of Tenby, a peninsula jutting out into the sea from the town; and its elevated position brings it on a level with the top of the spire of the parish church. It is, therefore, visible at a great distance at sea and from the land.

A somewhat remarkable coincidence is connected with the ceremony. About 400 years ago the Earl of Richmond, afterwards Henry VII., sought shelter at Tenby, with his mother, after being besieged in Pembroke Castle, and were lodged by Mr. Thomas White, then mayor of Tenby and a wealthy wine-merchant, whose monument still stands in the parish church here. Mr. White provided a vessel for the royal fugitive, which conveyed him safe to Brittany, a service for which he was afterwards rewarded with a grant for life of the king's lands around the town. It is rather a curious fact that, on the present occasion, a lineal descendant of this Thomas White—Mr. George White, also a wine-merchant—is now mayor of Tenby, and thus he becomes associated with another event connecting this out-of-the-way town of Tenby with the national history.

GOVERNMENT APPROPRIATION OF DESIGNS.

A REPLY has been sent, through Lord Cowley, to the claim of Mr. Maw and Mr. Payne for recognition of their authorship of the design which is about being carried into effect in the building for the Paris Exhibition of 1867,—and which design, as our readers were reminded last week, we had published in 1861; but it is regarded as little better than evasive, and showing unwillingness to acknowledge the English authorship. Meanwhile, we are glad to see that Mr. Maw's letter to the *Times* has been given in the *Avenir National*, with a postscript warmly advocating the recognition.

Our own Government is not blameless in its treatment of inventors. A correspondent addressing us on the subject, says,—

"Before censuring the French authorities too much, let us consider the number of instances in which our Government have been guilty of doing the same thing. Take the Board of Admiralty, and the vast improvements and inventions that have been brought out to forward the perfection of our iron-clad fleets. I will mention one case in particular. Your readers may recollect the debates in the House of Commons respecting the state of the bottoms of armour-plated ships. Experiments were tried, and without effect (such experiments as any boy who had learnt at school the rudiments of chemistry would be certain would increase galvanic action to a great extent,

instead of preventing it). An invention was brought out, and particulars were sent to the Admiralty; but the inventor was told that the Board did not think adoption of the invention advisable,—reasons being refused, and their lordships at last saying that they did not undertake to point out any particular defects.

Some weeks later, the *Royal Sovereign*, iron-plated ship, was docked, and coated exactly on the system recommended, except as to the mode of fixing. The vessel has made a trial of one year, and the plan is 'proved to have answered most successfully; yet the Lords of the Admiralty have never acknowledged the inventor, or even thanked him; and I am told that the plan is being used in other cases. Such events as these take place in a country boasting much of education; but what is the use of our annual grants of money to public institutions, our museums, and naval schools of architecture, when the very men who vote for these grants refuse to acknowledge any benefits derived from them, and throw back those who by hard study bring out things for their country's benefit? I say then, can we as a nation charge our neighbours with usurping the rights of others while we are doing the same thing ourselves? Had Messrs. Maw and Payne patented their invention, they would have had no trouble in the matter. I do not think inventions should be patented that are used only by the government."

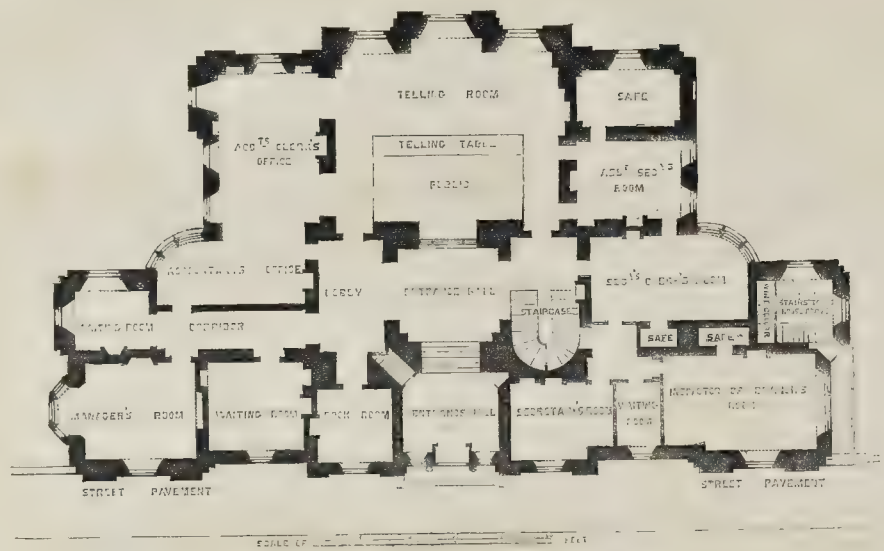
A concluding expression, in the letter, of expectation that the French authorities would behave better than our own officials, it will have been seen, has not been yet justified by the experience of Messrs. Maw and Payne. The writer proposes that there should be a committee of scientific men, composed of civil engineers, architects, &c., to protect and help to forward inventions, if for Government or sanitary uses, and likely to benefit the country, in order that the inventors may be recognised and remunerated by the nation, and by those who in some cases claim the credit to themselves.

HEAD-QUARTERS OF THE FIRST SURREY RIFLES.

WE are glad that there are indications of the permanence of the Volunteer movement; and amongst them we may place the erection of buildings for the Head-Quarters of the First Surrey Rifles. These buildings were officially opened by the Lord Lieutenant of the county on the 1st of July.

About four acres of ground having been taken by the corps, at Camberwell, upon a long building lease, buildings of a substantial and permanent character were erected at a cost of upwards of 5,000*l*. The designs were prepared by Mr. J. T. Lepard, a member of the corps, who has acted as honorary architect. Mr. Winder was the builder. The internal arrangements are well suited to the object. The external effect of the buildings has been produced by coloured brickwork sparingly introduced. The principal feature of the plan and group is the drill-shed. It measures on plan, 150 ft. by 52 ft. in the clear; and its greatest height is about 40 ft. The roof is constructed with polygonal-framed ribs, semicircular in general form, 12 ft. 6 in. apart, and each of three thicknesses of plank,—one 1½ in. thickness between two ½ in. thicknesses, in short pieces breaking joint,—and connected with the principal rafters, similarly to the arrangement in the roofs of the annexes of the Exhibition Building of 1862. The common rafters are laid as purlins; and on these the boarding is laid diagonally, the external covering being slate. A lantern-light extends the entire length. There is a commodious gallery for visitors at one end of the building, approached by a wide staircase. The floor of the shed is formed of wood-block paving, laid by Mr. Carpy.

The men's room and canteen measure 52 ft. by 24 ft., with bar adjoining. The room overlooks the parade ground; and it has attached to it, the lavatory, a dressing-room with upwards of 400 lockers, and a yard with various conveniences. The plan also includes an armoury, with armourer's bench and stands for 1,200 rifles; an orderly-room, a non-commissioned officers' room, quarter-master's office, separate rooms for the secretary and the adjutant, and a room for the committee. There is also an officers' room, with dressing-room, lavatory, &c. attached; and there are residences, with distinct entrances, for the sergeant-major, and the canteen-man, with their families, and extensive



THE BANK OF SCOTLAND. -Plan of Principal Floor.

cellarage. It is intended at a future time to increase the accommodation here mentioned, by the erection of additional committee-rooms, and a concert-room, 65 ft. by 26 ft., with a large balcony facing the parade and drill-ground. The arrangements are well suited to the purpose of the building.

THE BANK OF SCOTLAND.

The building erected about sixty years ago, in Edinburgh, for the Bank of Scotland, is being extended and greatly altered in appearance; and we this week give a plan and two views of the structure in its amended form. The original building, by Messrs. Crichton & Reid,—the latter of whom was King's Architect, during many years, for Scotland,—though it presented a tolerable façade to the south, formed a square unsightly mass viewed from the terrace of Princes-street, or from other parts of the New Town. Several of the leading architects of Edinburgh have endeavoured to discover means whereby the old building might be improved in appearance. The late Mr. Hamilton, and Messrs. Peddie & Kinneir prepared elaborate designs; but none of these were acted upon. The business of the bank had, however, lately increased to such an extent that the directors felt that they would require to obtain additional accommodation; and with this they resolved to unite something in the way of architectural effect. Mr. David Bryce, R.S.A., was commissioned some two to three years ago to prepare designs. An architect could scarcely have a more troublesome task than that which was assigned to Mr. Bryce.

While retaining nearly all the stonework, the old structure has been so altered and added to, both externally and internally, that the work will possess, when completed, the appearance and advantages of a new building, and will be an ornament to the city.

The building stands on quickly-sloping ground, the north side being towards Princes-street and the Gardens; and the south side being in North Bank-street. The north side was founded below the level of the gardens, at least 100 ft. below the level of the principal floor. Meeting with a foundation on the other, the south, side, at about 65 ft. below the street, Mr. Bryce was induced to place his main addition, containing new rooms, there, or bounding the street-pavement as shown in our plan. At the erection of the

original building, the ground for the foundation on the north side was discovered to be so soft, that the work was stopped six months at a time, to allow the structure to consolidate and come to a uniform bearing.

The additions to the plan comprise the line of rooms next the street; two square compartments of the plan, containing the waiting-room, and the staircase to the residence; the quadrilateral additions, with windows, to the accountant's office and secretary's clerk's room, and corresponding rooms above them; the north wall and windows of the telling-room, which will now occupy two stories, and minor works. The southern line of rooms, however, is partly of one story; above, and in the general effect as shown in the south-east view, there are two wings and a recessed centre. The length of the front is increased by the wings from 105 ft. to 175 ft.

The style and character of the altered building will be as in the original building; but additional ornamentation is to be introduced. In the new design, the windows are flanked by piers and coupled Corinthian pillars, and terminate in ornamented pedimental gables. Behind those gables will be belvederes, consisting of four clusters of shafts united by arches and covered by stone domes, on the apex of each of which will be a single allegorical figure. The unsightly dome of the old building is to be superseded by a cupola of graceful design, and which will rise 30 ft. higher than the old one. The tambour is octagonal in shape, and has its sides decorated with panels, mouldings, and cornices. The lantern upon the dome is surmounted by a statue. The height of the cupola from the pavement in Bank-street will be 112 ft., that of the belvederes 90 ft., and that of the main body of the building 55 ft. The street floor all round the building is to be constructed of rustic ashlar, every alternate course being vermiculated, and broken up by piers on either side of the windows, and Ionic pillars with vermiculated bands on either side of the main entrance. Along the top of the one-story part of the building which lies between the wings, runs a frieze and cornice, surmounted by a stone balustrade, which will be broken up at intervals by pedestals bearing sculptured groups representing Agriculture, Navigation, Commerce, and Mechanics. The part of the old structure appearing in the recess between the wings and over the low building in front, will be altered and ornamented, so as to be in harmony with its surroundings.

The north side of the building, which was its most objectionable feature, is in the central part, to be reconstructed from the ground-level, and will not be recognisable as a part of the old structure. The central windows are to be surmounted by pediments. In the centre of the lower pediment will be an ornamented window; and the upper pediment will be supported by coupled caryatides, and will bear a sculptured group. The top of the building will be finished with a stone balustrade, having pedestals with groups of figures at the angles. From the nature of the site, the building is of great height at the north side: two sunk floors are hidden by the screen wall. The appearance of the bank, on the south, will be graceful and commanding; and, on the north, as the upper part will rise above all the houses in High-street and Bank-street beyond it, the cupola and belvederes will group with the towers and spires of the Free College and Assembly Hall on one side, and St. Giles's on the other.

The Bank-street entrance will open into a lofty hall, measuring 42 ft. by 21 ft., on one side of which will be a lobby and corridor, and on the other the principal staircase. The telling-room beyond will be much enlarged, and measure 50 ft. by 40 ft.; and in height it will embrace, as before said, two stories, as the old telling-room will be opened up and incorporated with the large room above. One object of the alterations is to get all the business apartments arranged on the street floor; and this the architect has succeeded in. At the west end of the low portion of the building, in front, the manager's room, with the waiting-rooms, &c., in connexion therewith, will be situated; and at the east end the secretary's apartments and those of the inspector of branches. On the first floor of the present building will be the rooms of the directors, committee, law agent, &c.; and on the upper floor, a commodious dwelling-house for the accountant. All the business apartments are to be richly decorated.

The works were commenced more than eighteen months ago; but owing to the magnitude of the works of the foundations, the superstructure is not now complete; and another year and a half may elapse before the building can be finished.

The masonry and carpenter's work are in the hands of Messrs. Wm. Beattie & Son. Our plan does not distinguish between the new work and the old; but the nature of the alterations will be exactly understood from the description.

THE BANK OF SCOTLAND, EDINBURGH.—MR. DAVID BRUCE, R.S.A., ARCHITECT.



SOUTH-EAST VIEW.



NORTH-WEST VIEW.

ST. PETER'S EPISCOPAL CHURCH, EDINBURGH.

SIX or seven years ago, the members of the Episcopal Church of St. Peter, in Roxburgh-place, Edinburgh, finding that their place of worship was falling into a dilapidated condition, came to the conclusion that it would be expedient to erect an entirely new church in a more convenient position. They accordingly secured a site on the south side of Lutton-place, Newington, and advertised for plans, one of the conditions being that the building should be so planned as readily to admit of future additions. A design of Decorated Gothic character, by Mr. Slater, of London, was fixed upon as the most suitable, and was carried into effect in its modified form, which consisted of a nave and apse; the future additions to consist of aisles and a spire. The design has now been finished in its entirety, with the further additions of a cloister and baptistery at the west end; and the result is that it may now be considered the most complete Gothic church in the city. The original church was seated for three hundred and fifty persons; and the aisles offered additional accommodation for two hundred sitters. In the alterations, the west gable and chancel have been retained, the side wall removed, and the roof (an open timber one) underpinned, and upheld on pointed arches supported by Peterhead granite columns, with boldly-carved caps. The tracery, buttresses, &c., have been used in constructing the outer walls. The spire forms the principal architectural feature of the exterior: it is well proportioned, and is a graceful addition to the architectural features of the city, being seen to advantage from several points of view. There are few cities where such features tell so well, and come so often into play, as in Edinburgh. Under the tower is a large and deeply-recessed doorway; and another entrance is formed at the end of the cloisters, leading from which are two arched openings; both of these openings are provided with wrought-iron gates. The baptistery is situated opposite the centre of the west gable-end, and is separated from it by the cloisters: it is octagonal in form, and vaulted in stone. The whole plan of the church are of two lights each, with the exception of those at the ends of the aisles, which are circular. Of these windows, those in the north aisle have been devoted to subjects from the Old Testament, and the south aisle to subjects from the New Testament. The windows of the apse illustrate the history of our Lord; while those of the baptistery will be reserved for the baptism of Christ, and other kindred subjects. The subjects of each window are as follows:—North aisle, commencing at west end.—No. 1. Migration of Abraham; Sacrifice of Isaac. No. 2. Jacob's Ladder; Joseph making himself known to his Brethren. No. 3. Moses with the Tables of the Law; the Brazen Serpent. No. 4. Samuel anointing David; David and Nathan. No. 5. Solomon dedicating the Temple; Elijah taken up into Heaven. Aisle, commencing at north side.—No. 1. Annunciation; Visit to Elizabeth; Nativity; Christ subject to His Parents. No. 2. Sermon on the Mount; Marriage in Cana; Healing the Sick; Last Supper. No. 3. Crucifixion; Agony in the Garden; Descent from the Cross; Entombment. No. 4. Resurrection; Maries watching; Angels and Maries at Sepulchre; Noli me Tangere. No. 5. Ascension; Final Commission to the Apostles; Session; Pentecost. South aisle, commencing at east end.—No. 1. Call of SS. Peter and Andrew; Miraculous Draught of Fishes. No. 2. Transfiguration (SS. Peter, James, and John); St. John taking the Virgin Mary to his own home. No. 3. Call of St. Matthew; Unbelief of St. Thomas. No. 4. Christ in the House of Martha and Mary; St. Mary Magdalene washing the Feet of Christ. No. 5. Martyrdom of St. Stephen; Conversion of St. Paul. Messrs. Clayton & Bell are the artists employed, and the glass already in place is remarkable as work of that kind in the city, both as regards harmony of colour and mode of treatment. The chancel has been fitted up with appropriate oak-carved benches, by Mr. Forsyth; brass work by Mr. Potter, and tiles by Messrs. Minton & Co. The pulpit, by Mr. Poole, is circular in plan, and is of Caen stone, supported by shafts of Sienna, Devonshire, and Galway marble. A fine organ, by Mr. Holt, has been placed in a chamber to the south of the chancel. The whole interior is being decorated in colour, by Mr. Potts, of Edinburgh, under the direction of Mr. Fry, clerk of works. Mr. Baffin is the mason and joiner.

THE WESTMINSTER GREAT BELL.

MR. THOMAS WALESBY corrects a mistake into which many persons have been led respecting the treatment adopted in the case of Big Ben the Second. He says that though the bell is still imperfect, lacking grandeur and richness of tone—a somewhat gong-like sound being first omitted, instead of the proper fundamental note—it has, nevertheless, improved under the treatment of Messrs. Mears. To the question, "What has been done to the cracked bell," has the so-called "drill-and-saw" remedy been applied to it?" he answers, "Certainly not," and gives the following statement. When Big Ben formerly told the hours, he was struck regularly by a monster clock-hammer of about 7½ or 8 cwt., the blow of which produced "a shock enormously greater than that of a clapper, and supposed to be greater than was ever before given to a bell." And thus poor Ben was cracked. Now, the principal crack in the bell was found to be diametrically opposite to the hammer. In order, then, that the metal might be partially relieved from strain at the places intersected by the cracks, Messrs. Mears turned the bell about 3 ft. and substituted a new clock-hammer, not exceeding 4 cwt., for the old one of 8 cwt. The result, he says, unquestionably is, Big Ben speaks out in a more agreeable and continuous tone, though still defective, than he ever did when subjected to the blow of the old monster hammer.

THE LEEDS CROSS.

WILL you kindly spare me a corner in your valuable paper for a few remarks in answer to the incorrect statements respecting this cross, made by Professor Westwood and Mr. Way in their joint paper read at the last meeting of the Archaeological Institute of Great Britain and Ireland, an account of which appeared in the *Builder* on the 15th of July last.

In justice to Mr. Chantrell, architect, who I expected would have answered for himself, I cannot do better than give a concise history of the discovery and fate of this said cross. In the year 1837, Dr. Hook, then Vicar of Leeds, now Dean of Chichester, commissioned Mr. Chantrell to prepare plans for the re-building of the parish church. During the demolition of the old walls (more particularly the tower) the architect discovered that many of the stones were carved, whereupon he offered rewards to any of the workmen who should find any sculptured stones. By this means he obtained a large and valuable collection of these ancient relics, and had them removed to his residence near Leeds. After clearing off the mortar, and thoroughly cleansing the specimens, he discovered he had nearly the whole of one cross (the one now in question) and the greater portion of a smaller one, &c. &c.

In 1839, he read a paper on the discovery of this cross, before the Leeds Philosophical and Literary Society; and afterwards in London, before the Royal Institute of British Architects, illustrated by drawings, and I believe castings in plaster, from the cross.

Since the discovery, it has been taken the greatest care of, and has formed a pleasing feature in Mr. Chantrell's garden, wherever he has resided. It is now with him in the county of Sussex, not far from Brighton; and, strange enough, the vicar, the cross, and the architect are all located in one county. I only trust, at the proper time, Mr. Chantrell may be inclined to make the Leeds people a present of their own "old cross" (around which, no doubt, the early Christians worshipped, before a church was erected in Leeds), so that it may once more rest beneath the roof of the parish church, after its long sojourn in the South of England.

H. W. CHANTRELL.

METROPOLITAN RAILWAY MATTERS.

THE High-Level Crystal Palace line, which has just been opened for traffic, forms an important addition to the London, Chatham, and Dover system, and will prove of great service to the Crystal Palace and to the public generally. The line, as described in the *Railway News*, starts from a point on the South London Railway near the Lyndhurst-road, Peckham, running on the same road, though on a distinct set of rails, as the Brighton scheme of the South London between Brixton and Peckham. At Semaphor-hill there will be a junction with the Greenwich

branch, which on its route will connect itself with the Mid-Kent, North Kent, and Tunbridge lines, thus giving to Woolwich, Gravesend, Beckenham, Lewisham—and all the places, in short, on the South-Eastern system—a communication with the Crystal Palace and metropolitan stations of the Chatham and Dover line. From this point the line runs on by the Nunhead-hill Cemetery, climbing up heavy gradients, as, indeed, throughout, from Peckham. About a mile from the Crystal Palace there is a tunnel through the ridge of the hill, called the Crescent Tunnel, 400 yards in length, and still nearer the Crystal Palace there is another tunnel, the Paxton Tunnel, of 440 yards in length. The station is on a level with the Crystal Palace, and will lead into the building by a corridor beneath the road in front of the palace, the whole ascent not being more than about 20 ft.; and this is accomplished by broad and easy flights of steps. The station building is provided with four platforms, of which two are set apart for the use of first-class passengers only, and will communicate by a separate passage with the first-class entrance in the centre transept, the entrances for second and third-class passengers being nearer the south transept, and all the arrangements for them being distinct from those for first-class passengers. The traffic to the Crystal Palace will be separated from the residential traffic of the district by distinct stations. The passage from the station to the palace is 40 ft. in width, and the roof is supported by groined arches formed of various coloured bricks. There are four stations upon the line, one at Denmark-hill, a second at Peckham, both of which will be available also for the traffic of the South London; a third at Nunhead, and a fourth at Forest-hill. As yet none of these intermediate stations are open to the public. At present nineteen trains run daily each way. The length of the branch is six miles and a quarter. When all the authorised lines of the Chatham and Dover Railway are complete, the new line will communicate directly with the stations at Victoria, Farringdon-street, Charing-cross, Cannon-street, London Bridge, King's-cross, Paddington, all stations on the Metropolitan and Great Northern Railways, and with Clapham, Brixton, Camberwell, Deptford, New-cross, Greenwich, Woolwich, and all stations on the South-Eastern Railway and London and South-Western Railways. The line has been constructed by Messrs. Peto & Betts. Mr. Shelford is the resident engineer; and Mr. Edward M. Barry has been the architect for the Crystal Palace station, which was built by Messrs. Lucas, at a cost of about 100,000l. The Brighton or South London portion was constructed by Mr. Firbank, of Newport, Mr. Jacob being the resident engineer. We may add that the iron roof of the station displays taste. It is enriched with gilding.

At a special meeting of the London, Chatham, and Dover Company, Lord Harris stated that the company's Victoria Station and the approach to it were inadequate to accommodate the traffic; many complaints were made in the public press, and otherwise, of the want of punctuality in the company's Metropolitan Extension trains, not only at the Victoria, but also at the Blackfriars, City, and other stations. The only remedy was to get an independent branch line of their own, and they had accordingly obtained powers to go from a junction near Wandsworth Station across the Thames to the Victoria Station. This would enable them to accommodate the traffic of other companies as well as their own, by which they would be materially benefited. The works were in course of construction; and it was hoped they would be completed in April next. The Chairman, Lord Sondes, moved a formal resolution authorising the creation of 370,000l. capital stock under the Act of 1863, and of 150,000l. under the New Lines Act, 1864, and that these two stocks be called the Victoria Station Improvement Stock. The resolution was adopted. Sir M. Peto, M.P., in reply to questions, said that his firm had been and were carrying on the works vigorously, with the view of bringing into operation at the same time the four lines of rails from Farringdon-street to Herne-hill and the Victoria Station, which he believed would be accomplished by April next.

It appears from the Metropolitan Railway returns that during the half-year just ended, a number of persons equal to two-and-a-half times the whole population travelled upon the underground line, the total number being 7,462,823. The greatest number consisted, of course, of third-class passengers; but a comparison with the figures of the previous year shows

that the proportion of both first and second classes is slightly decreasing, as the third-class passengers increase in a greater ratio than the others. The first-class travellers in the first half-year of 1864 were 12.20 per cent. of the whole, while this year they were only 11.15; the percentage of the second-class in 1864 was 23.25, for the year just ended it was 20.37; while the third-class travellers, who in 1864 formed 64.55 per cent. of the whole, made up last year the larger proportion of 68.48 per cent. The extent to which travelling upon railways may be encouraged by low fares is illustrated by the travelling from station to station. The fares between intermediate stations were reduced this year from 4d., 3d., and 2d. for single journeys, to 3d., 2d., and 1d.; for the return journey from 6d., 4d., and 3d., to 4d., 3d., and 2d. The consequence is that in the month of June last as many as 39,403 persons booked by third-class, or 1d. fares, to ride from one station to another on the line; 4,045 travelled second-class, and 2,398 first-class between intermediate stations. The increase during the month consequent on the reduction of the intermediate fares was a total of 29,842, or representing an annual increase of nearly 1,000 travellers per day. The whole of this amount of traffic has been conducted underground, without the loss of a single life or the occurrence of a single casualty to passengers. We understand that the line northward from the Underground Railway will cause the demolition of the house at the top of Upper Baker-street in which Mrs. Siddons died.

METROPOLITAN BOARD OF WORKS.

At the meeting of the Metropolitan Board of Works in last week, the cash statement of the finance committee was presented, and showed the following cash balances in the hands of the treasurer:—Current account, 297,884l. 14s. 4d.; deposit accounts, 200,000l.; total, 497,884l. 14s. 4d. Government securities, 16,189l. 11s.

Tenders for works to the Putney and other sewers, and for diverting sewage from a part of the River Wandie, were received, as elsewhere mentioned; and Mr. Moxon's tender, for 41,500l., was accepted, subject to the usual inquiries.

Proposed Improvement in Park-lane.

Major Lyon moved, pursuant to notice, "That it is incumbent on the Board to make provision for the relief of the traffic in Park-lane; that Parliament be applied to in the next Session for an Act for that purpose; and that it be referred to the Streets Committee to consider the details of a scheme for improving and widening Park-lane." He said that what the Board wanted was to provide some remedy, at the least possible expense, for the evil that now existed. There was no improvement in London that required so much consideration as the question before them. The architect ought to have as much time as possible to enable him to consider the plans at present proposed. With the exception of an old plan made by Mr. Marrable, C.E., for the widening of Park-lane, he did not think there was any scheme at all practicable. There was a scheme for making a thoroughfare through Audley-street, but that had not received much consideration. He hoped his motion would pass without any opposition.

Mr. Westerton seconded the motion.

Mr. Le Breton said that as the Streets Committee would not meet until the first week in September, he would move as an amendment that Mr. Vallancey, the superintending architect, be directed to make plans for the consideration of the Board.

Mr. Bidgood said, as a private individual living at the West-end, he would hail with delight any plan that would relieve the traffic in any way. He thought the question rested between the Hamilton-place scheme and an improvement at a cost of between 200,000l. and 300,000l. He saw no balancing-place between the two, and he was not inclined to incur that great expense. The Board had been most anxious to open up Hamilton-place, but Government and Parliament stood in the way. If Hamilton-place were opened, all difficulty would be at an end.

Mr. Miller, M.P., said that the estimate for widening Park-lane, laid before Parliament, was 104,000l., out of which 8,000l. was estimated for Gloucester House, at the corner. He considered that the Park-lane plan was the best to adopt.

Mr. Newton said he was glad this subject had been taken up by the members for St. George's, Hanover-square. He considered that this was a local improvement, and he hoped that Major Lyon would, as they would be separated for six weeks, consult his vestry (St. George's, Hanover-square) as to how much they would pay towards the scheme.

In answer to Mr. Bidgood, Major Lyon said the Government would clear the way for the Marble Arch. Mr. Healey said, the representatives of the richest parish in London (St. George's) said their vestry was not inclined to contribute anything towards the improvement. There were many places in London which required improvement more than Park-lane, and he saw no reason why the Board should incur the expense of going to Parliament for such a scheme.

Some amendment having been made to the motion, the Chairman said, the committee and the architect would be confined to the widening of Park-lane. He thought it would be better if the form of the motion were "for the relieving of Park-lane." It would then be open. Ultimately Major Lyon agreed to omit the words having reference to an application to Parliament.

Improvement in Carey-street.

The Works and Improvements Committee recommended "That the Board do contribute the sum of 4,000l. towards the cost of an improvement estimated at 15,000l., to be effected by the Strand District Board of Works, by setting back the houses on the south side of Carey-street,

Chancery-lane, at the eastern end, and that such contribution be paid to the Strand District Board of Works, on a certificate from the architect of this Board of the completion of the work."

On the motion for the adoption of this recommendation, an amendment was proposed raising the contribution of the Board from 4,000l. to 5,000l., and it was agreed to.

The Progress of the Thames Embankment and Main Drainage Works.

The Engineer (Mr. J. W. Bazalgette) presented a report upon the progress of the Thames Embankment works, the low-level sewer north, and the alterations of main sewers, schedule D.

"North Side of the River.—Thames Embankment (Contract No. 1), between Westminster and Waterloo Bridges. The works comprise about 1,610 ft. in length of caisson dam, 660 ft. in length of timber coffer-dam, 140 ft. run of river wall, with low-level sewer and subway by Whitehall, and 1,604 ft. of 4 ft. by 2 ft. 8 in. brick sewer, along the forebore, for the purpose of intercepting the drains discharged therein; the formation of the foundations, brick-work, granite facings, flushing sewers, and reservoir, with pipes, valves, &c., for flushing the level sewer; the putting for recesses, &c., in connection with the Westminster Steamboat Pier, and the river wall in continuation eastward thereof; the filling in of 306,600 cube yards of materials, partly from the river bed, and partly from land, and piling for strutting to coffer-dams, &c., in various stages. The approximate value of the whole of the foregoing, together with the materials and plant upon the ground, is 770,684l. The sum of 13,423l. is due to the progress made in the past month. Of the total amount, the proportionate sum of 93,747l. is for works, 31,070l. for materials, and 75,758l. for plant."

Thames Embankment (Contract No. 2), between Waterloo Bridge and Temple Gardens.—The coffer-dam in front of Somerset House is completed, with the exception of about 75 ft. at the end adjacent to the bridge. Within the finished portion about 3,600 cube yards of ground have been excavated, and 700 yards of concrete tipped in for the foundations of the river wall. Within the dam fronting Temple-gate and the river wall, 3,450 cube yards of the work done in the construction of the river wall, sewer, and subway, is as follows:—418 cube yards of excavations have been got out, and 1,270 yards of concrete deposited; 112 rods of brickwork built, 3,450 cube feet of granite bedded, and 780 ft. super. of 6 in. Trough landings laid. The dam at the eastern end of Temple Gardens is in course of construction. The approximate value of the work completed, and of the materials and plant upon the ground, is 123,728l. or 8,558l. for the work executed in the past month. Of the total amount the sum of 73,234l. is for works, 10,968l. for materials, and 34,444l. for plant. Low-level Sewer.—During the past month 1,180 ft. of the main line, and 635 ft. of the Old Ford branch sewer have been constructed, making in all a total length of about 21.3 miles of sewer completed prior to this month. Within the dam which has been completed in the river Lea, 550 yards of excavation have been got out. The sewer from that river through the marshes is being constructed in open cutting, and is at present progressing about 550 ft. run of trench having been opened, and the brick invert got in for a length of 160 ft. The total approximate value of the completed works, is 117,463l., of which the sum of 12,169l. is due to the progress made by Mr. Webster in the past month.

Abbey-mills Station.—The excavation for this building is in progress, about 3,000 cube yards of ground having been got out, and the pile driving, and the struts, &c., fixed. The cost of these works, including the pumping, is estimated at 2,600l.

Western Sewers Extension.—The works are now virtually completed, and their approximate cost is 17,930l.

Greenwich and Deptford Sewers.—Nearly 1½ miles of these sewers, with about 3,770 ft. of branch pipe sewers and drains, have been completed by Mr. Delick, who has also about 214 ft. of tunnelling in progress. The total value of these and of the incidental works in connexion therewith is 21,190l. or 1,233l. in excess of the amount last reported.

J. W. BAZALGETTE, Chief Engineer."

The report was received and adopted.

Utilization of Sewage on the South Side of the River.

Mr. Newton moved "That advertisements be issued stating that the Board will be prepared to receive suggestions and communications in reference to the utilization of the sewage of the London which require on the south side, on 22nd of September. He thought that if the Board intended to do anything this year, the course for them to adopt was the motion. It was intimated at the last meeting that none of the tenders had been drawn up in accordance with the conditions advertised, and he (Mr. Newton) thought it was clear that the Board could not receive these tenders. He referred at some length to the circumstances attending the receiving of tenders for the sewage last year, and contended that the course he now suggested was in accordance with the precedent then laid down. Besides, he thought it was only fair to give the persons who had presented tenders, but about the formal drawing up and presentation of which there was some question, an opportunity of tendering again. He did not think the Board was at present in a position to take the tenders in question into consideration. In his opinion, the Board should draw a wide distinction between tenders for works and the purchase of this concession, and he thought that the Board were bound to seek for and accept the best terms offered.

Mr. Doulton, M.P., in moving an amendment, said that he could not see the force of the arguments advanced by Mr. Newton. The position of the Board was totally different from what it was when Mr. Newton was returned. The case had undergone thorough examination; it would be monstrous and unfair to allow the Board to shirk of conformity with the terms of the advertisement to throw the whole question open again, so as to enable parties who were not prepared in time, but who had now obtained the information they needed, to present tenders; and it might be that these tenderers had not strictly complied with the terms of the advertisement; but it appeared to him that the Board would injure themselves very much in the eyes of the public if they allowed the possibility of unfair dealing to exist. They should adhere to the bargain in the advertisement, and before seeking for other tenders they should consider those already received.

Mr. Lowman Taylor seconded the amendment. He thought if they were to do anything in the matter they should commence de novo, but before doing so, they should examine the plans. If any committee who had to examine them found there was nothing in them that they should feel satisfied in recommending, let the general public then get an opportunity of seeing in

other plans. He would in that case be glad to consider Mr. Shield's plan, and, if it was found to be the best, to vote for it. As far as he was concerned, he would not pledge himself to any one of the plans; but if they wished to retain the control of the general public, he thought they should offer an opinion on them before re-advertising. Although he disapproved of the suggestion of Mr. Newton, still he had no doubt it would be ultimately adopted, but he trusted that before doing so the plans already sent in would be examined. He thought that the various plans should be sent to the vestries and district boards, and therefore thought the amendment ought to be adopted. They should act, he considered, with great caution in the matter.

Mr. Miller thought they ought to wait till the report of the committee was before them respecting the plans already sent in; and was of the opinion that if they anticipated that report, they would lay themselves open to the imputation that they had some ulterior object in doing so. The amendment, he would suggest, was that the further consideration of the matter be deferred till the report of the committee be laid before the Board.

After much discussion, the amendment of Mr. Doulton was put, and, on a division, was lost by 12 votes to 15.

On the original motion being put,

Mr. Miller moved the amendment he had suggested, and it was carried.

The Offensive Manufactures below Woolwich and the Plumstead Navigators.

A report was brought up from the Main Drainage Committee with reference to the above-named nuisances. It recommended "That a communication be addressed to the Marquis of Hartington to the effect, that the Board entertain no doubt as to the great nuisance which arises from the offensive manufactories below Woolwich, but that owing to their being situated beyond the jurisdiction of the Board, they are unable to deal with the matter; that it must therefore be left to the Government to take such measures as they may be advised, and that the Board will be happy to aid them as far as lies in their power; that the Engineer be instructed to examine and report with respect to the open ditches in Plumstead Marshes, into which it is alleged that the drainage of Plumstead now flows; that the Marquis of Hartington be so informed, and that the particulars thereof be communicated to him."

The report was unanimously adopted. Some other questions, elsewhere noticed, were discussed at the same meeting.

THE METROPOLITAN BUILDINGS ACT.

At the meeting in last week, of the Metropolitan Board of Works, Mr. Robert Taylor gave notice of the following motion in reference to the fees to district surveyors:—"That it be referred to the Building Act Committee to report generally on the payment of district surveyors by fees; on the extent, value, and convenience of the present districts; and on the expediency of their fusion and re-arrangement. Also as to the advisability of diverting the payment of the fees collected under the Act into a common fund, out of which to defray the payment of a staff of salaried officers devoting their whole time to the public service." He said, that last year the district surveyors were paid in the way of fees 23,000l., and he was strongly impressed that the public should have the benefit to some extent of these fees.

At the same meeting, a report was received from the Building Act Committee, stating, with reference to the recent fire in Southwark-street, that the investigations show the district surveyor fulfilled his duty with regard to the construction of the building; but that it may become a question whether, in any amendment of the Building Act, some provision should not be made as to the use of materials for erections on roofs.

PROVINCIAL NEWS.

Cambridge.—At the last meeting of the town council, the report of the market committee recommending the adoption of a plan by Mr. R. R. Rowe for a new Corn Exchange, was referred back for further consideration. The council did not like the plan; but, by the casting vote of the mayor, it pledged itself to a new Corn Exchange, and to Peas Hill as the fittest site for that exchange. The market and guildhall committees will consider the subject jointly.

Teignmouth (Devon).—The first pillar for the new pier to be erected at Teignmouth has been formally screwed down by the Earl of Devon.

Newport (Wales).—The market-place erected at Newport by the Duke of Beaufort is well-nigh completed, sundry fittings up being all that is needed ere it be open for the public accommodation. The more detailed plans and sections of the Alexandra Docks are now being prepared, and advertisements will shortly be issued inviting tenders for the works. Lord Tredegar, upon whose land the docks will be constructed, has subscribed 150,000l. towards the undertaking, being one-fourth of the capital; the Great Western Railway Company has powers to subscribe 50,000l.; Brecon and Merthyr Company, 50,000l.; and the Monmouthshire, 20,000l.;

making a total of 270,000. The remaining 330,000. will be looked for from the public.

Liverpool.—At a recent meeting of the town council, Alderman Stewart said the council had some time ago adopted a recommendation that the dwelling-house for the judges should be erected upon the Newsham House Estate. Accordingly, the finance committee had directed the architect and surveyor to prepare plans for such a residence. These plans were now prepared, and had been submitted to the finance committee, and the estimate for the building was set down at 10,000. He moved the adoption of the recommendation. Mr. S. G. Rathbone moved as an amendment that the recommendation of the finance committee be referred back, in order that they might report whether some less expensive plan of lodging the judges could not be devised. Mr. Pictou seconded the motion. Alderman Woodruff said the council had already affirmed the question that the judge's lodgings should be erected on the Newsham Estate; and Mr. Robson was, in consequence, directed by the finance committee to prepare plans, &c., for the approval of the council. The only question now for the council was, whether the elevation was a satisfactory one, and whether they were prepared to go to that expense? They could not deal with the question whether they would go to the Newsham Estate without rescinding the resolution already passed. Mr. Rathbone's amendment was therefore out of order. The amendment, however, was carried by 26 to 16.

CHURCH-BUILDING NEWS.

Hunstanton.—The chancel of Hunstanton Church has been re-opened for divine service. The work of restoration has been done under the direction of Mr. F. Preedy, architect. The old low-pitched deal roof has been replaced by an oak one, with a pitch corresponding to that of the church. The walls have been faced with white freestone, the floor raised, and the east part paved with Minton's tiles, and a reredos of alabaster, with painted medallions, from designs by Mr. Preedy, erected at the east end. Of the latter, only part is at present put up, as it was unfortunately broken in its transit from Worcester. A temporary vestry and organ chamber have been erected on the north side of the chancel.

Aylesbury.—A vestry meeting has been held in St. Mary's Church, to submit the report and estimate of Mr. G. G. Scott, relating to the external repairs necessary to the parish church, and to discuss how the funds should be raised. It was resolved that the question of raising a certain portion of the 1,500. required for the repairs by means of a church-rate be submitted to a future meeting of the parishioners.

Upper Heyford.—At a recent vestry-meeting as to the restoration of the parish church, the rector produced plans and drawings prepared by Mr. Talbot Bury, architect, showing that the characteristics of the old church and chancel will be preserved so far as they are worth preserving. The tower, traditionally said to be the work of William of Wykeham, who purchased the manor and advowson for presentation to New College, is every way firm and good, and requires no very costly repairs, except in the matter of the bells, which are to be restored. When the contemplated repairs are effected, the edifice will consist of a western tower, nave slightly widened from its present dimensions, north aisle, chancel, vestry-room, semi-transcript on the south, and south porch. The resolutions of the vestry were to the effect that the parishioners present approved the proposal to raise 400. by loan from the Public Works Loan Office, and to spread the repayments over five years and not longer. A restoration committee was then appointed.

Bromley-by-Bow.—The new church of St. Michael and All Angels in the parish of Bromley-by-Bow, the foundation stone of which was laid by the Countess of Ellesmere on the 29th of September last, has been consecrated by the Bishop of London.

Leighton Buzzard (Beds).—The chief stone of a new church, to be named St. Andrew's, situated at the north end of Leighton Buzzard, has been laid by Colonel Hammer, K.B., lord of the manor. The church will be 100 ft. in length, and 50 ft. in width within the walls, with a spire of more than 100 ft. in height. The style is Early Decorated. The material will be stone, with freestone dressings, from Farleigh Down Pits, Wiltshire. It is calculated to seat 500 persons, all the seats being free. The cost is

estimated at 3,000. The architect is Mr. Joseph Neale, of Bristol; builders, Messrs. Holdstock & Garside, of Leighton Buzzard; stone masonry, by Mr. John Greenway, of Linslade, Leighton Buzzard; clerk of the works, Mr. J. P. Stevens.

Hawkey (Hants).—The new church, built at the sole expense of Mr. J. Maberley (said to amount to 4,000.), has been consecrated by the Bishop of Winchester. The edifice is in the Early Norman style. The walls are built of the gray rock stone of the parish; the quoins, window frames, and facings of Caen stone, carved in relief; and the tower, with its transverse roof, 100 feet in height, exhibits itself as a landmark over a great extent of country.

Birmingham.—St. David's Church, which has just been erected in Bissell-street, on a site of land given by Mr. John Nicholls, has been consecrated by the Bishop of Worcester. The church is built in the form of a cross, in the Gothic style of the Geometric period. It is built of brick, with a small admixture of stone, principally in the traces of the windows. It has a nave and aisles, chancel, and two transepts. The total length is 140 ft., the width in the body of the church 52 ft., and the length across the transepts 90 ft. The height from the floor to the top of the nave roof is about 50 ft. At the west end there is a tower, bearing a spire rising to a height of between 150 ft. and 160 ft. The columns and arches to the nave and chancel are of Bath stone, and the floor of the chancel is paved with encaustic tiles, the whole of the roofs being open-timbered, varnished, and the roof of the chancel slightly ornamented. The sittings are all open, and composed of red deal. On the south side of the chancel there is an organ chapel, in which is placed an organ, built by Mr. Banfield, and presented to the church by Mr. Nicholls. The church will accommodate 1,000 persons, and 750 of the seats are free. The edifice has been erected at a cost of upwards of 4,000., by Messrs. Webb, of Birmingham, contractors, from plans by Messrs. Martin & Chamberlain, architects. The whole of the carving on the stone capitals is the work of Mr. Barfield, of Leicester.

Hamstead, near Birmingham.—The new temporary church at Hamstead, on the estate of Mr. John Stubbs, who gave the land for the site, has been opened for divine service. The building is of Gothic character. Its size is 70 ft. by 20 ft., with entrance porch and vestry, and will accommodate 210 persons. The foundation is of stone, having buttresses every 10 ft., and built to receive an iron sill-plate, upon which is placed wood studding, forming the walls of the building. The roof is high pitched, and slated, and is surmounted by a bell turret. The roof principals are framed of wood and iron, and are placed on wood posts, which are supported by iron brackets, lighted on the stone buttresses. The church is lighted by one large window, in the gable end, and seven pointed windows in the sides and apses, which run up and form gables in the roof. There are also four small gabled windows in the roof. The outside of the building is finished in cement, the inside being boarded 5 ft. in height, the remaining height, as also the underside of the roof, being covered with strong canvas whitened, the joints being covered with deal fillets. The whole of the inside woodwork is stained, the ironwork being painted blue. The church is provided with movable benches, pulpit, reading-desk, lectern, sedilia, altar-table, and altar-rail, all of stained deal. The building has been erected by Messrs. John Hardwick & Son, of Birmingham, builders, from the designs of Mr. G. T. Robinson, archidiaconal architect, Leamington. The cost, including all the fittings, is 21. per sitting. The new edifice is within a short distance of the Hamstead and Great Barr Railway Station, in a rural district, some portions of which are about to be offered to the public for building sites.

Hornsea (Yorkshire).—A preliminary meeting has been held to consider the restoration of the parish church, and to devise the best means of obtaining the sum required, which, according to the estimate of Mr. Gilbert Scott, the architect, will be 2,000. for the interior restoration only. The chancel stalls are to be in oak, and the other parts in stained fir. According to Mr. Scott's plan, the church will seat upwards of 200 more than at present. A committee has been appointed to receive contributions.

Asby (Westmoreland).—The foundation-stone of a new church has been laid in the secluded Westmoreland village of Asby, situated about 5 miles south of the county town of Appleby. Miss Hill, of Castlebank, Appleby, is erecting

the new church on the site of the old one. Messrs. W. & J. Hay, of Liverpool, architects, were applied to, and a design being approved of by Miss Hill, contracts were entered into for its immediate erection. The exterior measurement is 85 ft. by 37 ft., and interior 50 ft. by 32 ft. 5 in. The chancel will be 25 ft. by 13 ft. 6 in., and the porch 12 ft. square. The tower is to be 50 ft. high, and will be surmounted by an ornamental cross. The building is of the Decorated Gothic style, consisting of chancel, nave, south aisle, south porch, and vestry; on the north side chancel, and a bell gable sufficient to contain two bells. The nave is divided into three bays, with round pillars supporting arches in two orders of red and white stone. The south side is lighted with two low windows of ten lights, and a single light opposite the font. The north wall is lighted with lofty decorated windows of two lights each, and a three-light window lights the east or chancel gable. A stone arch, in two orders of red and white stone, separates the chancel from the nave. The interior will be filled with plain benches of pitch pine, and the floor constructed of tessellated pavement. The roof will be covered with green Westmoreland slates. There is also a pent-house between the two buttresses for the use of the bell-ringers. The material of which the building is composed is a warm-tinted stone, found in the immediate neighborhood. The tenders of Mr. Grisenthwaite, of Penrith, for the masonry; Mr. J. Dawson, of Appleby, for the woodwork; and the late Mr. R. Farnet, of Appleby, for the plumbing, glazing, &c. (now being executed by Messrs. Martindale & Jackson), were accepted. The work was commenced early in the beginning of the year, and the exterior masonry is far advanced.

DISSENTING CHURCH-BUILDING NEWS.

Bermondsey.—The foundation-stone of a new Congregational chapel has been laid by the Rev. C. H. Spurgeon, on a plot of ground situated in the Drammond-road, Jamaica Level, Bermondsey.

Great Berkhamstead (Herts).—The new Baptist chapel has been opened. The new edifice stands at the east end of the High-street, and on the north side. It is in the Decorated style. The materials are white Leighton bricks, with red bands, and white Bath freestone. At the south-west corner are a tower and a white stone spire, the height of which is 90 ft. There is a large window at the south end of the building. The dimensions of the chapel are, externally, 58 ft. by 40 ft., and internally, 48 ft. by 37 ft. It contains sittings for 540 persons. The seats and galleries are of stained deal. The south gallery extends over the entrance-porch to the inclined plane. The floor of the chapel is an inclined plane. There is no pulpit, but a platform with the minister's desk placed on it. The organ-chamber is at the north end of the chapel, with a stone arch, on each corner of which is the figure of an angel. The roof of the chapel is of stained timber, open to the ridge, with white plaster between the rafters. At the rear are large schoolrooms, of a corresponding style of architecture. The architect was Mr. Neale, of Bristol; and the builder, Mr. Toefield, of Tottenham. The total cost of the chapel and schools is under 2,000., including the site. Some of the materials of the old chapel have been used up in the new; and the total expenditure will be about 1,600.

Leicester.—The foundation-stone of the new Nonconformist Church, Victoria-road (formerly known as the Occupation-road), has been laid, by Sir Samuel Morton Peto, bart., M.P. The site chosen for the edifice is a conspicuous one. The building will be in the Gothic style, and surmounted by a spire 150 ft. high. It is intended to accommodate about 1,100 persons, and the cost will be 7,000. The schoolroom will be underneath the back part of the building, the size of it being 60 ft. by 36 ft. The cost of the erection will be defrayed almost entirely by the congregation attending Belvoir-street and Charles-street Chapels. Mr. R. Harris alone contributes 1,000. towards the building fund, and other sums have already been subscribed, amounting altogether to 4,300. The architect of the building is Mr. J. Tarring, of London; and Messrs. Neale & Sons, of Leicester, are the builders. Mr. Henry Crocker is clerk of the works.

Malvern.—The foundation stone of a new Wesleyan chapel and schools, for Malvern, has

been laid. The plans of the chapel are by Mr. John Tarring of London. The style of the building is Early Decorated, and it is calculated to accommodate 500 people. There are to be a nave, transept, and apse. The length will be 84 ft. 6 in.; width at the transepts, 53 ft.; and width of the nave, 40 ft. Beneath the chapel, in a sort of crypt, are to be the school-rooms, 12 ft. in height, capable of accommodating 500 children. Attached to the school-rooms are class-rooms and vestries, but the minister's vestry is on the ground floor of the chapel. The actual height of the tower will be 84 ft., but the addition of 24 ft. of the pinnacles will make the total height 104 ft. The total cost of church and school-rooms is estimated at 3,000*l.*, of which 2,250*l.* have been already subscribed or promised.

Chesler.—The new Presbyterian church, City-road, has been opened for divine service. The building is of classic character with a Roman Ionic portico, resting on columns and pilasters, approached by steps. Inside the building the platform has been introduced in preference to the pulpit. The seats are stained in light oak, with mahogany capping, and are all cushioned, except the free sittings. The windows are of stained glass, with amber figures on a white ground. Under the entire church there are large school-rooms, lofty and well ventilated, capable of accommodating three hundred children.

Miscellaneous.—At the twelfth anniversary of the English Congregational Church Building Society, held at Leeds, an abstract of the report of the committee was read, which gave a brief history of the movement for the establishing of free churches which had called the Society into existence, and through the operation of which, it was said, there were now tens, hundreds, and thousands of chapels where, 200 years ago, there was not one. The London, Lancashire, and English societies for the building of free churches had been instrumental in the erection of more than 300 churches, of which 237 had been added by the English Society. The total receipts of the latter for the year, including the balance, was 9,018*l.*, being the largest amount yet recorded. The chapels adopted during the year numbered eighteen, making, since the commencement, a total of 237, which furnished accommodation for nearly 120,000 persons; and costing, inclusive of sites, 365,000*l.* The total pecuniary assistance voted by the Society in aid of this object was 62,000*l.*

SCHOOL-BUILDING NEWS.

Monmouth.—The opening of Jones's Grammar School and the consecration of the chapel, the foundation-stone of which was laid a year ago by the master of the Haberdashers' Company, have now taken place. The old school accommodated 100 boys, but the number will now be increased to 160, the surplus income of the charity being 1,000*l.* a year. The present school premises and chapel are built of local stone, rough-faced, taken from quarries belonging to the Duke of Beaufort. The buildings are in the Tudor style, with Bath stone dressings. The school-room is about 72 ft. long by 32 ft. wide, and is 85 ft. in height. It has an open roof of stained deal, and is fitted up with desks for the masters and benches for the pupils, on each side of the room. It is also lighted by several gas-pendants, and is warmed by Gurney's stoves. There are two class-rooms attached to the school, one for writing and the other for the use of the classical scholars. The dimensions of the former are about 15 ft. by 26 ft., and the latter about 20 ft. by 15 ft. The necessary offices are in the rear, and there is a large yard for the use of the scholars. The chapel is 62 ft. by 25 ft., and has a clock-tower. The clock was supplied by Mr. Moore, of Clerkenwell, at a cost of 100*l.* The chapel is seated with open stained deal benches, and it is capable of accommodating 170 to 180 persons. The roof is likewise constructed of open stained deal. The chancel is not separated from the nave, and this gives a peculiar appearance to the chapel. The edifice is lighted by three five-light windows, one at each of the east and west ends, and one at the south side. There are also ten ornamental standard gas-lights, each having twelve jets. The floor of the chancel and the aisle are paved with encaustic tiles from the manufactory of Messrs. Godwin, of Lurgardine. Adjoining the chapel is a library and vestry, which is also intended to be used as a board-room. The cost of the buildings is said

to be about 5,000*l.*; and, with the exception of a few alterations, the work has been completed within the contract. Mr. Snooke, architect to the Haberdashers' Company, was the architect; and Messrs. Collins & Cullis, of Tewkesbury, were the contractors.

Widnesfield Heath.—The memorial stone of new day and Sunday schools, now being built in connexion with the Wesleyan chapel at this place, has been laid. The new building occupies a site immediately in the rear of the Wesleyan chapel, and consists of a school-room for boys and girls, an infants' school-room, a class-room, and an attached teacher's residence. The mixed school for boys and girls is 49 ft. by 18 ft., and the infant school 36 ft. by 20 ft., the two schools together accommodating 170 children. Large playgrounds, one for boys, the other for girls and infants, adjoin the schools, and are provided with flying swings and other conveniences. The building is designed in a Gothic character of architecture, the fronts being faced with red bricks, relieved with bands of blue bricks and Bath stone dressings. Internally the main timbers of the roofs are exposed to sight, and stained and varnished. The contract for the schools, including boundaries and fittings, has been taken by Mr. Evans, of Wolverhampton, at 1,058*l.* The architect is Mr. George Bidlake, of Wolverhampton.

Eccles.—The foundation-stone of a building, to be used as a school-room in connexion with the parish church at Eccles, has been laid. The building is designed by and is to be carried out under the superintendence of Mr. James Medland Taylor. The character of architecture is Gothic. The walls will be of red brick, relieved by bands and patterns of the same material. The roofs will be covered with purple and blue slates. The large roof of the central building will be broken up by five gables, that in the centre being the largest, and surmounted by an open-timbered belfry, which will contain a good-sounding bell. The chimneys, breaking up at several points, will aid in giving variety to the sky-line. In the treatment of the building the endeavour has been made to give it an ecclesiastical appearance, in order to indicate its connexion with the church. The work has been let in several contracts, to builders in the neighbourhood. The principal front will be towards Albert-street, and the total cost, including the fittings, will be about 2,500*l.* The schools cover a rectangular plot of ground. The large room, in the centre, is 74 ft. by 30 ft. At the back of the building will be a porch for the children's entrance, and a more elaborate gabled porch fronting Albert-street. On the north side of the large room will be the boys' school, and on the south the girls' school, each having separate entrances and play-grounds. There will also be three large class-rooms. In the basement will be a kitchen, in which cooking, washing, and other domestic work will be taught to the girls.

Shields.—A new building, for the Hill-street Mission School, has been opened. The site is on Carpenter's Hill. The new school is built of brick, with a stone facing. In length it is 43 ft., by 21 ft. in breadth, and 15 ft. in height. Attached to the building is a small class-room, and also a house for the master.

RECENT PATENTS CONNECTED WITH BUILDING.*

APPARATUS FOR HEATING ROOMS, &c.—J. Grundy. Dated November 25, 1864.—The patentee employs a stove having at the top a pipe or flue communicating with a chimney, and he places the stove in a chamber surrounded by brickwork, earthenware, or other suitable material, so as to allow a space between the walls and the stove. Near the bottom of the chamber there are apertures in the walls for the entrance of cold air to be heated by the stove when the fuel is in a state of ignition, and at the top of the chamber there is or are one or more pipes for conveying the heated air to any required part of the building.

KILNS OR OVENS FOR BURNING BRICKS, TILES, POTTERY-WARE, &c.—H. Chamberlain, J. Craven, and H. Weickend. Partly a communication. Dated June 24, 1864.—This invention relates to improvements for which letters patent were granted to A. V. Newton, December 27, 1859. The first part of the modifications consists in erecting such kilns or ovens in lines, straight or

otherwise, as distinguished from a complete annular or endless form, and with no perfect continuity of action, such kilns or ovens communicating with each other to the extent of their length, and with one or a series of chimneys. The second part of this invention consists in constructing the ovens or kilns with a second or inner annular chamber, by which dry or warm air may be taken from any of the heated kilns to any of the other chambers for the purpose of drying the green bricks or other articles from which it is desired to drive off the moisture. The third part consists in arranging a flue or flues passing from the upper part of the kilns or chambers to the chimney, by which the steam, arising from the materials undergoing the process of drying or heating, may be driven off from the articles under treatment. The kilns or ovens above described may also be worked when desired without chimneys, by using in place thereof fans or exhausters.

Books Received.

A Record of the Progress of Modern Engineering, 1864; with Essays and Reviews. Edited by WILLIAM HUMBER, A.I.C.E., &c. London: Lockwood & Co. 1865.

This is the second volume of a quarto periodical half-yearly or yearly according to circumstances. It is practically and really what it professes to be—a record of modern engineering—as is evident from the contents, which include, among recent works, particulars, with illustrations; as to the Charing-cross Station roof, the Dublin Winter Palace, the new bridge at Blackfriars on the Chatham and Dover line, the Albert harbours at Greenock, low-water basin, Birkenhead Docks, &c., as well as general essays on iron railway-bridges, iron permanent ways, harbours, ports, and breakwaters, coating of iron, &c. More than three-fourths of the volume consist of quarto plates of illustrations, and the whole is preceded by a biographical sketch and photograph of Robert Stephenson.

Miscellaneous.

THE INTERNATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.—The fourth annual meeting of this body (*Association Internationale pour le Progrès des Sciences Sociales*) is to be held in Bern, on Monday, the 28th of August, to Saturday, the 2nd of September. The questions to be discussed are under the five heads Legislation, Education, Art and Literature, Public Health and Welfare, and Political Economy.

THE LATE MR. PARNELL, ARCHITECT.—We regret to have to notice the decease of this gentleman. He became generally known by the Army and Navy Club, in Pall-mall, a work in which Mr. Alfred Smith was associated with him. Later, he was the architect of the London and County Bank, in Lombard-street, illustrated in our pages. The last work to which his name was attached was the Whitehall Club, not yet completed. He died at Baden, where he had gone in the hope of relief from painful illness.

OBITUARY.—Baron Andreas von Baumgarten died at Vienna a few days ago, aged 72. In 1817, he was professor of physics at Olmutz, and in 1823 at the University of Vienna; chief editor of the *Journal de Physique et de Mathématiques*, in 1826; minister of public works under Pillersdorf, he continued in the service of the Austrian Government till 1860, when he retired, and devoted himself to the advancement of the sciences, of which he was president of the academy. Among the various engineering and mechanical works he produced, one of the last was the "Stoker's Guide."

THE INSTITUTION OF MECHANICAL ENGINEERS.—The Congress held this year in Dublin has terminated its sittings. Several interesting papers have been read. Amongst them were one "On a Portable Steam-Riveter," by Mr. Andrew Wylie, of Liverpool; "On the Manufacture of Peat," by Mr. C. Hodgson, of Portlaurton; one by Mr. George Low, of Dublin, "On his Rock-Boring Machine used at the Roundwood Tunnel of the Dublin Corporation's Water-works;" and one by Mr. Parke Neville, on the works themselves, to which we may refer hereafter.

* Selected from the *Engineer's* Lists.

THE DRINKING-FOUNTAIN MOVEMENT.—A drinking-fountain has been presented to the village of Newburn by Mr. Hugh Taylor, of Eardson. The fountain, which is erected in the upper part of the village, is composed of Aberdeen granite, the centre portion being polished. The designer was Mr. E. Chapman, of Alnwick; Mr. Beale, of Newcastle, having charge of the granite; Mr. Philipson, of Newburn, the mason-work; Mr. Watson, of Newcastle, the plumbing. The whole is surmounted by a lamp, put up by Messrs. Wilkin & Dickman, of Alnwick. The total cost, including the purchase of a supply of water in perpetuity from the Newcastle and Gateshead Water Company, is upwards of 500*l*.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The Congress at Durham, as will be seen by our advertising column, will commence on the 21st of August, and be continued to the 26th, inclusive, under the presidency of the Duke of Cleveland, who will deliver the inaugural address in the Castle. The Rev. G. Ormsby will then give a description of the Castle. At seven there will be a public dinner. The next day will be devoted to a visit to Lumley Castle, the seat of the Earl of Scarborough; to Chester-le-Street, the antiquities of which will be discussed upon by the Rev. H. Blane; and to Lanchester, and St. Cuthbert's College. On Wednesday, Mr. Gordon M. Hills will lecture upon Durham Cathedral and its monastic buildings, measurements and plans having been recently made by him. The party will then proceed to Finchale Abbey, which will be described by Mr. E. Roberts. Barnard Castle will be visited on Thursday; after which Staindrop Church, which will be treated of by the rector, the Rev. Mr. Hodgson. The Association will then proceed to visit the president, at Raby Castle, which will be described by the Rev. G. Ormsby and the Rev. J. E. Hodgson. On Friday there will be a visit to Tynemouth Priory, to be described by Mr. Sidney Gibson, and to Newcastle-on-Tyne, where the Rev. Dr. Collingwood Bruce will describe the castle, and exhibit antiquities in the museum, and explain the ruins of Friars Monastery. Mr. J. Hodgson Hinde will then receive the Association. On Saturday, Brancepeth Castle and Church, Bishop Auckland, and Darlington Church, will be inspected; and the party will return to Durham, where the concluding meeting will be held, in the new town-hall.

THE FIRE AT THE LANGHAM HOTEL.—We have received from the manufacturers of a Ventilating "Sun-burner," a letter referring to a notice in our pages, of the fire at the Langham Hotel, and to the fire as "said to have happened through a Sun Burner Reflector," and making out the notice (as we understand the letter) to be cause of probable loss to them. If the notice had been read with ordinary care, before the letter was written, "sun-burners" would not have been found named or alluded to. The fire was reported to have been caused by the heat of the sun's rays, as reflected from one of the contrivances for reflecting light, and for lighting dark corners or passages in buildings; and this cause of the accident was distinctly referred to by us. The occurrence, however, seems to demand more attention than it has received.

ELECTRO-TELEGRAPHIC.—A Warsaw journal announces that the plan for a telegraph line between Russia and America has been approved and signed by the Czar. The Russian Government undertakes to complete the line as far as Nicolaiewsk, the remaining portion—from Nicolaiewsk to San Francisco—being at the charge of the American Company. The capital of the latter amounts to 10,000,000 dollars, and bonds representing 8,434,600 dollars have already been issued. It is intended that this route shall be finished in 5 years.—At the half-yearly meeting of the Electric and International Telegraph Company it was stated that the net profit for the half-year was 54,696*l*, out of which a dividend was recommended of 4½ per cent. for the six months. The dividend was unanimously agreed to, and the balance of 3,140*l*. ordered to be added to the Trust Fund.—During the hearing of an application for discharge, made by Messrs. Charles Joyce & Co., merchants and underwriters, Moorgate-street, London, who had held a high position in the commercial world, and had failed with liabilities of unusual magnitude, it was stated that by an unfortunate mistake in the reading of a telegram, which led to a large purchase of cotton, a loss of 94,000*l*. had been incurred! At the time of our going to press, no positive explanation of the apparent failure of the Atlantic cable had come to hand.

SOUTH KENSINGTON MUSEUM.—During the week ending August 5, 1865, the visitors were:—On Monday, Tuesday, and Saturday, free days, open from 10 a.m. to 10 p.m., 10,572 persons; and on Wednesday, Thursday, and Friday, students' days (admission to the public, 6d.), open from 10 a.m. till 6 p.m., 1,676. Total, 12,248. Since the opening of the Museum it has been visited by 5,454,835 persons.

POPULATION OF OUR TOWNS.—The Registrar-General gives the population of ten large towns in the United Kingdom in the middle of the year 1865, estimated at these figures:—London, 3,015,494; borough of Liverpool, 476,368; city of Manchester, 354,930; borough of Salford, 110,838; borough of Birmingham, 327,842; borough of Leeds, 224,025; city of Bristol, 161,809; city of Edinburgh, 174,180; city of Glasgow, 423,723; city of Dublin (and some suburbs), 317,666.

ROOFS ON THE SUSPENSION PRINCIPLE.—Sir: Referring to the notice of this subject which appears in the *Builder* of August 5, I may perhaps be permitted to say that, in 1848, I got out plans and working drawings for a circular building 600 ft. diameter, with a roof of iron and wood on the suspension principle.

H. THOMAS.

*** We may take the opportunity of remarking that Mr. Hittorf's early efforts in this direction seem to have been lost sight of.

THE SCOTCH GRANITE COMPANY, who supplied from their quarries at Mull, the material for the base of the Prince Consort Memorial in Hyde Park, have acquired by purchase the well-known granite polishing works in Paisley-road, Glasgow. The red and pink varieties of granite are principally supplied from the Mull quarries. Polished granite for ornamental purposes is in constant demand all over the kingdom; and the Mull Quarries are exhaustless.

THE MENAI PARK AND HOTEL COMPANY.—The prospectus of this Company has been issued. The object is to carry out a contract with the London and North-Western Railway Company for the purchase of a freehold estate on the edge of the Menai Straits, consisting of eighty acres, of which twenty were some time ago planted and laid out by the late Sir Joseph Paxton. A first-class hotel is to be erected, with suitable grounds. Attention is called to the picturesque features and the invigorating climate of Carnarvonshire—conditions which have created a demand for residences there; and it is estimated that a handsome profit will be derived from the hotel and from the rentals of the estate. The capital is 70,000*l*, in 7,000 shares of 10*l*. each, and interest at the rate of 6 per cent. per annum is to be allowed on deposits and calls until the reopening of the hotel.

FOOD FOR THE SICK AND CONVALESCENT POOR. The gentleman who established the "Invalids' and Poor Sick Child's Dinner-table," in St. Pancras (a notice of which appeared in the *Builder* of last week), writes to us, saying that our "printer has led us into an error," which makes the furnishing expenses appear nearly double what they really are, and that the details of working expenses, derived from the first Report, do not represent the present usefulness of the institution. We append the amended account. The receipts have been,—

Donations	£49 15 6
By sale of tickets	67 4 0
Invalids' pence	42 5 10
Other sources	109 18 10
In all	£268 5 3

The outlay has been—	
For furnishing	£5 12 6
Rent	26 0 0
Matron	15 12 0
Balance at banker's	63 14 8

The dinners supplied have been 5,075 in number. Subscribers have sent in 1,453 tickets; the district clergy, 1,788; the district hospitals, 472; the medical gentlemen of the district, 181; the Bible Missions, 529; and the Societies for Relief of the Poor, 679; total, 5,075. The balance at the banker's is explained by Mr. Hicke's financial year ending in October, and the subscriptions coming in but slowly between January and April; which enables him to pay his way from year to year. We willingly help him to place clearly before the public the essential part of his scheme, namely, to show how cheaply real and permanent good may be done for the poor, not in pauperizing the working classes, but in helping the poor to help themselves.

SUSPENSION BRIDGE ACROSS THE OHIO RIVER. The piers of this bridge are nearly completed, and the wires will be suspended in a short time. The span, 1,057 ft., of the bridge, is called the longest in the United States.

GAS.—The Banbury Gas Company have declared a dividend of 7½ per cent., free of income tax, for the past year.—The Gas Products Utilising Company have declared a dividend of 5 per cent. for the last half year, free of income tax, making, with the 5 per cent. for the previous half year, in all 10 per cent. per annum, besides transferring 1,000*l*. to the reserve fund.

THE ROCHDALE BOROUGH SURVEYORSHIP.—Mr. A. M. Fowler having resigned, a new surveyor was advertised for, and thirty-five applications were received. This number was reduced to three,—Mr. Parnell, of Wolverhampton; Mr. Walker, of Birkenhead; and Mr. Richardson, of Rochdale. Ultimately Mr. Thomas Walker was appointed, at a salary of 200*l*. per annum. The council then unanimously passed a resolution bearing testimony to the zeal and efficiency of Mr. Fowler.

SEWERAGE OF MERTHYR-TYDFIL.—Tenders in the form of a schedule of prices have been received by the local Board of Health for the sewerage works of Merthyr-Tydfil. The surveyor, Mr. S. Harpur, at the last meeting of the Board, reported that the works to be executed, would, at the several prices, amount to the sums undermentioned, commencing with the lowest:—

White	£21,777 18 5
Ritson & Davies	25,628 10 8
Dixon & Sleigh	26,123 6 11
Mackenzie & Abell	27,560 12 8
Thomas, Watkins, & Jenkins	27,636 0 1
Griffiths & Thomas	27,708 6 10
Williams	29,022 6 10
Powell	45,880 3 4

A letter being read from Mr. White, of Ystalyfera, stating that he had performed similar contracts in Wigan, Burnley, South Shields, Tynemouth, Morpeth, Newport, &c., Mr. Scale asked the surveyor to explain one of the items in which a great difference existed between the several tenders. It was for the 9 in. pipes, which was one of the greatest items. Mr. White was cheaper than all the rest: some were 10s., his was 4s., and the surveyor's estimate was 6s. A considerable discussion took place, and a motion, previously made, for adjournment, was carried. Subsequently, the clerk was requested to make inquiries in the usual way as to the stability of Mr. White and his sureties, and also as to the manner in which he had performed his contracts in the towns named in his letter to the surveyor.

SAFE GUNPOWDER.—Experiments have been made at the Horseguards and at Westminster, by Mr. Gale, in order to satisfy the Duke of Cambridge and other authorities, military and civil, of the importance of his invention. The experiments were quite successful. Though ourselves impressed with the importance and utility to engineers, of this simple and ingenious way of safely storing gunpowder, we have suggested that experiments are requisite to prove whether or not sufficient of the non-explosive powder, which, in fact, is simply powdered or ground glass, adheres to the grains of gunpowder, after sifting, to lessen, in any appreciable degree, its explosive strength. Another suggestion has also been made, whether in conveying gunpowder from place to place the one powder will not be partially separated by vibration from the other, so as to uncover the gunpowder to a great extent at one side while the powdered glass collects at the other. There is certainly a tendency in powders, even though homogeneous, to settle or partially arrange themselves, when shaken, according to the fineness of the particles. Mr. Gale, however, denies that even in transport there is any danger of this taking place, at least to a sufficient extent to restore the explosive power of the gunpowder. The same objection does not apply to storing, except where causes of vibration are at work, as from railways or carriage-ways, establishments where steam-engines are used, &c. And even if it should turn out that transport tends to deteriorate the non-explosive arrangement of the particles, the reversal of the barrels or packages, could that be practically accomplished, might, to a great extent, restore the arrangement. Before being stored, for example, they could be exposed to vibratory force, while in the reversed position, for a certain interval, so as to insure their safety when stored.

WORKING MEN'S CLUBS.—Lord Stanley has given a powerful impetus to the multiplication of these excellent institutions, by a speech delivered at Birkenhead, on the occasion of the opening of the Workmen's Hall and Club-house in that place.

LEFRACOMBE HOTEL.—When the list of tenders was given in for this hotel, the tender of Mr. J. Dendle was the lowest; but he has asked to be allowed to throw it up, and the directors have permitted him to do so, taking the next lowest, that of Messrs. Call & Pethick, of Plymouth, for 14,944. The architect is Mr. M. C. W. Horne, of London and Plymouth. The building will contain over 166 rooms, besides baths and other conveniences. On and over the first floor there are 143 rooms, some *en suite*, suitable for sitting or bed rooms. The coffee and *table d'hôte* rooms are each 46 ft. by 30 ft., and over 20 ft. in height. The frontage is about 150 ft., and the average depth 86 ft. The building is described as being in the modern or Victorian style of architecture.

NEW HOTEL, CANNON STREET.—The City Terminus Hotel Company, in connexion with the terminus of the South-Eastern Railway, has been incorporated under the Companies Act, 1862, with limited liability. The capital is 140,000l., in 14,000 shares of 10l. each. 9,000 shares have already been subscribed for, and the remaining 5,000 are now offered to the public. The hotel is being erected at the City or Cannon Street Terminus of the South-Eastern Railway, now in course of construction. The works, which are in progress, have been let to Messrs. Lucas, Brothers, and arrangements have been made which will secure the payment of interest by them to the subscribers at the rate of 6 per cent. per annum on the amount of capital from time to time called up, until the opening of the hotel.

MONUMENTAL.—Mr. A. J. B. Beresford Hope, M.P., in reply to an inquiry as to a statue to the late Confederate General Jackson, states that Mr. Foley is at work on the statue; but as to the site—that, he fears, "is a question to be asked hereafter at Washington."—A monument has just been erected in the new cemetery at Worcester, to the memory of a Mrs. Maxwell. It is a square Gothic structure in Sicilian marble, raised in two stages, the lower one projecting beneath the upper. The lower stage has ornamental buttresses at each corner, and on the four sides are shields adapted for the reception of mortuary inscriptions. The work was by Mr. Stephens, of Worcester, sculptor.

"DIOCESAN ARCHITECTS." &c.—Sir: Your correspondent, "A Church Mouse," has certainly asked some simple, comprehensive, and appropriate questions concerning these official (official?) gentlemen. Shrewd inferences will be drawn by your readers in the absence of a satisfactory answer. I am not in possession of all the necessary information, or it should be at your service, and write now simply to inquire, what is known of a society advertised as "The Incorporated Church Building Society," and whether architects are connected therewith?—also, is the manner of conducting business such as to merit public comment?—for the information of the architectural profession generally, and of future church building committees particularly.—**OPPOSED TO QUACKERY.**

FEVER FROM LOCAL CAUSES IN LINCOLN.—It appears from the last monthly report of Mr. Garham, the house surgeon of the Lincoln Dispensary, that besides severe diarrhoea more generally prevalent, there is typhoid fever, which is mainly confined to the Castle Dyke neighbourhood, and to that part of the Hill-side which is in St. Martin's parish. These localities, says the reporter, I have on former occasions had to bring before your notice. Whenever any serious illness prevails within our city, in these places may we be sure of finding it in its most formidable character. When houses without ventilation, windows that will not open, open drains, cess-pools, and privies, reeking and stinking in an almost tropical temperature, within a few yards of the only means of airing these wretched dwellings (the open door), are permitted to exist, how can we wonder at disease finding there a fitting hiding-place? . . . As the germ of diarrhoea, cholera, and many other epidemic diseases, is found in the voidings of the affected, can we wonder, under such circumstances, at a disease spreading from house to house?

DECORATIVE GAS-LIGHTING.—Messrs. Defries & Sons write to say with reference to the Philharmonic-rooms, Southampton, of which an illustration and some particulars appeared in our number of the 29th ult., that although the pipe-laying may have been executed by the parties mentioned, the lighting generally was their work. The arrangements, which were designed by them, comprise crystal star-lights, surmounted with silver and ruby clusters, and festoons of crystal, with various coloured stars. There are sixteen star lights in the hall, of twenty-four lights each, four chandeliers in the ante-rooms, and at the entrance two large prismatic lanterns, with various crystal brackets, &c., to other parts of the building. Messrs. Defries have undertaken the lighting by gas of the building at Oporto, for the Portuguese International Exhibition. The structure is drawing to completion, and the committee have decided that the inauguration shall take place in September.

TENDERS

For house at Bourn, near Cambridge, for Mr. Samuel Peed. Mr. W. M. Fawcett, architect:—
Turner.....£3,520 0 0
Bell & Sons.....3,190 0 0
Day.....3,165 11 4
Thoday & Clayton.....2,750 0 0
Gray & Son.....2,670 0 0

For vicarage at Ganton, Yorkshire, for the Rev. D. L. Alexander. Mr. John Gibson, architect, Malton:—
Barry (accepted).....£1,100 0 0

For the erection of schools at Pinner, Middlesex. Mr. Thomas Hill, architect:—
T. Anson.....£2,498 0 0
King & Sons.....2,257 0 0
Cowland.....2,150 0 0
Bottom.....2,130 0 0
Adamsen.....2,090 0 0
Dove, Brothers.....2,075 0 0
Field & Sons.....1,900 0 0
Young.....1,838 0 0

For workmen's hall at Stratford, Essex. Mr. G. B. Marshall, architect:—
Hill & Keddell.....£1,059 0 0
Norton.....1,032 0 0
Chellies.....1,040 0 0
Rivett (accepted).....1,033 0 0

For factory buildings and chimney-shaft at the Silk Printing Works, Garrett-lane, Wandsworth, Surrey:—
Rivett (accepted).....£3,545 0 0

For covering, &c., the Heathwall, the Lord Spencer, and a portion of the Putney boundary main sewers, and for diverting the sewage through Garrett-lane from a part of the Wandell:—
Hill & Keddell.....£60,160 0 0
Webster.....46,300 0 0
Thirst.....47,081 0 0
Dethick.....46,600 0 0
Pearson.....45,600 0 0
Moxon.....41,600 0 0

For alterations and additions to a house, for Mrs. C. Grove, Norwood-green, Messrs. Backhouse & Ivimey, architects. Quantities supplied by Messrs. Epply & Scott:—
Hanson.....£1,593 0 0
Browne.....1,575 0 0
Walker.....1,525 0 0
Simms & Martin.....1,520 0 0
Gibson, Brothers.....1,347 0 0
White & Son.....1,339 10 0
Humphrey, Brothers.....970 0 0

For the erection of kennels and helpers' rooms for the Right Hon. the Earl Poulett. Mr. T. Preston, architect:—

	No. 1 Contract.	No. 2 Contract.	No. 3 Contract.	Total.
Light	£1,070 0 0			
Ellis	1,029 0 0			
Wells	975 0 0			
Bartlett	974 0 0			
Edwards	955 0 0			
King	939 0 0			
Baehurst (accepted)	923 0 0			
Duffett	890 0 0			

For the erection of premises, Aldersgate-street, for Mr. Wm. Bradshaw. Mr. N. S. Joseph, architect:—

	Contract.	Total.
Conder	£2,140 0 0	
Messers	2,105 0 0	
Axford	2,050 0 0	
Kilby	1,985 0 0	
Newman & Mann	1,975 0 0	
Hardiman & Sandor	1,947 0 0	
Hill & Keddell	1,929 0 0	
King & Sons	1,927 0 0	

For new premises, London and County Bank, Lambeth Branch. Messrs. Francis, architects:—

	Contract.	Total.
Myers & Sons	£5,949 0 0	
Savoy	5,930 0 0	
Higgs	5,450 0 0	
Hill & Sons	5,424 0 0	
Simpson	5,417 0 0	

For a villa to be built for Mr. H. Branson. Mr. C. Foster, architect. Quantities supplied:—

	Contract.	Total.
White	£2,680 0 0	
Ruthe	2,628 0 0	
Daisy	2,485 0 0	
Lanxon & Co.	2,470 0 0	
Smith	2,419 0 0	
Warton	2,416 0 0	

For finishing a pair of large semi-detached villa residences, in Hungerford-road, Holloway, for Messrs. Hindley, Messrs. Lander & Bedels, architects:—
Hindley & Colson.....£1,747 0 0
Hill & Sons.....1,700 0 0
Child & Sons.....1,657 0 0
Scrivener & White.....1,644 0 0
Palmer.....1,460 0 0
Grover (accepted).....1,438 0 0

For rebuilding Nos. 27, 28, and 29, Walbrook, for Messrs. Bates, Brothers. Messrs. Wimple & Taylor, architects:—

	Including top Portland stone front.	If Bath story and stoneclashed Portland.
Piper & Wheeler	£7,220	£7,100
Browns & Robinson	6,987	6,870
Lawrence & Son	6,940	6,870
Myers & Son	6,985	6,810
Hart	6,115	5,915
Colls & Son	6,180	5,860
Hill & Son	6,067	5,873
Kilby	6,155	5,861
Adamson & Son	6,028	5,809
Hardiman & Sandon	5,528	5,294

For building two houses at Clapton. Mr. J. Tanner, architect:—

	Contract.	Total.
Front	£3,605 0 0	
Elton	3,060 0 0	
Tanner & Son	2,449 0 0	
Colls & Son	2,444 0 0	
Eaton & Chapman	2,170 0 0	
Stableford	2,078 0 0	

For the erection of a detached house, exclusive of bricks, part of other materials, fences, &c., for Mr. M. Ficker, Belvedere, Kent, S.E. Mr. Herbert Ford, architect:—
Vickery (accepted).....£700 0 0

For alterations and additions to Warehouse, No. 5, Canal-street, City, E.C., for Mr. A. Wells. Mr. Herbert Ford, architect:—
Palmer & Son (accepted).....£375 0 0

For works at Ealing, for Col. Elsal. Quantities furnished by Messrs. Epply & Scott:—
Cole.....£255 0 0
Ingewick.....637 0 0
Grover.....619 0 0
Nye.....472 0 0
Gibson.....440 0 0

For alterations and additions to a house on Peckham-rye, for Mr. J. D. Potter. Mr. W. Bertram, architect:—
Thompson.....£1,584 0 0
Soper.....1,400 0 0
Watkins.....1,193 0 0
Colls & Son.....1,183 0 0
Tarrant.....1,100 0 0

For the Fulham and Hammersmith sewers:—

	The New-road Sewer.	Total.
Robinson	£8,950 0 0	
Thirst	6,459 0 0	
Moxon	5,870 0 0	
Niblett	6,250 0 0	
Chamberlain	4,850 0 0	
Wigmore & Whittick	4,850 0 0	
Reid	4,880 0 0	
Bird	4,699 0 0	
Williams & Co.	4,290 0 0	

	The New-road Sewer.	Total.
Robinson	1,822 0 0	
Thirst	1,409 0 0	
Moxon	1,280 0 0	
Niblett	1,200 0 0	
Williams & Co.	1,130 0 0	
Chamberlain	1,110 0 0	
Bird	1,060 0 0	
Wigmore & Whittick	1,035 0 0	
Reddin	1,030 0 0	

Fulham Union Workhouse.—No. 1 contract, for raising and otherwise altering the male and female idiot wards; No. 2 contract, for building hospital for contagious diseases; No. 3 contract, for building boundary-walls and other works to the same:—

	No. 1 Contract.	No. 2 Contract.	No. 3 Contract.	Total.
Robinson	£821	£285	£285	£2,205
Mansell	616	651	640	2,116
Martin	780	645	670	2,095
Eyles	793	645	639	2,099
Chamberlain	777	645	695	2,018
Wigmore & Whittick	749	608	634	1,991
Wilson	642	619	642	1,904
Snelling	677	605	603	1,875

For Oswestry water-works and drainage. Messrs. Gotto & Bosley, engineers. Contract No. 1, for supplying cast-iron pipes, per ton delivered:—

	Straight pipes.	Bends and tees.	Branches.
Ellis & Son	£9 15 0	£9 5 0	£9 5 0
Lacon	8 12 6	8 12 6	8 12 6
Hoed	17 6	7 10 0	8 0 0
Clairidge, North, & Co.	5 12 8	8 10 0	8 10 0

Contract No. 2, for laying pipes, constructing reservoirs, sewage tanks, sewers, and other works:—

	Contract.	Total.
Evans	£12,310 0 0	
Morris	12,150 0 0	
Longson	11,500 0 0	
Moore	11,232 0 0	
Bugbird	9,555 0 0	
Beeston & Routledge	9,485 0 0	

For merchandise warehouse, Dover. Mr. Rowland Rees, jun., architect. Quantities supplied:—

	Contract.	Total.
Bowley	£2,997 0 0	
Matthews	2,890 0 0	
P. Stiff & Co. (accepted)	2,748 0 0	

The Builder.

VOL. XXIII.—No. 1176.

American Notes: The Use of Timber in Construction; Water-Supply; and Heating-Apparatus.



HERE are features of interest in the building contrivances, and in the efforts after architecture, of a new country; but it is not often that they receive from the architects of old countries, the attention that they deserve. We propose here to set down a few notes

concerning what may be seen in America.

In a country so well supplied as is America with timber, the lavish use of wood in building may naturally be looked for. Twenty years ago, up to within the last five or six, designs exhibiting architectural character were generally executed in wood. In fact, private dwellings, churches, and railroad-stations, were simply huge full-sized models in wood, imitating, by sanding the surface, or by other unjustifiable process, a material more costly and durable, but not so easily worked. An amusing article might be written upon the absurdities thus perpetrated; amongst which none more deserve ridicule than the stations upon the New York and Erie Railroad, because the engineers and officers of this once extravagantly-appointed line might have been supposed to know better. All of these were huge boxes of the severest Grecian-Doric or semi-Egyptian styles, painted a gloomy chocolate brown, sanded as rough as nutmeg-graters, and as uselessly heavy in appearance as they were frail in reality. Many of them have since given place to better-conceived erections; but the majority have yet an undesirable vitality. These, of course, were all of wood, boxed out into thicknesses that left the joints to open in the intense heat of the sun, to the palpable betrayal of the sham that had been attempted.

After awhile, a better taste prevailing, timber construction began to be legitimately developed. One of its first phases was the expression its use gave to the roofs, verandahs, porches, and other projections from the building. The climate of the Northern States requiring, during the fierce blaze of the summer, equal provision for shade as the residences of the "sunny South," the houses soon assumed a character in this respect which might, it is true, have been more honestly taken advantage of. Unfortunately, nearly all the architects brought into play their European recollections or office-traditions, and only used this facile material to carry out architectural features that properly required other embodiment. In proof of this there are numberless buildings in which the Tudor style has been made use of, with heavy mullions, hood-moulds, gable-copings, parapets, &c., all manufactured in wood, upon brick or even stone walls, and painted and sanded, to mock the eye and touch, as stone. In many country-houses, designed by

the late Mr. Downing, and by his successor, this faulty error has been perpetrated, and with no excuse for so doing.

Passing these defects by, there are many examples of an honest use of timber that would delight our realistic architectural friends. In the Western States the rough log-houses are pretty to read about, and picturesque (sometimes) to sketch; but they are generally clumsily contrived, and badly put together. At first intended as temporary dwellings, time proved so valuable and labour so scarce, that the erection of a better house would be put off time after time, and the original rude hut would be added to, upon this side and upon that, until it became too large to pull down, and too ugly to attempt to beautify. So it would be left; until, after awhile, the restless family of settlers, having, as they imagined, better prospects elsewhere, would leave it to fall into ruin, whilst they were probably engaged in erecting just such another a few hundred miles further west. Therefore, the rude timber dwellings, quickly thrown up to meet an immediate emergency, must not be supposed to form the type or nucleus of a national American style; but only near large towns, where cultivated minds had thought out the right treatment of the material, must satisfactory timber erections be sought for.

Wooden houses, properly built, are warm, weather-proof, and durable; besides having the advantages of rapidity of construction and facility of removal. This latter recommendation was one of more practical value a few years ago than now, when, especially in the eastern states, it was no unusual thing to meet a two or three story building, on rollers, with ten or a dozen yoke of oxen and a small army of men, creaking along through the wide country roads, in quest of a more eligible situation than the last; the smoke from its cooking-stove tranquilly curling up to the sky, and the savoury smell of "buck-wheats" showing that the good lady of the house took her fitting very calmly, and was not to be disturbed in her household employments.

The mode in which these wooden buildings were usually constructed, was by framing upright studs and cross bearers upon sills resting on brick or stone foundations, with corner posts spiked thereon, and the roof-plate resting on the top. Mortising and tenoning were avoided as much as possible,—oak pins or iron spikes fastening the framing together so as not to weaken the timbers by cutting into them, as also to prevent the danger of decay. The frame being in its place, the outside, in all buildings of a better class, was first covered with rough hemlock boards, and then with "clap-boards," as they are called, which are clean boards of even widths, cut feathering on their upper edge, and usually rounded on the outer edge, and laid lapping one over the other so as to show the same depth of face; or the rough boards were covered with inch-and-a-half planks placed perpendicularly, the joints covered with battens (generally chamfered or moulded) 2 in. or 2½ in. wide, and nailed through to the framing, which in this case would have horizontal bearers cut in between the studs to receive the planking. The laths for plastering would be nailed on the inner face of the framing; and between these and the outer covering, in all the better houses, the space is filled in either with soft brick on edge or rough mortar,—in all making a really very warm and comfortable wall, the interlining of soft brick or mortar preventing the sun heating the interior, and at the same time serving to retain internal heat and exclude the winter's cold.

In no feature, however, do American buildings show so great a difference from ours as in the roof.

A favourite, cheap, and durable material is the white oak shingle. This consists of thin oak slabs, cut frequently into ornamental forms and

laid as slate would be. The shingle is about five-eighths of an inch thick at bottom, feathering away almost to nothing on the top, laid lapping, and fastened with copper nails. These will last for many years, and are so light that a very economical scantling of roof timbers is admissible. Unpainted, they are remarkably durable; but all attempts to render them more lasting by painting, or by any other covering, have been failures. This experience corresponds much with that of the treatment of park-palings in England. The shingles swell with the rain, and remain tight and weather-proof, if left in their natural state; and, after some years' exposure, they are found to have acquired a coating from nature's own laboratory that renders them impervious to wet.

Examination, in a large number of instances, would practically confirm a theory that wood exposed to the atmosphere will last longer unpainted than painted, provided the surfaces are rough. This idea is by no means new, or claimed as original; but it has not received the attention it deserves. A church that was erected in the year 1848, in a very exposed situation in one of the American North-eastern States, and entirely of timber construction, was left almost as the material came from the saw and unpainted; and in 1860 there was no appearance whatever of external decay, and none of any damage from the wet penetrating into the interior. The external surfaces seemed to have become almost silicated, so hard and perfect was the shell that had formed thereon.

Where shingles are not used, tinned plate is generally employed. In the dry atmosphere of the Northern States, despite the contraction and expansion that must occur in such extremes of intense heat and severe cold, this material lasts extremely well. The sheets are laid upon a rough boarded surface, at a slope that may be very considerably less than that permissible with slate, and are fastened by rolls over the edges of the plate, which are turned up, and also soldered where the upper sheet overlaps the under. Copper nails are also sometimes used; but the more independent the tinned sheathing of the roof boarding can be left the better it will stand, as the contraction and expansion are not interfered with. A curious fact is that nearly all the material thus used comes from this side the Atlantic, and is manufactured of special dimensions and thicknesses, and with the edges turned up by machinery, exclusively for the American market. Whether there are well-founded objections to its introduction for the same purpose here, it would certainly seem worth while to inquire.

The tinned roofing is generally coated with some paint, of which there are many patented compounds: the common earth paints, found in such abundance throughout the country, seem as durable as any, and are very cheap. Under the roof thus clothed with plates, it is not uncommon to find a layer of cork slabs or felt; and when these are used, the upper rooms are not unpleasantly affected by the transmitted heat.

Slates are beginning to be used for roofing purposes to a rapidly increasing extent, but tiles are rarely seen.

Whatever the material for covering may be, the nearly universal practice, particularly in the longer-settled states of New England, is to frame the roofs, as was the custom here in olden times,—namely, with principal, purlins, and common rafters. The timbers are always deep and of good scantling; and, with all the lightness and thrift of material of an American building, the roofs are well built and scientifically laid out. Tie-beams are generally used where they do not too much interfere with the headway, and a continuous bond is given to the whole interior framing of the building by connecting cross pieces from the tie-beams to the floor-timbers of the floor below, and these again with the one

under, and so down until the sill is reached, thus greatly strengthening the whole fabric.

The wooden "trestle" bridges of America are well known; their safety in principle has made engineers rash; and the cheap manner in which railroads are constructed forbids attention to the state of their repair, so that more than one fearful accident has been the result. In all American constructions, as in the principle of these bridges, weight of scantling is made secondary to depth, and the result will bear inquiry. Some large roofs of really enormous span are models of timber construction: one especially, over a large railroad station in Connecticut, has an unsupported span of about 96 ft. from wall to wall, and is formed entirely of timber, with iron suspending-rods, and framed so as to be entirely free from temon or mortise. The deflection in this roof is represented as scarcely appreciable; and it has stood for nearly twenty years. A peculiar feature consists in the manner in which the iron rods are made to do their duty without piercing the timbers, being constructed so as to pass through shoes above and below the timbers to which they are tied. The roof of the Academy of Music of New York is exceedingly well contrived for the large space it is required to span.

Though the Americans, in their tricky use of wood as a means of embellishment, are scarcely examples to follow, it is due to them to observe, that in other building operations they are laudably free from shams. In all the large cities, stone and marble are lavishly used, and stucco, cement, or artificial material, in guise of stone, is almost unknown. Iron, it is true, may be seen used in a faulty manner for purposes of cast enrichment; but both within and without, American city buildings are remarkably honest and substantial.

In one respect they are far beyond our usual limit of attainment, and that is in the completeness of their arrangements for water supply, and in their various apparatus for heating. It is a common practice in estimating, to allow one-fourth of the gross outlay for the plumber's work of an average private house in New York, Philadelphia, or Boston; whilst many houses considerably exceed that liberal limit.

Master plumbers complain, in many of our towns, that their best hands leave them for the "States;" and it is certainly the fact that the workmanship to be seen there, is such as to justify the belief that the highest skilled labour must be greatly in demand. In all the large towns, the abundance and purity of the public supply of water renders every householder desirous to secure his share of the benefit. The Croton aqueduct, that supplies New York, does its duty magnificently; and though complaints of waste have obliged the authorities to be somewhat more sparing of the flow than heretofore, London is at present far behind its Yankee rival in this respect. New Yorkers claim great praise for their sewerage system also; but upon this it is not now proposed to dwell.

Every house of even moderate pretensions has at least one bath-room, well supplied with hot and cold water; and if every bedroom be not similarly supplied, at least all upon the principal floor are so. Usually the pipes are all in sight, neatly finished and fastened upon an oak, walnut, or mahogany strip, with the joints and holdfasts japanned, and the pipes themselves clean and bright; this arrangement of course is made so as readily to get at and repair leaks, which the capricious frosts of early winter make somewhat probable. To guard against such, however, various contrivances, more or less successful, are resorted to, none seemingly more efficacious than an arrangement by which a continuous circulation throughout each length of pipe is obtained, with at the same time such a plan adopted of laying out the work, that all nearly horizontal pipes have a dip towards the outlet, so as readily to empty themselves; and by allowing no bends to be of such a curve as to retain water when it is required to have them free.

The hot-water supply is obtained by a simple apparatus, which seemingly is not known commonly to our plumbers. In describing it, it will be necessary first to remark that all houses have a receiving cistern in the upper part of the building, to render the pressure on the pipes equal, and the supply steady.

From this a cold-water pipe descends to the kitchen, beside the range in which the apparatus for heating the water is placed. This consists of a large upright copper cylindrical boiler, generally containing thirty to forty gallons, and sometimes considerably more, the water within

which is kept at nearly boiling-point, by being coupled with the fountain, or water-back, at the back of the range. In this upright boiler a coil of pipes is compactly laid against the inner surface, and this coil, connected as it is with the cold-water pipe, receives cold water at the upper end, passes it through the coil to the bottom of the boiler, and then repeating the curve passes it up again in the shape of hot water, ready to be drawn wherever needed, a hot-water pipe connecting this with the bath-room, &c. &c. The water in the coil, by thus slowly circulating, becomes of the same temperature, nearly, as the water within the boiler by which it is surrounded; all that is necessary being to observe that the cold-water or supply pipe and the coil must be greater in diameter than the return hot-water or exhaust pipe. The cistern being at a proper elevation, the hot water will rise to as high a point as the natural law allows; and the advantage of this simple plan is, that the upright boiler being open, no steam is generated, and there is no danger in its use. This system also gives a large and constant supply of hot water ready to be drawn for domestic use on the spot.

The boiler is, of course, self-feeding; and it is an excellent feature of the best American cooking-ranges, that they heat this large supply of water without increased consumption of fuel.

For the supply of cold water for drinking purposes, a hydrant is attached in some one of the kitchen offices, connecting with the main, and passing the water through a filtering apparatus, which is generally connected also with the large refrigerator that contains the daily replenished stock of ice; thus giving the luxury of cooled water in abundant flow.

In some respects all these conveniences of plumbing have been over-done, and visitors are often fairly bothered in some houses and hotels with the niceties of the apparatus with which their lavations are to be rendered easy. Frequently a marble slab basin or an enamelled bath is seen with invisible inlet or outlet for water, and only a fancifully enriched plated knob, perhaps over the centre of the affair. In perplexity this is pulled at, but it will not draw out. A lucky turn to the right sends a rush of hot water streaming into the basin or bath. This is soot too hot, and you look in vain for some friendly tap of a cooler element. Another turn of the knob, and, with a gurgling swirl, the water as quickly disappears, and all is empty, whilst vexation and embarrassment disturb all ideas of comfort. At last the mechanism is mastered; but the toy is so perplexing, and proves so costly to keep in repair, that the sturdy old bird-cock, sooner or later, makes itself warmly re-welcomed.

The Americans are "great" on heat. The abominations of red-hot stoves in taverns and railway cars are past all description; and, much as may be said in favour of the economy of labour from the system of heating their buildings from one apparatus placed in the cellar, the evils are so great and numerous, that on the whole it is conscientiously thought that their houses would be better left unwarmed. Where one is healthily warmed and ventilated, ninety-nine are unbearable. The air is parched and dry, the heat stifling, and the danger from throat affections and colds positive. And yet there is much that is very convenient and valuable in some of the systems employed, and which would make them well worth a brief description.

The modes that are peculiarly American are those by which hot air is passed into each apartment and hall, through metal registers opened or closed at pleasure. This air is first brought from without the building into a large chamber, there heated, and passed up wide tinued pipes into the several rooms. This, briefly, is the general system, though the details are varied. But the whole comfort of the result depends upon how the atmospheric air is heated. The various plans are by a furnace, from the dome of which pipes are coiled and twisted about so as to obtain the greatest possible radiating surface; as it is by bringing it in contact therewith that the air is heated in passing through the chamber. The difficulty is, that to get cheaply a great amount of heat, the castings are made very thin, the air-chamber and hot-air pipes small; and, as a result, a hot, desiccated, poisonous air is discharged into the room, so unpleasant to new arrivals as invariably to set the lungs coughing and the head aching. Where the air-chamber, however, is large, the furnace very wide and shallow, and its dome high, with the radiating surface largely extended, and

the external cold-air shaft spacious, this mode of heating is excellent. No apparatus of its kind ever surpassed the old Boston furnace, first invented by Chilson, and since so greatly improved by his successor in New York. In the "Boynton furnace," as it is called, the shaft bringing in the cold air is very deep—frequently 4 ft. wide and 2 ft. or more deep, and the air-chamber and pipes are also of considerable size. In the air-chamber a small jet of water is kept playing to restore the natural moisture to the air. Numbers of houses, churches, and large public buildings, have been cheaply and successfully warmed by this apparatus; and where the conditions have been attended to that health requires, the result has been good. Anthracite coal is used; and for an ordinary house, a ton would be sufficient supply for nearly three weeks. No other fires, excepting that in the kitchen-range, are usually seen, although it is becoming the fashion to have, in addition, brightly burning bituminous coal, for its cheerful appearance in the sitting-rooms.

Hot water has been used for the same purpose; but although there are many costly arrangements that find more or less favour, an impartial observer would naturally arrive at the conclusion that they are only more expensive and less efficient methods of obtaining the same result as is certainly cheaply gained by the improved kinds of hot-air furnaces.

Ventilation is more attended to than might be supposed; and such simple methods as consist in the provision of spare flues of ample size to each of the sitting-rooms and bed-rooms, to serve as air-shafts, are commonly in use.

The use of anthracite coal and the absence of fires, save in the furnace and kitchen-range, enable American housekeepers to keep their houses, both inside and out, much cleaner than we can,—to which happy result the bright atmosphere greatly assists. If, however, bituminous coal comes, as it threatens to do, into more frequent use, our Yankee cousins will soon share with us the annoyance so graphically described by ladies as "the blacks," and will better appreciate the clever sketch in *Punch*, made when poor Lincoln was president.

CURIOSITIES OF ARCHITECTURE.

At this season of the year, many of our readers who are free to choose will visit celebrities in the way of architecture, such as our cathedrals and castles; and, deterred by their magnificence from all attempt to make drawings of them, will return to their ordinary duties unenriched by a single sketch. To these we would say, there are, scattered in every county, minor objects of which we have but scanty account, and of which collections of sketches would be at once valuable and curious. We might instance as curiosities of architecture, whispering galleries, secret chambers, garrets, fortified church towers, chapels, market-crosses, wayside chapels, crypts, lych-gates, holy-wells or lady-wells, town gateways, hermitages, the various ancient British remains, and tombstones with their crosses, shears, keys, horse-shoes, chalices, hands, lambs, bows and arrows, horns, fishes, and other mystical devices; and, as curiosities of detail, leper-windows, hagioscopes, fonts, half-timbered churches, wooden churches, shingle spires, &c. It is remarkable how little is known of such objects, and how few residents in one county know of similar curiosities in any other. The term garret, for instance, conveys to most minds only the idea of a room immediately under the roof of a house; but dwellers on the border country can still point to small towers, called garrets, built upon castle walls, and to places called garrets because in old times they possessed similar towers for the defence of a garrison. We have only to run through the list we have named to see how much information remains to be accumulated. A student preferring to cover a great deal of ground in a tour could take one class of object and pursue it, exclusively, through the country.

Whispering-galleries are curious as being links in the chain of endeavour to lessen distance by artificial contrivances; and which, after germinating in men's minds for, at least, two thousand years, have sprung forth in the advanced form of the telegraph. The Romans did a little pioneering work in this direction, by the transmission of sound through pipes, laid in the long length of *Vallum*, known as the old Roman

wall, which, by the way, is a most wondrous curiosity of architecture itself. Medieval whispering-galleries appear to have partaken more of the nature of echoes. In Stuart times, the "whispering place" in Gloucester Cathedral was considered one of the wonders of the land. It is thus mentioned by Edward Phillips, the nephew of Milton:—"A remarkable curiosity in the cathedral of Gloucester, being a wall built so in an arch of the church, that if a man whispers never so low at one end, another that lays his ear to the other end shall hear each distinct syllable." The whispering-gallery of Sir Christopher Wren, in St. Paul's Cathedral, may be said to be the only well-known example of this type of curiosity. The semi-cupola recesses on old Westminster Bridge have gone.

Secret chambers abound in old mansions of a certain age; but when we learn where they are to be found, or what varieties of form they present, we are met with the obstacle of insufficient information. We have recently given some account of secret chambers in the old houses in Edinburgh; and "The Book of Days" affords a description of some others; but a general account, with measurements and sketches, is not in existence. Here is an unexplored field for the curious.

The fortified church towers in Cumberland have met with a little more attention; but not so those of Northumberland. Lysons mentions the towers of Newton-Arlosh, Burgh-on-the-Sands, and Great Salkeld; but more recent observers have not added to the number; and, as we have hinted, there has been no attempt to string together those of the Northumbrian border. Their sturdy walls, arrow-slits, and embrasures are unnoticed, save by the local antiquaries. Many a missionary must have wished that the tower of his church was capable of defence; and we might learn from these the expediency of some modified strength for our outlying colonial edifices for the protection of those who teach in them, although we are no longer in need of similar contrivances at home. As companions to these curiosities we might class the rare examples we possess of wooden churches, reared comparatively not long after the days when our own land was the resort of the Christian missionary. Of these, Greensted in Essex, and Stock, in the same county, possess two well-known specimens. The half-timbered churches, too, such as those in Cheshire, would add further interest to the collection. The way-side chapels that once greeted the wayfarer on all sides, are fast disappearing; but there are still several left worthy of study. That on Wakefield Bridge has been doubtfully restored, without, unfortunately, any sufficiently explicit drawing having been made to show its former condition. Such loss of information would be spared us, if students made sketching the constant practice we would recommend. In the matter of chantries, it is a question whether various buildings pointed out under that name are more in reality than the residences of the chantry-priests appointed to serve chantries in the parish churches; but looking at them only in a constructional point of view, they are curiosities. Crypts are worthy of more attention than they have hitherto received; for they frequently contain details of much significance; and our principal Saxon remains are cryptogamous. Going northwards through Derbyshire, Yorkshire, and Northumberland, four celebrated specimens might be visited by the way,—Repton, Ripon, Hexham, and Bamborough; and others might be sought out.

But it is, perhaps, in foreign travel that we should find ourselves embarrassed with riches of this description. Architectural curiosities may be met with abroad for which we have not even names. Roadside crosses, oratories, wells, meet the traveller's eye on all sides; droll landing-places, quaint recesses giving access to picturesque courtyards, sculptured portals, niches, external staircases of much grace and movement, covered balconies, "bits" that it is impossible to pass without staying to admire, are common surprises at every turn. As in our own country these are constantly being displaced by the needs of the day. Many objects are to be seen depicted on old tapestries that are no longer in existence. The curious *foufaches patibulaires* are cases in point. In the neighbourhood of the principal abbeys and residences of the most powerful nobles, were erected quadrangular stone buildings formed of tiers of arches for the express purpose of hanging malefactors in chains. In some cases they assumed structural proportions. The tapestry of the Hôtel de

Ville shows the enormous gibbet that once existed at Montfaucon, capable of holding upwards of eighty unfortunates at a time. The base is of masonry, enclosing a chamber, into which, perhaps, the bones were thrown when they could no longer hang together. A flight of steps gave access to the platform from which the tiers of niches arose on three sides. Some of these niches were wide enough to take two bodies, others only admitted one. M. Viollet-le-Duc, who gives an illustration of this remarkable object in his "Dictionnaire de l'Architecture Française," remarks that its hideous aspect, and the pestilential odour emanating from it, did not prevent the establishment of canteens and places of amusement in its vicinity. We are far from indicating the selection of this class of curiosity for the sketcher's industry; for, it must be borne in mind, that the benefit to be derived from sketching is twofold. Not only does the artist gradually put himself in possession of valuable material, but he, as surely, acquires a facility of drawing which will be to him as "apples of gold in a picture of silver," and imbues his creative faculty with a sense of beauty which will be to him a safeguard in design.

EXHIBITION OF ARTS AND MANUFACTURES FOR NORTH-EASTERN LONDON.

THE North-Eastern London Exhibition, in the Agricultural Hall, Islington, of Arts and Manufactures, was opened on Wednesday last, by the Lord Chancellor, assisted by the Lord Mayor. The exhibition, last year, was made prominently one for the working-classes; but this one, we believe, is put forth as the first of a series of local but general exhibitions, such as have been suggested for the different parts of London, and preparatory to the formation of local museums. In the scheme as published in March last, a classification into "Arts and Manufactures," "Fine Arts," and "Loan Collection" was adopted, the first of these being divided into six sections and twenty-three classes. The classes "Minerals, Metals, and their compounds," and "Civil Engineering, Architectural, and Building Contrivances," with which we should be chiefly interested, are not now very extensively represented in the Agricultural Hall; but under "Philosophical Instruments, and processes depending on their use," "Photographic Apparatus," "Works in precious Metals, and their imitations, and Jewelry," "Glass," and "Educational Works and appliances," there is much that is interesting. The paintings, part of the sculpture, the engravings, and the photographs, have been placed in the galleries. Architecture, though not thought of sufficient importance to constitute a Class, is represented by a few drawings, amongst which are some by Messrs. Owen Jones, Goodchild, Cockerell, and Blomfield, all of which have been mentioned on previous occasions in our pages. The whole Exhibition, speaking from recollection of the last display, and whilst a catalogue of the present Exhibition is not procurable, is less extensive than the other, but the majority of the works seem to be of a higher class; and the arrangement is better. The Loan Collection is chiefly composed of objects lent from South Kensington.

Amongst the paintings and drawings, as before, there are a considerable number of works having but slight claim to art. Some of the works by amateurs may be suggestive to artists, of subjects or even treatment; but of the majority, it is difficult to say that good is done by their exhibition. One of the best pictures is that entitled "An Episode;" it is by Mr. McDonald. There is a good work by Albert Ludovici, representing Faust and Mephistopheles; and there is a landscape by Boddington. The sculpture, some of which, in the gallery, has been well arranged with draped background,—and some of which on the ground floor is, when the sun shines in the afternoon, spoiled by shadows from the building,—has been contributed chiefly by Messrs. Foley, R.A., Bell, Lawlor, E. G. Papworth, and Abbott. The last of these has contributed his two busts, or rather half-figures, Juliet and Ophelia, which were in the Royal Academy Exhibition. Both are beautifully designed and modelled; and the latter has been said, by one medically competent to judge, to be exactly expressive in the features of the madness portrayed by Shakespeare. Some of the busts were unfortunately broken on the day of opening.

Messrs. Rosher's manufactures in artificial stone and other materials, Mr. Robinson's

enamelled slate, Messrs. Moore's clock-dials, with their clear lettering; Messrs. Harland & Fisher's church furniture and decorations; the latter including specimens of a method of diapering in fresco, capable of being made very effective, are nearly all the objects specially pertaining to building that we can call to mind. We may, however, mention Mr. S. Harrison's Self-acting Preserver Valve, for extinguishing fires. The contrivance includes a rose or water-spreader, which is to be repeated at distances of 6 ft. in the length of a pipe, extending for the width of a ceiling. Similar pipes would be placed 6 ft. apart, for the whole length of the ceiling. The pipes would be kept charged with water. The rose is fitted with a valve that is carried by a piston-rod, which last is encircled at the bottom by a ring of fusible metal. Should fire occur, it is supposed that the metal would quickly be melted; when the piston would descend, and the water would flow into the rose, and be ejected through the orifices. The roses or pendants could easily be made ornamental. The inventor argues that water is the only true fire-annihilator; and that as by the contrivance, when in action, the wood-work would be kept cool, it would be impossible for fire to extend, as from one floor to another. He proposes that the flooring in each story should be caulked watertight, and that there should be guttering and a down-pipe to each floor. What would be the arrangement at the staircases, does not appear. A further contrivance is suggested for ringing an alarm-bell.

The photographic cameras, with rotary motion, for taking views extending over 130°, manufactured by the Pantoscopic Company, with the photographs, are interesting; as the latter, however useful some of them, illustrate the laws of perspective,—the distortion in several being evident, and showing that the picture should be bent similarly to the arc described by the lens.

Small but choice collections of objects of ancient art are comprised in one or two of the cases. We have omitted to mention that there are some drawings of model dwellings. To this department of the exhibition, development might with advantage have been given.

At the opening ceremony, a prayer was offered by the Archdeacon of London. The Old Hundredth Psalm, the Choral composed by his late Royal Highness the Prince Consort, the Hallelujah Chorus, and the National Anthem, were most effectively sung by the National Choral Society, augmented to 1,000 voices, and under the direction of Mr. G. W. Martin; and the band of the Hon. Artillery Company, and the great organ made by Messrs. Willis, played at intervals. The Lord Chancellor made an admirable address. In the course of it, he dwelt particularly on the disadvantages of the position of the South Kensington Museum, for the inhabitants of North-Eastern London. Indeed, the promoters of the Exhibition are strongly incited by the desire, to use their own words, "of seeing established in the midst of the immense manufacturing population of Finsbury, Clerkenwell, and Shoreditch, a permanent local Art-Museum;" and the present effort is viewed as the first step towards such an institution. Recognizing the importance, if not necessity, of these efforts, we should be glad to see similar movements in favour of local collections of those aids to knowledge which can be duplicated, and can be made useful in each locality, instead of being drawn to one at the loss to another,—to wit, such aids as books: for, movement in favour of public libraries stagnates just now sadly.

LONDON PLAGUES OF FORMER TIMES.

THE connexion between pestilential preventible diseases, and certain outward causes for their occurrence, is a subject of very great importance, and one which has not yet received so much attention as it deserves: for instance, there is a close connexion between pestilences amongst human beings and fatal disorders among animals which in so many instances have preceded the excessive death-rate of human beings,—a subject of but too absorbing interest at the present moment, when our cattle are dying by hundreds from a pestilential typhoid disease, while virulent cholera looms in the distance and may any day reach our shores. A glance over the pages of history, and even a recollective thought of circumstances which have occurred within the personal observation of many individuals still living, will show how often the epidemics of

animals have been followed by those which have spread death among the human population. It would seem as if animal life was more readily affected by the derangements of the air (if such there be) than is that of a higher order. There is also a close proximity to be often noticed between famine and plague. The day will perhaps soon come when those matters which materially affect life will become as certainly established as is the fact that sanitary provisions check, and will, if thoroughly carried out, prevent a large part of the mortality which arises from fever, cholera, and other disorders of a kindred class. But at present, notwithstanding the various opinions which have been formed, that mysterious state of the atmosphere, if it be such, which intensifies sickness and multiplies death, *under neglected conditions*, is one of those problems which yet requires to be clearly solved.

When lately glancing over some of the histories of London, we noticed that from the most remote dates, since the historical records of the great metropolis can be in any way depended on, there has always been an intimate connexion between murrain of animals, scarcity of crops, and plague. It is now two centuries since the greatest plague of which we have record raged in London, and it may not be without interest to give a note of some of the visitations which have occurred within the last few centuries.

In 1543 so great a mortality raged among the horned cattle that meat became excessively dear; and to remedy this, the lord mayor and common council made a sumptuary law for preventing luxurious eating, which ordered that the lord mayor should not have more than seven dishes, either at dinner or supper, the aldermen and sheriffs no more than six, the sword-bearer four, and the mayor and sheriffs' officers three, on the penalty of 40s. for every supererogatory dish; and, by the same authority, it was enacted that the mayor, aldermen, sheriffs, &c., should not, after the ensuing Easter, buy cranes, swans, or bustards, on the penalty of 20s. for every fowl so bought. In the same year the plague raged so violently in London, that a great number of citizens died, and the term was adjourned to St. Alban's.

In 1548 London was again visited by a plague which carried off large numbers; and just three years after the above date (or in 1551), the sweating sickness broke out in London, and, say the historians, "carried off a great number of its inhabitants;" and it is remarked, that not only was this illness fatal at home, but Englishmen especially perished to a considerable extent from this cause, even abroad, which is a very singular circumstance, and would seem to indicate the action of external causes on constitutions modified by habitual local or native influences. As is now the case with the filthy and ill-conditioned cities of the Holy Land, Egypt, Turkey, India, &c., pestilence seems to have been a constant guest in the London of 1556. A malignant fever then raged in London, and "took off a great number of citizens." Amongst these deaths were seven aldermen. During the year before there had been a great scarcity of corn, which must have pressed heavily upon the poorer classes.

There is no especial account of more than the usual number of deaths from disease, until 1563, when the plague broke out with great violence; and, by command of the queen, the master and wardens of the clerks were appointed to inquire the number of those who died in their respective parishes, and to make a certificate thereof, and that the curates and churchwardens should give notice to them of such houses where the plague appeared, and to forbid every person in such house coming to church for the space of one month following after the plague had been in it, and to fix a blue cross on the door of every house, with a writing underneath, signifying that the infection was there, and to avoid it. It was ordered that bonfires should be made three times a week, on Mondays, Wednesdays, and Fridays, until the infection should cease. In the beginning of August, the lord mayor issued a proclamation for killing all dogs that should be found in the streets, either by day or by night. The number of people who died of the plague and other diseases in this year amounted to 20,872. At this time the citizens were reduced to great misery, in consequence of the scarcity of provisions. The population of the metropolis at this date was under 300,000. If we compare this mortality with that which would occur in the present state of the population, the deaths in a year, in London, would

amount to about 208,000, or not far short of the total population of 1563.

Only six years after this outbreak of pestilence we have accounts of another plague, which was so violent that it was necessary to adjourn the Michaelmas term to that of Hilary; and the lord mayor gave orders that all idle persons should be prevented from straying about, who might spread the disorder amongst the citizens. They also adopted some sanitary precautions, which were more likely to prevent the evil than the confinement of poor distressed wanderers.

In 1603, another terrible outbreak of the plague occurred, which carried off in that year 30,578 persons, 3,090 of whom died in one week. If, for the purpose of roughly showing to modern London the extent of this mortality, we use the same proportion already taken in a former instance, and for the increase of the present population of the metropolis multiply the population of 1603 by ten, the deaths in one week would be 30,900.

Another attack of plague occurred, when great preparations had been made for the reception, in London, of Charles I. On the death of James I., the lord mayor and aldermen repaired to Ludgate, where Charles I., having arrived on horseback, was there proclaimed, as well as at all other places in the City; but the joy was changed to mourning, for the plague raged so violently, both in the City and the suburbs, that it carried off 35,470 people, besides upwards of 18,000 who died of other distempers. On account of this calamity the coronation was postponed to the 2nd of February: this was in 1625. In 1635, the plague carried off 10,400 citizens, and, in consequence of its occurrence, the fairs and other large places of public assembly were stopped.

There are many other accounts of pestilences of various kinds which have visited Old London; and amongst the records in the British Museum and Guildhall Library, there will be found many accounts of visitations which have not been especially noticed by the London historians; but there might be useful knowledge gained by an examination of this most important subject,—more in detail than has yet been done.

In 1665, however,—exactly two hundred years ago,—about the beginning of May, the greatest plague of which we have record in England broke out in London. It swept away 68,596 persons, which, added to the number of those who died from other disorders, raised the bills of mortality in that year to 87,306. Even at that time we do not think that the population of London was so much as one-eighth of the present. If, however, we take this estimate, the deaths in London from a similar plague now would number 568,768 (upwards of half a million human beings). From other disorders than the plague, the death-rate was heavy; and the deaths in London, if we compare the past population with the present, would be in all 778,448.

Bad as are many of our present conditions, and great as is the necessity in these our own days for improvement, we ought to be thankful for the change which has been made; for we can now, notwithstanding the large amount of preventable deaths, scarcely form an idea of the terrors which must have attended the great plague of Charles II.'s time, when, in the month of July, most of the houses were shut up, when the streets were deserted, and grass was growing in those thoroughfares where the traffic had been the most busy; when great fires were lighted in the vain attempt to purify the air, and coffins, and pest-carts, crosses with the inscription of "Lord, have mercy upon us," met the eye in all directions, and there were heard cries of "Pray for us," the clanging of the watchman's bell, and the melancholy sound of "Bring out your dead."

THE CATTLE PLAGUE.

HEALTHY COWSHEDS.

SINCE writing our notes on pestilences last week, we have endeavoured to ascertain a few particulars as to the way in which some cowkeepers have kept their stock in health, previously to the breaking out of the epizootic amongst their neighbours, so as to have enabled them to resist its ravages. The result is just as we anticipated. On the one hand it appears that in a well-known instance, wherein scores of cows died of the plague, the health of the

animals had previously been grossly neglected, and the sheds in which they lived were kept in a filthy and unwholesome state. On the other hand, in a similar establishment, not far from the one in question, where not a single case of virulent fever or plague has occurred among sixty cows, the utmost attention has *always* been given to the health and strength of the animals, and the wholesomeness of the sheds. For years, not a day has ever been missed in the clearing away of dung, with the exception of Sundays (and it is a pity, we think, that even Sundays should be excepted in such a case). Carbolic acid, or McDougall's powder, has of late years constantly been used, to the extent of a hundredweight a month; and four times each year the whole extent of the sheds is lime-washed. The animals are carefully cleaned, combed, and brushed, the master always himself seeing everything done. The drains are kept in good order, and all of them are trapped. The sheds are ventilated, especially by the roof, and to any extent. The proprietor is rightly of opinion, that the practice of keeping the cows warm in winter by excluding fresh air is pernicious and wrong, as also is the opening of the sheds at one end only while the roof is close.

These sanitary measures are habitually reinforced by attention to food, and especially by the free use of bean and pea meal. A little medicine is also occasionally given, consisting of nitre and a few other simple ingredients, such as treacle as an aperient. The allusion to nitre reminds one of Lord Bacon's encomiums on the wholesomeness of nitre to the human economy; but we do not suppose that Bacon had the merit of suggesting its use in the present instance. There must have been practical evidence of its efficacy no doubt, which has led to its repute and its occasional use.

The means of keeping milch-cows in a healthy condition, in town sheds, as here described, it must be noted, are not merely measures instigated by the fear of the moment, but the steady and continued practice of years; and the experienced and intelligent tradesman who has adopted this practice not only reaps the benefit of it in a demand for his certainly very superior milk, beyond his power to supply it; but he must now have the additional satisfaction of finding that while other tradesmen are losing stock to a hundred times the outlay requisite for the habitual adoption of sanitary measures, he is now being repaid for that outlay by the avoidance of any such loss.

There is one circumstance, however, which gives uneasiness in the case referred to. Adjoining the cowshed is a butcher's slaughter-house, where all sorts of beasts are killed; and, as our informant believes that, in two instances with which he is acquainted, milch-cows were attacked by the plague in open fields adjoining one where foreign cattle were put to graze; the infection having been carried, as was supposed, by the wind, one day to the one field, and another day with a changed wind to the other field; he fears that, in spite of his best endeavours, something similar may occur in the case of his own cows. We advised the free use of chloride of lime in this case, between the slaughter-house and his cowsheds, as being more likely, from the volatility of the chlorine, to seek out, as it were, and seize any infectious matter while in transit through the medium of the air, than carbolic acid, although the latter seems better adapted to the interiors of cowsheds.

The railway companies have been communicated with by the Government as to the cleansing of cattle-trucks, and the City authorities are seeing to the adoption of like measures in the cattle-market.

We shall return to the subject of metropolitan cowsheds and the cattle disease.

THE DUBLIN CORPORATION WATERWORKS.

At one of the recent meetings of the Institution of Mechanical Engineers, a paper by Mr. Parks Neville, the engineer in chief of the Dublin Waterworks, now in process of formation, was read, descriptive of the works; which on a subsequent day were inspected by a large party of the members. The paper stated that in 1775 the water-supply from the River Dodder, for several centuries the source for Dublin, was found so bad and insufficient that the Corporation arranged for obtaining what was then considered an ample supply from the Grand Canal. The Royal Canal was the source for the

north side of the city, and the Grand Canal and City Watercourse for the south side. The water obtained from the Dodder was of a soft quality, and would be very good for domestic use, were it not for the pollutions received from paper and other mills. The water from the canals, however, was hard, and was also liable to great pollution. In consequence, for many years the want of a really good supply of soft water was strongly felt, and numerous plans were proposed for obtaining a new and improved supply. At length, in 1860, the whole question of the water supply to Dublin was referred to a royal commissioner, Mr. Hawtishaw, who recommended the obtaining a supply of water from the river Vartry. An Act was obtained in 1861, for the purpose of carrying this into effect, and the work was commenced in November, 1862, the amount of the contract for the whole being 274,000*l*. The water is collected entirely from a clay slate district, and is peculiarly soft and clear, during the greater part of the year quite free from all colour, and almost identical in analysis with the Loch Katrine water, which supplies Glasgow. Roundwood was the place selected for the storage reservoir, situated about 7½ miles below the source of the river. At the point where the great embankment for the reservoir was constructed, the bed of the river is 520 ft. above the highest part of Dublin, the drainage area above this point being 13,992 acres, or 22 square miles, and the area of the reservoir being 409 acres, capable of containing 2,400,000 gallons, or 200 days' supply. The quantity calculated upon would supply a population of 400,000 with 25 gallons per head per day, and leave a surplus of 2,000,000 gallons per day for manufacturing and other purposes. Having referred to the construction of the reservoir, the manner in which the water is conveyed into the distributing-basin, and subsequently into the filter-beds, was explained. The two pure-water tanks which received the water from the filters were capable of holding 2,730,000 gallons of water each; and from these tanks it was intended that the water should be carried for a distance of about 700 yards in a cast-iron pipe, 42 in. in diameter, laid with a fall of 6 ft. per mile, until it reached a tunnel, into which it was to be carried for a length of 120 yards, so as to get to the solid rock. At the lower, or Dublin end of the tunnel, it was proposed to have a relieving tank and measuring weir, where the water passed down for the supply of the city would be gauged daily. From this tank the water would be conveyed to the distributing reservoirs at Stillorgan, which were supplied with self-acting stop-valves at their junction with the tank, to prevent flooding in the event of a pipe bursting.

On the occasion of the inspection, the reservoirs, near Stillorgan, were first visited. They are two in number. The total water-area is 18 acres, the average depth 20 ft.; and they will contain 90,000,000 gallons. The surface levels above the Ordnance datum are in one case 274 ft., and in the other 271 ft. Adjacent to these reservoirs is a large stone chamber, in which the water will be filtered through copper screens. The arrangement of the mains and valves will be such that the water may be introduced into this chamber, and thence to the main leading to the city, either from the adjacent reservoirs, or direct from the Vartry main. In the latter case the water, being less exposed, would be delivered colder and purer. From these reservoirs to the city there is a double line of 33-inch mains, which are supplied with the before-mentioned valves, to guard against a rush of water in the event of a pipe bursting between the reservoirs and the city. The Roundwood reservoir has been formed by stretching an embankment 2,000 ft. long, across the extremity of a valley, through which the little rivulet, called the Vartry, flows down from the mountains to the sea at Wicklow harbour. It is in a great measure, therefore, a natural basin. Its boundaries are now marked by a wall, which extends from the two extremities of the embankment round the slopes of the hills on either side. The stream at present is allowed to flow through on its course to the sea; but as soon as all the works are finished, the passage will be stopped; and the embankment being thus converted into a dam, the reservoir will fill. The embankment, which is 28 ft. wide at the top, and 320 ft. at the base, takes the line of the old coach-road across the valley; and the road will in future extend along its summit. It is now almost complete. Its greatest height is 66 ft., and the greatest depth of the reservoir which it will form, will be 60 ft. In the Sheffield reser-

voir, the main pipes for conducting the water out of it were simply laid through the puddle-wall and earthwork. The consequence was considered to be that the water penetrating between the edges of the pipe and the embankment, injured the latter so that its destruction ensued. The great outlet-pipes of the Roundwood reservoir are built into a tunnel of stone and brick. One of these pipes is 48 in. in diameter, and will be used chiefly as a sluice for lowering water, whenever it may be in excess in the reservoir. The other, 33 in. in diameter, is that through which the supply to the city will pass. The latter leads into a tower built within the precincts of the reservoir; and opening into the tower from without, are pipes at different lengths to enable the supply to be taken at different levels, the exterior of the tower being submerged to a certain height. By means of these pipes at different heights the clay side of the lower water on the upper heated water will be avoided. The 33-inch pipe leads from the tower to a system of filtering beds and tanks on the other side of the embankment. The other larger pipe is connected with a "bye-wash," which leads from the reservoir to the course of the Vartry below it, and which will be used to let off any excess of water from the reservoir. In part of the distance between Roundwood and Stillorgan, it was necessary that a tunnel 4,376 yards, or nearly 2½ miles long, should be pierced, for the mains, through a mountainous mass, for the most part of Cambrian rock, of an extremely hard description and difficult to work through. The level of the bottom of the Vartry river, which will be the bottom of the storage reservoir at Roundwood, is 632 ft. above datum, or 520 ft. above the highest part of Dublin, as before stated. If the water were brought direct to the city from that elevation, the pressure would be far too great. In order to reduce it, a series of relieving tanks are in process of construction, by which a succession of levels is obtained.

WATER SUPPLY.

In the evidence just published, which was taken before the Commons' Select Committee of last session on the Thames water, it was mentioned that Cricklade, Lechlade, Oxford, Abingdon, Wallingford, Goring, Stratley, Pangbourne, Reading, Wargrave, Henley, Marlow, the Wycombe stream, the Ray mills (near Maidenhead), the Taplow gasworks, and Windsor, with most of the mansions and houses on the banks of the Thames, discharge their sewage and refuse into the river above the Metropolitan waterworks at Hampton Wick and Thames Ditton. The pound locks, however, at various points of the river—thirty between Oxford and Staines—turning the river into a series of ponds, stop the sewage to a certain extent. In all of them a deposit is found, which has to be taken out, and is thrown upon the land; otherwise the ponds would in many instances be completely blocked, and the locks would not work. Windsor Castle is supplied from Romney pound.

The Liverpool town council have resolved to construct a new reservoir, to purchase the compensation water of the River Riddlesworth, to purchase the diversion of the River Douglas, and to make (if powers can be obtained from Parliament) such other extensions of their works as will provide an additional supply sufficient for 150,000 persons, or about 25 per cent. of the present population within the boundaries of the supply. The cost of these new works and purchases is estimated at about 130,000*l*. It is probable that much larger extensions of the sources of supply will have to be made shortly, as the population is increasing at an almost incredible rate. During the last three years, 10,863 new tenants, representing at least 50,000 new inhabitants, have required supply of water. It is a question likely to occupy a great deal of attention whether the additional supply which must be sought before long should be obtained from the Welsh or English lakes, or by distillation of salt water. Mr. Rawlinson, in 1846, reported to the then corporation of Liverpool on a proposed scheme of water supply from the River Dee, in North Wales, with Bala Lake at its head. This report, with appendices, surveys, plans, sections, details, and estimates, is in the possession of the corporation. Mr. Rawlinson now calls the attention of the present water committee to these papers. The Rivington Pike, he remarks, was to have supplied 25,000,000 gallons of water per day—17,000,000 for use, and

8,000,000 for compensation. Mr. Duncan has, over and over again, reported the actual yield, which has been far below these figures. The North Wales, or river Dee area of gathering ground at command, he says, is 289 square miles, or about 184,960 square acres, nearly twenty times the available area at and around Rivington. There is Bala Lake, a ready-made reservoir, 3½ miles in length by some half mile in width, and containing some of the softest and purest water in the world. The elevation of the river Dee, above Llangollen, is sufficient to deliver water at the highest points of Liverpool and its suburbs, and the intermediate country is singularly easy for the formation of an aqueduct to Liverpool, far easier than the Dublin works, or than the Glasgow works. Liverpool might now be enjoying thirty millions of gallons of pure water per day, at a far less cost than has been expended on Rivington and in pumping. Mr. Rawlinson asks for a full examination of his deposited plans and estimates, and advises the water committee to stop all further expenditure of money on works at Rivington.

A correspondent of the *Shrewsbury Chronicle*, Mr. T. P. Blunt, F.C.S., calls attention to the impurity of the water supply as a cause of the high mortality. He says the town water supply on examination, "gave evidence in every case of the presence, in greater or less quantity, of nitrates, an unerring sign, in this country, of the habitual contact of the water with decomposing animal substances. This state of things [he continues] is attributable, in great measure, to the disgraceful condition of the drainage of the town, which permits refuse animal fluids to percolate the soil to a large extent, and to come freely in contact with the springs. These facts bear a terrible significance, and may in part serve to account for the high rate of mortality shown by Shrewsbury. This at least seems to lie beyond a doubt, that, in a town so healthily situated, we must ascribe the large proportion of deaths—about one-third above the average—to avoidable causes. Unfortunately we have not to look far for these: as long as flagrant nuisances are allowed to fester unchecked in the very heart of the town, and at the same time the most common precautions for removing the filth produced by them are neglected, we may expect typhus and the diseases allied to it to revel in the territory thus lavishly provided for them."

The public well at Stoke-row, in the parish of Ipsden, Oxfordshire, is the gift of his Highness the Maharajah of Benares. In India, to sink a well for the benefit of the wayfarer and of the poor is considered an especially meritorious act; but the idea of extending such beneficence to a distant land is a novelty. He had often heard that in certain districts of England, in several parts of the Chiltern range, wells were almost unknown, and that the poor inhabitants, generally dependent on ponds by the roadside, were reduced in seasons of drought to absolute distress. He therefore availed himself of the return to England of his old friend, Mr. Edward A. Reade, of the Civil Service, who has retired to that neighbourhood, to express his wish that a public well should be sunk at his expense, and furnished with such appliances that all persons, especially the poor, should be able to supply themselves with pure water free of cost. The common land of Stoke-row, one of the highest points in the Chilterns, was then under the operation of the Inclosure Act, and the commissioners readily granted a site. The undertaking was commenced (an auspicious day being necessary on these occasions), by the Maharajah's direction, on the wedding-day of the Prince of Wales, and was completed as far as reaching the water and fixing the drawing apparatus, before last summer, when its utility became manifest, especially to those who remembered that, in previous droughts, water had to be brought from the Thames, distant 7 miles, at a heavy expense; and that, to eke out the scanty supply, water already used in cooking actually passed from cottage to cottage as long as possible, for repeated use. The daily yield of 600 to 700 gallons, during this dry season, has been duly appreciated by the people of Stoke-row and for miles round; their sense of the boon being shown by their persisting,—perversely, shall we say?—to call "the Rajah's well" "the righteons well." This well is 358 ft. deep, passing through 25 ft. of clay and gravel into chalk, and at a depth of 128 ft. and 228 ft. respectively, through belts of sand each about 8 ft. in depth, the securing of which by masonry has been a work of much difficulty. Below this, at 300 ft. from the sur-

face, the pure chalk rock has been pierced to the depth of 5 ft., under which chalk, interspersed with shells, continues to the bottom. The drawing-machinery consists of two buckets, the one ascending as the other descends, each capable of containing nine gallons. These are fastened to a galvanised wire rope, passing over a central wheel fitted with shutters, which close on the rope as it rises and releases it as it descends, the motion being communicated by a main wheel easily turned, and requiring the strength of an ordinary lad to draw up the full bucket in five or six minutes. The superstructure is an octagon, on a stone pavement, ascended by steps of the same. Its material is iron, but the apex is gilt.

Belfast has of late been in the midst of a "water famine." The hot summer lowered the wells; the town had built no reservoirs; and the people had nothing to drink except water brought in barrels, carried on donkeys, from the environs. This water has been sold as if Belfast were Seville, and many trades have been suspended from want of their supply.

MR. J. H. PARKER ON THE EARLY CHRISTIAN CHURCHES OF ROME.

OUR article, last week, on the Restoration of Churches in Rome, was in type when there reached us a corrected report of an address on a similar subject, by Mr. Parker at the first evening meeting of the recent Congress, at Dorchester, of the Archaeological Institute. Mr. Parker has been spending some time in Rome; and his own particulars of his researches will be considered interesting, although in part going over ground already dug into by the *Builder*. We have incorporated with the report other particulars by Mr. Parker, since published.

Mr. Parker said, at Dorchester, of the early Christian churches of the first millennium of the Christian era, a period of which we have scarcely any remains in England or France, that there were not less than fifty now remaining in Rome. The earliest were those which were originally Pagan temples, and were afterwards consecrated to Christian worship. Among these he included the Pantheon, which was generally considered to have been a temple, although now it was a church dedicated to All Saints. The original circular building was erected before the first century, with a portico and two side wings added about that time by Agrippa.* The rotunda supported a dome, which was open in the centre. The next series to which he alluded were the small burial chapels in the catacombs, to which much importance had been attached. He did not believe that these were commonly used as churches, but rather for the purpose of the burial service. Nor did he believe that the catacombs were places of refuge for any length of time, but only for a few hours in times of persecution. The next series were the churches made in houses. Indeed, many of the great basilicas of the time of Constantine were originally halls within the large palaces. One of these was the original church of St. John Lateran, which stood within the walls of the Lateran Palace. The present church had been rebuilt since. He next referred to the church of St. Croce, which was erected within the walls of the palace of St. Helena—sometimes improperly called the Empress Helena, the mother of Constantine the Great. He then described the form of the ancient Roman basilica, with its nave and two side aisles, and its apse at the end, where the judge sat; which place, when these edifices were converted into churches, was occupied by the bishop. Again, the Church of St. Peter's was originally a hall in the palace of the Vatican. Another class was the monastic churches, several of which were very early. Several of these edifices were fortified, and they were nearly all erected on the plan of the basilica, or hall of justice. In all the primitive churches the altar was at the west end, but this did not interfere with the turning to the east during worship, as the altar was low, and the bishop could look over it. He considered this custom of turning towards the rising sun, as an emblem of the resurrection, was nearly as old as Christian worship itself. He then alluded to the church of St. Pudenziana, which, according to the "Annals of the Christian Church," by Baronius, was in existence in the 160th year of the Christian era, having been consecrated by Pope Pius I., as stated in a

letter from him which says,—"I have made a church in the Baths of Novatus, and have dedicated it in honour of his sister Pudenziana the Martyr;" and which church is still called, on an inscription in the edifice, "The Mother of all Churches." It was originally in the house of Pudens, which was a well-known place for the reception of the early Christians.

Mr. Parker has elsewhere reminded us that Novatus and Pudenziana were two of the children of Pudens, the Roman senator, and his wife Claudia, who were amongst the earliest Christians in Rome, and all of whose children were among the martyrs of the Christian Church. Both Pudens and Claudia are mentioned by St. Paul as friends, at the end of the letter to Timothy, written from Rome. The Baths of Novatus were made in his father's house, about A.D. 90, and the house was then commonly called "The Baths of Novatus." Pudens, the senator, was a person of considerable importance and great wealth; and his house was thrown open for the reception of all foreign Christians coming to Rome, as is mentioned in the history of the martyrdom of Justin Martyr, in the second century. This house is also said to have been the earliest place of assembly for the Christians of the Gentile Church at the same time that the house of Priscilla and Aquila was for the Jewish branch of the Christian Church; but the authority for this statement is rather doubtful. It is certain, however, that the house of Pudens was a large and important family palace, occupying an ancient site, and, like all the ancient palaces of Rome, had been originally fortified and surrounded by a deep fossa, or dry ditch. The road, or via, was originally at the bottom of this fossa, as was the case throughout Rome; but in process of time, this roadway was raised to the level of the second story—probably when the palace was rebuilt, in the first century of the Christian era. There were then two stories below the level of the street, as is the case with many of the ancient houses in Rome, partly owing to the very uneven ground, which made it convenient to raise the level of the road across the valleys. In these underground chambers all the early churches in Rome were made, until the time of Constantine, when new and larger churches were commonly built over the old ones, which were either destroyed or preserved as crypts under the new churches, as was the case with St. Pudenziana. But the church occupied only a small part of the palace in most cases, as notably in the instance of the great Basilica of Constantine, which was made in the Lateran Palace, and is now called St. John in the Lateran. That palace was probably larger than the House or Palace of Pudens; but the one illustrates the other, and in the Lateran Palace were made a convent, a hospital, and a palace for the Pope, and still a portion was left for the Lateran family, some of whom continued to reside there as late as the fourteenth century, as appears by inscriptions on their tombstones in the church. Somerset House, in the Strand, Mr. Parker observes, is the building which gives Londoners the best idea of an ancient Roman house or palace; and the original church would be not in the lowest story, which consisted of cellars only, but in the one immediately below the street; and, in the instance of St. Pudenziana, the clerestory windows appear to have opened into an area just below the level of the ground.

The nave had been rebuilt over and over again; but the choir has an apse with a mosaic of the fourth century, and behind this is a flat brick wall of the first century, and he believed that the lower part was a portion of one of the earliest churches. Mr. Parker, at Dorchester, detailed the results of excavations which he had made on the site of this edifice, and explained the character of the architecture which pointed to such an early date. The existence of this primitive church had been entirely forgotten until his recent investigations. It is filled up with loose, dry earth, evidently thrown in from above through its clerestory windows; and this is said to have been done in the beginning of the sixteenth century, at the time of the revival of "paganism" in art, when the old Christian churches were utterly despised, and called Gothic by way of contumely. This filling up with earth is said to have been done by order of the Pontifical authorities in order to keep out the brigands, who had used it as a hiding-place. Mr. Parker applied for permission to empty out the earth, but the Pope refused to sign the order granting this permission when presented to him for his signature, which is usually considered a mere formal act. Mr. Parker thinks that the

Pope might have been annoyed that a member of the British Church should pretend to make such a discovery, because the house of Pudens is closely connected with the early history of the British Church, which is very unpalatable at Rome. He adds, in the *Illustrated London News*, that according to the British legends, this house was not only the earliest place of assembly of the Gentile Christians, but also went by the name of the British Palace in the first century of the Christian era, having been the residence of Caractacus, and the whole of the British royal family, during the seven years that they were hostages in Rome. Claudia, the wife of Pudens, was the daughter of Caractacus, and there is no improbability in the tradition that Pudens received the whole family into his house or palace. St. Paul is also said to have been a constant visitor in this house, and the whole family to have been among the early Christians. St. Pudenziana herself, as the granddaughter of Caractacus, was a British princess, and, with her sister St. Praesede, and her brothers Novatus and Timotheus, has as much claim to the title of the earliest British martyrs as Roman. The British legends further state that when the rest of the Royal family returned to Britain, they took Christianity with them, and that Britain was the first country in which Christianity became the established religion. It is certain that British bishops were present at the earliest council of the Christian Church long before the time of Augustine, who converted the Saxons, and taught them to be subject to the Bishop of Rome, which the British bishops refused, and were massacred in consequence, as recorded by Bede. These legends receive considerable confirmation from contemporary writers. Tacitus, in the twelfth book of his "Annals," records the taking of prisoners of Caractacus and the whole of the British royal family, and their lives being spared. Martial mentions Pudens repeatedly in his epigrams, one of which is written on the occasion of his marriage with the British Princess Claudia, of whom he says that, "though born of the painted Britons, either Rome or Athens might be proud of her;" from which it appears that the British ladies were as celebrated for their beauty in those days as they are now. Another epigram is written on the birth of their first child, and another on the death of Pudens, showing that the poet continued always on friendly terms with the family.

Mr. Parker commented, at Dorchester, on several other churches, and observed that they exhibited a decay of art from the fourth down to the tenth century. The walls of Rome were remarkable to those who did not know them; they were about ten miles in circuit, and in some places were now quite 50 ft. high.

Mr. G. G. Scott asked if there were any stone benches in the chapels of the catacombs which might have been used for the placing of coffins previously to interment.

Mr. Parker replied in the negative, but said there were small seats which might have been temporarily used for teaching. As far as he could see, he did not think these edifices were generally used for the performance of service, but merely for burial purposes. He had another remark to make with reference to the early churches of Rome, and that was, that the interiors had been very much altered and plastered over from time to time; but, if the outside could be got at, the whole history developed itself. Another point of some interest, and but little understood, was that of the alterations that had taken place in the level of the city. The general tradition was that this had been occasioned by the burning of the place by the Normans in the twelfth century, and that the ashes had thus raised the level. He believed, however, that this was a mistake: the difference of level had only been occasioned in the lower parts by the inundations of the Tiber, as it was evident the hills were about the same level as previously. After explaining the characteristics of the ancient walls, the lecturer observed that the campaniles were objects of interest; but none of them were earlier than the twelfth century, though perhaps built after an earlier type. The mosaics were exceedingly interesting. They belonged to all periods, from the fourth to the ninth centuries, and then there was a break to the twelfth century. It was apparent by comparison that they were much more durable than the frescoes. One of the finest was that at the end of St. John Lateran, and was threatened with destruction; and, because the nave had been "paganized," they were going to "paganize" the choir as well. By Roman antiquaries

* The rotunda of the Pantheon is usually regarded as having been a portion of the Baths of Agrippa.—Ed.

everything after the fifth century was called modern, and consequently despised. He also alluded to the destruction of a fine porch of the Cosmatas, (which was of the fourteenth century, and ornamented with beautiful ribbon mosaics on the capitals and bases), in the Church of St. Lorenzo, as an instance of the destruction committed by architects in the present day. Thus St. Paul's, for which money had been collected all over the world, was called a restoration; but every vestige of the old building had been destroyed, and a pagan temple had been erected in its stead.

Mr. Scott said the reason he asked the question he did was, that in Wales the porches were often used as mortuary chapels, and there were stone benches on which the coffins would be placed prior to interment.

Mr. E. A. Freeman asked if there were such a thing known as the consecration of a Christian church in the second century? Were those churches standing up above ground in a state to be consecrated at that period? No doubt there were churches standing in the third century. What was the evidence that there were churches standing above ground in the second century fit to be consecrated? He asked Mr. Parker for the evidence that churches above ground were consecrated as early as 150 or 160.

Mr. Parker said that his authority was the "Annals" of Baronius; and the architectural features were confirmatory of the statements made in that work.

Mr. Freeman did not think that much reliance was to be placed in a writer who lived so many centuries afterwards. Where was the evidence of the consecration of this room in the house of Pudens?

Mr. Scott remarked that St. Paul speaks of "the church that is the house" of some one.

Mr. Parker observed that Justin Martyr mentioned the house of Pudens as a refuge for foreign Christians.

Mr. Freeman said that that proved nothing whatever. It would not do to patch up things out of Baronius. Mr. Parker was too cautious to do the same thing with regard to English architecture. He would not go to Hutchins' "History of Dorset" to ascertain the date of a structure, but he would examine the style in the spirit of an archaeologist.

The Chairman (Sir John P. Boileau, bart.) said it was evident Mr. Parker and Mr. Freeman were of totally different opinions, and he did not think there would be any use in prolonging the discussion further.

The *London News* gives a view of a chamber in the Baths of Novatus, and one of the interior of the Church of St. Pudenciana. The chamber seems to have been made out of a house previously existing, and has plaster and painting of the end of the first century over both old walls and alterations: the church was formed in a chamber of the baths; and one of the hot-air flues is left in the wall in one corner.

OLD CHURCHES WITH GALLERIES.

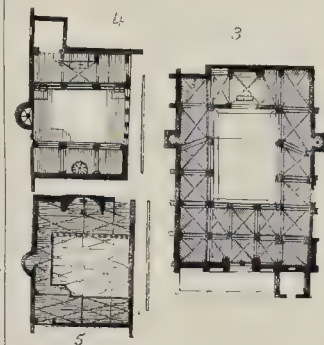
THERE are some people to whom the very name of a gallery is an abomination, and who, immediately they hear the word mentioned, conjure up in their minds a church disfigured with wooden pen-like erections, supported on stilts, thoroughly uneccelesiastical, and inartistic in appearance; and, I am sorry to say, in most cases they are correct in their judgment, at least so far as modern churches go. I can, however, mention two new churches which are honorable exceptions to this rule,—they are the new Jesuits' church at Amsterdam, where the galleries are carried all round the church, like a large triforium, with remarkably happy effect: the architect is Mr. Cuypers;—and the new Roman Catholic church at York, where the western gallery is vaulted and supported upon columns, and really forms the most beautiful feature in the whole building: the architect is Mr. Goldie. Another error into which people fall is that of supposing that galleries are a modern invention. Now, I hope, by referring to several old specimens still existing in Germany, to dispel both of these prejudices.

The earliest gallery that I know of is in a church, or chapel, called, "Der alte Dom," attached to the cloisters of Ratibon Cathedral. This building is said to have been the original cathedral, and is at least as early as the year 900. It is in plan a parallelogram, about 60 ft. by 20 ft., with a blind apse at the east, and a

deep gallery at the west end. The gallery is supported upon two semicircular arches resting upon a square pier and square responds attached to the sides of the building. It is vaulted underneath, but is like the rest of the building, entirely devoid of ornament. The material is rough stone plastered over.

Another very early Romanesque example is to be met with in the church of St. George, at Prague. Here the gallery is at the west end, and projects about 40 ft. into the nave of the church: it is vaulted, and supported upon a number of short thick columns. A late Romanesque example exists in the cathedral at Andernach, and a very singular one in the chapel of the Castle at Nuremberg.

The two most remarkable examples that I have ever seen are, the church of St. Ulrich, at Ratibon, and the chapel of Castle "Transnichts," at Landsbut. They are both about the same date (early in the thirteenth century). The church at Ratibon is a most beautiful example of First Pointed work, and is entirely surrounded by galleries; in fact, it will be seen, by referring to the plan (fig. 3), that above two-thirds of the church is covered with galleries at the west end. The gallery projects about 30 ft. into the nave (see the view, fig. 2). The arrangement at the east end is very picturesque (fig. 1). These galleries are all beautifully vaulted, and supported upon short pillars, with most gracefully carved capitals. The approach to these is by circular staircases in two turrets; one on the north and the other on the south side of the church. The whole arrangement of this church is well worth studying, though the interior is greatly injured by the flat plaster ceiling. It is probable that the vaulting of the nave has never been constructed: perhaps the width of the nave frightened the builders. The exterior of this interesting church has suffered very much from modernization; but two beautiful doorways



remain with capitals very similar to those in the west doorways at Rouen Cathedral. The tower is modern, and there are remains of a narthex erected about the year 1600. The church has been closed since the beginning of this century; but is now being restored.

The other example is the chapel of Castle Transnichts. It will be seen by referring to the ground-plan (fig. 4), that this chapel is nearly square; the style is early thirteenth century. Originally it possessed galleries at the east and west ends only, both of which are supported upon pillars and semicircular arches, and are stone. The gallery on the north side is of wood, fifteenth century work. The great peculiarity is the gallery over the high altar; its front, which is supported upon three semicircular arches, is richly ornamented with statues sitting in an arcade of trefoil-headed arches. Immediately above these, partly suspended from the roof and partly standing upon the parapet of the gallery, is the great roof of wood, painted and gilt: it is fourteenth-century work. At the back of this gallery is a small apse (see plan, fig. 5, a.) containing an altar. The arch leading into this apse is flanked with two fine niches (the canopies of which are made to represent small churches), occupied by large statues of St. Catherine and St. Barbara. In the tympanum above the arch is an early fresco. This singular chapel is vaulted in brick, and contains several curious old pictures and altars.

The smaller church of the Abbey of "Sel-

gengenthal," in the same town, contains a very large wooden gallery, of the fourteenth century work. It projects over three quarters of the nave, reaching within about 10 ft. of the chancel arch. The front of this gallery is ornamented with a series of small statues in niches, all carved in wood, and beautifully decorated with colour. It is supported by huge oak beams, which rest upon corbels attached to the walls, and a square stone pier in the centre.

In the fourteenth and fifteenth century churches, galleries are frequently to be met with in Germany. A good example occurs at Kitzingen: it occupies the entire length of one aisle, and returns across the west end of the nave; and another in the Augustinian church at Cologne, which has galleries in both aisles. In both of these examples the galleries are of stone, and are vaulted.

Western organ or choir galleries are very common in late German churches. Fine examples occur at St. Stephen's, Vienna, and St. Mary's, Würzburg, both of which are carried across the nave upon one bold arch. All these galleries are beautifully ornamented, and made architectural features, so that there can be little doubt that those who built them were not ashamed of what they were doing, but looked upon them as most useful appendages to a church, and a portion of the building really deserving thought and study. I have little doubt that the great "triforium" of Norwich, Peterborough, and Ely cathedrals, and the chapel of the White Tower, were nothing else but galleries, and were probably intended to be used on great festival days, or at other times when the churches might be overcrowded.

HENRY W. BREWER.

REFERENCES.

- Fig. 1. St. Ulrich's Church, Ratibon. East end.
- Fig. 2. Ditto ditto. Western Gallery.
- Fig. 3. Ground plan. Chapel of Castle Transnichts, Landsbut.
- Fig. 4. Plan of Galleries in the same Chapel.

N.B. The parts shaded on the plans represent the Galleries.

CONTINENTAL.

Florence.—An extremely full municipal council has confirmed, by a unanimous vote, the concession for the enlargement of Florence, as recommended in the report of the former Minister, Peruzzi, and embodied in the contract of the Gonfaloniere with Messrs. Alfieri, Carmichael, Cresswell, and Broda.

Wiesbaden.—The English church, the foundation stone of which was laid about two years ago, has now been dedicated, under the title of St. Augustine of Canterbury, by the Primate of Ireland. There was a large attendance. The building is in the Decorated style, with nave and apse, and is calculated to hold 250 persons.

Tunnel through the Swiss Alps.—According to the *Italie*, the commission appointed by the Italian Government, to weigh the comparative advantages offered by the St. Gothard, the Splügen, and the Lukmanier for a tunnel through the Swiss Alps, is to finish its report so as to enable the Ministry to bring a Bill into Parliament at the commencement of the next Session. It is reported that the St. Gothard is likely to be preferred by the Commission.

Berlin.—According to statistical returns, there are in Berlin 12,000 cellars inhabited, in 6,300 of which different trades are carried on. The thirteenth part of the population, or 46,000 persons, inhabit those dens.

Prague.—We assist in making known an invitation addressed by Mr. Vojta Náprstek to "ladies and gentlemen from England, Scotland, and the United States of America, passing through Prague," to inspect a collection of views of 100 buildings devoted to institutions of a moral, educational, and charitable character, erected chiefly in this century, by philanthropic associations, or by the munificence of individuals, in Great Britain, India and Australia, and the United States. The views are executed on a scale of 90 in. by 50 in., and 50 in. by 36 in., by Mr. A. Studnicka, an artist expressly engaged for the purpose. The collection was publicly exhibited in the large hall on the Sophia Island (Zofínský ostrov) at Prague in April, 1865; and public lectures on English and American philanthropy of modern times have been delivered (in the Bohemian language) in the same hall. The collection may be seen now daily—Sunday excepted—from 12 to 2 p.m. at Mr. Vojta Náprstek's private residence, No. 269 betlemský plac, u Halánku, Prague. It

* See p. 550.

has been formed with the intention to show the citizens of Prague "the mighty and noble influence of liberty on the public spirit of men in a free country," and "what a great number of munificent works have been achieved by enlightened public spirited communities, by the activity of associations, and by the legions of those self-made men, and by kind-hearted, benevolent, and magnanimous women, actuated by the noblest generosity and purest principle, whose labours and fortunes have been devoted to the sacred cause of humanity." Amongst the subjects are the Free Public Library, Norwich; the Derby Arboretum; the Manchester Free Library; the School of Art, Sheffield; the Temperance Hall, Birmingham; the Mechanics' Institution, Holbeck; Working Men's Institute, Lower Norwood; Mechanics' Institution, Halifax; Plymouth and Cottonian Library, Plymouth; Travellers' Club House, London (this last may be a "moral" but is not a charitable institution); Eastern Counties Asylum for Idiots, Colchester; Hunterian Museum, Glasgow; British and Foreign School Society's New Training College, Stockwell; Haberdashers' Alms Houses, London; Gordon Hospital, Aberdeen; Peabody Dwellings, London; Aston Park, Birmingham; Cancer Hospital, London; Chalmers's Hospital, Banff; Minton Testimonial Museum, Stoke-on-Trent; Licensed Victuallers' School, London; and others, equally varied as to the objects of the buildings.

St. Petersburg.—The Czarowitz has commemorated his taking of the oath by gifts for the relief of distress in Russia, and by a gift of 6,000 roubles as a contribution to the fund for the construction and decoration of Greek churches in the western provinces.

The Ruins of Girgenti.—According to the *Athenæum*, Professor Cavallari is actively engaged in excavating in Sicily, and has brought to light some interesting relics—amongst them a number of portions of columns of the Temple of Castor and Pollux at Girgenti, a plan of the temple itself out in the rock, two columns which formed part of the northern peristyle of the Temple of Jupiter, and the steps of the Temple of Hercules in perfect preservation, besides a large portion of the ruins of the entablature of the same building.

PARIS.

The interior decorations of the Odéon Theatre are being completely renewed and much improved. This theatre, says the *Sidèle*, erected on a portion of the site of an hotel inhabited by the Princes of Condé, was first opened in 1783, and was the only really comfortable establishment of the kind in Paris, benches having been introduced into the pit, which had been previously only an open space for the spectators to stand in. In 1784, oil-lights were substituted for the ancient candles, by the invention of a lamp by a whitesmith named Quinquet, from Soissons; hence the term *quinquet* applied in France to all oil-lamps. In 1790, play-bills and placards announcing the names of the performers were first exhibited at the Odéon. The last innovation there was the lighting by gas in 1822, when it was tried for the first time in a Paris theatre. The Odéon has been twice destroyed by fire, in 1799 and in 1818, in both instances nothing being left but the four walls. Beaumarchais, on the 26th of April, 1784, here represented the "Mariage de Figaro" for the first time, in presence of the Queen Marie Antoinette. So great was the attendance of nobility on the occasion, that the carriages extended in double line as far as the Pont Neuf. Casimir Delavigne also made his *début* here in the "Sicilian Vespers" and the "Paris."

M. Silbermann, brother of the late much regretted M. V. Silbermann, conservator of the collection in the Conservatoire des Arts et Métiers in Paris, has just published a pamphlet in which he proposes novel arrangements with regard to exhibitions in general, and applies them to the forthcoming Paris one of 1867. Owing to the steadily-increasing development of every department of industry, besides the creation of new branches, almost every year, by the progress of science, it will before long be utterly impossible to unite in one building, however spacious, a collection representing the art and industry of all nations. He therefore proposes to spread the different branches of art and manufacture over the metropolis, by placing them in separate quarters, so as to convert Paris into a vast mart of the whole world. For

instance, he would place on the Boulevard Richard Lenoir, near the Saint-Martin Canal, all the raw produce; natural and artificial stones; pottery; iron, wood, and zinc work; also the necessary tools for working the above materials. These would occupy fourteen pavilions erected along the gardens. Similar buildings M. Silbermann also proposes to install in the Rue de Faubourg du Temple (enlarged), the Place du Château d'Eau, the exterior boulevards from Belleville to Monceaux, &c. The fine arts are to be placed in the Palais de l'Industrie, in the Champs Elysées; the show of horses in the Avenue de l'Impératrice, the "Rotten-row" of Paris; naval constructions in the Cours de la Reine, along the river side; war materials and implements in the Champs de Mars; flowers and agricultural produce in the Luxembourg, &c.

A Dutch speculator, M. Bischoffshaim by name, in endeavouring to discover the secret which will solve the problem of how to enjoy a theatrical performance while Fahrenheit marks 90° in the shade, has conceived the idea, which he is in the course of carrying out, of a subterranean theatre in Paris. An excavation for this building is commenced at the angle of the Rue Scribe and the Rue Neuve des Mathurins, behind the new opera. This theatre will cost M. Bischoffshaim the trifling sum of three millions of francs, or 120,000*l.* sterling, the purchase-money of the ground being included in that calculation. The theatre will not be completed for two years. The pit is to be 24 ft. below the surface of the ground; the stage will measure 100 ft. in length and 60 ft. in width. There will be a pit and two galleries, which will accommodate 700 spectators. The atmosphere of the pit is to be cooled by several jets d'eau. Five tiers of boxes will rest on the capitals of the iron columns. The façade will be in the style of the Grand Hotel.

COLONIAL.

South Australia.—Labour is still wanted here. New roads, new railways, new buildings, together with harbour improvements, and a thousand other necessary things, are loudly called for. There is a scarcity of hands even for the everyday work of the colony. The Government wants to import as many as two shiploads of immigrants per month, and the Parliament is quite willing to supply the necessary money. It rests, then, with the emigration agent and his officers to send out the kind of labour needed. Well-to-do people in England, who often see around them wretchedness and want, would be astonished to find what perplexities are felt by governments in Australia to get anything like the supply of useful labour which they require. Free passages to a prosperous country, with a fine climate, are offered to men and women who can work.

New Zealand.—The annexed tenders for building a four-roomed cottage, at Auckland, New Zealand, were recently sent in:—

No. 1	£300 0 0
No. 2	250 0 0
No. 3	260 0 0
No. 4	240 0 0
No. 5	226 0 0
No. 6 (accepted)	217 0 0

It will be seen that, like such things at home, the tenders vary considerably in amount. A large public building, in Queen-street, Auckland, in course of erection, and nearly finished, has fallen down. Want of proper ties and bond is said to be the cause.

MONUMENTAL.

ACCORDING to statements made at a recent meeting of the Prince Consort Manchester Memorial Fund, the total amount of subscriptions received up to the present time is 3,711*l.* The balance in the bank was 1,943*l.*, but the contractors (Messrs. Pattee & Son) having presented a claim for 800*l.* as a first instalment in accordance with the contract, the sum in hand would be reduced to 1,100*l.* The expenditure up to this time had amounted to 1,669*l.*, and the contract was 2,639*l.* for the upper part of the stonework and pillars. This made 4,208*l.*, and the subscriptions having only reached 3,711*l.*, a sum of 500*l.* would be wanted for that portion of the work alone. To do the ornamental part of the work justice, they would require at least other 2,500*l.*; they therefore wanted 3,000*l.* raised. The original estimate for the memorial

proper was about 4,000*l.* The cost of the canopy was estimated at from 4,000*l.* to 5,000*l.* The architect had to go to a considerable depth for the foundation. It was an exceptional case, and 1,000*l.* more had been spent on the foundation than had been expected. Arrangements are being made for a more extensive canvass for subscriptions.

A monument has been placed in Belton Church, to the memory of the late Mr. Cust. The design is an alto-relievo of the "Call to the Ministry" adapted from Raffiello's cartoon of the "Call of St. Peter." Below is the application of the subject to the deceased, who rendered himself remarkable in his ministry for liberality and benevolence. Mr. William Theed was the sculptor.

The statue of the Queen at Aberdeen is making steady progress. The contract has just been entered into for the erection of the pier and pedestal. The statue is to be erected at the corner of St. Nicholas-street, on the west side of the Town and County Bank. A granite pier is to be erected there flush with the pavement. On this pier the pedestal—which is to be of polished granite, Peterhead and Aberdeen—is to stand, rising to a height of upwards of 10 ft. A considerable improvement will be effected in the corner by the erection of the statue, as the pavement will be widened. The height of the statue above St. Nicholas-street will be above 20 ft. The sculptor is Mr. A. Brodie, of Aberdeen.

A statue of the late Right Hon. James Wilson, to be sent to Calcutta, has been completed by Mr. John Steell, R.S.A., her Majesty's sculptor for Scotland, who had executed from life a bust of Mr. Wilson for the Royal Scottish Academy, which bust is now deposited in the Scottish National Gallery. The figure is a little larger than life, and has been cut from a fine block of Carrara marble. Mr. Wilson is represented in the act of expounding some of his schemes. The attitude is erect, the left foot slightly advanced, and over the shoulders is loosely thrown a cloak, which falls in folds to the ground behind. Two fingers of the right hand rest upon the palm of the left—an arrangement which all who knew Mr. Wilson would recognise as a characteristic one. A movement has for some time been on foot in Hawick, Mr. Wilson's native town, for the purpose of obtaining a public statue of the deceased; and the object, according to the *Scotsman*, is likely to be carried out, a copy in bronze of Mr. Steell's statue being the form of memorial chosen.

The foundation stone of a monument to the late Duke of Athole has been laid, with Masonic honours, at the top of a hill in the neighbourhood of Logierait. The monument, which will be visible from a great distance, is to be in the form of a Celtic cross. Mr. Whyte Melville, of Bennoch, Grand Master Mason for Scotland, presided. The design was produced by Mr. R. Anderson, architect, Edinburgh; it consists of a massive subbase or mound, the base proper being divided into several stages, the socket of the cross panelled on the four faces, and canopied niches at the corners. From this rises the cross, consisting of a shaft 20 ft. high, 5 ft. broad at the bottom, and 2 ft. 6 in. thick; the head 9 ft. 6 in. high; the arms measuring 9 ft. across; and the nimbus or circle 7 ft. in diameter. The front panel of the socket is to be filled by a bronze basso-relievo, by Mr. John Steell, representing deer-stalking. The panel on the back will be filled with another bronze, representing the Athole Highlanders; and the side panels with bronze plates, with the dedicatory inscription in Gaelic and English. On the front and back faces of the shaft are six panels, to be filled with figure subjects illustrative of the pursuits of the late duke. These will probably be masonry, agriculture, otter-hunting, curling, Highland games, and fishing. The whole remaining surface of the cross will be covered with the ornamentation peculiar to Celtic monuments. The cross and base are to be of Redhall stone, and the foundation of stone from a neighbouring quarry. The cost of the monument, exclusive of the bronzes, will be about 1,500*l.*

A statue of Christine Lalaing, Princesses d'Epinoi, who defended Tournay against the Prince of Parma, in 1581, and did but capitulate when three-fourths of the defenders had fallen, has been placed, says the *Athenæum*, in the Grande Place of the city she served so well. The figure wears back and breast plates and a short tunic: the head is bare. The execution of this work is a little heavy, after the fashion of modern Belgian sculpture.

THE BUILDING TRADES.

On the principle that no news was good news, everything had been proceeding smoothly in the metropolis for the last week or two, but some of Messrs. Cubitt's laborers and excavators have now struck work for 3d. an hour advance; 4d. only being agreed to: the remainder also threaten to strike. The *Fortnightly Review* has been urging, on the one hand, the worse than uselessness of strikes, and the very doubtful utility of trades unions; while an advocate of both strikes and unions, on the other hand, has been upholding the utility and advantage of both to the working men; but we need not re-enter on these often-discussed questions just now.

On Saturday evening a meeting of journey-men pattern-makers was held at Wilcock's Assembly-rooms, Westminster-road, to take into consideration the propriety of memorializing the master engineers for an advance on the present rate of wages—36s. per week. About 400 men were present. A report was read from the provisional committee stating the present movement to have originated from a united meeting of society and non-society men connected with some of the principal engineering firms. After some discussion, a resolution was adopted unanimously declaring it to be the opinion of the meeting that the time had arrived when an advance on the present rate of wages had become necessary. A second resolution was also adopted—that the advance to be asked for should be 8d. per day, which would make the standard wages of the trade 2l. per week. A memorial to be presented to the employers was then read, setting forth the reasons inducing the men to ask for the advance; amongst the most prominent of which were that wages in other trades requiring less skill were generally advancing; the high price of animal food, and other provisions; and the increased cost of house-rent, &c. This memorial was unanimously agreed to, and a committee was appointed, with instructions to present it to the master engineers at once, and to request a reply by Saturday, the 26th instant. The meeting then adjourned to the 26th, to receive the reply. The proceedings throughout were conducted with order and unanimity.

Norwich.—A meeting of the delegates of the carpenters and joiners has been held, in order to consider the present low wages in Norwich as compared with other large towns; and it was unanimously agreed to apply for an advance of 3d. per hour, viz., from 43d. to 5d. Circulars have been sent to the masters.

Shrewsbury.—The journeymen plumbers are out on strike. They seek a reduction in the hours of labour from fifty-four to fifty-two hours per week, having, it is said, received a written assurance from their masters in autumn last, when the hours per week were reduced from fifty-nine to fifty-four, that the further reduction now sought would be granted when a contemplated reduction sought by the joiners and carpenters should be obtained. Such a reduction has since been got. The bulk of the master plumbers decline to concede any further reduction, on the ground that the deputation representing them in the autumn went beyond their authority in making the promise of a conditional reduction.

Huddersfield.—The strike among the masons still continues. A meeting of the operative and master masons—convened by the latter—has been held, with a view to settle the strike which has now existed for three months. Masons' labourers were not admitted. It was stated that the masters had conceded nine out of the ten demands which had been made upon them, but though they had conceded the demands with regard to the regulation of time, the amount of wages, the payment of wages, &c., they could not concede the tenth request or regulation, which was, "No master to have more than one apprentice to five journeymen masons that he employs on an average." Very strong opinions were expressed against this clause, and it was even alleged that if the workmen in every other trade in Huddersfield enforced a like regulation, there would be something like 8,000 youths in Huddersfield who would not be allowed to learn any trade. The meeting ended without having arrived at any decision. A meeting of the Master Painters' Association has also been held, to consider what reply should be given to a letter from the Operatives' Association in reference to the strike, which has also now lasted for three months. The letter from the operatives stated that they had written to the Chamber of Com-

merce, offering to submit the dispute to the arbitration of the Chamber, and had received a reply to the effect that the Chamber would act in the matter if both parties in the dispute consented to abide by their decision. They now wrote to the masters to know if they would accede to that mode of terminating the dispute. The decision of the masters' meeting was, that present circumstances do not admit of arbitration;—firstly, because they have sufficient men for the work now in hand; and, secondly, because the amount of work for the rest of the year is likely to be inconsiderable. A letter, stating this decision, has been forwarded to the Operatives' Association in reply to their communication.

The Nailers' Strike.—A number of the nailers on strike have gone to work, at the reduction proposed by the masters, of 10 per cent. on their earnings. The strike is therefore considered to be at an end, in effect, if not in fact.

North Wales.—A strike has taken place of quarrymen employed at the Penrhyn Slate Quarries, belonging to Colonel Penrhyn. Five hundred of the men have left their work, and 3,000, it was said, would be out before the close of last week. The men are holding public meetings, and they complain of having had to suffer great hardships.

Paris.—According to Government reports, the strikes of the various trades have ended in Paris and other large towns of France. In most instances master and man have come to an arrangement by compromise. The increased price of food and lodging was a legitimate excuse for the workmen of many trades to demand increased wages; and the masters were reasonable, and took these pressing facts into consideration.

THE PROPOSED BUILDING FOR ST. THOMAS'S HOSPITAL, LAMBETH.

In answer to a request for the dimensions of the total length and depth of the buildings and site of the new St. Thomas's Hospital, which dimensions were not given in our recent description, and only some of which could have been conveniently shown on our plan, we now supply sufficient information. The ground terminates next Lambeth Palace in a point; and the total length between this point and Westminster Bridge is 1,700 ft. This is made up of three dimensions, 151 ft., 942 ft., and 607 ft. The first dimension belongs to the administrative block next Westminster Bridge; the next or largest dimension is the hospital proper; and the last dimension provides the site for a museum, which was not included in our plan. The boundary of the ground in Palace New-road and Crosier-street is very irregular; but the depth of the ground in the centre of the 942 ft., or where the building with the entrance-hall is, is 257 ft.; and the depth at the Westminster Bridge end is 220 ft.; whilst it is 190 ft. at the opposite or southern end of the hospital proper.

THE RIVER THAMES.

The report of the select committee on the Thames, together with the proceedings of the committee and the minutes of evidence, has been issued. The total income of the Thames commissioners for the past year was 3,173l., and their expenditure 3,209l.; and it is added, that unless the requisite funds be provided to improve the navigation, and the traffic be encouraged by low, uniform tolls and otherwise, the income must continue to decrease, and this important navigation be shortly closed to traffic. "The maintenance of the navigation is," it is discovered, "a benefit to the large water companies of London, to the water supply of Windsor Castle, to many mills and manufactories, to landowners, and others." Engineers of great eminence, who were examined before the committee, have all agreed that a sum of 20,000l. should at once be expended upon the works. The difficulties of the case can, it is remarked, only be met by legislation. The report concludes as follows:—"Your committee have examined many competent witnesses as to the future management, improvement, and maintenance of the navigation of the river, and have agreed to the following resolutions:—1. That the maintenance and improvement of the upper navigation of the River Thames is important, and that all prac-

tical steps ought to be taken to render it self-supporting. 2. That the navigation of the Upper and Lower Thames should be placed under the same management. 3. That this management should be in the hands of the 'Conservators of the Thames,' with such addition to their number as a due regard to the proper representation of the local interests of the upper navigation may require. 4. That no tolls or charges shall be levied on the upper navigation which is not applied to its support. 5. That all existing works, rights, and charges injuriously affecting the upper navigation shall be put an end to upon such terms as to compensation as Parliament may determine. 6. That separate accounts shall be kept in respect of the upper and lower navigations, and that power should be given to make the revenue arising from the lower navigation a collateral security for moneys raised for the purposes of the upper navigation. 7. That all fishing rights be so exercised as not to interfere with the navigation of the river. 8. That powers be given to raise the money necessary for the above purposes, such money to be the first charge on the revenues of the upper navigation; such powers being given for compounding with the existing bondholders as Parliament may determine. 9. That a bill be introduced by the Board of Trade to give effect to the above recommendations."

TOWN-HALLS.

Chester.—The town council, at their last quarterly meeting, after a long discussion, adopted the report of the Town-hall Committee, recommending the carrying out of Messrs. Lynn & Lanyon's design, "Love's Labour," and the acceptance of the lowest tender (Messrs. Clarke's) for carrying out the design. The committee having recommended that the design be carried out without the tower, the drawings exhibited on the walls which included the tower were removed before the discussion commenced. The question of the new town-hall has now been between two or three years before the council.

Hartlepool.—The foundation-stone of the new Borough Hall at Hartlepool, including police-offices, covered in market, &c., has been laid. The new erections front Middlegate, and the Borough Hall, as they are entitled, is a structure of red brick, with stone facings and moulded dressings, after the modernised Italian style of architecture. In the centre of the building is a tower, 16 ft. square, surmounted by a spire, and at an elevation of 100 ft. from the ground, under which is the main entrance both to the market and hall. In the spire there is provision for an illuminated clock and a peal of bells. There are eighteen coupled windows in the front of the building, and they are relieved with ornamental headings. Accommodation is provided for both superintendent and sergeant of police, a police-office, six cells, and a large yard. Above, there is a justice-room, 55 ft. by 27 ft., with ante-rooms and offices for magistrates' clerk; also a large Board-room, with several offices, for the local Board of Health. Behind the building is the market, which is 100 yards square, covered in with three glass roofs. There are sixteen large shops, and there is an entrance from Union-street. The total cost of the works will be 5,000l.

Gateshead.—The members of the town council seem to be puzzled about their new town-hall. They all agree that a building of the kind is required; indeed, any doubt on that point has been set at rest by the council having had notice for the last two years to quit the premises they now occupy. At first it was intended that the building should be erected at a cost not exceeding 10,000l., the desirability of doing the work as economically as possible having been forcibly impressed upon the members, at that time, from what they had seen of town-hall building in Newcastle. By-and-by, a change of site was determined upon; and, with a change of site, came a change of plans; and, after a great deal of higgling, the project assumed such proportions, that to carry it out would entail a probable expenditure of 30,000l. In the meantime, the foundation has been dug for the new building, and the total outlay up to the present time has been about 4,000l. In order that the enlarged plan might be proceeded with, an attempt was made, at a recent meeting of the council, to dispose of the resolution restricting the cost, but it met with such opposition that, in the end, the proposal was rejected.

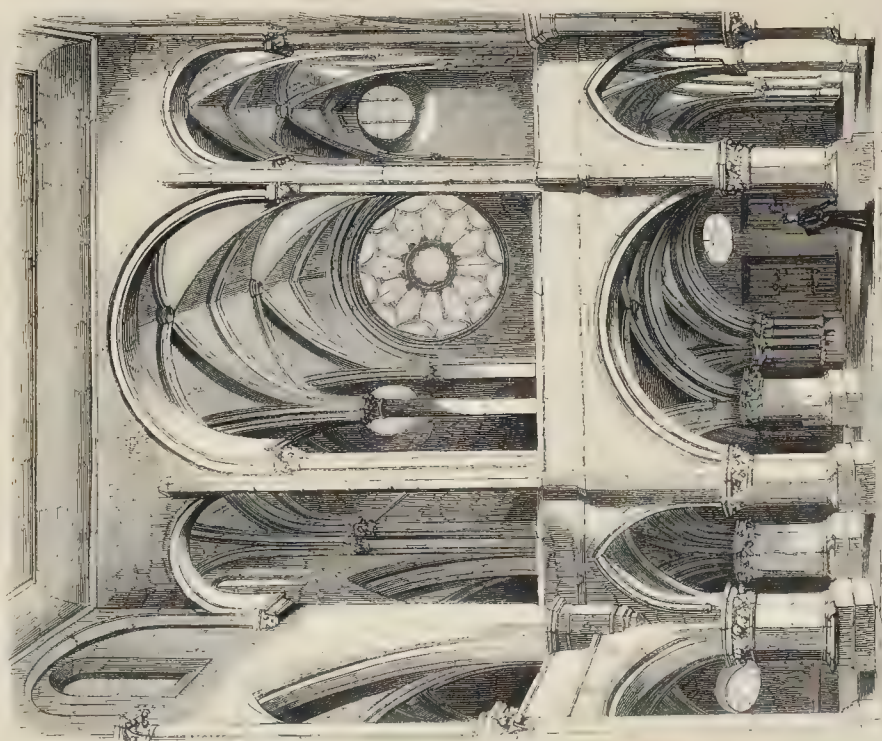


FIG. 2.

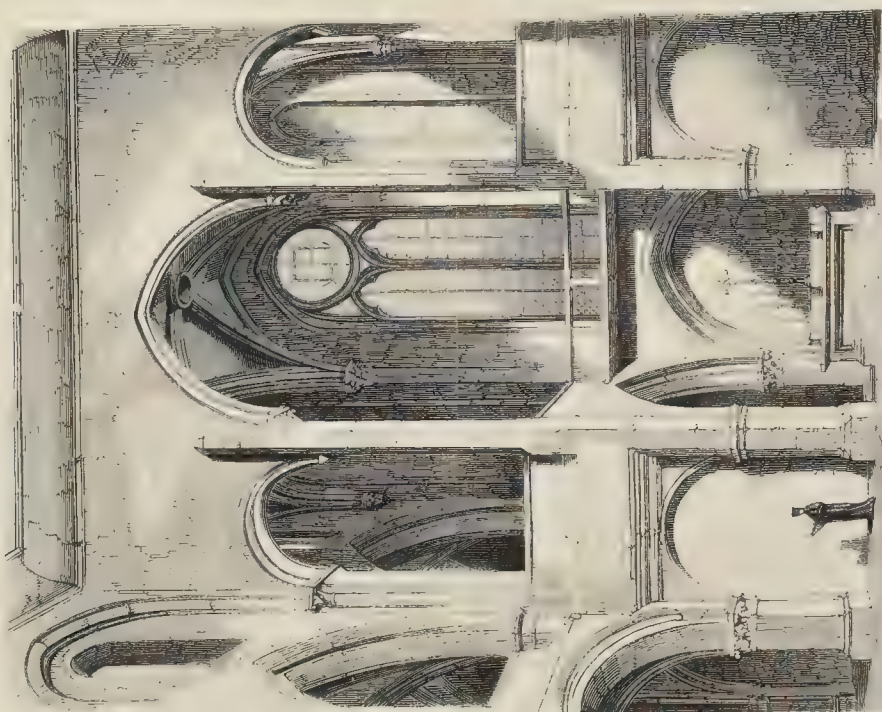


FIG. 1.

OLD CHURCHES WITH GALLERIES.

W. BENTON



ENGINE-HOUSE, CROSSNESS: OUTFALL OF THE SOUTHERN METROPOLITAN SEWERAGE.

ERECTED UNDER THE DIRECTION OF MR. BAZALGETTE, ENGINEER OF THE METROPOLITAN BOARD OF WORKS.

THE ENGINE-HOUSE AT THE OUTFALL OF THE SOUTHERN METROPOLITAN SEWERAGE.

We publish this week a view of the Engine-house which is erected below Crossness Point, at the Outfall of the Sewerage of Southern London. In the same view, a portion of the boiler-house appears; but there are other buildings for purposes of storage and residence: these are grouped around a garden, which is laid out in the area over the reservoir. As may be gathered from the view, there is considerable effort after decoration in coloured brickwork, and carved and incised stone-work. Whether the general character, and the detail, are the best adapted to the site, may be a question on which there would be opposite opinions. The work, both in the building and the chimney, has been admirably well executed by Mr. Webster, under the direction of Mr. Bazalgette, and his assistants Messrs. Grant and Houghton. The buildings at the Northern Outfall, comprising chiefly the penstock-house and residence, have much less elaboration of detail than those of the Southern Outfall. It will be recollected that there, there is no pumping machinery. We contemplate completing shortly our particulars of the London sewerage, and then we shall be able precisely to explain what are the arrangements of the reservoir, outfall, and pumping machinery for the southern division of the metropolitan system.

THE THAMES EMBANKMENT.

PEOPLE are looking forward with much interest to the time when this great work will be thrown open for the public use; and if it answer present anticipations, it will then become one of the most popular of the lungs of the metropolis.

The Rev. Sydney Smith said, "Blessed is the man who builds a red brick house," and our climate may perhaps require a slight dash of colour, whilst, in sultry climates, a building constructed of white stone, with small openings, deep porticos, columns and colonnades, and overhanging cornices, is a positive luxury to look at in the bright sunshine.

Passing the embankment the other day in a steam-boat, I observed a small portion, near Whitehall, open to the river; and the idea then occurred to me that, even now, in this warm weather, the effect was unsatisfactory. The muddy Thames has itself, at all times, a sombre aspect, unless where it flows between green banks and spreading trees; but the cold grey granite has no contrast to relieve the eye: it appears like a solid continuation of the water, and will, by the wash of the tide, more and more assimilate to the colour of the water.

It is too soon to say anything about the street; but when formed, I trust its ample width will afford space for a double line of trees, which ought to have provision for growth in a strip of gravel along the footway, some 3 ft. from the kerbstone. The footway, to be at least 20 ft. in width.

J. W.

RAILWAY MATTERS.

The directors of the Great Northern Railway Company state in their report that the through route between the Great Northern and London, Chatham, and Dover Railways, will very shortly be opened. The gross traffic receipts for the half-year ended June 30, amounted to 910,335l., against 833,814l. for the corresponding half of 1864, showing an increase of 76,521l. The gross expenditure amounted to 479,404l., against 441,453l., showing an increase of 37,950l. The excess of receipts over expenditure amounted to 430,931l. for the past half-year, to 392,361l. in the corresponding half of 1864, showing an increase of 38,570l. The balance available for dividend on the original and A and B stocks was 151,558l., against 134,721l., showing an increase of 16,837l. The balance would yield dividend at the following rates, viz.:—On the original and new ordinary stocks at the rate of 5l. 10s. per cent. per annum, giving on the half-year 2l. 15s. to the original stock, 3l. to the B stock, and 2l. 10s. to the A stock, leaving a balance of 373l.

The belief is general among the commercial and trading community of Hull that a proposal has been made for the transfer of the Hull Docks to the North-Eastern Railway Company. The principal ship-owners and merchants view this

with great alarm, and the town council has referred the matter to a committee to inquire and report to the council how far any such transfer will be for the advantage of the trade and commerce of the town.

At Crewe the London and North-Western Company are erecting a building near the rolling mills, to be used as dining-rooms and baths by their workpeople. An iron church, the gift of one of the shareholders, is being put up on the Edleston-road; and the directors contemplate the erection of another church of a more spacious and suitable character.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 5th of August, on 12,154 miles, to 766,285l.; and, for the corresponding week of last year, on 11,801 miles, to 742,205l.; showing an increase of 353 miles, and of 24,082l.

Is a railway a building or an erection? was one of the questions in the case of Lloyd v. the London, Chatham, and Dover Railway Company, where the company, for the purpose of constructing its line, entered into an agreement with the plaintiff for the purchase of certain lands belonging to him, and in the conveyance covenanted not to raise "any building or erection" of more than a certain height within a certain distance of the plaintiff's property. The agreement contained, after the words "building or erection" the words "except the said railway" but these latter words were not in the deed of conveyance. It was, however, held by the Lords Justices that the railway itself was within the terms "building or erection."

It appears from official statistics relating to French railways that the viaducts over which they run, taken altogether, are more than seven leagues in length. One of the most remarkable of these viaducts is that of Val-Fleury, near Meudon, built in 1840. It is 140 yards long, 31 yards high, and cost 600,000fr. The viaduct of Chaumont, on the Strasburg line, is the first in point of expense, as it cost 5,800,878fr. There is a remarkable viaduct at Mirville, on the Western Railway, which cost 2,300,625fr.; and the viaduct of Brunoy, on the Lyons line, which cost 1,540,000fr. The tunnels of all the railways in France are 366 in number, and would, if combined, measure 37 leagues in length. The longest tunnel is that of the Nerthe, near Marseilles, on the Lyons Railway, which cost 10,500,000fr.; that of Blaisy, on the same line, cost 8,000,000fr.; and that of the Credo, between Lyons and Geneva, 6,500,000fr. The entire cost of the bridges, viaducts, and tunnels on the various French railways amounts to 432,631,953fr. The Government and the railway companies have expended on the railways now worked a sum of 5,500,000,000fr. The cost of bridges, viaducts, and tunnels amounts to 8 per cent. on the whole.

SIR,—I have just seen it stated in your last number, that I am the architect of the new High Level Station at the Crystal Palace. I shall feel obliged if you will allow me to correct this error. The new station has been built from the designs of Messrs. Banks & Barry.

EDWARD M. BARRY.

EAST LONDON EXHIBITION.—CLOSING CEREMONY.

THE working classes' industrial exhibition, which has for some weeks past been held in St. Mary's School, Whitechapel-road, was formally closed last Saturday afternoon. During the time the exhibition remained open it was extensively patronized by the industrial classes of the surrounding districts; and all connected with the exhibition are well satisfied with the results.

On the occasion of the ceremony on Saturday, the large room in which the exhibition has been held was quite crammed with visitors. The Tower Hamlets Engineers and their band attended. The Earl of Shaftesbury was to have presided, but was prevented attending in consequence of the death of the Dowager Countess of Shaftesbury. Mr. Ayrton, M.P., took the chair.

The proceedings having been opened with prayer,

The Rev. Mr. McGill gave an interesting sketch of the origin and results of the exhibition. They would have a balance in hand, although it might not be very large. The amount contributed to the prize fund would nearly cover the price of the thirty silver and hundred bronze

medals which would be distributed, as well as the expense of the die, manufactured specially for the occasion by Messrs. Pinches.

Mr. Webb, honorary secretary, read a short report. It stated that the total number of working people who visited the exhibition was 40,000.

Mr. Ayrton, M.P., previous to distributing the prizes, delivered a brief address. He referred to the great good which the industrial classes' exhibition movement had accomplished throughout the metropolis. There was no doubt about the interest which the working classes took in such exhibitions, and the effect produced upon them had been of a most gratifying kind. He only hoped that these fruits might be of some service in teaching the trustees of the British Museum and other similar institutions how beneficial it would be to the working classes if the national collections were allowed to be open to the public during the week evenings. When so much good had been accomplished by means of these district exhibitions, it was natural to suppose that if the working classes were allowed to spend the hours they had at their control during the week evenings in such a place as the British Museum, it would be productive of immense advantage to them in many ways. He trusted, therefore, that the success of these local exhibitions would have the effect of opening the doors of the national collections to the working classes of the metropolis. After explaining that the medals about to be distributed were to be awarded to amateurs engaged during the day at hard work, and who devoted their spare hours to the cultivation of fine arts, mechanical productions, models, and other matters, Mr. Ayrton proceeded to present the prizes to the successful competitors, amongst whom were several ladies, and in every instance delivered a few well-chosen words of congratulation and encouragement.

A vote of thanks to Mr. Ayrton and to the secretary (Mr. Webb) concluded the proceedings. The exhibitors were to dine together on Thursday evening.

THE EXHIBITION ERA.

INDUSTRIAL exhibitions, after having long laid claim to historical notice, may be fairly said to have become the exponents of modern history. It is somewhat singular that the nation in which they first originated, and the age upon which they dawned, were warlike. Napoleon was caressing the astronomer Oriani, at Milan, when the Marquis d'Avessé began to inspect the factories of Paris. On visiting the French manufacturing at this time, most of the workshops were found deserted. The artisans had been in a starving condition for nearly two years, while the warehouses were full of the results of their labours; and no commercial enterprise came to relieve the general embarrassment. In 1801 Napoleon, who was then the First Consul, as a member of the Institut, accompanied by Berthollet, Monge, and Chaptal, visited the workshops and great factories of Paris, Rouen, Lyons, Milan, Brussels, Liège, and Aix-la-Chapelle, stimulating all to progress, and distributing rewards.

In keeping with the reign and character of Napoleon, everything that was undertaken at this time concerning the promotion of art and manufactures, was intended only to give France a sort of pre-eminence above the other nations by which it was surrounded; and genius began to confer all those qualities upon the country, which nature had not given to its people. There was, however, at the same time abroad, a spirit of love and activity, whose desire was not to confine the destinies of men within certain boundaries; but, striving to animate all with a fervid identity of thought and feeling, instead of a project for the separation and exclusion of races, it sought, without self-indulgence, to call all the orders of society together. Napoleon succeeded in pulling France up to a standard of civilization that had already been reached and passed by other nations; and to one it was reserved to watch and restrain others in their path: thus when Napoleon was carrying out sound measures tending towards the general prosperity of his country, he received encouragement from all sides; and it was only when, forgetting what was permitted by history, his motives became of a personal character, that it appeared he could no longer be safely entrusted with the fortunes of men. In 1861, Prince Albert, who was then President of the

Society of Arts, at a banquet given by the Lord Mayor of London to the municipal authorities of the United Kingdom for the purpose of promoting the first International Exhibition, delivered an address the spirit of which must move mankind until the wishes from which it originated are realised.

"Gentlemen," said the Prince, "I conceive it to be the duty of every educated person closely to watch and study the time in which he lives, and, as far as in him lies, to add his humble mite of individual exertion to further the accomplishment of what he believes Providence to have ordained. Nobody, however, who has paid any attention to the particular features of our present era will doubt for a moment that we are living at a period of most wonderful transition which tends rapidly to the fulfilment of that great end, to which, indeed, all history points, the realization of the unity of mankind,—not a unity which breaks down the limits, and levels the peculiar characteristics of the different nations of the earth."

Such is the only spirit that could bring about important and desirable changes in society; and, whatever was wrought by the French Revolution in the shape of humanity and brotherhood, it was less than could have been effected by that strength and kind of genius which called up and made the Exhibition of 1851 a reality. Here it was that the prejudices of race began to subside, and the light of a new revelation commenced to break over the world. Whatever religion or philosophy had not as yet succeeded in rendering intelligible, was made more clear by contemplating the inequalities of nature which were met together.

In 1834, M. Boucher de Perthes, president of the Société Royal d'Emulation of Abbeville, proposed an *Exposition Universelle*, in a paper read by him before that society; but the policy of France seldom honestly extended beyond its own boundaries, and it was seldom of a nature that would incline the country to make any concession to foreigners. After the first Great Exhibition in 1851, came the Cork Exhibition in the following year. Two were started in 1853,—one in New York and one in Dublin,—both of these being universal or international exhibitions. The New York Exhibition was a private speculation, and was not a commercial success, owing chiefly to a long delay in the opening caused by the building not having been finished. In 1854, a splendid Exhibition building was erected at Munich; and the character of the structure, differing widely from all the buildings hitherto used for the same purpose, may be worthy, perhaps, of a passing observation. Generally, an immense dome, formed of curved groin ribs, filled in with glass, was erected, so as to form some portion of the roof; but, in the Munich Exhibition, scarcely a curved line could be anywhere detected. The doors through which ingress was had to the building were plain vertical parallelograms; but in the Paris Exhibition, which took place in 1855, the entrance itself was capable of re-awakening some of the grave and beautiful recollections of antiquity. There was an Exhibition in 1857 in Manchester, and one in Florence in 1861, which brings us to the period of the last Great Exhibition in England in 1862. An International Exhibition is now open in Dublin, the building being probably the most modern and extensive structure of the Victorian style of architecture. The Amsterdam Exhibition building, which is constructed in the same manner, and by the same engineers (Ordish & Le Feuvre), although not yet open, was fully erected and ready to be opened last year. There is now contemplated a magnificent exhibition in Paris, for 1867, which is intended to eclipse all its predecessors.

FIELD MEACHER.

ROYAL STRAND THEATRE.

THE roof of this theatre having been found to need repairs, a new roof is now proposed to be carried over the entire span, so as to render the auditorium some 10 ft. higher than at present; also the galleries and boxes are to be partially rebuilt and improved, and the whole of the interior is to be cleaned, painted, and re-decorated, preparatory to reopening the house at the end of September. Mr. C. N. Foster, of Whitefriars, is the builder; and Mr. John Ellis, of Anastinfrars, is the architect under whose direction the works are about being carried into effect.

SCIENCE AND ART.

STYMNOROS and swift is the progress of Science,
She scatters prejudice, nature explores,
With the purest desires of the mind in alliance,
She scans the unseen and Time's fathomless shores.

In vain superstition, with fetters entralling,
Would shackle her footsteps, or limit her course:
In the conquests of intellect reason is calling,
And knowledge and wisdom are one in these shores.

And Art has her triumphs, as mighty and splendid
She gathers the products that industry bore;
And, induction's long chain of experiments ended,
She brings forth a beauty not obvious before.

In Art and in Science exists no disunion;
As the hilt to the sword, as the cord to the bow;
So Science and Genius unite in communion
Both facts to elicit and grace to bestow.

There is harmony ever, unseen, unsuspected,
In the forces of Nature, the powers of the mind;
And when by the counsel of talent directed,
The soul of the student that union shall find.

Nor Art without Science has risen or flourish'd,
Nor Science is lovely where wanting is Art:
They are flowers of one stem, by one influence nourish'd,
Twin rays from one sun, of one system a part.

Man makes by his ignorance, folly, or daring,
A seeming repulsion, where Nature has none;
Each chord of the spheres in one key note is sharing:
The notes of creation are concord alone.

W. R. COOPER.

Working Men's College.

ON THE NEW CROSS AT CHARING.

DEAR to the shareholders, this cross

Uplifts its head on high:

"Why stands it there?" the critic asks,

And Echo answers, "Why?"

"Carissima croce! che fatte là?"

"Non so, car' amico, en verità." Q.

CHICHESTER CATHEDRAL.

SIR,—Your correspondent "A. Z." in his remarks on the "Iron bars which tie the four arches at the springing," seems to be under a misapprehension in supposing that they are intended to be permanent. Will you allow me to correct this impression? The tower and spire, in its reconstruction, are built alone and without any of that lateral support which in a new building would be afforded by the walls of the nave and transepts to the abutments of the main arches. These ties, then, have been introduced at the springing in order to give additional security to the work; and when the junction of the walls uniting the nave with the old work shall have been effected, these ties will be removed. Again, he may be under no fear as to exfoliation, as the ends of these ties, which are cramped into the stonework, are made of wrought copper, these cramps being connected with the iron ties by means of dovetailed ends or notches, thus allowing of their easy removal without the least disturbance of the stonework. The masonry is most admirably executed, and not the slightest settlement can be detected in any part of the work.

I do not see that the comparison of the Chinese tailor is at all applicable in the case of the ties; but, sir, if we go back to the previous number of the *Builder*, and read the strictures of "F. S. A." on the reconstruction of the tower and spire, the comparison is most apposite. I rejoice to find that your own protest is entered against what may truly be termed Chinese copyism. All lovers of the glorious remains of the Gothic period left to us in trust for future generations by our forefathers, must admire the conservative spirit which has actuated the eminent architect in the numerous restorations entrusted to his skill; but, sir, I am not so clear that future generations will view with equal favour the reconstruction of our cathedral tower and spire. Restoration and reconstruction I venture to look on as differing very widely from each other.

Nothing could be more beautiful than the general effect and exquisite outline of the spire as seen from all points of the surrounding country, but surely there could be no reason why the general effect, and all the beautiful features of the old work, should not have been preserved without adopting a slavish and servile copy of the former building; servile, indeed, even to the extent of reproducing manifest blunders of the old craftsmen. Your own remark that the "carved ornaments would be the better for a little extra force," refers, I presume, to the exterior; and now that some of the worst features of the old work (viz., the battlemented parapet and the four corner turrets) have

been reproduced in all the nakedness of new stone, your remark applies with additional force. "F. S. A." invokes your influence to withstand the resolution to carry the same Chinese ideas into the interior, and to prevent the reconstruction of the vaulting under the lantern. I am pleased to find that this question is seriously entertained by some members of the committee; but I fear their influence, without other additional pressure, will fail to overcome the strict laws of copyism adopted by the few into whose hands the management of the work has merged. The eminent architect would, in all probability, plead his instructions; but surely, sir, in placing the work in the hands of one who stands deservingly in the very front rank of his profession, we might have expected something which would have stamped the work with some features of originality, and shown to future ages that a master-mind had directed the work. I can scarcely think that this servile copyism can be any more to the taste of the great master of Gothic, than being compelled to design a Palladian Foreign Office. I know that his multifarious occupations render it impossible that all his works can receive his personal attention; but, then, rather than take a course only to be defended on the supposition that we have no architect in our day capable of producing aught but a copy, let the work pass into the hands of some talented but less occupied confidant.

It is too late to alter what has been done; but the idea of leaving open the lantern is far too valuable to be lightly rejected. Contrast in the mind's eye the crude nakedness of the projected vaulting, and the feeling of depression produced by the long, unbroken line, with the lofty grandeur of the tower, vaulted over or celled at its full height,—the walls, perhaps, covered with mural enrichment,—the windows filled with stained glass, "showering down its radiance" on the marble floor beneath,—and, sir, if we have (and I know that we have) some fully capable of making this contrast, let them give expression to their feelings; and if they succeed in saving us from further copyism, they will be entitled to the thanks of the citizens and of all future visitors to our small but beautiful cathedral. Give us, also, your valuable assistance; and you will add to the debt already due to you for giving the matter the publicity afforded by your journal.

You ask, "Where are the pictures which formerly lined the walls of the south transept?" There were much, and I fear irreparably injured by the fall; but the remains were carefully packed away, and their restoration will be a matter for future consideration.

CIVIS CICESTRENSIS.

SHERBORNE ABBEY CHURCH.

In our last number we gave a report of Professor Willis's paper, read at Dorchester, on "Sherborne Abbey Church." On the following day the members of the Archaeological Institute visited Sherborne; when Professor Willis pointed out the features of the building in the structure itself. Commencing outside, and opposite the great west window, he said, as reported in the *Sherborne Journal* and other local papers:—

They would remember that he had told them there were traces and fragments at the west end of the church that indicated the existence of an older church. They would see on the face of the wall fragments of what appeared to be piers, with a wall connected with the lower part of the sills of the window, in a way that was rather peculiar to this district, and of which he should have to show them specimens inside the building. At the west end was a manifest respond of an arch, with highly decorated mouldings; another, though not so perfect, was to be seen near; on the other side of the great west door there was a third; and finally there was a fourth; and although those responds were not apparently connected with the wall, yet if they went on the other side they would see there was originally a pier-arch passing through the wall, so that he was emboldened to think that was the respond of an arch opening into some kind of turret. These indications authorised him in saying, that we had here a church with three aisles, of which the centre one was a continuation from the minister, and of six bays. He next pointed out a doorway, which was originally bounded by a Norman arch, and led into this church of All-Hallows; but it was now bounded by a pointed arch, which had reduced its width; and this coincided exactly with the grievances of which the parishioners complained, and which led to the great quarrel and riot which he spoke of in his lecture yesterday, and which resulted in the burning down of the east end of the church and the tower. That, he explained, had been rebuilt; and subsequently the nave, which did not appear to have been damaged by fire, was also rebuilt, and so brought into harmony. The perpendicular windows and doorway were the result of that rebuilding. The first difficulty which would strike them was, how such a window and door could have been introduced in the front when he had been telling them that the church was terminated by a chief central aisle.

that estimates had been taken for the execution of the building according to Mr. Gilbert Scott's plan. The work had been divided into three sections. The first, containing the free library, and great hall and entrance-hall, had been offered for 15,485*l.*; the second section, containing reading-rooms for ladies and gentlemen, and the private library of the Institute, 2,257*l.*; and the third, the external staircase to the great hall, 1,212*l.* The report having been read, the chairman produced a letter which he had received from Mr. Edward Baxter, of Kincaldrum. In this Mr. Baxter stated that, presuming the shareholders would sanction the proposal of the directors to proceed with the first section, his sisters and himself would undertake the payment of the external staircase, which he considered very necessary, with the carving on the door of the great hall. The estimated cost of these is about 1,250*l.* Mr. Sturrock then proposed that the report of the directors should be approved of, although he would have preferred to see the whole works carried out and the building completed. The proposal was agreed to. Sir David Baxter proposed that a committee should be appointed to obtain additional subscriptions for carrying out the entire work. He did not think there would be any difficulty in raising the additional 3,000*l.* still required. The motion was agreed to, and a committee appointed for that purpose.—*Extensions* additions to the Tay works of Messrs. Gilroy, near the prison, have been erected. The new additions have a frontage of about 210 ft., and this will be considerably added to when the old mill, which stands between the new building and the large mill on the north, is pulled down, and another rebuilt on the site. At present the new building has the appearance of a long range, with a wing at the end. This end, however, will be the centre of the new structures. In the centre of it, on the ground flat, is a large arched doorway for the entrance into the court. The shape of the arch is elliptical, with a carved key-stone. On each side of this are two windows with segmental arched heads. Above these run a moulded string cornice. Starting from this are the windows of the second floor, which are square-topped, with friezes and pediments above. Small pilasters are also carried up on each side, finished with ornamental trusses, around which the lower members of the cornices are broken. The upper windows have raised margins, and semicircular tops. The windows, however, are square-topped, the semicircular part being filled in with carved shells. Surmounting the whole is the cornice, from which a pediment is raised, the tympanum measuring 48 ft. long by 12 ft. high. This is to be filled in with elaborate carving. The site of what used to be the terminus of the Newtyle Railway is also fast being built upon. This is also to become part of the Messrs. Gilroy's works, and is to be employed as a warehouse. It will extend from Ward-road to West Bell-street, and will be in the form of the letter L. To give some idea of the size of this warehouse, we may mention that each flat will be considerably larger than twice the size of the Corn Exchange Hall. On each of the ground and first flats there will be 110 iron columns. One of the rows of these is carried to the top to support the roof, which will be M shaped, the water from the gutter in the centre being carried down inside the iron columns. The stone blocks for numbers of the iron columns will be founded on piles.

FROM IRELAND.

Sligo.—The contract for a town-hall for Sligo has been given to a Dublin builder.—According to the local *Champion*, this town has the misfortune to be ruled by life-elected commissioners; and one result is, that the utmost neglect prevails as to all sanitary requirements.

Derry.—Property to the value of about 15,000*l.* has been left by the late Mr. James Brooke, of Brookhill, near Derry, for the establishment of a people's park in the vicinity of this city.

Kells (county Meath).—A writer in the *Meath Herald* calls attention to the disgraceful state of this town. With regard to sewerage, he remarks, "I found house-drains universally absent, cesspools being the only means for the deposit of refuse, and even these were only in the better premises; for in the poorer there were no arrangements whatever for the deposit or removal of refuse, the ground at the rear being shockingly foul, and filth being heaped before the door as abundantly as before any Connaught hovel. All the sewers lead to the north-eastern

end of the town towards the river; but instead of running thereto, they discharge into open gripes surrounding the town within some twenty or thirty yards. The water supply is entirely by pumps, sunk very superficially; and in the case of that on the Fair Green, merely as far as a large mass of stagnant water near the surface. Health, of course, suffers, and fever prevails." Sewerage and water supply, therefore, are urgently requisite; and it appears there is not want of means.

Navan, according to the same writer, is but little better; but as the town is hilly, and the Boyne and Blackwater course through the town, there is a system of natural sewerage. Lanes of hovels and lodging-houses are more numerous than in Kells, and epidemics of fever are severely felt. Its annual death-rate for the first quarter of this year has been fearfully high, namely, one in every thirty-five of the population. In the Trim superintendent registrar's district, which includes two or three large towns, the rate has been one in every forty-nine of the population. If other Irish towns are circumstanced similarly to those in county Meath, there seems to be urgent necessity that the Government should procure the extension of the Public Health Act to Ireland; or that the Board of Works should be empowered to conduct the sewerage of Irish towns in which official inspection or death-rates indicate that it is imperfect.

MINIATURE OF CROMWELL.

As supplementing our recent article on portraits of Oliver Cromwell, we give the following from *Notes and Queries* :—

The Exhibition of Miniatures leads me to inquire if any of your correspondents can give information respecting one of Cromwell, of which I heard West, the president of the Royal Academy, speak with the highest enthusiasm. The anecdote relating to it was to me curious and interesting, and must no doubt be known to many, who may be able to correct mistakes, and supply the blanks which I make, as I write from memory after the lapse of many years. West, when painting, I think, the "Dissolution of the Long Parliament," was most anxious to see authentic portraits of Cromwell. He heard of a miniature in the possession of — (one of the Russell family). She was an old lady, very infirm and bedridden; but Lord — Russell offered to mention his desire to the lady. Great objections were made and many communications took place; at last the lady consented, on the specific condition that all present should be in *court dress*. "This," West said, "was to me a serious difficulty, as from national feeling I have a special aversion to that costume; but the condition was absolute, and rather than lose a sight of the portrait, I consented to put on the sword and other paraphernalia. On the appointed day I found that the carriage had been sent to the bankers', where the miniature was deposited, the servants being put in full costume, as if going to court. When I arrived at the house, I was ushered with great state to the room, where I found the lady propped up in bed, with her head dressed with plumes and jewels, as if going to a drawing-room." The box was opened, and she gave him the miniature. After some remarks, he expressed his admiration of it, and said it was by far the most expressive portrait of Cromwell he had . . . Upon this the lady stretched out her arm, seized the miniature, and covered it up. The first impression of West was, that the lady was seized with a fit of derangement; but he begged to see the portrait again: she was evidently much excited, and positively refused. Lord — Russell then endeavoured to persuade her to allow another view of the miniature: all in vain. At last, partly exhausted, partly relenting, she consented, while saying, "You must know that in my presence he is never to be spoken of but as *My Lord Protector*!" West said that he had the miniature in his hand for a good while afterwards, taking special care to speak frequently of the Lord Protector.

Not long after the lady died, and he inquired of the executors about this portrait. He was told that the box had been received from the bankers, but the miniature was not in it; and when West spoke to me about it, he said it had never been discovered. He added, that probably it must have been sent abroad, but that the execution was so beautiful that it would certainly appear again.

CHURCH-BUILDING NEWS.

High Easter (Essex).—The parish church, "the Cathedral of the Roothings," which has recently undergone improvements and restorations, at a cost of 2,200*l.* from designs by Mr. F. Chancellor, of Chelmsford, has been re-opened. High Easter Church consists of nave, chancel, north aisle, tower, south porch, and vestry. The original church, which probably included only a nave, chancel, and tower, was of the Norman era, the only portion of this work which remains being the nave, and this has been so altered by the addition of a north aisle and the introduction of decorated windows in the south side, as to leave only portions of the walls to represent the original work. The restoration has at present been confined to the nave and north aisle and the interior of the chancel, the walls and roof of the chancel having been restored some few years ago. In effecting these restorations the object in view has been to restore the body of the church to the condition it assumed after the works of the latter part of the fourteenth century had been carried out, with the exception of the roof, as from certain remains in the tower it is believed that the nave had then a steep roof without a clerestory. Many of the oak timbers of the roof being found in a frightful state of decay, they have all been replaced with new ones, the old decorations being adhered to, and the whole has been re-covered with lead. The windows of the clerestory, which are of moulded red brick, have been restored, the red brick jambs and mullions showing inside. The lower parts of the nave walls are of rubble, the external slating having been removed and the original rubble work of the Norman period exposed to view. The windows on the south side of the nave, which had been patched up with wood, cement, and mortar, have been restored in stone and re-glazed; and the walls and buttresses of the north aisle, which had been patched up with brick, have been renovated, the stone slopes and steps having been removed, and the parapet, which had been destroyed, restored. In the interior, the whole of the modern pews have been cleared out, and the entire area has been re-benched in oak. The design of one of the original benches has been obtained, and the new benches have been restored in accordance therewith. The oak screens, enclosing what is popularly known as *Garet's Chapel*, at the east end of the aisle, have been restored, and form now the organ chapel. The parishioners have taken in hand the tower and remaining portions of the church. Since its construction a wretched little spire has been added, which to a certain extent mars it, but it is to be hoped that this disfigurement will be removed in the course of the restorations which are in hand. The gallery which formerly blocked up the west end of the nave has been removed, throwing open the tower arch, which forms a frame to the west window.

Wycombe and Chadwell (Leicestershire).—The church belonging to these joint parishes is about to be restored. Situated in a sheltered spot, away from any public thoroughfare, but few people are aware of the interesting specimens of Norman and Early English work which are embodied in this church. The north sides of the nave and tower are Norman, and the remaining portions of the church, including the chancel, are Early English. The works included in the scheme for its restoration include new window on south side, throwing open the tower, removing the ceiling of the chancel, new benches, pulpit, and reading-desk, cleaning and restoring the stonework of the interior, and some necessary repairs to the exterior. The plans have been prepared by Mr. E. W. Johnson, of Melton Mowbray and Leicester, architect, and the works will shortly be commenced.

Bandwick.—The parish church of Bandwick, which is a village within the borough and close to the town of Stroud, in Gloucestershire, has been re-opened by the bishop of the diocese, after having been for some time closed for repairs and alterations. The nave has been almost rebuilt; a new window has been put in the chancel; the whole church has been repewed with modern oak seats; and a new porch has been added; the total expense being over 400*l.*, which sum has nearly all been raised by subscription. The architect was Mr. W. B. Baker, of Stroud; and the builders were Messrs. Wall & Hook, of Brimscombe.

Siddington.—The parish church of St. Peter, Siddington, having become dilapidated, a lady, interested in the church, determined to have it restored. The work was undertaken by Mr.

Restall, of Bisley. The nave and south aisle have been rebuilt, while the north aisle, which is of a different order of architecture from the rest of the building, has been extended to the entire length of the nave. A vestry and tower with octagonal spire have been added, and the chancel has been repaired so as to harmonize with the whole.

Horsley.—The new Chapel of Ease, built on the site of the old porchouse, at Shortwood, in the parish of Horsley, has been opened for divine service. The chapel is in the Gothic style, and accommodates 200 people. The work has been done by Mr. E. Clayfield, of Horsley, under the direction of Mr. Clissold, of Stroud. The cost of the building, including the purchase of the site, is 900*l.*, of which about 800*l.* have been collected.

Clutton (Somerset).—The parish church of Clutton, dedicated to St. Augustine, has been re-opened. The edifice was in a very dilapidated condition, and it was feared less than a day the old-fashioned high-backed pews might be buried by the falling roof. At the same time increased church accommodation for the parishioners was pressing wanted. Mr. G. C. Norton, architect, of Bristol, was therefore called in, and he prepared plans for the rebuilding of the church, and for adding to the site occupied by the nave a north and south aisle, a vestry and chapel, and for increasing the original size of the chancel. The plan was approved of, and the work intrusted to Mr. T. Dives, of Glastonbury, who, about a twelvemonth ago, set about the work of demolishing the old building and erecting a new and larger one. The tower was allowed to stand, and there have been joined to it the buildings mentioned, whereby the sitting space has been increased so as to accommodate 372 persons. The high pews have been removed, and low oak ones substituted; and by the removal of the organ from the tower a stained-glass window has been brought to light. Stained glass is also to be placed in the east window, over the communion-table; and the organ, which is now undergoing repair, will in future be located near the vestry.

The window in the tower was put there in 1815, when some restoration work was also executed. The new church is built of grey Pennant stone, faced with Bath stone dressings, and blue lias archings over the windows and doors. The roof, an open-timbered triple one, is partly supported by two rows of three freestone pillars, with foliated capitals, standing on each side of the nave, and separating it on either hand from the aisles. The porch and the chancel are paved with Minton's encaustic tiles, and the pulpit (stone) and lectern are also both new. The chancel arch and the font are the only portions remaining of the old building; both of the Roman type. The church is heated by Haydon's heating apparatus. The total cost will be nearly 1,800*l.*, which includes the fencing in and preparation of the additional burial-ground, architect's charges, &c.

Monkland (Herefordshire).—The parish church of St. John the Baptist has been restored and re-opened. It is of stone, in the Early English style, and is believed to be a very ancient building, the parish register dating as far back as 1590. The chancel was rebuilt about the year 1825, but in the vilest style of that period. By the liberality of the present vicar, the Rev. Sir H. W. Baker, bart., that eyesore has been removed, and the church generally put through a restoration. The vicar laid out 200*l.* on the chancel. The parishioners (about 250*l.* on the parish rates, to be applied to the general restoration of the church; the Diocesan Church Building Society made a grant of 40*l.*; and, with these funds, increased by some voluntary contributions, the work was started, Mr. G. E. Street, of London, being engaged to prepare the plans. Upon these, it is calculated that the total cost will be not less than 1,000*l.*; and the sum over and above the special grants and gifts will be defrayed by subscriptions raised through the exertions of Sir Henry Baker, who has made himself responsible for any deficiency. The new chancel is approached from the nave by two steps, and is separated therefrom by a demi-stone screen. On the north side are the vestry and the chamber organ. The roof is divided into panels, and highly relieved in colours, the groundwork being purple. In the compartments over the sacrum the monogram "I.H.S." is inserted; floriated crosses being the ornaments introduced: the remaining compartments are studied with gold stars. The cornice is a combination of high colouring and gilding. The east window represents the glorification of our Lord,

and is the work of the Messrs. Hardman, of Birmingham. The upper compartments of the window represent the heavenly praise of our Lord—"To These cherubim and seraphim continually do cry;"—and the lower ones, the earthly praise, the praise of the terrestrial and the rational creatures. This window is the gift of Sir Henry Baker's co-compilers of "Hymns Ancient and Modern." Over the altar and beneath the window is a reredos, depicting Christ's crucifixion, with the three Marys and St. John weeping at the foot of the cross, the whole chiselled on Caen stone. The background is mosaic work inlaid with Salviati's gold. The body of the church has been re-fitted with open oak benches. The nave itself has been entirely rebuilt; and in this work the object of the vicar has been to conserve the old characters of the building to the minutest detail. Every stone occupies its original position, or very nearly so, and thus the nave stands an exact reproduction of the old one. The plaster which has so long hidden an old fourteenth century roof has been cleared off, and the space between the rafters ceiled: the floor has been laid with Godwin's encaustic tiles, and the whole of the ashlar work and the windows have been restored. The old method of lighting the church has given place to a more modern and ornamental one, which comprises a chandelier suspended from the roof, and a number of two-light brackets affixed to the walls. The west window is filled with coloured glass, to the memory of Mr. Humphrey Smith, of Overton, near Ludlow—subject, "The Raising of Lazarus."

Cemaes (North Wales).—The church of Cemaes, in the parish of Llanbadrig, has been consecrated by the Bishop of Bangor. The church is situated on a gentle elevation, a short distance from the town of Cemaes. The site is central with regard to the population. It was the gift of Mr. Wm. Jones, Bursar-ty-foel. The building was designed by Messrs. Kennedy & Rogers, of Bangor and London, architects, in the Early English style, and comprises a nave, 52 ft. 6 in. long and 17 ft. 6 in. wide; a chancel, 24 ft. long and 14 ft. wide; a robing-room or vestry, 12 ft. square, placed on the north-west angle of the chancel, and made of these unusually large dimensions to suit the wants of the parish vestry meetings. There is also a porch at the extreme south-west angle of the nave, and a one-arched bell-turret on the western gable. The walls, which are throughout 1 yard in thickness, with a battered plinth, are built 10 ft. high to the eaves, and are pointed with Portland cement in the joints, and afterwards painted, in order, if possible, to resist the violence of the storms. The dressings throughout are of Anglesey Limestone, and form a contrast with the masonry of the walls. The nave is lighted in the north with one four-lighted and two three-lighted windows, lancet in form, bordered by a square set in in the walls, having cubical blocks along the top of the recess. There are two three-light and one two-light windows in the south wall, of similar design. The chancel, which is attained by stone steps through an arch, is lighted by an eastern triplet, trefoiled, and banded together outside by a face arch of large dimensions. There is also a small foliated lancet window in the south side of the chancel. The vestry has a two-light window. The roof, which is covered with Carnarvonshire slating, and Yorkshire copings, is of timber, stained and varnished. The floor of the passage in the nave is of Yorkshire flagging; that of the chancel, up to the altar step, of a design in encaustic tiles, by Messrs. Maw & Co.; that of the vestry, black and red tiles; and that within the altar space is boarded and covered with carpet. The church is calculated to accommodate 184 persons. The seats are all open and free, and are stained and varnished. The works were commenced by Mr. Thomas Davies, builder, Llanerchymedd, but have been finished off under the immediate supervision of the incumbent. The cost of the whole undertaking has been 720*l.*

DISSENTING CHURCH-BUILDING NEWS.

Sevenoaks.—The foundations of a new congregational church on St. John's-hill, the contract for the building of which was taken by Mr. Potter, of this place, have been commenced. The building is to be erected from designs prepared by Mr. J. Tarring, of London, and is intended to accommodate about 480 persons. The walls and the spire (130 ft. in height) are to be of Kentish rag stone, with Bath dressings, and there are to be ten stone tracery windows

on each side of the building. The seats and fittings generally are to be of deal, stained and varnished, and the roof will be partially ceiled, and a portion of the timbers also stained and varnished. A gallery for the organ and choir will be erected at one end, and a warming chamber will be constructed beneath the building. The total cost of building and ground will be under 3,000*l.*

West Bromwich (Staffordshire).—The Wesleyan chapel here has been re-opened after being repaired and decorated, and class-rooms erected, involving an outlay of about 1,600*l.* The work has been carried on by Messrs. Trow, builders, from the designs and under the superintendence of Mr. Bidlake, architect, Wolverhampton.

Tipton.—The chief stone of a new Wesleyan chapel has been laid here. The edifice, in course of erection, is in the Geometric style, and consists in plan of a nave roofed in a single span, with an apsidal end arranged as the organ gallery. The building will be of brick, with Box ground stone dressings. The principal front consists of centre gable, with entrance doorway to the ground floor, and large tracery-headed windows. A tower rises on the north side of the centre gable, and will be used, as also a wing on the south side, for the staircase to the galleries, having separate entrances thereto through all the main entrances, which will communicate by internal lobbies. The side front will have two tiers of windows, lighting respectively the ground floor and galleries, and divided into bays by buttresses. The area of the chapel is 70 ft., on the ground floor, by 48 ft., and the height from floor to ceiling 38 ft. Under the organ gallery are two vestries and offices. The accommodation to be afforded is for 1,015 persons. A basement extends under the whole building, securing light and air to all the rooms, consisting of infant school, 47 ft. 6 in. by 52 ft.; also three class-rooms, and chapel-keeper's residence. The designs were furnished by Mr. George Bidlake, of Wolverhampton, architect, under whose superintendence the building is being carried out, at a cost of 4,985*l.*, including the value of the old materials. The contractors were Messrs. Trow & Sons, of Wednesbury, builders.

Liverpool.—The chief stone of Trinity United Presbyterian Church, Cloughton, has been laid. The new edifice will be in the Decorated style of architecture, and will accommodate 850 persons. It will be joined to the present lecture-hall, and, like it, will be built of yellow Stourton stone, with red bands, and red and white arches over the doors and windows. The plan will consist of nave and aisles, with shallow transepts, the west end having an engaged tower and spire at the north-west angle. A large entrance doorway, with moulded jambs and archways, will lead to a vestibule, some 30 ft. long by 14 ft. wide, paved with encaustic tiles. Right and left there will be entrances to the body of the church, and staircases to the gallery. The nave will be separated from the aisles by arcades of three, supported on cast-iron pillars with wrought-iron floriated caps. From these pillars will spring laminated arched principals supporting the roof, with interesting arches of the same over the nave and transept. The roof will be open half-way up, where it will be coiled, the ceiling joists being still seen. The whole of the carpentry and joinery work will be varnished. A gallery, two seats deep, will extend along each side of the edifice, with a deep gallery at the west end, extending over the entrance vestibule. The body of the church will be provided with open benches, and the pulpit will be in the form of a raised desk on a platform at the east end of the building. Besides the large entrance at the west end, there will be north and south doors, as well as one at the east end, communicating with the present lecture-hall, for egress. The exterior will present a lofty spire at the north-west angle, three-gabled windows over the aisles, large transept, with smaller transept and apex of the present lecture-hall. The contract has been taken by Messrs. J. & W. Walker, builders, Birkenhead; and the cost of the whole building, including the present lecture-hall, will be about 7,000*l.* The designs have been prepared by Messrs. W. & J. Hay, of Liverpool, architects.

Whitby.—The foundation-stone of a new Primitive Methodist chapel has been laid at Fishburn Park, Whitby. The architect is Mr. W. Falkingbridge, and the builders are Messrs. Harrison & Graham. The cost of the chapel, including site and minister's house adjoining, is estimated at about 800*l.*, and the chapel will seat about 350 persons.

STAINED GLASS.

*Currey Rivel Church (Somersetshire).—*A stained window has just been put up in the tower of Currey Rivel Church, from designs by Mr. Penrose, architect, as a memorial to the late Miss Phanny, of Somerton, by her brother, Colonel Phanny.

*Trinity Church, Birchfields (Birmingham).—*This church, which has lately been built, has been recently embellished by the erection of two stained glass windows in the chancel, to the memory of the Rev. Henry J. Ramsden, formerly curate of Handsforth, by his college friends of Cambridge and Wells, as set forth by a memorial plate. The windows consist of two lights each, and tracery, and the subjects are respectively the Raising of Lazarus and of the Widow's Son, with scrolls, containing texts. The whole has been carried out by Messrs. Hardman & Co., of Birmingham, in accordance with the style of the architecture, viz., which is in the manner of that of the early part of the fourteenth century.

*Christ Church, Colne.—*A large painted glass memorial window, in three lights, has recently been erected in the chancel of this church, the artists being Messrs. Lavers & Barrand, of Manchester and London. The illustrations forming the bottom tier are Ezekiel's vision (chap. i.) of the four living creatures, Hannah presenting Samuel to Eli, and Abraham's Sacrifice of Isaac being intercepted by the arm of the angel and the substitution of the Lamb. Those forming the upper tier, and in much larger panels, are the Saviour bearing His Cross, accompanied by the centurion and his four soldiers; Jesus blessing little children, three mothers presenting their infants; and our Lord's Ascension, the Apostles being around Him and beholding His departure. The subjects are introduced upon a coloured Early English mosaic background.

COMPENSATION.

WARNE v. THE METROPOLITAN AND ST. JOHN'S WOOD RAILWAY.

The second inquiry on this line took place before Mr. Under-Sheriff Barchell, on Monday, the 14th instant, at Red Lion-square. Mr. Serjeant Parry and Mr. Gadsden appeared for the claimant, instructed by Messrs. Allen & Son; and Mr. Horace Lloyd for the company, instructed by Messrs. Hargreaves & Fowler.

The material contest was in respect of the decorations in the interior of the house. It appeared from the evidence of the claimant, who is the well-known decorator of Soho-square, that he took an under-lease of the house No. 45, New Finchley-road, for a term of thirteen years, in 1863, and laid out 700*l.* in alterations and repairs, of which sum 350*l.* were for extraordinary decorations, such as gilding and enriching. The surveyors for the claimant, Messrs. Edward Roberts, Driver, and Henry Baker, agreed in valuing the rental at 140*l.*, which, with 10 per cent., gave 35*l.*, and 350*l.* as a premium for the extra decorations, and which sum, in fact, he has to expend in another house; 280*l.* (two years' value) for removal and loss on furniture; 234*l.* 10*s.* for fixtures; 80*l.* for rent and expenses of lease of new house: total, 1,329*l.* 10*s.* There was a further demand for extra costs of the inquiry, and also for a probable renewal of the lease, which was, after discussion, agreed to be separated.

The surveyors for the company (Messrs. Miller, Toplis, & Rushworth) valued the rent, including decorations, at from 125*l.* to 130*l.*, and with 10 per cent., at about 280*l.*; fixtures, 130*l.* to 143*l.*; but it was elicited on cross examination that a bath and fittings, which cost 70*l.*, was valued by one witness at 15*l.*, and by another at 30*l.* Mr. Lloyd suggested that 746*l.* was the utmost injury the claimant could sustain. The jury, after considering about an hour, gave 1,265*l.*, and nothing for the contingent renewal.

Evidence in Compensation Cases.—At the Lord Mayor's Court recently, in a railway compensation case, "Smeo v. The Metropolitan Railway Company," a claim was made for some houses in Liverpool-street and Broad-street-buildings, in the City, exceeding 33,000*l.*, which, with the customary 10 per cent., for a forced sale would exceed 36,000*l.* On the part of the company the valuation was, with the 10 per cent., under 14,000*l.* There was a railway tavern on the property, which was let at 550*l.*, and as it is near four different railway stations, it was stated to be worth a premium of 5,000*l.*

On the part of the company, the evidence was that the rent was excessive, and that it would fetch no premium. Without the railways the house was not worth more than 50*l.* a year. Other evidence was given as to the value of property in the City of London, and it was stated that it was still increasing. Further, it was stated, that ground-rent which three years ago was worth only 2,000*l.*, would now fetch 4,000*l.* Mr. Commissioner Kerr, in placing the case before the jury, declared that it was an extraordinary case, and would form a model compensation case. What were they to think of the value of the evidence in such cases, when there was such a remarkable conflict? The jury retired, and at six o'clock returned with a verdict for 29,650*l.*

GAS.

At Crowland, great complaints are made by the consumers of gas, the price being 7*s.* 6*d.* per 1,000 ft., while in other towns of a similar population the price is only 5*s.*, and a discount allowed for prompt payment. The high price deters many from using the gas, and many that did have discontinued its use.

The report of the directors of the Bakewell Gas Company states that the heavy expenses incurred in 1863, by the erection of new purifying and condensing apparatus, were now entirely paid off. The directors recommended a dividend at the rate of 8 per cent., free of income-tax. A reduction had been made in the price of gas, which is now 5*s.* 6*d.* per 1,000 cubic feet. The report was adopted.

In Cork, the price of gas has just been reduced 3*d.* per 1,000 cubic feet, by the consumers' company, owing to outward pressure, which makes it now 3*s.* 9*d.* per 1,000. The company was started in 1853, and although they have been supplying gas for 4*s.* per 1,000, and individuals have been made rich out of the management, it has paid the shareholders 8 per cent. per annum ever since, which absorbs 4,680*l.* each year; and yet, after all the dividends were paid at the last half-yearly meeting, there was still on hand an unappropriated balance of 3,930*l.*, an increase of 639*l.* on the reserve.

The late rapid growth of the town of Coleraine, and the consequent increase in the number of gas consumers, have necessitated a corresponding enlargement in the street gas mains. Pipes of double the capacity of the old ones are being laid, from the works to the waterside, and from the works to the outer limits of the town, on the south side, to provide light for the workhouse. This is one of the many signs of progress in Coleraine at present.

Speaking of the gas companies, and more especially the metropolitan, the *Daily News* says,—We do not observe that any of them, save one, have failed to make a profit sufficient to give more than the 10 per cent. dividend. There are in almost all cases surplus sums amounting frequently to from one-fourth to one-half more, and sometimes almost to an equal amount with that dividend, which are disposed of in conformity with the statute, by either making up deficiencies of 10 per cent. dividend in previous years, or by being carried to the credit of the reserved fund or of next year's dividend. Thus the fortunate shareholders are in actual receipt for the current year of dividends in no case less than 10 per cent., and in some of 15 or 20 per cent. As, with a view to save the operation of the six years' limitation, the back dividends paid (when the year is mentioned) appear all to be of the year 1858, the lucky persons who have purchased shares since that period obtain a totally unexpected benefit by the losses of their predecessors. But there seems to be another way,—doubtless also perfectly legal,—by which the profits are considerably enhanced. Many of the companies appear to have been worked with a proportion of borrowed capital, on which they paid an average interest of 5 per cent. This is now in process of being paid off by the issue of new shares, which will be entitled to the 10 per cent., and all other privileges. It is obvious that when a company has made up its 10 per cent. on every possible item, it has no motive to pursue economy or introduce improvements which would bring it no further profit. Its motive will then rather be to increase its expenses of management and manufacture, so as to give its own servants or contractors the benefit of its surplus profits rather than the public. And the accounts disclose how easily this may be done. We can by law succeed in

preventing competition, but it does not seem at all certain that we can by formal enactments secure either goodness or cheapness at the hands of those to whom we have given a monopoly.

MUSIC AND THE STAGE.

Royal Gallery of Illustration.—The Opera di Camera has commenced its third season successfully with the two operas "Widows Bewitched" and "Ching-Chow-Hi." Miss Augusta Thompson sang charmingly in both, and her acting showed a versatility such as is not often to be remarked on the English stage. Mr. Whiffin has an excellent tenor voice; and Miss Emily Pitt, Mr. J. A. Shaw, and Mr. R. Wilkinson deserve something more than a second place in our appreciation of the members of the little company. It is one advantage of the entertainment to which Mr. German Reed has dexterously adapted Nash's Gallery, that every note and word can be heard; so that, with good and varied music, like that by Miss Virginia Gabriel, and the burlesque by Offenbach, which has been cleverly adapted by Mr. Wm. Brough and Mr. Reed, and has been put on the stage in a manner that would be creditable to any theatre, there is not a more satisfactory place to spend an evening devoted to music, than just now the Gallery of Illustration.

Covent Garden Theatre.—Mr. Mellon's concerts, under his careful leading, still draw crowded houses every night. Who would not undergo the process of being *hot-pressed* to listen to the programme, so well carried out by his orchestral assistants? On certain nights the first part consists solely of the deep-studied pieces of our composers, so that the public may pick out the evening to listen to their favourite, and compare the writing of one author with another. When each evening is so well attended, it is a difficult matter to ascertain which is the public favourite. We see that the selections from the opera of "L'Africaine," are promised for Monday next, the 21st instant.

Books Received.

"FIFTH Annual Report of the Society for the Acclimatisation of Animals, Birds, Fishes, Insects, and Vegetables, within the United Kingdom. 1865." We are glad to observe from this report, that the Acclimatisation Society is still actively progressing with its useful measures; and, although the fish-hatching department at Twickenham has been discontinued, the process is now in progress at South Kensington. Various mammals, birds, &c., have come into the possession of the Society since last report, and an account of these is now given in appendices to the report just issued.—"The Education of the Deaf and Dumb practically considered, with an Illustrated Method of Articulate Speech." By S. E. Hall. Bist, Edwards-terrace, Kensington. Anything promotive of the happiness and the intellectual culture of those isolated and interesting fellow-beings, deaf mutes, well merits consideration. Mr. Hall has partially succeeded in restoring speech to a young person of this class, by teaching her how to use her organs of speech so as to produce sounds approaching to the normal, even though not herself hearing what she utters. Engraved illustrations of the different positions of the tongue, &c., in the utterance of vocal sounds are given. Mr. Hall has been so comparatively successful that he has been induced to try a second experiment of the same kind.—"The Search for a Publisher; or, Counsels for a Young Author." Fifth edition. London: Bennett. Although one very material object of this volume is to "invite attention to our method of doing business," it contains some matter that young authors might find to be useful in their dealings with any publisher.—"Psychoneurology; a Treatise on the Mental Faculties." by R. T. Stothard (Harvey, St. James's-street, London). Should any of our readers have a curiosity to know what kind of physiognomies Noah, Shem, Ham, and Japhet, Homer, or even the primitive Briton, or the ancient Pict, possessed, Mr. Stothard is here ready to show them up. He is also learned in noses, mouths, eyes, and ears: in short, this is a curious but we cannot say a reliable treatise on physiognomy, and may at least amuse if it do not instruct a leisure hour.

Miscellaneous.

THE ROYAL EXCHANGE.—Mr. Tito, M.P., has presented a model of this building to the University College, London, for the use of the class of Architecture.

WORKMEN'S FESTIVALS.—At this season we usually receive accounts of many festivals of masters and men in the building trades. We have no space for reports of the proceedings, or give names; but we are glad to receive the particulars. Much good results from these annual meetings.

THE HERBERT MEMORIAL.—A report of the Herbert Memorial Committee states that, as being "likely to be suitable for the site of a Convalescent Home, a piece of land has been purchased upon at Bournemouth, and the purchase of the same has been completed." An elaborate plan prepared two years ago, under the direction of Miss Nightingale, by some of the civil servants of the Crown employed by the War-office, has been put into the hands of Mr. Wyatt to be adapted to the locality.

THE ROCHEDALE PROPERTY AND GENERAL ASSURANCE COMPANY (LIMITED).—At the first annual general meeting of shareholders, held in Rochdale, on the 31st ult., the directors reported a dividend of 10 per cent., leaving a balance equal to 14 per cent. to be placed in reserve. The statement of accounts up to the 31st Dec., 1865, showed that, after paying the current and one-fifth of the formation expenses, and providing for the rebate of interest on mortgages, bills, &c., not yet matured, there remained for disposal a sum equal to over 2½ per cent. During the past year a plot of land has been secured at Darnley, on which it is the intention of the Board to erect cottages, which are much wanted. Hitherto, however, the building department has had to give way for a more lucrative business, money on mortgages being in great demand.

ENGLISH FRIENDLY SOCIETIES.—M. Laurent traces the origin of the modern friendly societies to the example of the master-artificers, whose guilds and corporations gave the hint of a similar organization to their workmen, but directly to the development of industry, the spirit of association inherent in English manners, the disposition we manifest to calculation, order, and economy, and to the steadfastness with which we carry out an enterprise once commenced. He points out, however, that the credit of establishing some of our very earliest friendly societies is due to Frenchmen. Upon the revocation of the edict of Nantes, the French refugees in London founded a society for mutual relief, under the title of the Société des Parisiens. In 1703 a similar society was established in London, which still exists as the Société Franchimande. Since then, so rapid has been the progress of friendly societies in Great Britain, that the numbers they enrol are not far short of half the whole male adult population.—The Reader.

TOWNS' IMPROVEMENTS.—Mr. Rayner, town clerk of Bradford, has struck out the idea of a system of open loans to municipalities, substituted for the usual loans by contract. He suggests that when money is wanted by a borough it should be received in small sums from working men, whose deposits should bear interest at the rate of 3½ per cent., and be exchangeable when they reach 50*l.*, for borough securities at 4*l.* per cent. The workmen would thus have an excellent opportunity for investing their savings, the town would borrow money cheaply, and the whole population would be directly interested in the security of the municipal revenue. The ratepayers being also a bondholders, repudiation or bankruptcy could be nearly impossible. The only objection yet to the plan is one which may be said to have been shown by experience in France, namely, the danger of too much success; the workmen provoking the councils to borrow money faster than the town really requires. It might be necessary, too, to fix a maximum rate of interest, to prevent corporations borrowing money at rates considerably dearer than the value of their securities would warrant. It would only remain to enable the boroughs to issue little exchangeable bills to make their financial organization perfect—a little too perfect, it might prove, for the comfort of ratepayers.

THE LATE SIR W. J. HOOKER.—We greatly regret to have to record the death of Sir William Jackson Hooker, Director of the Royal Gardens, Kew, whose management of the gardens and museum was of a character to show him to be a real friend to the industrious classes. He died on the 12th inst., aged eighty years. He was a knight of the Hanoverian order, a fellow of the Royal and Linnean Societies, a D.C.L. of Oxford, and a Corresponding Member of the Institute of France. We have been indebted to him for information given in our journal.

OPENING OF TUMULI AT CASTLE HOWARD.—Examinations have been made of the British burial mounds on the Earl of Carlisle's estate, at Castle Howard. As was the case last year, the excavations were under the direction of the Rev. William Greenwell, canon of Durham, and vice-president of the Surrey Society. A large number of burial mounds have been opened, all proving to be round barrows of the cremation age, but exhibiting peculiarities indicating various modes of burial to have been practised by the successive generations of Britons who entrenched the escarpments of the Howardian range, at the foot of which their graves are so profusely scattered. In the centre of one barrow and on the natural surface, besides the deposit of burned bones and charcoal, some description of cement was found compacted into a hard substance, resembling a mass of solid concrete. In another tumulus, 32 ft. in diameter and 3½ ft. high, in the same vicinity, containing the burned body, charcoal, and burned earth, was found among the bones a small incense cup, ornamented by four horizontal cord lines, but not perforated. This was the first vessel of the kind discovered in the district. An urn, some flints, &c., were found in others of the barrows.

THE BRITISH ASSOCIATION MEETING.—South Staffordshire is making arrangements to receive the Association in a hospitable manner. Invitations have been received from Malvern, Coalbrookdale, and Benton. The local committee are making arrangements for excursions into South Staffordshire. It is proposed to devote Thursday, September 14, almost entirely to the Black Country. As many members as choose to go will proceed to Dudley early in the morning, for the purpose of visiting the caverns (which the Earl of Dudley will have illuminated for the occasion), and the thick coal open workings, near the Wren's Nest Hill. One section will be taken by Wednesday, and will visit the leading works in the town and neighbourhood. Another will go to Stourbridge, to inspect the iron, fire-clay, and glass works. A third will be taken in charge by Mr. McLean, and conducted to the Cannock Chase Collieries, and will probably take Walsall on their way. A fourth will go to the Round Oak and Woodside Works, while a fifth will remain in the vicinity of Dudley, for the purpose of examining the geological features of the district. No doubt other places of interest, such as Wolverhampton, Oldbury, and Spon-lane Works, &c., will be visited.

TELEGRAPHIC.—The Telegraph to India Company (Limited) have met for the purpose of declaring a dividend for the half-year ending the 30th of June last. Sir Macdonald Stephenson, who presided, made a statement, satisfactory on the whole, as to the operations of the company, and the condition and prospects of the various lines of telegraphy in which they are interested. Notwithstanding the drawbacks that had occurred, and the large sums of money that had been expended, the chairman thought that a great problem had been solved towards the completion of a system of international telegraphic communication throughout the world. A dividend at the rate of 5 per cent. per annum, free of income-tax, for the half-year, was declared, and the report generally was unanimously adopted.—We regret to learn that the *Great Eastern* has returned without having laid more than two-thirds of the Atlantic Cable. When the partial loss of insulation took place, in consequence, we presume, of the magnetic storm pointed out at the time by Professor Airy, those on board the *Great Eastern* appear to have attributed the defect to a fault in the cable six miles from the ship, and in attempting to lift it the cable broke. Four attempts were made to hook it up, and three times it was partially lifted, but the rope broke each time. The spot was therefore marked by buoying, and the *Great Eastern* has returned for stronger ropes.

PHOTOGENE GAS.—In answer to our correspondent, "W. F. C.," we have received the following from Paris:—"I have been for the last eight months occupied in aiding to develop a gas generator (Millé's patent), whereby air spontaneously passing over petroleum spirit (of specific gravity, 650 to 700, water being 1), is converted into a dry inflammable gas. There can be no danger with this apparatus, as the generator is far away from the burners. It is at work in several establishments in Paris, and is only half the price of street gas."—C. H. D.

BATHS AND WASH-HOUSES.—From a parliamentary return just issued, it appears that the Baths and Wash-houses Act has been adopted in only eight parishes and united parishes in the metropolis, viz., All Saints (Poplar), St. Mary-bone, St. Margaret and St. John (Westminster), Bernoldsey, St. Giles-in-the-Fields, and St. George (Bloomsbury), St. George (Hanover-square), St. Martin-in-the-Fields, and St. Pancras. The last to adopt it was St. Pancras, the date given being 2nd March, 1865, and the return states that no expenses of any kind in respect thereof have yet been incurred in that parish. The Act has also been adopted in twenty-nine provincial cities and boroughs.

DISCOVERY OF THE COFFIN OF CAUTE'S DAUGHTER.—In proceeding with the restoration of the old Saxon Church of Bosham, in Sussex, some excavations were made in order to lay bare the bases of the columns supporting the chancel arch, which are on a much lower level than those of the arcade separating the nave from the aisles. In laying bare these bases it was thought advisable to extend the excavations a little, for it was just in front of this arch that tradition has uniformly stated that the youthful daughter of the Danish King Caute was buried. Just below the level of the old floor a slab of stone was discovered. Carefully the excavation was carried on, and soon it was found, as had been already conjectured, that this stone covered a small stone coffin. The coffin was afterwards opened in the presence of the Rev. Henry Mitchell, F.S.A. (the vicar of Bosham), his son, Henry Godwin Mitchell, Mr. C. Sturges Jones (engineer, of Chichester), and Mr. Edgar J. Varley, artist. As soon as the lid, which was 7 in. thick, was raised, the form of the child could be distinctly seen. The figure was 8 ft. 9 in. in height. The bones, although reduced to a white dust, could be very clearly traced. No jewelry was found, and it is thought the child was too young to be buried with any personal ornaments about her.

CHANGES IN THE CITY OF LONDON.—Nothing shows more clearly the extraordinary changes, and, at the same time, the almost total migration of residents from the City proper of our own days, than the recorded anecdotes connected with its early musical entertainments. It is pleasant to turn over the pages of the anecdote-loving Sir John Hawkins, who will accompany us through a variety of now dingy, now palatial thoroughfares, of which all associations have long since departed, save those connected with limited liability companies or monetary investments. For instance, it is absolutely difficult now-a-days to conceive a private concert periodically held in the shopkeeping unromantic Chiswell-street, and "so contrived as to fall on that particular Thursday in the month nearest the full moon, in order that visitors might walk home in safety when the performance was over." Then were the operatic music of the giant Handel, the manly strains of English Purcell, and the sweeter and more equable melodies of Italian Corelli, much beloved by those less fashionable but more really music-loving audiences; in whose minds, however, the probability of the insecure walk home must have alternated disagreeably with the calm inspired by such excellent performances. It is not so very much more than a hundred years since this picture of the City and its suburbs would hold good, a period when the "Devil" Tavern, near Temple-bar, the "Castle" in Paternoster-row, and Stationers' Hall, not to mention divers nooks and corners eastward, such as Change-alley, Cornhill, each possessed some concert-giving associations of their own, since faded from the recollection even of the "oldest inhabitant." In the common but ostentatious modern public concert is true music always or often the gainer? Let the ghosts of the departed residents in the nightly-deserted City houses tell us.—Musical Standard.

literature of our profession. It is a work of great importance to students, and we venture to prophesy it will become a text-book for those who are more advanced."—*Budler*.

JOHN MURRAY, Albemarle-street.

The Builder.

VOL. XXIII.—No. 1177.

The Approach of Cholera.

HERE is just now no difficulty in deciding which of the subjects that are under our attention, claims the position of prominence in the week's number of the *Builder*. The condition of health of our towns has been shown to be improvable by such works and measures of a structural and practical character as have been accomplished since the cholera last visited us, and are commonly placed

under the head of engineering; and we have taken some share in the demonstration of the necessity which there is for more that way to be done. We might have gone yet further, or repeated oftener what we have said several times, that even the decorative part of architecture is capable of aiding in the production of that frame of mind, that harmless enjoyment or self-satisfaction, which, consistent with the highest moral as well as intellectual state, may combine to ward off attacks of disease. The readers of the *Builder*, of whatever class, are, in short, rightly to be considered as taking immediate interest in the questions that now prominently occupy public attention; and which, in some respects diverse, all belong to the comprehensive subject of the health of the people.

Cholera, if not already with us, is unmistakably so near upon us, that there is occasion for adoption of all measures that may lessen the mortality that is to be apprehended. We are already suffering from a considerable deprivation of the food of the people, through a cattle-disease which has had its counterparts in cattle-diseases that many times in history have preceded attacks of plague. Just as it is certain that the diseases of the human subject, those which cause the chief mortality, a mortality even greater in an ordinary year, than that of the cholera in a year of its visitation, could be ascribed entirely to the unsanitary state of the dwellings of the people; so, in like manner, it is probable, nay certain, that the cattle-disease is produced by the defective condition of the sheds or buildings in which the cattle are kept. Whether this disease be considered as brought originally from abroad, or as generated at home, seems to us of secondary importance. The state of places in which, as we read, the animals are housed in some of the countries whence we import cattle; the condition in which the cattle must be on a voyage; and the state of cowsheds, too generally, in this country, or especially in the case of sheds in towns, are only different aspects of the same fact. Than the arrangements adopted in London, if cattle should be there at all, nothing could be worse; but as we treat of this matter, and that of the disease in general, elsewhere, we need not here allude to that branch of our subject, further than in saying that a diminished vitality through any smaller consumption than there is at present, of animal food, by the hard-working portion

of the community, will constitute an unfavourable position for them as to power of resistance to attacks of disease.

In our last number we briefly noticed a meeting that had been held, presided over by the Bishop of London, at the rooms of the National Association for the Promotion of Social Science, to consider what steps should be taken in view of the threatened epidemic of cholera. In a statement of the sub-committee of the Standing Committee of Health, read by Dr. Greenhow, the fact was referred to that diarrhoea, a precursor of cholera, had been excessive in the metropolis. It is true that the Registrar-General's return for last week speaks of a great decrease of the mortality from diarrhoea. In each of the two first weeks of this month, the deaths from diarrhoea were above 200; whilst in last week they declined to 116. The average number for the corresponding week in the last ten years is, with a correction for increase of population, 200. In the week that ended the 20th of August in 1859, the deaths from diarrhoea were 240; in the same week of 1864 they were 242. But we doubt whether the decline, commenced last week, will continue.

Amongst the more important passages in the statement read to the meeting last week, were some alluding to the almost entire immunity from attacks, enjoyed in well-managed public establishments, though comprising the lowest classes of the population; "while the most dire slaughter," the statement said, "was upon people in places under removable conditions, in respect to which timely, clear, and express warnings had been given to guardians and other local authorities charged with them." It said:—

"The attacks were, as forewarned, the most severe on the like places and people in the like conditions as those who now suffer from the foul-air diseases—from typhus, from dysentery, from diarrhoea, and from the eruptive diseases of the zymotic or fermenting class; which diseases are almost entirely unknown amongst the lower inmates of well-constructed public establishments, of well-conditioned orphan asylums, refuges for the destitute, or among the inmates of well-constructed and well-managed union-houses and prisons; which diseases are comparatively few and slight in improved common lodging-houses or in model dwellings, and are rare in the houses of the well-to-do classes, but are never absent among the wage-slaves living in crowded ill-drained courts and alleys, ill-supplied with pure water, and ill-cleaned, close, filthy, ill-ventilated, and foul aired, and which slay nearly 100,000 per annum of men, women, and children in Great Britain alone."

In the preventible slaughter, a considerable proportion of the lower middle-classes, shopkeepers, who are kept in doors in foul air from cesspools and drains, is included. It has been long known to medical officers of health that common fever, in particular spots, was apt to assume the typhoid character, and that scarlet fever, measles, and small-pox, would become malignant under certain atmospheric conditions. Dr. Wagstaffe, the medical officer of Lambeth, when examined before the Metropolitan Sanitary Commissioners, speaking of those conditions, made use of these important words:—"For example, when I arose in the morning and found the atmosphere warm and moist, I could always foretell that there would be an increase of malarial disease of some sort in these places, and that they would be more intense in degree; so that in this state of the atmosphere I always knew I should have more to do in these low, close, undrained, and crowded places." The same gentleman said, that the localities in which fever constantly prevailed were precisely those in which cholera raged in 1832; and that the diarrhoea and dysentery prevalent even at the time of his examination, had all the characteristic symptoms of Asiatic cholera. The average age of death is lower in Bermondsey than in Lambeth, as would be expected from the comparative sanitary condition of the population in their dwellings.

The statement shows that valuable as may be the works accomplished since the last visitation, they do not at all correspond to the need of them. In the metropolis even, much remains to be done in the way of sewerage. Everywhere,

ill-ventilated schools are a great source of disease amongst children. Ill-ventilated workshops are similarly operative as regards adults; and the fact of an effect from the bad condition of such places, was shown by the rise in health when cotton-factories were closed, and the workers had the benefit of the open air. If cholera should not come, remedial measures will not the less have been advantageously taken, in view of the demand for them which is constant.

At the meeting, Mr. Chadwick moved the first resolution, which was:—

"That the outbreak of cholera in Constantinople, in Egypt, in Malta, in Italy, in Spain, and Marseilles, and the occurrence of scattered cases of cholera in the metropolis, and also the outbreak in this country of an extraordinary epidemic in cattle, which has often been the precursor of extraordinary epidemic attacks on human beings, must be taken as portending an extraordinary epidemic visitation on the people of this country, which should be guarded against by all means available from voluntary exertion, as well as from the exercise of Governmental and local authority."

This was seconded by Dr. Aldis, and supported by Dr. Richardson, and Mr. Liddle. The last-named of these, medical officer of health for Whitechapel district, said:—

"There were now local boards and medical officers of health in each district—an advantage which the metropolis did not enjoy when it was last visited by the cholera. These boards and their medical officers would be most willing to lend every possible help in carrying out sanitary measures. The question might be asked, 'What can the local boards do?' They could order the daily cleansing of the streets. All the streets in the city of London were cleaned daily: and if the main thoroughfares required this, how much more the narrow and crooked streets containing the habitations of the poor? They might appoint additional inspectors. In some large districts there was only one inspector of nuisances. It was, however, desirable that there should be a second and even a third inspector to visit the dwellings of the poor, to discover nuisances, and to report daily to the medical officer of health. The local boards should order the daily emptying of the public dust-bins, and the daily removal of dung-heaps and laystalls. They should enforce a better supply of water, and, if possible, always from the main. He had in several cases succeeded in obtaining the adoption of 'water-waste preventers,' whereby the poor were provided with a constant supply of water, cool and sparkling, from the main. It was desirable to know what provision the guardians had made for the reception of cholera cases. He feared it would be found that the accommodation in workhouses for cholera patients would be very deficient. The local boards ought rigidly to enforce the paving and draining of all the back yards and courtyards of the houses in the poorer districts. The Legislature ought also to be asked to pass a new Building Act, whereby houses unfit for human habitation might be removed, and also a more efficient Nuisances Removal Act. The medical officers of health should endeavour, as far as practicable, to prevent overcrowding in the poorer districts; but this was a most difficult thing to do."

The observations deserve attention. The allusion to the water-supply, the deficiency of which has been so often spoken of by us, met with the entire approval of the meeting; and the resolution was unanimously agreed to.

Dr. Stewart moved, and Mr. E. Webster seconded, the second resolution, which was:—

"That, having regard to the known character of the threatened epidemic visitation, and to the course of previous extraordinary epidemics, it is probable that the great severity of the visitation will be in the case of the lower and upon the same classes that are now most severely scourged by typhus, dysentery, and the various species of foul-air diseases, and that all well-directed exertions protective of those classes from the extraordinary epidemic, should the threatened attack be spared, will nevertheless be preventive of the so-called zymotic or fermenting diseases, which are never absent from the districts chiefly inhabited by the poor, to which nearly 20 per cent. of the ordinary death-rate is due, and an annual sacrifice approaching to 100,000 lives is occasioned."

Mr. W. Rendle, late medical officer of health, St. George's, Southwark, said he could corroborate the advantages of the house-to-house visitation. He should be sorry if the speech of Mr. Liddle led the public to suppose that, because we now had medical officers of health and vestries, the public might rely on their action, and need trouble itself very little about the cholera. That would be a great delusion. The medical officer of health might give his vestry good advice, but the majority would usually be found to be composed of interested persons. He had once been a medical officer of health, but was now a member of the vestry, and not its officer. The vestries, no doubt, might do a great deal of good, if the majority of those bodies were desirous that the law should be carried out. Too often, however, this was not the case. Typhus, for example, had been ravaging the metropolis for five years. It was understood by medical

men that typhus and cholera flourished in precisely the same district. Well, what had been done towards routing typhus fever? So far from expelling typhus it had been allowed to increase. He had no confidence in the vestries carrying out measures of sanitary prevention until the disease was upon us, and people died by scores. Then they would be seized with alarm, and would make matters worse by stirring up and emptying cesspools, turning out people from crowded and unhealthy districts, and creating a panic among the poor. The local bodies should do their duty when there is yet time, and not postpone all action until the cholera was actually upon us. The persons elected into the vestry should be the best men in the respective parishes. Too often, however, the persons most qualified refused to act, and thought it a trouble and a disgrace to serve.

The resolution was carried.

Lord Ebury moved the third resolution:—

"That in order to disseminate instruction for the guidance of the voluntary exertions which may be needed or serviceable to aid or to supplement the action of the central or the local authorities, and to sustain the general public interests in the prevention of excessive disease and premature mortality, this conference recommends:—

That the active co-operation of the parochial clergy—of the members of the Association—of medical officers of health of the metropolis—of the members of the Epidemiological Society—of the members of the Society of Arts, who have specially devoted themselves to the improvement of the dwellings of the labouring classes—of the council of the Working Men's Clubs, and of other voluntary associations of a kindred character, be invited to make united effort through a joint executive committee, and that the Health Department of the Association for the Promotion of Social Science be respectfully invited to carry this resolution into effect."

Mr. Burge, medical officer of health of the Fulham district, regretted that the local authorities had no power at present of dealing with original cases of disease for the purpose of isolating them. Provision ought also to be taken against the improper retention of dead bodies, in the case of death from contagious disease. He had known cases where the interment of such bodies had been delayed seven, fourteen, or even twenty-one days.

The resolution was carried unanimously.

The Right Rev. Chairman, in speaking after a vote of thanks, said he believed that the Conference would have practical result. Previous to the report of Dr. Greenhow he owned he was of opinion that the metropolis was well prepared against an outbreak of cholera. It was now conclusively shown, however, that a great deal still remained to be done; and all who were invested with authority should exert themselves.

The proceedings were brought to a close by the episcopal benediction.

It seems to be generally supposed that should the visitation reach us, benefit of the sanitary works that have been accomplished since 1848-49 will be felt. But we apprehend that the benefit will not be so great as is calculated upon. The Thames no doubt receives a smaller volume of sewage from the old sewers; but that it is not yet a pure stream, is obvious to any one who has occasion to go by steamboat. Our supply of water is not taken, as within recollection was great part of it, from the Thames at Chelsea and Lambeth; still, where it is drawn, it is polluted with the excrete which are most generally recognised as the predisposing cause of cholera, when impregnating water even slightly, and afterwards drunk with it, and with which the Thames water is all more or less impregnated. Overcrowding increases, and so does the dirt of the streets,—both, we believe, causes of disease and mortality. The smoke-nuisance is not appreciably lessened. Baths and wash-houses, and model-dwellings, can be scarcely said to have increased in proportion with the population. And now there is likely to be added, insufficient nourishment.

A letter from Ancona, referred to in the *Corriere Mercantile* of Genoa, gives us an idea of the causes which have there favoured the outbreak of cholera. Amongst them the writer places the filthy and close dwellings of a great part of the lower classes, the disgusting cesspools, the total want of cleanliness amongst persons of humble means, owing to the want of water. There is no water, except that supplied by the public wells so scantily that it is necessary to *fuire la queue* as at the theatres, in order to draw it, and then to keep it as something precious,—so that the poor are often obliged to wash their clothes in sea-water. To this must be added the trade in rags and old clothes, carried on in the thickly-populated lanes. On the 7th instant, 207 new cases were

reported, of which 102 proved fatal. Numerous other Mediterranean seaports have been visited, besides Constantinople and Barcelona. Alexandria has severely suffered: Cairo in less than a month lost 5,249 of its inhabitants; and Damietta 1,485 out of a population of about 4,000: the deaths at Malta have been numerous,—albeit not wholly from cholera; and the disease has appeared in Marseilles.

It is mentioned in *Galignani*, on the authority of a correspondent, as a "curious fact," that on the 9th instant a short but violent storm broke over Ancona, and that immediately afterwards a great improvement in the public health became perceptible. Not only did the number of cases diminish considerably; but the state of languor and prostration in which the patients lay, ceased in most instances. Now this goes to prove the correctness of the view first put forth in the *Builder*, and substantiated by other observations, that the violence of cholera is peculiarly owing to the violence of cholera in the atmosphere. Ozone being electrified oxygen, is amply supplied during storms; hence, we agree with the writer in *Galignani*, that the diminution of cholera at Ancona is probably owing to the sudden supply of that substance produced by the electric fluid evolved during the storm.

It is suggested that the correctness of this theory might be tested by artificially electrifying the atmosphere of sick wards during cholera. We suggested, a good many years since, the use of Sir William Armstrong's electric steam boiler for just such purposes.

Experiments were instituted in Russia, not long ago, on a whole regiment of soldiers, by Dr. Pozmanski; and they showed that a tendency to cholera is always preceded by a lowering of the pulse, even down to forty. "Hence," it is observed, "a careful observation of the state of the pulse during the epidemic may be useful in averting an attack by a judicious recourse to tonics and a nourishing diet." If these views be correct, the question of the supply of animal food has quite the importance that we suspected.

Accounts which we have received from many of our towns show that the country is by no means prepared for the arrival of the disorder. Water-supply of towns is both insufficient in quantity, and polluted in source, as our lately-published particulars have shown.

Indeed, in one of the recent reports of the Registrar-General, 23 deaths were registered as occurring from cholera. In the following week, this number was reduced to 19. There is no doubt that since 1831, not a summer has passed without the occurrence of cases of the disease. They are "sporadic" that is scattered; and it is only at certain times that the malady becomes epidemic. The seeds of cholera, which are also in great part those of typhus, are always present; but some atmospheric condition is necessary to develop the disorder.

Whether such condition be now confined almost to the basin of the Mediterranean, or extend to this country, may soon be a question settled. Will our towns escape the fall of the impending cloud; or will the sad state of many of them only supply anew the lesson which has been once and oftener forgotten, although it is a lesson for our constant taking to heart?

THE EVILS OF OVERCROWDING.

SANITARY pioneers have fully established a practical public opinion in favour of thorough drainage and pure water-supply; and now they are doing the like work as regards the ventilation and other improvements of dwellings, so as to obviate or remove the many evils of overcrowding. Were proper means of ventilation contrived even in overcrowded lodging-houses, where three, four, half-a-dozen, or even more persons sleep in one small bedroom, the evils of overcrowding would be mitigated to a very considerable degree; but, in enforcing such a measure, great discretion would be requisite, in order to avoid the evils of draughts, and the want of means of warmth amongst the poor in winter also requires consideration. Short supplies of blankets and of fires are but too often made up for by the stuffing up of chimneys, broken panes, chinks round windows and doors, and even key-holes, so as to prevent all possibility of ventilation,—by night especially; for, by day, doors will open, and ventilation will have its way to some extent, in spite of all endeavours to the contrary. Even in barracks, where

there is no great want of either blankets or fires, the common soldiers have an inveterate propensity to stuff up ventilators.

But it is not among the lower classes alone that a public opinion in favour of ventilation, and against overcrowding, requires to be established by sanitary pioneers. The national desire of the Englishman for snuggeries and comforts induces him but too often, as his sometimes really insane fear of draughts does, to stuff up his bedroom chimneys, list his bedroom doors and windows, and battle with fresh air as if he were taking precautions to keep out thieves or other enemies. In fact, the term overcrowding is merely relative; and the comfortable couple at the west-end, who sleep in a bedroom thus barricaded against the access of fresh air, are, to all intents and purposes, as pitiable instances of the evils of overcrowding as can be found in Houndsditch or in Bethnal Green.

Nevertheless, the sanitary pioneers are doing their duty; and a public opinion in favour of ventilation, and against overcrowding, is fast growing; and, on the folk-lore principle, that a straw thrown up shows which way the wind blows, the Irish navy's opinion, as he smashed the stinking gaspines in the street, that they needed "vintilashin," shows how sanitary ideas are spreading; and we are hopeful that ere long the public opinion in favour of ventilation will fairly equal that which has already been so long and too well established against draughts.

These few remarks we merely meant to be prelude to an extract or two from an able and useful pamphlet "On the Evils of Overcrowding," by Mr. William Hardwicke, M.D., Deputy Coroner for Central Middlesex, which the Social Science Association have issued.* The paper had been read at a meeting of the Health Department of the Association in June last, and was then ordered to be printed and circulated. Our extracts may be a little disconnected, but we shall endeavour to give a brief abstract of the paper, so as to include its remedial suggestions as well.

While public attention has long been directed to the benefits of water supply, drainage, and the removal of dangerous nuisances visible and palpable to the senses, comparatively little has been done to remedy the dangerous but invisible poisons engendered by the confined exhalations from the lungs and skin, the result of deficient house ventilation for the poor in all parts of the country.

The supply of pure air in epidemic diseases, and its want, renders the present moment peculiarly favourable for discussing this subject, and for suggesting remedies. "Overcrowding," says Mr. Galignani, "means want of pure air; want of pure air means debility, and debility, widowhood, orphanage, pauperism, high rates, and loss of money to the living."

A better knowledge of the principle of ventilation, and of the means and necessity of obtaining a free supply of pure air, and of the evils of filth, filth, and public buildings, is one of the great necessities of our civilised life; for the most indispensable condition of healthy life is the proper aeration of the blood. It is a common observation, that bad ventilation, which is equivalent to deficient oxygenation of the blood, is more productive of disease than bad drainage; but where, as is generally the case, the two are combined, the effects are most deleterious.

Densely-populated places show a rate of mortality closely corresponding to this proportion, and the rate of death in our population is, in fact, a barometer of the state of the natural standard of other places, in that regard. The symptoms, however, are not the same, and generally known as cholera, typhus, and other diseases. Not only are the diseases of overcrowding, in contact with filth and polluted air, favourable for the propagation of these diseases, but this cause alone may even generate them. Typhus, typhoid, scarlet fever, measles, small-pox, diphtheria, and cholera, are the "filth diseases" of our climate and country.

Not only do we find a high mortality from these unsanitary conditions, but outrages to decency and morality from overcrowding in cottages and houses where a whole family have to bed together in one small sleeping room.

In many parts of London I have counted thirty and upwards of persons living in a moderate-sized house, originally intended for a family of eight or ten persons. I frequently still see five or six families living in one of these houses, under most unfavourable conditions. All feelings of shame and decency are thereby annihilated; illegitimate offspring, with immoralities of all kinds, are favoured in these wretched abodes. They are the foci of crime as well as of disease.

REMEDIAL MEASURES.

There are, of course, numerous remedies to be suggested, some of them depending upon the efforts of the enterprising private individuals, or the enlightened views of public bodies; others, upon improvements in Acts of Parliament relating to sanitary legislation.

I would propose that boards of guardians, parishes, town and county councils, railway and water companies, should be empowered to exercise the powers which they possess, for the purpose of erecting, or causing to be erected, suitable places for the reception of the poor, and for the erection of baths and wash-houses; they can provide parks, recreation grounds, and other places of amusement for the benefit of the humbler class in many directions, and for the extension of this power, I believe the Local

* "On the Evils of Overcrowding in the Dwellings of the Poor, and Means suggested for their Removal." By William Hardwicke, M.D., &c., Deputy Coroner for Central Middlesex. 1, Adam-street, Adelphi, 1865.

Government Act gives the necessary authority. Where funds would be insufficient, the Government Loan Commission might advantageously advance money at a cheap rate, with condition that sanitary and other regulations to be observed in the erection of such institutions.

2. During the last twenty years I have watched with considerable interest the progress of those societies for purchasing land and houses, known generally as building societies. There are at least 2,000 of them, with an invested capital of 8,000,000. These associations are greatly favoured by special Acts of Parliament; they are capable of effecting substantial benefit to the working class, who may purchase through their medium a house in about fifteen years for the same monthly or quarterly payment that they usually pay for rent in lodgings. These societies offer a good and safe investment, and a large extension of them would tend to counterbalance the cupidity of bad landlords, and lower the rents of inferior houses.

3. It is desirable that certain changes should be made in the different mode of appointment of officers of health. It would be a great protection to public health for an officer to inspect certain houses let out in lodgings (in accordance with an amendment that might be made in the Common Lodging-house Act), where the density of population reaches beyond a certain limit, or where fever and zymotic diseases are noticed in the registered returns of death. A great blow would be given to the greedy landlord, who would have to improve, in some localities, were condemned as unfit for human habitation, and they were made responsible for the mischief inflicted on those whose poverty compels them to live in the cheapest and worst houses, and whose ignorance of sanitary law betrays them into dangers from which they have no means of escape.

4. The progress of sanitary legislation would also be materially advanced, if the coroner, whose functions are now confined to inquiries on cases of sudden death, those resulting from accident, violence, or poison, should be empowered to inquire so as to include inquiry into deaths from all well-known preventable causes. Death is now, to an alarming extent, the result of neglect and often wilful, and even criminal—of the laws of health. A man has no right to expose and propagate contagious disease, than he has to injure the human body or limb.

5. With regard to other remedial measures for lessening the evils of overcrowding, I must not omit to mention the nuisance known as the "rat-hole." It is a nuisance before it can be worked efficiently. Its administration must be made compulsory where it is now only discretionary. There are some evils it cannot grapple with; such, for instance, as arise from a want of systematic drainage.

6. I am inclined to think, too, that the powers of the Metropolitan Board of Works should be extended so as to enable that body to become the conservator of the open spaces, and to carry out a systematic cleansing of the streets.

7. In furtherance of sanitary reform, and in close connexion with my subject, I may mention that much benefit might be derived from a change in the laws relating to the sale and purchase of land and houses. A more simple means of conveying such kind of property exists in some continental states. It would confer on the middle and humble classes of this country many advantages which they do not now possess, of more safety and probably investing their savings.

8. Attention has recently been drawn by Lord Shaftesbury to a very essential clause in the Bill passing through the standing orders of Parliament; namely, that Railways and Public Works and Improvement Bills, which involve the demolition of houses, or where the working classes are displaced, shall secure proper accommodation for them elsewhere; also that notices shall be given to the lodgers, as well as owners and occupiers of such houses; and that, in suitable cases, a compensation shall be awarded to the more humble class for residential damage.

MR. C. T. NEWTON ON PHENICIAN ART IN BRITAIN.

At the annual meeting of the Archaeological Institute at Dorchester, Mr. C. T. Newton, keeper of Greek and Roman antiquities in the British Museum, delivered an address on Phœnician art in Britain. He commenced by observing that, at first sight, a lecture on Phœnician art would seem out of place at a meeting of the Institute, held at Dorchester, mainly for the purpose of discussing local antiquities. But, he said, the antiquities of the Phœnician race had a special interest, inasmuch as this people had been the first to navigate the Mediterranean through its whole length, had founded Gades outside the pillars of Hercules as early as 1100 B.C., and Carthage, about 800 B.C., and had, moreover, been the first to apply astronomy to navigation, and to simplify writing by perfecting the alphabetic method. They had, too, a special interest for British archaeologists, inasmuch as the tin which tempered the copper implements of the old world, and converted them into bronze, was certainly brought in great part from Britain. Now, formerly, antiquaries, like Staley, assumed that the Phœnicians came to the South of England, in ships, for the tin. No trace of the Phœnicians had, however, so far as the lecturer was aware, been found in Britain; and the late Sir Cornelius Lewis, in his "History of the Astronomy of the Ancients," had maintained that the Phœnicians never came to this country for tin, and that it was conveyed across the channel to Gaul, and thence by the overland route indicated by Diodorus to Marseilles.

Be this as it may, it is evidently a point of great interest to ascertain whether Phœnician remains exist anywhere, and what they are like.

The lecturer then proceeded to consider the remains of Phœnician art within the Mediterranean. Adverting to Professor Gerhard's Essay on this subject, published in 1846, he stated that the greater part of the objects published as Phœnician by that distinguished archaeologist consisted of remains probably of the Roman period, and belonging to semi-barbarous races, partially under Carthaginian influence: such were the curious temples in Malta and Gozo, which Dr. Barth thought Phœnician. The same observation applied to the alleged Phœnician remains from Sardinia and the Balearic Islands, and to the coins bearing Phœnician inscriptions of Gades, Ebusus, and other Carthaginian settlements in Spain or Africa.

But in the Eastern Mediterranean, between the island of Cerigo, at the southern point of the Morea, and the coast of Phœnicia, were a series of islands, all known to have had Phœnician settlers in very early times. It is here that we get on the track of true Phœnician remains of a very early period. The proof of this is derived from several discoveries which have been recently made. These discoveries were those made at Nimrod by Mr. Layard, Mr. Loftus, and Sir H. Rawlinson; those at Camirus, in Rhodes, by Messrs. Biliotti and Salzmänn; those in Cyprus by Dr. Ludwig Ross, Mr. Waddington, and the Comte Melchior de Vogüé; and, lastly, the discoveries made in Phœnicia Proper, by M. Ronan, whom the French Emperor, with an enlightened liberality worthy to be imitated by other Governments, had employed to excavate the sites of Tyre, Sidon, Byblos, and Aradus.

Commencing with the discoveries at Rhodes, the lecturer described how he had first accidentally discovered the Necropolis at Camirus in 1856, and how Messrs. Salzmänn and Biliotti had continued their excavations there from 1859 to 1864. The antiquities which they discovered are a museum in themselves, ranging from the earliest to the latest date of Greek art, and comprising a number of objects which seem to be either Phœnician, or executed by early Greek artists under Phœnician influence.

The lecturer then exhibited drawings of the principal classes of objects presumed to be Phœnician, consisting of gold ornaments, chased and embossed, inlaid glass, Egyptian porcelain, alabaster vases, small bronze figures, painted fictile vases, and terra-cotta figures. He explained how most of these objects had an Asiatic character, suggesting a Phœnician origin. One of the gold ornaments, for instance, was the pendant of a necklace, representing a winged lion, below which was a row of pendant pomegranate fruits. This ornament at once reminds us of two things, the winged lions discovered at Nimrod, and the row of pendant pomegranates which ornamented the priest's robe in Solomon's temple, as described in the Book of Kings. The other gold ornament represents a winged female figure, holding up in either hand a lion standing on his hind legs, the Artemis Persike mentioned by Pausanias. Again, among the bronzes was a man riding on a camel. This animal could never have been used in the island of Rhodes. This bronze must, therefore, it would seem, have been imported from some Asiatic country. Glass, as is well known, was an invention of the people of Sidon, and variegated glass bottles, such as those found at Camirus, are of remote antiquity, having been found in tombs in Upper Egypt, of the date of Thothmes III. The quantity of these bottles found at Camirus is in itself an evidence of Phœnician trade. The objects in porcelain, again, are very like those found in Egypt, but have been thought by experienced archaeologists, like Mr. Birch, to be not Egyptian, but imitated from the Egyptian. The fictile vases belong to the class which has been called Phœnician by many archaeologists long before these discoveries. They are painted with friezes of animals and monstrous figures, on a field *semé* with flowers. These designs are probably borrowed from Assyrian friezes, embroidery, or Babylonian carpets. Lastly, among the terra-cotta figures was one probably representing the Phœnician Aphrodite, or Astarte, which is identical in type and scale, and almost in style, with one in the Louvre, found in a tomb at Sidon, by M. Ronan. The lecturer then described the discoveries at Cyprus. In this island Dr. Ludwig Ross has explored the Phœnician sites of Dali, the ancient Idalion, Golgos, Paphos, and Amathus. At Dali have been found a quantity of small statues, cut in calcareous stone, of which the Louvre possesses a very fine collection, and the British Museum a

smaller collection, not yet exhibited for want of space. Here were also found, some years ago, twelve gold plates, embossed and chased with figures in relief, representing battle scenes. One of these plates is in the Louvre, another in the Bibliothèque Impériale at Paris.

At Amathus, Ross found an immense stone vase, like a laver, weighing about twenty tons, having under each handle a bull sculptured in relief. This vase has been taken possession of by the French Government, and is to be removed to Paris shortly. Since Dr. Ross's visit, Cyprus has been most carefully explored by Mr. Waddington and Comte Melchior de Vogüé. The latter archaeologist has done much for Phœnician paleography, and we may hope, through his labours and those of the Duc de Luyne, to see the history of Phœnician writing much further developed, and criteria established by which the age of Phœnician inscriptions may be more accurately determined than at present.

Passing on to the discoveries of Mr. Layard and Mr. Loftus at Nimrod, the lecturer exhibited drawings of two bronze plates, embossed and chased with figures in relief, one of which bears the inscription "Arka" (country), in Phœnician characters. These, and a number of other similar plates, were found in a palace at Nimrod by Mr. Layard, who in his works describes them as apparently not the work of Assyrian artists, and suggests that they may have been made by Phœnicians transported into Assyria as captives. Mr. Layard also found a number of ivory carvings, on one of which was a Phœnician inscription. These have apparently an Egyptian character, being ornamented with hieroglyphics; but Mr. Birch considers them to be pseudo-Egyptian, the work of a people with no true knowledge of hieroglyphics. They are, therefore, probably Phœnician. Now it is curious that, on turning to the antiquities from Camirus, we find the same phenomenon of blundered hieroglyphics on works of porcelain, on a silver plate, and on a gold ring.

Turning from the Eastern Mediterranean to Etruria, we find a most interesting illustration of these phenomena. In the grotto of Polledrara near Vulci, were found a number of antiquities, mostly of Asiatic character; but among them were several objects in porcelain with blundered hieroglyphics. At Cære (Cervetri), in the Regolini Galassi tomb, were found a number of chased and embossed silver cups, some of which were nearly identical with those found at Cyprus; and all through Etruria are found early vases, on which are figures in relief evidently taken from Asiatic designs. Lastly, a shell of a very rare kind, said only to be met with in the Indian seas, was found in a tomb in Etruria. This shell was covered with an Asiatic design of figures and lotus flowers. A fragment of a similar shell, similarly carved, was found in a tomb at Camirus, and another fragment by Mr. Layard at Nimrod. These shells were probably brought by the Phœnicians from the Red Sea, and sold with other trinkets to the Greeks and Etrurians.

In the time of Homer we find the Phœnician trader everywhere in the Greek ports, offering jewels and trinkets for sale, and now and then kidnapping the Greek women, who were attracted to look at their wares. With regard to the age of the specimens of Phœnician art which we possess, it is probable that those found in Rhodes belong to about the same period as the earliest specimens of Greek art. Mr. Newton then exhibited drawings of three very early specimens of Greek art: the Lion from the Sacred Way at Branchidae, inscribed with a dedication to Apollo; one of the seated figures from the same site; and a bas-relief, found at Samothrace, with figures of Agamemnon, Epieus, and Talchibios. We get an approximate date for these sculptures by comparing the forms of the letters on the line with those in the inscription placed by the Ionian soldiers of Psammethichos I. or II., at Abou Simbel in Nubia, and the date of which must be between B.C. 661 to 589.

The earliest specimens of Greek art and the specimens of presumed Phœnician art have this in common,—that on both the ever-recurring ornament is the lotos and a fan-shaped flower, and that winged figures and monsters constantly occur, intermixed with friezes of animals. These characteristics seem borrowed from Assyria.

Another characteristic of Phœnician art is the obvious imitation of Egyptian symbols and ornaments, as shown in the examples cited from Rhodes and Etruria. Nothing can be more natural than that the Phœnicians, who were not only a race of mariners, but a manufacturing people, should have imitated such Egyptian

wares as there was a special demand for in commerce, as we imitate China plates. This traffic probably commenced long before the time of Homer, and was gradually circumscribed as the Greeks got possession of the markets where the Phœnicians had had exclusive monopoly. Mr. Newton concluded his lecture by reverting to the question whether the Phœnicians had ever landed on the coast of Britain. This question it will be better to consider still in abeyance. What is wanted for its ultimate solution is a diligent notation of facts.

The examination of barrows in the southern counties should be carried on with the most minute care, and the names of places along the coast should be analyzed by the tests of modern philology; for, if the Phœnicians frequented any portion of the British coast, it is probable that they would have given names to the more important harbours and promontories, as they did in Africa and Spain.

PROPOSED PORTRAIT EXHIBITION AT THE SOUTH KENSINGTON MUSEUM.*

As time is not subject to contingencies like human beings and Atlantic cables, and the year 1865 has little more than four almanac months to run through before the New year opens that is to give us, in the spring-time of its existence, a National British Portrait Exhibition, it behoves all who are employed in its formation to be about and active; nor should writers in public journals dedicated to Art cease from time to time to assist the staff of the Committee of Council in furthering the great educational scheme they have on hand. An exhibition like the one that is in course of formation will, in the well-chosen motto of the unhappy defunct Granger Society, "delight the eye, recreate the mind, impress the imagination, and thereby yield no small assistance to the judgment."

Nor is this feeling ill-expressed in the prospectus of the Granger Society: "Portraits of celebrated persons are the most attractive of all ancient monuments. Their importance as works of art is unquestionable; equally undeniable is their value as historical evidences; in some instances they make their appeal by the magic of the names associated with them." Take, for example, Holbein's Sir Thomas More, surrounded by his family; Queen Mary and Philip II. of Spain, with their diminutive dogs, at Wolurn; witness the portrait of Lord Broughley upon his mule at the Bodleian; Queen Elizabeth carried, in a sedan, on men's shoulders, at Sherborne Castle; the family of Clifford, Earl of Cumberland, of the time of Elizabeth and James I. in the collection of the Earl of Thanet at Skipton Castle; Prince Rupert and Colonel Murray persuading Colonel John Russell to resume his Commission, in the collection of Earl Craven at Combe Abbey; Charles II. receiving the first Pine-apple grown in England from his gardener Rose. It would be easy to add to the catalogue. The destruction, at the great fire of the Houses of Parliament, of the historical Armada Tapestry, bearing portraits on its borders, was an irreparable loss.

The historical importance of portraits is admirably expressed in a letter by Sir Walter Scott, which we shall reproduce on this occasion, as it is not to be found in Sir Walter's works, or in his life by Lockhart, and is, above all, most appropriate to the subject of the proposed exhibition.

"To Mr. Ho ding, Bookeller, London.

"Abbotsford, 25th March, 1828.
Sir,—I am obliged by your letter, requesting that I would express to you my sentiments respecting Mr. Lodge's splendid work, consisting of the portraits of the most celebrated persons of English history, accompanied with memoirs of their lives. I was at first disposed to decline offering any opinion on the subject; not because I had the slightest doubt in my own mind concerning the high value of the work, but because in expressing sentiments I might be exposed to censure, as if attaching to Mr. Lodge's work is, however, one of such vast consequence, that a person attached as I have been for many years to the study of history and antiquities, may, I think, in a case of this rare and peculiar kind, be justly blamed for refusing his opinion, if required, concerning a publication of such value and importance.

Mr. Lodge's talents as an historian and antiquary are well known to the public by his admirable collection of ancient letters and documents entitled "Illustrations of British History," a book which I have very frequently consulted; and have almost always succeeded in finding not only the information required, but collected a great deal more as I went in search of it. The present work presents the same talents and industry; the same patient powers of collecting information from the most obscure and hidden sources, and the same talent for selecting the

facts which are the rarest and most interesting, and presenting them to the general reader in a luminous and concise manner.

It is impossible for me to conceive a work which ought to be more interesting to the present age than that which exhibits before our eyes our 'fathers as they lived,' accompanied with such memorials of their lives and characters as enable us to compare their persons and countenances with their sentiments and actions.

I pretend to offer no opinion upon the value of the work in respect to art,—my opinion on that subject is literally worth nothing in addition to that of the numerous judges of paramount authority which have already admitted its high merits. But I may presume to say that this valuable and extended series of portraits of the illustrious dead affords to every private gentleman, at a moderate expense, the interest attached to a large gallery of British portraits, on a plan more extensive than any collection which exists, and at the same time the essence of a curious library of historical, bibliographical, and antiquarian works. It is a work which, in regard to England, might deserve the noble motto rendered with such dignity by Dryden:—

"From hence the race of Alban fathers come,
And the long glories of majestic Rome."

I will enlarge no more upon the subject, because I am certain it requires not the voice of an obscure individual to point out to the British public the merits of a collection which at once sacrifices the imagination and the understanding, showing us by the pencil how the most distinguished of our ancestors looked, moved, and dressed, and informs us by the pen how they thought, acted, lived, and died. I should, in any other case, have declined

Artist.	School	Description of Subject or Object of Art.	Editor's Remarks.
Lely (49)	English.	Three-quarter portrait of Lord Chancellor Hyde, Seated.	The original.
Jansen (53)	Do.	Full length of Villiers, first Duke of Buckingham, in a dress of gold and silver brocade.	The finest portrait of this illustrious personage.
Jansen? (53)	Do.	Three-quarter portrait of Lord Keeper Coventry, in his robes.	
Jansen? (53)	Do.	Three-quarter portrait of Lucius Cary, Viscount Falkland, in a slashed doublet of black and white.	The original and unique.
Vandyck (1).....	Flemish.	Full length in white satin of Henrietta Maria, Queen of Charles I.	Very, very fine.
Do. (1)	Do.	Full lengths on one canvas of Earl and Countess of Derby and child.	Magnificently fine.
Unknown	English.	Full length of Thomas Howard, Earl of Arundel, in armour.	Very curious. He was the earliest collector of works of art in this country.
Do.	Do.	Full length of Charles II., when a boy. Red dress, stick in hand.	The original of many contemporary portraits.
Do.	Do.	Portrait of Fletcher, the poet (Beaumont and Fletcher).	Most curious.
Wissing (59)	Do.	Full length of Duke of Monmouth, in armour. By his side is Ferguson pointing to a globe, with his finger directed to England.	Fine, and curiously illustrative of Macaulay.

expressing an opinion in this public and almost intrusive manner, but I feel that when called upon to bear evidence in such a cause, it would be unmanly to decline appearing in court, although expressing an opinion to which, however just, my name can add but little weight.

I am, sir, your obedient servant,

WALTER SCOTT.

"Add but little weight," indeed! Let this letter have both Troy and Avoirdupois weight with "The Right Honourable the Lords of Her Majesty's most Honourable Privy Council on Education," and with the "Science and Art Department" of the Committee of that Council that rules Lord Paramount over the South Kensington Museum.

Of the desirability of the "proposed Exhibition," of its educational importance, combining, as it cannot fail to combine, profit with pleasure, there cannot be a doubt; how, then, we will inquire, can it best be brought to a successful issue? The first step to be taken by the Kensington authorities is a formation of a catalogue of wants, of what is to be had and what can be had by official and private influences. This was done with success for the famous Manchester Art Treasures Exhibition of 1857. Possessors of portraits were taken by counties and collections. Hertfordshire, though a small county, is particularly rich in English portraits,—Hatfield House holding the Marquis of Salisbury's collection; Gorhambury that of the Earl of Verulam; Cassiobury that of the Earl of Essex; Panshanger, that of Earl Cowper; and Bayfordbury, the whole of the Kneller portraits of the Kit-Kat Club. A sample specimen of what was "wanted" and "written for" will prove of use at this time. The Earl of Clarendon, at the instigation of Mr. Peter Cunningham, was requested by the General Commissioner of the Manchester Committee of Management to lend for the purposes of the Exhibition the above-named portraits.

The owners of galleries and cabinets of art in Hertfordshire were not very liberal. The Marquis of Salisbury, after hesitating and half promising, lent nothing; Lord Verulam lent the original portrait of Lord Chancellor Bacon; Lord Clarendon lent the original portraits of Lord Chancellor Hyde and his friend Lord Falkland; the Earl of Essex lent the Hampton-Court Herefordshire portrait of Henry IV., the magnificent full-length by Vandyck of Algernon Percy, Earl of Northumberland, and Kitty Hyde, Duchess of Queensbury, celebrated in verse by Prior, Pope, Gay, and Horace Walpole. The Earl of Clarendon sent

Lord Falkland and Fletcher the poet; Mr. Baker, of Bayfordbury, Kneller's Dryden, so finely engraved by Edelinck, and six of the Kit Kat Club portraits,—Lord Chancellor Somers, Addison, and Steele, Congreve and Vanbrugh, and old Jacob Tonson himself.

The "askings" of the Committee would not be confined to owners in England, Scotland, and Ireland; the Emperor of the French should be "moved" to lend Holbein's Archbishop Warham (Canterbury), and Vandyck's noble full-length of Charles I. standing by his horse; the Emperor of Russia should be "asked," in the name of the Institute of British Architects, to lend Vandyck's portrait of Inigo Jones, part of the Houghton Collection, and the only genuine likeness of the great architect of Whitehall. A loan might be sought from the King of Italy of Kneller's presentation portrait of himself in the Gallery of Painters' Heads in Florence. He wears his gold chain and his diamond ring. His house at Whittou is seen in the background.

The following letter, hitherto unpublished, will show the difficulty of getting at the fact which is the original of a portrait and which the duplicate by the same hand. The writer was the

widow of the poet of "Childe Harold." The portrait referred to of this noble poet:—

"To Peter Cunningham, Esq.

Ham Common, April 13th, 1857.
Sir,—Not having in my possession the portrait which I am requested to send to the Manchester Exhibition, I cannot have the pleasure of complying with your wishes. The present Lord Byron has the original picture by Phillips at his house in Eaton-place.—I am, your obedient servant,
A. I. NOEL BYRON."

The fine portrait which Mr. Murray has of Lord Byron by Phillips, at No. 50, Albemarle-street, is therefore, by this showing, a duplicate of "the original picture," at No. 48, Eaton-place.

STONEHENGE.

On the 26th ult. about fifty members of the South of England Literary and Philosophical Society made an excursion to Stonehenge. On their route they visited at Salisbury "the hall of John Halle," the museum, which has lately received large accessions of much interest, the cathedral, and Old Sarum. At Stonehenge, after dinner, the party assembled within the circle of stones, and the Rev. E. Kell delivered an address on the structure and origin of Stonehenge, illustrating his subject by a variety of plans and drawings. He commenced with explaining the structure, which, he said, was erected on an extensive plain, surrounded by a vast number of barrows that contained the relics of the departed. He stated that the stones of the external circle and those of the five Trilithons were obtained from the neighbouring valleys, the minor stones from Devonshire and Cornwall. He then entered on the much-disputed question of the origin of Stonehenge, and enumerated the opinions of Inigo Jones, Bishop Gibson, Keyser, Stukeley, King, Davies, Sir Colt Hoare, the Rev. James Duke, Mr. H. Brown, and others. He gave his reasons for objecting to the theories of the pre-historic, Phœnician, Druidical, and Roman origin of Stonehenge, and following the opinion of Mr. Henry Wansey, who wrote in 1796, which has lately been so ably advocated by a writer in the *Quarterly Review* of June, 1860, argued that Stonehenge was erected by the British King Anolius Ambrosius, in memory of the 300 British nobles who were treacherously slain by Hengist near the spot, in 450, at a feast given by Vortigern. He showed that the neighbouring circle of Avebury

(allowed to be antecedent to Stonehenge) was built after the Roman occupation, from the circumstance that Silbury Hill (which is connected with it) is built on the Roman road that connected Bath with London. He maintained, consequently, that Stonehenge must also be subsequent to the Roman period. He then alluded to the important fact that no Roman writers ever adverted to Stonehenge, though they have so fully described the various Roman roads and stations in Great Britain, and the objects of interest connected with them. As four of these roads met in the vicinity of Old Sarum, only six miles apart, such a stupendous pile of building would have excited attention had it then existed. As a proof of previous Roman occupation, Mr. Kell drew attention to the Roman pottery described by Sir Colt Hoare to have been found by Mr. Codrington under the site of one of the fallen trilithons, and to coins and other Roman relics found in and about Stonehenge, which might be considered to put an end to all possibility of Phœnician or Druidical origin. The period for the probable erection of Stonehenge being brought down to the time of the departure of the Romans, the rev. gentleman showed the improbability of its being erected by the Saxons or the Danes, to whose style of buildings it was totally dissimilar, and that it was on this particular interval, between the departure of the Romans and the first subjugation of Britons by the Saxons, that all the ancient English historians, without any exception, aided our conclusions, drawn from the site and structure of Stonehenge; and asserted, without a single exception, that it was erected by King Ambrosius, who lies buried in the adjacent village of Amesbury, or Ambrosbury. He then cited passages from Geoffrey of Monmouth, Nennius, Giraldus Cambrensis, the Triads of the Welch Bards, and Camden, in proof of that position. Geoffrey states that "Aurelius Ambrosius, who reigned from 465 to 508, wishing to commemorate those who had fallen in battle, and who were buried in the convent at Ambresbury, thought fit to send for Merlin, the prophet, a man of the highest genius, either in predicting future events or in mechanical contrivances, to consult him on the proper monument to be erected to the memory of the slain." Nennius, who wrote as early as the seventh century, described the massacre, which was the exciting cause of the erection of Stonehenge, in the following terms:—"Hengist, under pretence of ratifying the treaty with Vortigern, prepared an entertainment, to which he invited the king, the nobles, and military officers, in number about 300. Speciously concealing his wicked intention, he ordered 300 Saxons to conceal each a knife under his feet, and to mix with the Britons. After they had eaten and drunk, and were much intoxicated, Hengist suddenly vociferated "Nimede ere Saxas," and instantly his adherents drew their knives, and rushing upon the Britons, each slew him that sat next him." This massacre took place in the year 461. As connecting Stonehenge with Hengist, it should be remarked that the ancient name of Stonehenge was Stonehengist. Giraldus Cambrensis, who writes in 1187, states: "These stones, according to British history, Aurelius Ambrosius, king of the Britons, procured Merlin to bring by supernatural means from Ireland into Britain. And in order that he might leave some famous monument of so great a treason to future ages, set them up in the same order in which they had formerly stood on that spot where the flower of the British nation fell by the cut-throat practice of the Saxons, and where, under the pretence of peace, the ill-secured youth of the kingdom, by murderous design, were slain." It is true that some of these writers mix up with the account of the transactions a fabulous story of the stones being brought by Merlin at the command of Ambrosius from Kildare, in Ireland, by supernatural means; but this is not a subject for surprise in an unenlightened age, which found it difficult to suppose such extraordinary stones could have been erected without the aid of magic. The main points of the history are alike in all the historians, and have internal marks of credulity in the circumstances of the times in which they occurred. Mr. Kell considered the circular form of the temple to indicate Buddhist origin—this being the usual style of Buddhist architecture—agreeing with the writer in the *Quarterly Review*, that the doctrine and practices of Buddhism had made way in western Europe as early as the second century. It was well known that the Druids did not worship in stone

temples, but only in groves, which could not have existed on Salisbury plain. He concluded by citing a touching passage from Tennyson's "Death of King Arthur," which referred to the manners of this period.

We find the following in *Notes and Queries*:—

"Bishop Gibson contends that Stonehenge could not have been erected by the Danes, 'as for many other reasons so particularly, because it is mentioned in some manuscripts of Nennius; who, as everybody knows, wrote almost 200 years before the Danes were masters of any considerable part of this island.' Nennius, in the 'Historia Britonum,' mentions the treacherous massacre of the British chiefs; but I do not find any mention of Stonehenge. Can any one inform me where Stonehenge, by any of its names, is mentioned by Nennius?" J.

ROMAN VILLAS RECENTLY DISCOVERED IN CHEDWORTH WOOD, GLOUCESTERSHIRE.

On the 18th of June, 1864, Mr. Farrer, of Ingelborough, uncle of Lord Eldon, was shown by one of the game-watchers, a rabbit-hole, from which in ferreting he had brought out tesserae and pieces of pavement. Mr. Farrer immediately perceived the probable value of the indications of Roman antiquity, and carefully excavated the place, between walls; but the pavement was as a whole quite destroyed. It had apparently been laid on stones, leaving small flues or passages, which had been covered with flags. Further examination led to the discovery of quantities of loose tesserae, bits of ornamental tiles, painted stucco, burnt stone, and brick; and, following with the utmost care all indications of the course of the walls, Mr. Farrer succeeded in clearing away, first the trees, and then the accumulated soil, from what seem to be two distinct sets of villa buildings. Excavation is still proceeding, and therefore an accurate account cannot be given of the whole plan; but at the recent meeting of the Archaeological Institute at Dorchester, a descriptive account of the discoveries was read by Mr. J. Farrer. The locality of the remains is a portion of Chedworth Wood, called Fawcombe, the property of Lord Eldon. It is near Withington, where considerable remains have been already brought to light, and is between two and three miles up the Coln, west of the point where that stream (at a distance of seven miles from Cirencester, the ancient Corinium) crosses the well-known Foss-way at Foss Bridge.

The position of the villas shows great taste, the buildings being half-way up a steepish slope in a recess between hills, which have been covered from time immemorial with wood. The buildings face, the one nearly east, the other nearly south, with a lovely view down the narrow well-timbered valley of the Coln; the view being bounded at the distance of some two miles by the line of beeches bordering the ancient Foss-way. The underwood has in regular course been felled about every twenty years, but no tradition seems to exist of there having been any such building as that lately brought to light.

Mr. Farrer said:—So far as at present appears, No. 1 villa was built in the form of two sides of a square, looking east and north. Along the side looking east ran a corridor, about 9 ft. wide and 133 ft. in length. The rooms, evidently the best ones, were apparently all paved. The southern one, the largest, was 28 ft. 9 in. by 18 ft., and retains a good pavement. It is laid apparently on a floor generally solid, but with a large flue round part of the inside of the walls, and flues running also diagonally through the room. The pavement, ornamented with figures at the corners, was speedily covered up, in the hope of preserving it till such time as it should be decided what places should be protected by permanent building, so as to keep everything as much as possible in the existing state. Unfortunately the pavement has in some places given way; but we are very anxious, if possible, to preserve all without relaying the floor; and also, if possible, to show by a section the way in which the warming by hypocaust or flues was arranged. The level of the rooms is about 3 ft. 6 in. above the corridor, and is reached by well-worn steps in two places. The northern room on the same side has been on a hypocaust, warmed from an external fireplace, discovered since the making of the plan. Its sides are of brick and tile. It was choked up with ashes, burnt rubbish, and soil. Adjoining it is a bath, 7 ft. 2 in. by 5 ft. 4 in., and 4 ft. 4 in. in depth. Near the bath was a circular place, supposed to have been a well or trough, 4 ft. wide by

2 ft. 10 in. The room or rooms also in this part retain a good pavement. The walls are of the stone of the country, unburnt. They are mortared; and the height left averages about 4 ft. No indication of them remained above ground. The side looking north has been about 95 ft. in length; and the rooms have been two deep, generally about 45 ft. in total width, but built irregularly; and, being on the slope of the hill, the eastern ones are on a lower level than those adjoining the better part of the building. The roof has been of stone slate, much of which is good, with, in many instances, the very nails left in them. It is intended to use them in such building as is advised for the preservation of the remains. The total number of rooms traced clearly at the time of making the plan was eighteen. Small fragments of pillars and worked stone are found, and numerous coins, all of bronze. The following ones have been named:—Tetricus, Carausius, Alectus, Constantius Chlorus, Theodora, Constantius Magnus, Constantius II., Magnentius, Valentinianus, Victorinus. There are found also bone and bronze pins, fibulae, a stylus, rings, keys, a horse-shoe, numerous iron instruments, daggers, knives, small fragments of glass, of Samian ware and inferior pottery, and ornaments of Kimmeridge shale.

In a small recess, 4 ft. 4 in. by 2 ft. 5 in., at the back of the best room (No. 1), were found fragments of two stone statues. Only the sandaled feet were attached to the pedestal: pieces of the hands were near. On the under side of a step was a labrum very distinct (a rough cast of it is placed in the museum). Mr. Lysons discovered this and attached a great value to it. There was also another more rude, and the cast which has been made of it does not really show the effect. A remarkable very rude little stone was discovered, looking like a little altar for the penates. Mr. Franks, of the British Museum, considers it to be of the third or fourth century. There is one of terra-cotta in the British Museum somewhat resembling it; but what is its history I do not know. There is rude cutting upon it of a grotesque figure and other marks. The most interesting relic is a silver spoon, 2½ in. long, 1½ in. wide, with a swan's head arched for handle. The handle is very short, 1½ in., and one may suppose that the spoon must have been for using with dry articles, such as salt or the like. Inside at the bottom of the spoon is the inscription "Censorine gaudeas."

This spoon, also, Mr. Franklin supposes to be of the third or fourth century; and I believe very few similar ones, if indeed more than one, have been seen at the British Museum. The spoon was found at the back of the building; near it a bronze steelyard and a leaden weight. Animal bones—horse, ox, sheep, pig, and deer—are found all about, except in the superior rooms. In one room, No. 14, was a piece of a human skull. In No. 16 were with loose tesserae pieces of the material from which they had been formed. It is supposed from the melted lead and other traces of burning that the buildings were destroyed by fire. The second building all but, if not quite, adjoins and stands at right angles to the first. It consists, so far as at present can be seen from the excavation, of one corridor of about 300 ft. in length and 10 ft. 3 in. in depth, opening into rooms of various sizes. A hollowed stone drain runs at the back of all. Many of the rooms contain pavement, but it is of much inferior quality to that in the other building. Thirteen distinct rooms have been cleared, of which nine are of the uniform depth of 24 ft. 6 in., and vary in breadth from 8 ft. 9 in. to 24 ft. The tenth is of pentagonal form, 22 ft. in the deepest part. Large drains run under this room, of size sufficient to admit a boy. The height of the walls left after the clearing away of the rubbish is about 5 ft. at the back, where the hill rises. Remains of stone piles and hypocausts are constant in this part. There have been fewer coins or other objects of interest found in this building than in the other. A mass of lead, 67 lb. in weight, was in No. 13, and also a piece of iron 3 ft. 7 in. long, and 7 in. square, much corroded. In No. 3 is a quern or millstone, 2 ft. 7 in. in diameter, and 3 in. thick. Part of a human jaw was found in a little chamber adjoining the pentagonal room. The section of the earth shows brick, tile, and burnt stone along the whole line. At right angles to the better building stand two pillars, broken at the height of 20 in. Mr. Farrer has, in the last few days, succeeded in finding the source of the water-supply from a higher level in the wood; in doing which more traces of building, with small baths or possibly ovens,

have been shown; also tesserae, with pieces of the material from which they were cut. There is thus every ground to hope that eventually a very tolerably perfect ground-plan of a Roman country-house may be disclosed, which cannot but be interesting, though the amount of actual objects of value does not appear at present to be very large. It is proposed to keep everything as much as possible *in situ*—placing a cottage with a little museum in the square formed by the buildings—and covering the two principal paved rooms with sheds of stone, wood, and glass. As it seems that Roman domestic architecture offered little more attractive to the eye than an exterior of dead wall, it is intended to build the cottage of the old stones in early style, with “post and pan” work of oak and plaster for the upper part, roofing it with the old stone slate. We are very anxious, if possible, to keep the pavements without relaying or otherwise disturbing them, and shall feel highly obliged by any advice which the experienced may kindly give upon the subject.

CONCRETE PIERS AND BREAKWATERS.

M. POIREL, who first made use of concrete blocks for hydraulic construction in 1833, in the port of Algiers, has just made a minute examination of the different works constructed on that system for the last thirty years. After the port of Algiers, the next application was in the construction of the port of Marseilles,* afterwards at La Pointe de Grave (*embouchure* of the Gironde), then at Port-Vendres, Cette, Biarritz, Cherbourg, and other ports, the last being Leghorn, where the first curved breakwater was constructed on this principle.

These artificial blocks, dropped into the sea, so as to form a heap, which ultimately takes a definite and permanent form, can be made of almost any size. The effort of the waves to displace a block is proportional to the surface impinged upon (this, in heavy weather, is estimated at 600 lb. to 700 lb. per square foot), and consequently to the square of the linear edge; whereas the power of the block to resist this force depends upon its weight, or the *cube* of its edge; therefore it is easy to give such dimensions to the block that the latter force may exceed the former, and that a complete stability may take place.

The first blocks constructed for the port of Algiers contained 353 cubic feet: taking the specific gravity at 2.3, we have the weight about 23 tons. Subsequently the size was increased to 530 cubic feet, giving a weight of about 34 tons. At the port of Marseilles, they contained 353 cubic feet; and at the Leghorn breakwater, 706 cubic feet, or 46 tons weight. With natural blocks of stone, the greatest depths in which sea works had been attempted in France was 20 *mètres* (65.6 ft.), as at the Cherbourg dyke. At Algiers, however, the jetty in continuation of the ancient mole was formed with artificial blocks, laid at depths of 25, 30, and 35 *mètres* (82 ft., 98.4 ft., and 111.8 ft.). When the blocks are deposited in the sea loosely, so as to form a heap, they take a certain slope; but it must not be imagined that their stability is immediate. The bottom of the sea consisting in most cases of muddy sand, the reaction of the waves occasions a scour to take place at the base of the mass of blocks, which results in a settlement of the whole. After a lapse of time, however, the blocks arrange themselves into a form so as to cause the cessation of the scour, and a condition of permanent stability. This was found to take place when the mass had assumed a slope of 45°.

If, instead of descending the blocks loosely, they are laid regularly, as at Marseilles or Leghorn, it is easy to raise vertical quay walls of a height of from 20 ft. to 30 ft., so as to permit the largest vessels to be moored alongside. Construction of such walls, by the aid of natural blocks, is attended with extreme difficulty and expense in non-tidal waters such as the Mediterranean.

At the *débouché* of the Suez Canal at Port-Saïd, in the Mediterranean, the construction of a double breakwater, inclosing a canal 1.6 miles long, is indispensable to the success of the undertaking. This may be impossible to be constructed, except by artificial blocks of concrete.

* Vide paper read by Mr. T. Hawthorn at the Institution of Civil Engineers, given in the *Builder* of February 4th, 1865.

WINCHESTER CITY CROSS.

THE restoration of this cross under Mr. Scott's general direction, has just been celebrated at Winchester. It stands on the south side of the High-street. In the octagonal tier of niches at the base of the central finial forming the “tabernacle,” there are statues, each being the ideal representation of the patron saint of one of the Winchester churches. They are the Virgin Mary, carrying lilies, St. Thomas, St. Maurice, St. John, St. Peter, St. Lawrence, St. Bartholomew, and St. Swithin, each bearing insignia, and arrayed according to the traditions of the Church. The pillars from which the lower arches spring have their terminals ornamented with heads, four to each column, representing kings, queens, bishops, priests, ladies, warriors, and burgesses of the Middle Ages. In the four-niche arches above are statues, one in each: St. Lawrence, mentioned by Milner as being removed to the west, is, as far as possible, restored and replaced in its original position, the south niche. Of the three new statues, Alfred the Great occupies the niche most prominent to view, the western: as king, he is represented crowned with a Saxon tiara, robed in an embroidered tunic, reaching to the knee, partly concealed by a mantle fastened on the right shoulder by a fibula or brooch. The legs are covered with upper and lower hose, the former decorated with strips of cloth as depicted in works on ancient clothing. He is armed with a short sword. In his right hand he bears a sceptre, and in his left a roll bearing the words, “Ye domes of England,” in allusion to the “domboc,” compiled when he divided his kingdom into counties, hundreds, and tithings. William of Wykeham occupies the northern niche. The great ecclesiastical architect is represented in full pontificals, bearing his crosier in his right hand, and in his left a book inscribed “Statuta Collegii Beate Marie de Winton,” with the episcopal seal. Florence de Lunn, the first Mayor of Winchester, chosen to that dignity by Henry II., occupies the eastern niche. He wears a jewelled cap, or colif, and mantle, and bears in his left hand a long open scroll inscribed “Charta Privilegiorum,” in allusion to the charter granted to the city by his sovereign. The open arcade under has simply been restored. The steep steps which form the base of the whole structure have been mostly renewed. On the riser of the upper one towards the north there are cut the words “Restored Anno Domini MDCCCLXV. William Budden, mayor.” All the stone used for the carved portion is of fine Ketton oolite. The required work has been done under the special supervision of Mr. W. Coles, by Messrs. Poole & Son, of Westminster, for about 500l.

PRESERVATION OF TIMBER.

AN orthopedic surgeon at Antwerp, named Hossard, has invented a new method of injecting into timber preservative solutions or dyes. It is based on the well-known principle that all porous bodies dilated by heat, have the property of absorbing—as plants do during the night—liquids, according as they are contracted by cold. The timber is heated to a high degree by means of steam or boiling water, which deprives it of its vegetable juices and resins, and is then immediately plunged into a cold solution or dye, which it absorbs so completely as very soon to sink to the bottom of the vessel. The process is very rapid, two hours sufficing for the largest railway-sleepers, and from five to fifteen minutes for palisades, planks, &c.

When it is considered that the present methods of timber-injecting, imperfect as they are, require a great amount of patience and loss of time, besides the expensive apparatus for exhausting and condensing, M. Hossard's method, indicated by a simple process in nature, seems worthy of being put in practice on a large scale.

FALL OF A BUILDING AT BRIGHTON.—On Monday night in last week, about nine o'clock, a weakly-built hayloft in Camelford-street suddenly bulged out and fell into the street, greatly alarming the inhabitants of the neighbourhood. Fortunately no one was passing at the moment, and no personal injuries were sustained. Subsequently, a stable immediately behind the loft being found to be sinking, the horses stalled there were removed to other quarters.

SCHOOLS OF ART.

The Reading School.—This school is said to be in a most satisfactory state, the pupils having made great progress in their studies under the tuition of Mr. Havell, the head master. A national medallion has been given to one pupil, and amongst the awards, which number altogether 220, are many given by lovers of the fine arts in this locality. The annual distribution of prizes to the students has just taken place, in the Town-hall, under the presidency of Mr. Highford Barr. There was a very numerous attendance, and among those present were Mr. A. H. Layard, M.P., and Sir F. Goldsmid.

The Cirencester School.—Of the 18 works to which local medals were given this year 14 were selected for national competition, 3 of these obtaining first-class distinctions or medallions, and 3 others second-class or honourable mention.

The Newcastle-upon-Tyne School.—This school continues to make steady progress. The pupils are not only numerous, but many of them are pretty far advanced, and have been successful in taking prizes. It appears, however, that no national medallion has been obtained this year. Nevertheless, the result of the examination is deemed highly satisfactory to the committee.

The Cork School.—Sixteen local medals and two national medallions have been taken by students of this school at the last examination held by the Department of Science and Art. Numerous pupils of the school and of the local national schools have also passed a successful examination by the Inspector, in free hand, geometry, perspective, model, and memory drawing.

METROPOLITAN COW-SHEDS AND THE CATTLE DISEASE.

DEMOLITIONS IN LONDON.

THE sanitary department of the police, in connexion with the Common Lodging-house Act, has worked with such excellent effect, and given so much satisfaction, that the staff has been recently increased; and it is very evident to those who have looked on, that the benefits dispensed by this well-selected body of men have been great, and that they have done most useful work. Those who have charge of the common lodging-houses, and are neglecting their duty and endangering the lives of persons from whom they receive large profits, are told what is needful to be done: they are reasoned with; the nature of the law is explained, and right sanitary measures are enforced: so that in nineteen cases out of twenty, it is not needful to bring the obstinate wrong-doer before the magistrate; and the people who live in those places, and would be otherwise left to the mercy of unscrupulous landlords, have reason to thank this department of the police.

A central police power connected with health, notwithstanding, is looked upon with suspicion; yet it is almost certain that such a power must be resorted to in connexion with the immense populations of our cities and towns,—where so many local interests are at work to stop the progress of improvement,—in order to prevent an immense sacrifice of human life.

At present attempts are made in all ways to defeat the object of the health-laws, which have been wisely but with difficulty made.

In great parishes there is an insignificant number of nuisance inspectors, some few of them men who are not at all fitted for such an important duty as the correction of errors and arrangements which affect the lives of both human beings and animals. It is not our wish to class the bad with the good, nor to write what may be offensive to those who are earnestly endeavouring to do what is almost an impossibility. Sanitary inspectors of the right kind do not generally give satisfaction to their Boards; but we must positively assert that those health Acts which, if properly enforced, would, in each year, in Great Britain, save thousands of lives, and prevent a vast amount of misery and suffering, are in many places rather evaded than carried out. In the present state of the public health, with sickness threatening in various ways, with a human pestilence approaching (but which it is to be hoped Providence will keep from our shores), when an actual murrain is raging amongst the pent-up cows of the metropolis, and has within the last three weeks or a month destroyed milk-kine to the value of 30,000l., the most effective attention is required. We may say, in passing,

that it may not, in the end, be cows alone that will be affected by this fatal disease.

It is hardly necessary to mention that a scarcity of butchers' meat will affect the price of all other kinds of food; and the history of the past, and the personal experience of many, show that lowness of diet in unsanitary situations leads to fevers and those other disorders which are classed with them, and various evils following in their wake. It is, unfortunately, not to be denied that the cattle-disease has been spreading amongst the cow-sheds of the metropolis to an alarming extent. And just on this point we will ask not only the City authorities, but also those of the metropolitan parishes, if they have in this department carried out rightly the health enactments which they have at their disposal, or properly done their duty?

How is it that, in the midst of thick populations, we have in the City so many cow-sheds? Years since, with both pen and pencil, we directed attention to the mischief of those places. We have shown that they are a fruitful source of disease and annoyance to those who live in the immediate neighbourhood; and that, through the artificial state in which the animals are kept and fed, the milk is rendered actually not fit for human food; and we repeat what we have often before said, that to keep cows in the pent-up and overcrowded situations in which they are still to be found, is as bad for the poor brutes as it is for the people who are lodged near.

The disorder which is at present raging amongst cattle is said, not only by competent physicians, but also by veterinary surgeons and others, to be a virulent kind of typhus fever, which is so deadly in its effect when once established, that it sets all medical aids at defiance, and spreads like wildfire amongst the herds. Those who were in affluence at the beginning of one week may be reduced to a state almost of beggary by the sudden destruction of the animals on which they depended for their livelihood.

We all know of the fevers and other disorders which are created by the want of ventilation, by dirt, and overcrowding. How, then, can any one who has looked into the London cowsheds, wonder at an outbreak of a pestilence amongst animals which are predisposed to it by the circumstances in which they are placed? We are not prepared, in connexion with this attack, either to admit or to deny that the epidemic which is producing so much anxiety, is of foreign importation. We, however, maintain that in the transport ships, in the confined holds of which the animals are brought from Holland and elsewhere, and in many of the metropolitan cow-sheds themselves, there are sufficient materials and proximate causes for the generation of typhus fever, virulent or mild, according to circumstances connected with seasons, food, &c., of more or less rare occurrence, so as to account for the present pestilence, without any importation of diseased animals whatever. The London cowkeepers were warned by us of the risk to which they were exposing themselves; and it was suggested that those would act wisely who would accommodate themselves to the altered conditions, and remove their stock in these railway days to country places, where the health of the beasts would be far more certain; and the milk, when sent to the great capital, would have been far better if forwarded by the trains, and managed in a way which could be easily contrived. But many of the London cowkeepers are hard to convince,—even more so than were those persons who had interests in the metropolitan graveyards. In the course of investigations which have been carried on by us, our artist was forced out of one of the most abominable of those graveyards, where the dead were cropping up within a few inches of the surface, and practices were adopted which we trust will not again in the centuries that are to come disgrace the metropolis of this country. From ignorance, or in some instances considerations of profit by individuals, our course has been occasionally obstructed; but for the most part people understand our motives, or else do not care to be opposed to a power which even those who strive the hardest to preserve the old conditions of sanitary affairs know has never been illused. It is, however, a fact, that we have had much more trouble and much less politeness from the cow-keeper than from several other classes.* Although we have patiently borne with their foolishness in somewhat

the same way as it might be fancied John Bunyan put up with his persecution, or had those feelings of pity which might have inspired Daniel Defoe when he stood in the pillory, we have gone on in our course, knowing that our efforts would be backed by the intelligent part of the public press and by all right-minded persons.

As an instance of the state of some of the sheds in which the cows are kept, and of their unsuitable position, we will look at a place of this kind in Bartholomew Close. It is represented in one of a number of sketches that will be found on another page. The space in which, here in this ancient purlieu, the animals are kept, presents all the appearance of a modern dwelling, excepting that there are paintings of cows upon the door, and an intimation that a dairy has been established on the spot since somewhere about 1776. In years gone by, we have sought through the neighbourhood for the coffins of the old monks of St. Bartholomew, and have found them, and fragments of the cloisters, the ancient hospitium, and other parts of this remarkable and still interesting part of old London. In our mind's eye we have many such curiosities before us, and the recollection of dear old friends now gathered with the dust who have been joined with us in these investigations; but we must cast aside for the present, favourite antiquarian pursuits, and call upon the female, of a Welsh-sounding name, who occupies the premises referred to. The door being open, we venture to peep in; and in the place that was originally intended for the parlour, we see seven cows. Far more of them had been here formerly. A girl is washing the stairs; which lead to apartments above, occupied in other ways. Soon the proprietress appears; and, with due politeness, inquiry is made if we may look at the condition of the cows. "What are you?" says she. "Nobody shall see my cows except 'George Grey,' or some one from him." Retiring from the defiant front surmounted by a shock of the red coloured hair which at the present time is so much desired, we proceed to make inquiries in the neighbourhood; but soon the fierce attendant upon the cows follows, and invites us, after all, in the most mild and considerate manner, to come and see the beasts. The very rough accompanying sketch will show what met the eye there; and, remarking that the place was totally unfitted for the purpose, we parted in the most friendly way with our former antagonist.

For the present we pass on to another City cow-shed, close to Warwick-lane, not far from a very curious and ancient inn, illustrated some time since in the *Builder*. This is a curious relic of Old London, left, as several other parts about here seem to have been, by the Great Fire of 1666. It is not agreeable to say unpleasant things; but, for the sake of the great masses of the community, the truth must be spoken. Here the cows are lying side by side. So far as we may judge, it seems that three cows lie in the space of a one-horse stable. We leave the consideration of the ventilation, and some other circumstances of this place, to the City inspector. A woman here was nursing a child that was disfigured by festering sores. Can this be wondered at? The whole atmosphere was impregnated with impurity; and, no doubt, for many feet below the rotten pavement, the earth is impregnated with the most unwholesome matters.

In the hot summer day we saw multitudes of flies which were hovering about; and the fancy will see minute and, at present, invisible atoms being distributed abroad. We could easily smell these, and in the atmosphere in which they exist we find the especial cause of the disease which is at present raging amongst the overcrowded and filthily-kept cows.

We must presently say something more on this subject, and refer to clearances and changes that are being made in some parts of the metropolis.

In illustration of the latter subject we give on the page on which our sketches of cow-sheds appear, some views explanatory of the demolitions lately made about Smithfield. The subject-matters of the cuts are as intimately connected as our page represents them; though the nature of the connexion may be understood only by those well acquainted with the metropolis.

Meantime we may here remark, that the cattle disease continues to absorb the attention of the agriculturists and breeders throughout the whole country; and meetings are every day held to concert measures of prevention. The appearance of the disease is reported from various places in Essex, Devonshire, Dorset, and Cumberland, as well as Scotland. In Edinburgh,

the cleansing of byres or cowsheds is proceeding by force of law, and cow-sheds are being provided. New regulations for the cleansing and deodorising of cattle-trucks, setting apart of separate sets of trucks for home and foreign cattle respectively, are being carried out; and our energetic Privy Council are still issuing missives, in one of which the Secretary warns railway companies that the "knowingly bringing of cattle suffering under an infectious disease on a railway, so as to bring them in contact with other cattle, is an offence at common law," and shall be dealt with accordingly.

A veterinary surgeon at Stamford is said to have been killed by inoculation from the puncture of a fly which there was reason to believe had just been feeding on the diseased carcass of a cow. This is a serious matter, both as regards human life and the spread of the disease amongst cattle. Of late years we have occasionally been hearing of the virulence of fly-bites in France, where human beings are said to have been killed by such bites, but it is only now we hear of the like circumstance in England. A "carbuncular fly," as it has been called, is said to have lately killed a young lady at St. Maximin, in the Department of the Isere.

Before concluding, we may here give the recommendations of Professor Gamgee, of Edinburgh, veterinary surgeon to the National Association for the Prevention of Cattle Disease, and principal of the Veterinary College:—

"The food on which the cows are reared should be carefully selected, properly stored, and given in sufficient but not immoderate quantity, and with good regularity. Your stables, bad hay, &c., must be carefully selected. A quantity of stock after the appearance of any disease. Whereas it is of great importance to attend to perfect cleanliness and proper ventilation, under any circumstances, it is especially so in the case of any such malady enters a stock. The sheds should be flushed with water, and the occupants in the sheds should be all wood with hot water and soda, and applying disinfectants, such as Condy's fluid, &c., is to be specially recommended. Wherever diseased cattle have been purging, all excrement should be removed, and the parts thoroughly purified."

The same fluid is recommended by one of the officers appointed by the Privy Council to be administered internally to the cows affected, an ounce in a quart of water as a draught, and repeated from three to six times a day.

A cattle plague has appeared, it is said, in America. We wonder if the Americans conceive it to have been imported from Russia, as we do. Why should it not be capable of originating in America as well as in Russia?—and if so, why should it not be capable of originating in England as well as in either America or Russia?

REFERENCES.

- A. The Fleet Valley, from a sketch in 1861.
- B. Clearing away, Cityward, from West-street.
- C.D.E. Condemned Buildings near Smithfield.
- F. Looking towards Clerkenwell from the bottom of Ludgate-hill.
- G.H. Exterior of Cow-shed in Bartholomew-close. [In this instance the parlour of an ordinary dwelling has been put to the use of the cow-shed.]
- I. Cow-shed near Warwick-lane.

UNION BANK OF LONDON.

The directors of the Union Bank of London, for many years established in Prince's-street, opposite the Bank of England, finding their business steadily and rapidly increasing, lately purchased the premises in Mansion House-street, at the corner of St. Mildred's-court, formerly occupied by Messrs. Lubbock & Co., the bankers, and the houses between those premises and the Britannia Insurance Office, at the corner of Prince's-street. The old buildings on the site of their new acquisitions have recently been pulled down; and a new building is now being erected in their place. It will extend, when completed, from St. Mildred's-court to the Britannia Office, and thus have a frontage towards Mansion House-street of 120 ft.

This building will form a considerable addition to the bank, which will ultimately occupy a space of over 9,000 ft. on the ground-floor. The upper part of the bank, towards Prince's-street and towards St. Mildred's-court, is devoted to the board-room, secretary's office, &c.; but it is proposed to let the whole of the upper part of the building soon in our view, towards Mansion House-street. The access from Mansion House-street will be by a doorway which will be immediately opposite the new street now being made between Blackfriars and the Mansion House.

The cost of the new works will be about 30,000. The architect is Mr. P. C. Hardwick. The contractors are Messrs. Cubitt & Co.

* The keepers of pigs, against the provisions of the law, might be classed with the cowkeepers.



LONDON DEMOLITIONS; AND THE COW SHEDS.

[See p. 607, ante.]



THE UNION BANK OF LONDON.—MR. P. C. HARDWICK, ARCHITECT.

THE ATLANTIC CABLE.

It is an ill wind which blows nobody good. The *Great Eastern* has thoroughly redeemed her lost prestige, and justified the never-failing confidence in the capabilities of her constructor, Mr. Scott Russell; although the constructors of the lost Atlantic cables have not redeemed theirs. The cables are both failures, notwithstanding the high encomiums passed upon the one just lost by those engaged in laying it. But if the cable were so perfect in its construction, how does it happen that in the certainly not very clearly written official account of the laying and the losing of it and the grappling for it, the reporter says, in his diary, of date 2nd August, and after the cable had broken in the attempt to lift it in search of the supposed fault,—"If the cable had been free from faults, the laying of it had been of the utmost certainty. All the scientific men began to find the form of the cable was defective. The ship and paying-out gear were perfect."

Notwithstanding that everybody seems to take for granted that there was a fault to be found out in the last of the liftings, however, we must do the cable the justice, in our estimation, of repeating, that even still we do not see any reason, after a careful perusal of all that has been said of the occurrence, to blame the cable at all for the existence of any such fault. The occasion on which the "partial loss of insulation" occurred, which was,—hastily and in error, as we conceive,—attributed to a fault in the cable similar to the others which did previously exist in it, was precisely the occasion on which that "partial loss of insulation" was announced at Valentia, which there is high authority for believing was in all probability attributable to an extraordinary magnetic storm which precisely then took place, and which was held to be quite sufficient to account for the "partial loss of insulation" then discovered at both ends of the cable. Had any one with sufficient knowledge of that terrestrial magnetism which was liable temporarily to interfere with the working of telegraphic lines, been on board the *Great Eastern*, and had pointed out the probability that the magnetic storm was the real and only cause of the partial loss of insulation, no attempt would have been made to lift the cable until that storm had subsided; and, in all probability, the cable would thus not have been broken and lost, but laid, by this time, and at work, unless some new fault should have afterwards led to another lifting and a final breaking of the unfortunate cable.

And as to the actual breaking and the actual faults, is it not probable that the extreme twisting, or torsion, with which the cable must have been laid when paid out from fixed concentric coils, occasioned the fracture in the lifting, as well as the faults from penetration of the core by wrenched and fractured surface wires? The error of the coiling seems to be a very obvious one to any one who ever handled a rope or a gutta-percha garden-tube. It was three times, at least, pointed out in the press at the time when the public attention became concentrated on the subject, just before the re-appearance of the *Great Eastern*,—namely, in a letter dated 14th August, in the *Liverpool Albion*; in one dated 15th August, in the *London Star*; and in another dated 16th August, in the *Swansea Cambrian*. The editor of the *Cambrian*, however, who, we understand, was himself the author of the letter in his own paper, had previously sent that letter to the *Times*, which did not insert it,—we should like to know why. Had turn-table coil-tanks, or revolving coils, as suggested, or even figure-of-eight coils, been used, the torsion, which has probably done all the mischief to both cables, would have certainly been avoided.

Various other suggestions for the better lifting of the cable have been made, such as the provision of occasional slack in its course, with buoys affixed. We see, by the way, from Dr. Russell's diary, that the cable was repeatedly cut and re-spliced. How would such splices affect the lifting of such ponderous cables? Had the weight been less, the lifting might have been readily effected with the apparatus provided for the purpose; but the weakness and utter insufficiency of that apparatus are very strange and unaccountable. Since there was a lifting-apparatus, why was it not made sufficiently strong and powerful, if made at all?

It is most earnestly to be hoped that the successive misadventures with Atlantic cables will not prevent the renewal of the attempt to lay

one, whether that just broken or a new one, or both. In spite of all shortcomings, the result certainly cannot be said to be either hopeless or fatal as regards the possibility of laying an efficient cable: "experience teaches" quite the contrary; but the capitalist public may not see the matter exactly in this light. Why has not some commercial or stock-broking man or now quietly got a *very tight line*, well made, on the most improved principle, and run it out across the Atlantic at a venture? He would have risked the outlay—not very great it might be—but he might have succeeded in placing himself in a position to command markets which would have enriched him ere the public line was laid. As it is, we had better take time by the forelock, for there are other two, if not more, schemes for telegraphic annexation of America to Europe in the field.

One of these is the French Transatlantic Cable Company's scheme for a line *à la carte* from Paris to Lisbon, and thence to Cape St. Vincent by land; from this last place to the Canary Islands, along the coast of Morocco; from the Canary Islands to Cape Verde, along the African coast, with stations at St. Lewis (Senegal), and at Goree; from Cape Verde to Cape St. Roque, on the coast of Brazil,—a distance across the Atlantic of less than one-half that of the cable intended to be laid by the *Great Eastern*; from Cape St. Roque to Cayenne, along the American coast; and from Cayenne to New Orleans by the coast, or probably by cables connecting the principal West India Islands.

Another is the proposed Russian line. According to the terms of the contract between the Russian Government and the company (which is an American one), the line is to be completed within five years, passing through Behring's Straits, the Russian possessions in America, and English Columbia, to San Francisco, where it will join the American lines.

As for our own Atlantic cable, the directors of the various boards interested have come to the conclusion to take steps to proceed with the undertaking, by appealing to the public for capital to enable them to provide another cable, but not for laying it till May next, when the *Great Eastern* will, at the same time, attempt to recover and complete the cable which has just been lost. The machinery for raising the rope, and necessary repairs to the *Great Eastern*, could not, it seems, be completed before the end of October, by which time the season would be too far advanced to warrant a trial this year. We are glad to hear that the utmost harmony prevails among all concerned in the enterprise, and that no despondency exists as to the result; but we hope that renewed endeavours will be made to obtain a still better cable than the confessedly faulty one just broken and lost, and better arrangements in the coiling and uncoiling, laying and lifting of the cable so constructed.

RAILWAY MATTERS.

The City extension of the Chatham and Dover line, leading from Earl-street, Blackfriars, to West-street (where the junction is to be ultimately formed with the Metropolitan line), has been inspected by Colonel Yolland, the government inspector, and declared to be satisfactory. Several times, an engine, heavily ballasted in its train, has passed easily from the Ludgate-hill station to West-street and back again along the line, notwithstanding the great apparent delicacy from Ludgate-street to Snow-hill. Colonel Yolland declared the line to be, in every respect, fit for traffic, but that its opening could not take place before its connexion with the Metropolitan, north of West-street, was completed, which we understand will not be the case until the beginning of November.

The North London Railway Company have declared a dividend at the rate of 6 per cent. per annum.

The London and South Western Railway have just adopted the system of electric communication between passengers and guards of trains, which was brought lately under the notice of the public by Mr. Preece, the telegraphic superintendent of their line.

A new railway chair, having for its object the prevention of accidents such as have of late occurred in consequence of the permanent way being under repair, has been invented by Mr. Lees, of the engineer's office, London and North Western Railway. The system at present in operation on railways renders it necessary, for

the purpose of replacing a worn or damaged chair, that the rail should be removed; and for replacing a rail, that the chair should also be removed;—arrangements which are inconvenient and unsatisfactory where there is a large traffic on a line, and short intervals between the trains during which any repairs may be accomplished. These difficulties Mr. Lees proposes surmounting by such a construction of chair that the rail can be removed without disturbing the chair, and the chair removed without disturbing the rail; and it is said at the same time to possess other advantages over the chair at present in use. Mr. Woodhouse, the engineer of the southern division of the London and North Western Railway, has ordered a number to be made and laid down on trial.

A new apparatus to prevent harm from collisions, has been invented by a Mr. Matthew Fitzpatrick. It is said to consist of buffers or cushions, 6 ft. wide, 9 ft. high, and 2½ ft. thick, composed of a peculiar arrangement of wool and compressed air. These cushions are adapted to a powerful self-acting leverage apparatus, which, in case of collision, suspends the whole weight of the springs by forcing downwards on the rails four powerful standards, having 12 in. surface, and capable of sustaining any necessary weight. "The wheels are just raised off the rails, and revolve in air, giving place to the standards. Progressive motion is thus destroyed, the force of the shock expended on the cushion, and the deadening power of the wool will prevent the travellers in the carriages from feeling any projectile force or disturbance. Each engine and each carriage is armed both before and behind with these cushions and leverage, so that whether the danger come from the front or the rear,—whether the guard or driver see the danger or not,—the moment a collision takes place, or an obstacle is struck, the self-acting leverage is put in motion, and travellers, engines, and carriages will be safe."

Almost all the railways made in Wales of late years have been formed by contractors who have provided nearly all the capital, and have taken the shares of the different concerns at their own risk. The country, says a correspondent of the *Times*, has in this way had the benefit of something like 700 miles of railway which would not have been made for at least another century if we had waited for the localities to subscribe the necessary funds. If, therefore, Parliament had refused its sanction to these lines, the men who have made them would have taken their knowledge and capital to distant countries, and at least 8,000,000l. of money would have been lost, as far as Wales is concerned. While, on a different system, the South Wales cost 28,000l. a mile, and the Carmarthen and Cardigan 50,000l. a mile, about 150 miles of railway in Wales were made by one contractor (the *Times*' correspondent), during the last seven years, at a cost (in shares and debentures) not exceeding 10,000l. a mile.

The traffic returns of railways in the United Kingdom, published for the week ending the 12th of August, amounted, on 12,154 miles, to 767,227l.; and for the corresponding week of 1864, on 11,801 miles, to 731,080l., showing an increase of 353 miles and an increase of 36,147l.

In reference to the Mont Cenis railway and tunnelling by means of steam instruments armed with teeth, or punching apparatus, the following curious Scriptural passages are quoted by Mr. James Bruce:—"Behold, I will make thee a new sharp threshing instrument, having teeth: thou shalt thresh the mountains, and beat them small, and shalt make the hills as chaff;" (Isa. xli. 15). These engineering arts, he thinks, must be ascribed to man's inspiration by the Divine Spirit, who "doth instruct him to discretion, and doth teach him" for it is said, "This also cometh forth from the Lord of Hosts, which is wonderful in counsel, and excellent in working;" (Isa. xlviii. 29).

New carriages of a luxurious kind are about to be placed on the Nicholas Railway, between St. Petersburg and Moscow. In addition to a handsomely-furnished saloon and smoking-chamber, each carriage comprises a series of smaller apartments opening on both sides of a corridor. The sofas, ottomans, and cushions of the daytime are at night converted into beds, mattresses, pillows, &c., so that the passengers can sleep with all the comforts of home. There are, of course, separate divisions for ladies and gentlemen; and, when the travellers wake in the morning, they find their clothes brushed and folded by the attendants, and all the arrangements for washing and dressing ready for use.

Russia is supposed to be rather a backward country; but when will England reach this height of comfort and luxury in railway accommodation? Carriages of the description above-mentioned are to be provided on the Nicholas Railway for the second and third as well as for the first class, the only difference being in the elegance of the fittings. A slight additional charge above the ordinary fares will be made for these vehicles, and those who do not choose to pay it can travel in the old carriages.

MONUMENTAL.

Albert Memorial at Fettercairn.—Some years ago a subscription was set on foot to get up a memorial of a royal visit to Fettercairn, in Scotland, and it was more eagerly entered into owing to the death of the Prince Consort. Various plans were proposed and set aside, and ultimately the one fixed on was a triumphal arch in the Gothic style, from designs by Mr. John Milne, architect, St. Andrews, which has now been erected and inaugurated. The arch spans the road leading to Brechin. It is built of stone of a very durable quality from Aldbar quarry, near Brechin. It is something in the style of a triumphal arch, with Gothic treatment. It consists of two massive octagonal towers, each about 7 ft. in diameter, and supported by Gothic buttresses. The towers are about 60 ft. in height, and are surmounted with metallic gilt finials. The arch is semi-circular, 18 ft. 4 in. span, and the height to the keystone is 16 ft. 4 in. Surmounting the arch, including the keystone, or centre, is a scroll containing the words, "Visit of Victoria and Albert," in raised old English letters. In the angles formed by the arch, and under the cornice, are at one corner the word "Sept." and at the other "1861." Above the cornice on each side, and under the cope of the arch, is a crown in relief. The top of the arch is coped with embrasures, and in the centre is a semi-turret with gilt metallic finials.

Sutherland Monument at Golspie.—The site for the monument to be erected in memory of the late Duke of Sutherland, at Golspie, N.B., being now fixed upon, workmen are busy dressing stones for the base, &c. Some of the stones weigh upwards of 15 tons, and the smallest is about 6 tons weight. They are all of native granite, and have been brought a distance of upwards of twelve miles before reaching their destination.

The Shakespeare Monument in New York.—On the 23rd of April, 1864, which was the tercentenary anniversary of Shakespeare's birth, the corner-stone of a monument to him was laid by a society of gentlemen in the Park. It appears that the sum of 19,803 dollars has been contributed. It was originally resolved by the committee that no design should be adopted until 20,000 dollars were collected; and, as that sum is now in hand, they are ready to receive designs for the monument, which is intended to be a full-length representation of Shakespeare. The sculptor must be an American.

THE BUILDING TRADES.

Sudbury.—A meeting of the carpenters and joiners of Sudbury has been held at the Four Swans Hotel, and resolutions have been passed for an advance of 2s. per week on the present wages, and a further advance of 1s. per week after the 31st of March, 1866. The present demand is equivalent to a rise from 18s. to 1l. The reasons assigned are the very low rate of wages compared with other towns, and the increasing scarcity of provisions, clothing, tools, &c. Circulars to that effect have been sent to the masters.

Saltair.—The stonemasons who were employed in the erection of a new mill at Saltair, have now been for some time on strike. The men refused to work owing to the contractors behaving employed two non-union men. The masters are said to have found it difficult to obtain a fresh supply of men, the union men having employed two "crows" for the purpose of watching the premises, and of warning any workmen making an approach thereto.

Ipswich.—The operative bricklayers in Ipswich have presented a memorial to the masters, feeling that the time has now arrived when an advance of wages can be asked for and given, based on necessity, justice, and right. The workmen say "there are special and cogent reasons why an advance of wages should be given, taking into consideration that provisions,

clothing, house-rent, tools, &c., are much dearer, while the wages in the principal towns of England are much advanced, thus offering an inducement for us to leave Ipswich for those towns." This movement, the men say, spontaneously emanated from non-union men; and they respectfully request an advance of wages to 4s. a day. The ordinary wages are now 3s. 4d. a day, but some of the best hands are already paid 4s.

Stourbridge.—The strike of the glass-cutters still continues, and the prospect of any immediate settlement of the dispute is becoming more remote. More of the men have given notice, and are coming out. The men on strike receive 15s. a week from their trade society.

"THE CAUSE AND PREVENTION OF FIRES."

SIR,—My attention has been just called to a letter from Mr. Lewis M. Becker in your journal of the 29th ult., on the subject of the cause and prevention of fires.

After recommending public inquiries into the causes of extensive conflagrations, the writer proceeds to make the following remarks:—"Such fires as those of Gresham-street and New Southwark-street, in which goods were deposited in fancied 'fireproof' buildings, with solid masonry, lofty floors, iron girders, extra thick party walls, fire-crested tiled arched ceilings, &c., do not seem to teach architects and builders any lesson, but experience has taught the fire companies that these 'fire-proof' (?) buildings burn more furiously, rapidly, and destroy every vestige of their contents (even that which is considered incombustible), than ordinary buildings that are not considered fireproof; and from the massive and weighty materials used in their construction, they have in every case caused the entire building (from cellar to roof) to be so destroyed as to necessitate rebuilding."

It is rather unfortunate for Mr. Becker that he has referred to the late fires in Southwark-street to support a theory which is entirely at variance with experience. Of the two large warehouses in Southwark-street destroyed by fire, the first (that of Mr. Barnett Meyers) was very substantially built, but was not pretended to be fireproof in any respect, all the floors having been timbered, and the several parts of the building connected. This warehouse was completely destroyed "from cellar to roof." The second warehouse (that of Messrs. H. E. & M. Moses), of which I was architect, was also not intended to be fireproof; but, having in view the purposes of the building, I advised my clients to cover two-thirds of the area of the structure, at the second-floor level, with a fireproof floor, constructed upon Fox & Barrett's principle. The object was not to build a fireproof building, but simply to construct a fireproof division. The result was precisely the reverse of that stated by Mr. Becker. The fire commenced in the upper part of the building, and the whole structure above the level of the fireproof floor was reduced to ashes. Below that level, the warehouse did not suffer the slightest damage, the fireproof floor having effectually arrested the flames. On the other hand, the one-third of the building which had no fireproof floor, was completely gutted "from cellar to roof."

I may add that the Fox & Barrett's floor, which showed itself capable of carrying many hundred tons of burning debris, and which proved itself to be a truly fireproof division, was of the lightest construction, the concrete being scarcely 5 in. thick. The division-wall which separated the one-third of the building destroyed from the two-thirds saved was not an "extra thick party-wall," but (though nearly 70 ft. long) was only 14 in. thick, with three small half-brick piers in its length.

I think, sir, you will admit that if such slight divisions of incombustible materials proved themselves really fireproof, the lesson to be learnt from the Southwark-street fire is precisely the reverse of that taught by Mr. Becker.

N. S. JOSEPH.

Nevertheless, the general assertion that "fire-proof" buildings as usually constructed, are not simply not fireproof, but comprise features that are favourable to the communication of fire from one part of a building to another, and favourable also to entire ruin of the fabric, is too well supported by the testimony of the surveyors of insurance companies, to be capable of being controverted.

GAS.

In Gravesend a meeting of the principal gas consumers of the town has been held, at which the price of gas was discussed. The directors had refused to reduce their price from 5s. to 4s., but had decided to reduce it to 4s. 6d. from the 24th June last. It was now for that meeting to say whether they would pay 4s. 6d. per 1,000, whilst so many other towns were supplied at a lower price, or whether they would proceed to form another company, to enable them to get gas at a cheaper rate. In reference to the dividend paid by the company, the chairman said Mr. Oakes had assured him that they had never paid more than 6 per cent.; but when he asked Mr. Oakes if that 6 per cent. was upon paid-up capital alone, or upon capital made by the creation of new shares which had been allotted without payment to shareholders, Mr. Oakes did not give a direct reply. He (the chairman) believed that not more than 15,000l. had been paid up in cash out of the capital of 30,000l. Mr. Crook said only 10,000l. had really been paid up. Why were they in Gravesend paying 4s. 6d. per 1,000, when others paid less? Just because the directors chose to enlarge their capital by making new shares to three times the original amount; and now they had got their Act they thought they could do as they pleased. Some further discussion took place, after which it was resolved unanimously that the reduction made by the gas directors from 5s. to 4s. 6d. is not fair to the consumers; and that counsel's opinion be sought,—first, as to whether anything in the Act of the present company threw difficulties in the way of the formation of a second; and also as to whether, if such was not the case, it would be necessary to have an Act to constitute a new company. A sub-committee was appointed to obtain information and report to the future meeting.

The Bakewell Gas Company have declared a dividend at the rate of 8 per cent., free of income-tax. A reduction has also been made in the price of gas, which is now 5s. 6d. per 1,000.

FROM SCOTLAND.

Musselburgh (near Edinburgh).—The building committee of the Episcopal church, Musselburgh, have accepted the offer, by Sir Archibald Hope, of Pinkie, of a site for a new church. The site is at the end of the town, near the old stone pillars of the East Port, where the policy grounds of Pinkie project in front of the line of buildings on the south side of the High-street. Some months since the building committee invited a limited number of architects to furnish plans, in competition, for the new church, in answer to which eight sets of drawings were sent in. The committee having considered the designs, have given the preference to one submitted by Messrs. Paterson & Shiells, of Edinburgh. The contracts have been accepted, and building operations will shortly be commenced. The church will be seated for 200 persons; but there is provision for future extensions, which will increase the number of sittings to 320. The edifice will have an open timber roof, and attention will be paid to the arrangements for heating and ventilating. The chancel is treated as an apse, from which access to the vestry is obtained. The public entrance to the church is from the north elevation, through the tower. The architectural style of the building is Gothic of the thirteenth century, freely treated. The apse has an octagonal end, with buttresses at each point of the octagon. The windows are shafted, and have carved capitals and cusped arched heads. A moulded string course runs over the arches, and abuts on the buttresses, which have crocketed terminals and carved finials. The side elevation of the church is treated in a more subdued style. The west elevation faces the town, and is flanked on the north by a spire, which will be seen from a considerable distance. The base is square in plan, and is supported by double buttresses at the angles. On the east side there is a small staircase leading to the bell-ringers' gallery, which is treated so as to form a feature in the design. The central part of the spire assumes the octagonal form, the walls on each face being pierced with narrow windows. The whole height of the spire will be 100 ft. to the top of the vane. There are three windows in the west gable. The church will be enclosed from the street by a parapet wall and cast-iron railing. The church and outworks are estimated to cost 1,550l. The contractors are,—for the mason's

work, Mr. James Black; joiner's work, Mr. A. Forbes; plumber's work, Mr. James Dickson; plaster-work, Messrs. Millar & McNeny; and slater's work, Mr. Lamb.

Kirkintilloch.—The movement which was commenced a few years ago for the erection of a monument to the memory of David Gray, the Poet of Merikland, has been consummated in the "Auld Aisle" burying-ground, near Kirkintilloch, over the grave of the poet. The inscription was written by Lord Houghton. Owing to the elevated position of the burying-ground, which is about a mile south of Kirkintilloch, and overlooks the Luggie, Bothlin Burn, and the valley reaching to the foot of the Campsie range of hills, the monument forms a conspicuous feature in the landscape. The inauguration, by Mr. Sheriff Bell, has just taken place.

Burntisland.—The town council at a recent meeting had before them a communication from the North British Railway Company, proposing, on certain conditions, to form a deep-water harbour at Burntisland. The proposal, we understand, is made with the co-operation of the coalmasters of Fife, and the harbour would be for their accommodation. It is proposed to form it on the east side of their pier now in course of erection, the ground in connexion with it, lately purchased by them, giving them excellent facilities for the undertaking. The prosecution of the scheme would seem to hinge on the amount of compensation which would be asked for shore-dues, and this was the chief inquiry put to the council. Power was given to Provost Stewewart to open negotiations with the company on the subject. The new pier still makes steady progress, excellent stone for its formation having been found without trouble in the necessary excavations which the access to the pier required to be made.

PROVINCIAL NEWS.

Westerham (Kent).—At a public meeting held in the King's Arms Hotel here, the chairman, Mr. J. C. Colquhoun, explained the drawings and plans prepared by Mr. W. G. Habershon, the local public hall company's architect, and addressed the meeting upon the long existing necessity for such a building, and the accommodation that would be afforded by adopting the plans exhibited. The plans showed a building in the Tudor style of architecture, in stone, with brick dressings, containing a room for the use of the members of the Westerham Literary Institute, housekeeper's room, ladies' cloak-room, billiard-room, club and smoking room, lavatories and other necessary conveniences, with a hall to be used for lecturing or concerts, and capable of holding 250 persons, comfortably seated. The estimated cost of building, including furniture, cost of ground for site, &c., is 1,800l. The chairman announced that 1,500l. had already been subscribed. The meeting, after some discussion, adopted the plans, and resolved to call upon the committee to instruct Mr. Habershon to proceed in obtaining tenders for the erection of the building, which will be at once proceeded with.

Manningtree (Essex).—The new edifice erected by the Manningtree Corn Exchange and Cattle Market Company (Limited), in the centre of High-street, is fast approaching completion. The building is of white brick, with stone dressings, and is fronted by a portico with four Corinthian columns. A circular-headed window each side and above the portico gives to the building an ornamental appearance. The Exchange measures on the basement 48 ft. square, is 19 ft. high from the floor to the springing arch, and has a lantern roof, supported by cast-iron girders forming elliptical arches, and eight ventilators. Accommodation will be afforded for thirty merchants' stands similar to those in use in the Colchester Corn Exchange. Besides being used for a Corn Exchange, the building will be appropriated to the holding of public meetings, lectures, concerts, &c., and it will be lighted, when necessary, at night, with gas burners. The architect is Mr. Barnes, of Ipswich; and the builder, Mr. G. Hewitt, of the same place. The contract was taken at 900l. A piece of ground, situated in the Back-lane, has been formed into a cattle market, with sheds and pens, in convenient proximity to the Corn Exchange. The 31st of August has been fixed for the public opening of the markets.

Birmingham.—The improvement of New-street has been resolved upon by the Town Council. It is proposed to make a street fourteen yards wide between the bottom of Stephenson-

place and the intended junction of Post-office-place and Pinfold-street. The street will run at the back of the Theatre, removing nearly all the houses in Queen-street. This improvement is regarded as a means of disbanding and dispersing a vicious community inhabiting a locality in which the houses will have to be demolished to make way for the new thoroughfare. The corner where New-street and High-street join will be rounded off.

Bolton.—The Town Council of Bolton have instructed Mr. W. Hill, of Leeds, architect, to whom was some time ago awarded the first premium in the competition for town-hall designs for the borough, to prepare new plans for the building, the dimensions of the original design having been reduced. He is also to have Mr. George Woodhouse, of Bolton, associated with him in carrying out the erection. Mr. Woodhouse, it will be remembered, was fifth of the six competitors. "The usual commission of 5 per cent. payable for architect's services is to be shared between them, and their respective duties in the execution of the work to be as such as they themselves may determine." The new plan is to retain all the architectural features of Mr. Hill's original design. It will occupy a total area of 2,700 square yards, and will have a frontage of 135 ft. The large hall will be 110 ft. by 55 ft., and is to accommodate 2,000 persons standing. It is estimated that the entire cost, including site, will be about 70,000l. Negotiations have already been completed for a considerable portion of the site, and all other requisite preliminaries will be got through speedily, so as not to occasion further delay.

WATER SUPPLY.

Cowes (Isle of Wight).—According to the plans, &c., drawn up by Mr. Manwaring, of Southampton, for the second or storage reservoir, it is to be so situated that the houses at Mill Hill, the upper part of the Diggings, and other elevated spots may be supplied with water from it. It is to contain 4,000,000 gallons, and to cost not over 3,700l. The shape is a square, the distance from side to side 205 ft. at the bottom, 253 ft. at the top; depth, 16 ft. The bottom is proposed to be of concrete faced with cement; the sides of brick set in hydraulic mortar with a rubble backing.

Cirencester.—The *Agricultural Gazette* is furnished by a correspondent with the following particulars as to the dip of a well at Cirencester in 1863, 1864, and 1865. There is a bed of gravel about 10 ft. under the surface of the valley in which Cirencester stands, and water is constantly descending through it to the Thames, three miles south of the town. The gravel bed rests on the fuller's earth, a more or less water-bearing stratum, and underlies the river Churn, which, rising on the high ground of the Cotswold Hills, near Cheltenham, descends 500 ft. in 12 miles to the vale of the Thames. In this gravel bed at Cirencester the Romans sunk many wells, and it is one of these, not in use, the depth of which is given. The average rainfall is 30 in., but that of 1863 was only 27.95, and of 1864, 24.6. The fuller's earth not being deep under the surface, is soon affected by great rains. As the average rainfall of summer is greater than that of winter, the writer attributes to evaporation the fall of water which always takes place from April to October; and asks whether this does not point to the use of checking evaporation in high dry soils by means of plantations, as much as encouraging it in low-lying clay districts by clearing away timber and by deep cultivation?

DIP OF WELL AT CIRENCESTER.

	1863.	1864.	1865.
	Feet.	Feet.	Feet.
January 1.....	8.0	8.0	8.5
February.....	7.8	8.2	9.8
March.....	6.10	5.9	8.4
April.....	5.11	7.2	7.1
June.....	5.2	6.4	6.3
July 1.....	5.10	5.4	5.7
August 1.....	4.7	4.10	4.5
September.....	5.0	3.7	
October.....	4.9	3.0	
November.....	5.3	2.2	
December.....	7.1	1.6	

Blyth.—A company called the Croft Gas and Water Company (Limited) has been formed for supplying the inhabitants of Cowpen Quay, Waterloo, and the neighbourhood, with gas and water, particularly the latter. The capital is

10,000l., in 2,000 shares of 5l. each. The directors, in their prospectus, state that they have obtained from the proprietor of the Bedside estate sufficient ground, at a moderate price, whereon to erect works, adjoining the river Blyth, a little above Bedlington bridge, where an unlimited supply of good water can at all times be had. The estimated cost of putting up a pumping engine, making reservoirs, laying pipes, &c., is about 4,000l. Considering the almost total want of water in the place at present, a plentiful supply will be a great boon to the inhabitants generally, whose chief dependence is upon the primitive water-carts. It is not intended to proceed with the gas works at present.

CHURCH-BUILDING NEWS.

Newington.—The new church of All Saints', in Surrey-square, Old Kent-road, has been consecrated. A district with a population of 8,000, taken from that of St. Peter's, Walworth, has been assigned to it. The first stone was laid in December. The ground was given by the Rev. T. C. Clark, B.D., who also contributed 1,000l. towards the building fund. The church is of the Decorated style of Gothic architecture of the fourteenth century. It has been built from the design of Mr. Robert Parris and Mr. Samuel Field, architects. It consists of a nave, 82 ft. long by 30 ft. wide, with north and south aisles, 15 ft. wide, and small transepts; a chancel, 30 ft. long by 22 ft. wide; making the total length 112 ft. by 60 ft. in width; also a tower at the west end of the north aisle, the lower part of which forms the principal entrance. The exterior of the church is faced with Kentish rag and Bath stone. The number of sittings is 800, which are to be all free. There are no galleries. The cost, without the upper part of the tower and spire, not yet built, will be about 5,600l. The cost of the upper part of the tower and spire, inclosing walls to ground, and other expenses, will be about 1,000l. The builder is Mr. William Higgin.

Herne Bay.—The enlargement of Christ Church, Herne Bay, has been found requisite. According to the plan at present proposed, a chancel and two transepts will be added to the east end, a suitable tower on the north side of the chancel (carried up over a new vestry), and an organ chamber on the south side, while two new public entrances will be opened at the east end of the aisles. It is estimated that this enlargement will cost about 2,100l., including 500l. for the tower, the completion of which may, however, be postponed, leaving the sum of 1,600l. as the amount immediately required. The plans recommended are supplied by Messrs. George & Vaughan, of London, but we believe this matter is not settled.

Cowley (Oxfordshire).—The parish church of St. James, Cowley, has been re-opened by the Bishop of Oxford, after having undergone extensive restorations. The church has been virtually rebuilt, only the tower and south wall of the original structure remaining. An aisle has been added to the nave and chancel, effecting, with the substitution of benches for the old-fashioned pews, nearly double the accommodation. The arcade between the aisle and the nave gives a new character to the church. The whole of the roofs are now, and of course all the timbers are exposed. The floors throughout are laid with tiles from Mr. Godwin, of Hereford, the chancel floor being partly of encaustic tiles, and laid to an ornamental design. The chancel stalls are of oak, and the seats of the nave deal, varnished. The pulpit is of Caen stone, and the old font has been set upon a new pedestal. The reredos is of different kinds of marble, inlaid in small squares or panels, the centre panel forming a niche, in which is placed a golden cross. Some curious ornamentation which was found on the walls on the removal of the whitewash has been reproduced, and pains were taken to preserve the characteristic architectural features of the original edifice. The plans were furnished by Mr. Street, and the work was executed by Messrs. Joseph Castle & Co. The cost, it is understood, has been about 2,000l.

Streatham (Berks).—The church of this parish has been restored and re-opened. The old parish church having stood nearly seven centuries, required renovation, and it has, under the auspices of two lay friends of the church, been restored and enlarged. Mr. Sidney Pusey (the inappropriate rector), has rebuilt the chancel, on an enlarged site, and the nave, the aisles, and a new vestry have been built at the expense of

Mrs. Stone, of Streteley House. The size of the church has been increased by adding a fourth bay between the old site of the nave and the new chancel, and the roof has been raised bodily a height of 7 ft. or 8 ft., and a clerestory composed of four Early English quatrifolios on each side added. This addition gives a considerable increase of light, and improves the proportions of the building. A tower arch has also been added, together with a western window. All the interesting details of the ancient work have been preserved. The materials used are flint with stone dressings, internally and externally, Bath stone alternately with chalk. The eastern triplet and the western window have been filled with coloured glass which was purchased by subscriptions contributed by numerous parishioners, rich and poor, in memory of the late Mr. W. H. Stone, of Streteley House. The architect employed was Mr. C. Buckridge, of Oxford, and the contractors were Messrs. Wheeler, Brothers, of Reading; the woodwork being executed by Mr. James Matthews, of Reading.

Aylesbury.—A committee has now been appointed to obtain subscriptions for carrying out the restoration of the exterior of the parish church, and upwards of 1,000l. have already been promised.

Great Holland (Essex).—The old church of Great Holland, with the exception of the tower, has been taken down, and the chief stone of a new building has been laid by the rector. The new church, designed by Mr. Arthur W. Blomfield, architect, is Early English; the walls of rubble, faced with flint, and Bath stone dressings. It will consist of nave, chancel, north aisle, and vestry, the two latter being additions to the accommodation comprised in the old structure.

Esperstone (Notts).—A new bell and clock have been put up in the tower of Esperstone church. The clock was made by Messrs. Cope, of Radford. It has two dials—one to the east, the other to the west; and strikes Doncaster chimes on four out of a peal of six bells. The chimes are arranged by Mr. Beckett Denison, inventor of the great clock for the Houses of Parliament. The clock is fixed on a pair of cast-iron brackets, weighing 2 cwt. each, bolted, and built to the wall, to be free from vibration. It is supplied with a compensating pendulum, invented by Mr. Denison.

Wyton.—The church here, which has been undergoing a partial restoration of the nave, &c., has been re-opened. The nave has now a lofty and open roof; the seats are all new, open, and of oak, with a considerable increase of accommodation. The pillars and arches have been scraped, cleaned, and repaired; the aisles floored with encaustic tiling; and there is a new porch, also a new window. The south walls have been repaired, buttressed, and pointed with cement. There is a pulpit of carved oak and white stone about to be erected. The south door is of new oak, with iron ornaments, &c.

Gloucester.—The cathedral, says the local *Chronicle*, has just received an addition to its increasing embellishments in a form not hitherto attempted therein. We allude to a pavement of stone and encaustic tiles, designed by Mr. Huggall, the architect, which has been laid down in the cloister by the Rev. Sir Lionel Darell, Bart., over the grave of his late uncle. The inscription is deeply incised in a fine red Forest of Dean stone, and filled in with red and green cements. A memorial stained glass window is also being prepared for the opening above the door from the north aisle into the cloister.

Evet.—The chief stone of a new church has been laid on "Mount Dinham." It is to be dedicated to St. Michael and All Angels, and will be erected at the sole cost of Mr. William Gibbs, a Somerset gentleman. The church will be the largest in Exeter, save the cathedral. It will be 140 ft. in length, and the wall will be 40 ft. in height, and the ridge 60 ft. The breadth of the nave is 40 ft. The tower and spire will be 220 ft. high. The outside of the church will be built of Hamhill and Westleigh stone, and the inside of Bath stone, and the principal supports of the east window and the chancel pillars of polished Devonshire marble; the remainder of the pillars of Hamhill stone. The dressing of the east window will be of Box granite, and the other dressings of Corsham stone. The style is Early Decorated. There are no galleries. The seats are to be open, and made of oak. The choir will be in the chancel, where there will be choir and priests' vestries. The organ-loft will be in the chancel, raised above the choir. There is to be a marble reredos and

a pulpit of carved stone. The church is expected to be completed in about two years. The architect is Mr. Hawkins, and the builder Mr. White, both of London.

Coddington (Herefordshire).—The rector and churchwardens, assisted by a lady in the neighbourhood, have decided upon restoring the parish church, plans embracing the complete restoration of the fabric having been prepared by Mr. F. R. Kempson, of Hereford. The works, which are in a forward state, will consist of a new tower, 40 ft. high, and a spire of 48 ft. at the west end of the church, a new organ-chamber and vestry on the north side, and an entrance porch on the south. The tower will contain six bells, at a cost of 350l. or 360l. The new work is of native stone (close at hand), with Bath stone dressings. The church has features of an early date, the north and south walls being probably of the thirteenth century. In the alterations, the object of the rector is to conserve the old character of the building. The interior will undergo the usual course of scraping and cleaning, and the roofs will be thoroughly repaired. The church will be resented with open oak benches, the floor laid with Godwin's encaustic tiles, a new reredos erected, and the pulpit removed from the south to the north side. The north door will be removed, as also the old gallery at the west end; and the gable end of the nave and chancel new coped. Messrs. Collins & Callis, of Tewkesbury, are the contractors.

Blainporth (Cardiganshire).—The new church just completed here on the site of an old and dilapidated one has been opened for divine service. The style is Geometrical, with nave, 47 ft. by 19 ft.; chancel, 22 ft. by 15 ft.; vestry, 12 ft. by 8 ft., and south porch. At the west end of the nave is an engaged spirelet, 50 ft. high to the weathercock. The walls are built of Puntan stone, dug in the parish. The accommodation is for 150 adults, at a cost of 700l. The east window is a memorial one, by Messrs. Lavers & Barrard, the gift of Mrs. Prichard. Mr. Withers was the architect; and the builders were Messrs. Thomas, Rees, & Jones.

Blackburn.—It has been resolved that an addition of 25 ft. shall be made to the length of St. John's Church, to accommodate 400 extra sitters. Mr. J. Brierley has been authorized to prepare the necessary plans.

Weaste.—The new church of St. Luke, Weaste, has been consecrated by the Bishop of Manchester. The site was obtained from Sir R. Gore Booth. The foundation-stone was laid on the 5th of August, 1864. The church is situated on a sloping hill; and in connexion with it is a recreation ground, covering three-quarters of an acre. The church grounds, and the parsonage, which is built on the opposite side of the road, occupy about two acres. The church consists of nave, north and south aisles, chancel, apse, vestry, porch, tower, and spire. The style is that of the thirteenth century. The edifice is of unpretending proportions, with simplicity of detail. The architect was Mr. Scott. The total cost of all the works is about 11,000l.

Beverley (Yorkshire).—Contracts have been accepted by the churchwardens of the parish of St. Mary for the erection of walls round the new cemetery for this parish on Molescroft-road, and the work is now being proceeded with. Mr. Hawo, architect, has prepared plans for the laying out of the ground in an ornamental style. It is expected that the draining will be commenced at once, and that the whole will be ready for opening early next spring.

Grantham.—The general committee for the restoration of Grantham Church held two meetings last month. A report having been presented by the sub-committee, it was determined by the general committee to accept Mr. Hall's tender for the restoration of the roof, at a cost of 9,588l. The sub-committee in their report to the general committee state that the subscriptions promised to the restoration fund amount to 11,553l. 1s. 3d., of which 6,258l. have been realised. It is proposed, in compliance with the advice of Mr. Scott, in carrying on the work of restoration, to pay attention, firstly, to the roofs; secondly, to the internal walls and stonework; thirdly, to the floor and seating. Mr. Scott has suggested that the roof of the chancel and its aisles should be panelled, and that those of the nave and its aisles should be constructed with open ribs; and he has furnished designs which the sub-committee have approved. It is believed that the existing flat roof at the east end of the south aisle is in sufficiently good condition to allow of its being

taken to pieces and re-framed; but that, with this exception, and that of the modern roof at the west end of the same aisle, which will be left untouched, the whole of the remaining portion must be renewed. The roofs are to be constructed of Dantzic oak, to be double-boarded, and to be covered with lead, the repairs of the parapets and gables being included in the tender. The sub-committee announce that they have accepted the following offers towards the great undertaking:—1. A new pulpit, by the Rev. Arthur P. Cust, and other members of his family; 2. A corona, by Colonel the Hon. F. Peregrine Cust; 3. The restoration of one of the east windows of the chancel, and the filling it with stained glass, by the trustees of Charles Clarke's charity.

Long Sutton.—The work of re-pewing and restoring the parish church has commenced. The chancel end is partitioned from the body of the church, the organ is temporarily placed at the west end, the roof is off, and all the old pews and seats have been removed. Messrs. Halliday & Cave, of Groetham, are the contractors for the whole of the works.

DISSENTING CHURCH-BUILDING NEWS.

Spilsby.—The memorial-stone of the new chapel, for the use of the Congregational body of Nonconformists, has been laid at Spilsby. The building will, when completed, cost about 1,000l. Mr. G. P. Kennedy, of Glasgow, is the architect; Mr. Sivers, of Spilsby, the contractor; and Mr. G. Smith is clerk of the works.

Crich (Derbyshire).—The United Methodist Free Church, henceforth to be known as "Mount Tabor United Methodist Free Church Chapel," has been opened for divine service. It is described by the *Derbyshire Advertiser* as having some pretensions to the Gothic style of architecture, and pleasantly situated. The seats in the body of the chapel with the rising gallery, will accommodate about 300 persons. The platform, in the Grecian style, is 6 ft. square, with an elevation of 3 ft. The bannisters are in cast-iron, mounted with mahogany. The windows, the gift of Mr. J. Smedley, Lea Mills, are Gothic in style, and are ornamented with stained glass. School and class rooms are underneath. The cost of the building and site is upwards of 450l. The contractors were Messrs. D. Wilkinson, Crich, and S. Wharmby, Lea.

Swindon.—The new Independent chapel in course of erection at the corner of Victoria-street is progressing, the walls being now several feet above the ground. The contractor is Mr. John Phillips.

Burslem.—The Wesleyan new chapel at Milton (Leigh memorial), the foundation-stone of which was laid in June, 1864, has been opened for divine worship. The chapel has been named in honour of the late Rev. Samuel Leigh, a native of the village, and the first pioneer of missionary enterprise in New Zealand and Australia. The site was given by Mr. Anthony Shaw, of Newport House, Burslem. The chapel is in white brick and stone, in the Continental Gothic style, with a spire. It stands near the turnpike road leading from Stoke to Leek, a short distance from the old chapel, and has been built from the plans and designs of Messrs. Ward & Ford, architects, Hanley and Burslem. Mr. Thomas Cope, of Smallthorn, was the contractor for the works. The cost, it is said, will be about 1,000l., and the building is calculated to seat 300 persons.

STAINED GLASS.

Bodicote Church, Oxfordshire.—A painted window has just been fixed in the parish church at Bodicote, representing the "Good Shepherd." It is the work of Mr. T. Dury, of Warwick.

St. Peter's Roman Catholic Church, Leamington. A stained glass altar-window has recently been placed in the Lady's chapel of this building. The subject chosen is the "Annunciation," and the top portion of the picture is ornamented by scrolls of lilies and roses. It was designed and painted by Mr. T. Dury, by whom the other stained glass windows were executed, and to whom the general decorations of the church were entrusted.

Otterburn Church.—A set of painted windows has been given to this church by a Miss Reed, in memory of her father and mother. One of the subjects is the "Presentation in the Temple of the Infant Saviour." The other window, in two

lights, represents "Dorcas making Garments for the Poor, with St. Peter raising her from the Dead." The whole is the work of Mr. Wailles, of Newcastle.

SCHOOL-BUILDING NEWS.

Birkenhead.—The foundation-stone of a new building in Park-street, Birkenhead, to be devoted to educational purposes, and to be called St. Lawrence's Roman Catholic Schools, has been laid by the Earl of Denbigh. The ground upon which the foundation of the schools has been laid, is large in extent, and is situated at the corner of Park-street and Beckwith-street. It runs 236 ft. along Park-street and 177 ft. along Beckwith-street. It has been laid out for a large church house and schools, the schools being the first to be built, owing to want of funds to build any other portion. The style of architecture is Gothic, adapted to modern requirements. The schools will consist of two stories. The ground-floor will be divided into three schools, for boys, girls, and infants. The upper story will ultimately be divided similarly to the lower one. At present, and until the large church is built, this story will be left open and used as a temporary chapel. It will be about 100 ft. long and 40 ft. broad. The upper story will be reached by an exterior staircase in the manner of the ancient staircase at St. Augustine's, Canterbury. Everything like ornament has been rigidly excluded from the building, but attention has been given to strength of construction. The height of the building from street-curb to apex of gable of roof will be about 63 ft. The whole building will be under one open roof, about 44 ft. span. The walls are to be of brickwork: the sills of the windows will be the only portion of the walling in stone. The absence of stonework will generally be compensated for by the introduction of moulded brickwork for window-jambes, cornices, &c., after the manner of the brick buildings in Belgium, where churches, town-halls, &c., are constructed solely of this material. The schools are to supply accommodation for the children of about 5,000 parishioners. The cost of the building will be upwards of 3,000*l.*, without fittings. It has been designed by, and will be carried out under the superintendence of, Mr. Edmund Kirby, architect, Birkenhead and Liverpool.

Higher Broughton (Manchester).—The foundation-stone of the new Wesleyan Schools, Higher Broughton, has been laid. The site of the proposed building is behind the present Wesleyan Chapel, in Great Cheetham-street, Higher Broughton. The principal front will be in Pera-street. The building will consist of a mixed school 48 ft. by 30 ft., and three class-rooms adjoining 18 ft. by 11 ft. 6 in. each. Underneath one of these there will be a heating-chamber; but in addition to this, open fireplaces will be constructed in each class-room, for use when the heating-apparatus is not required. There will be a separate entrance for boys and girls to the school. It is intended to add an infant school-room, 36 ft. by 18 ft., at some future time, and thus complete the design of the façade in Pera-street. The style of architecture is Early English. The building will be of seconds brick and very plain, the sum set apart for the object being too small to admit of the introduction of any ornamentation. The usual conveniences are placed at the rear of the schools. The principal front of the schools in Pera-street, when finished, will be enclosed by a low fence wall, surrounded by a light iron ornamental cresting. The designs have been prepared by Messrs. Haley & Son, architects, Manchester, under whose superintendence the works will be carried out. The contract has been undertaken for the whole scheme by Mr. Tickle, builder, Strangeways, for the sum of 1,300*l.*

METROPOLITAN BUILDING ACT.

CAUTION TO BUILDERS.

On the 27th of July last, Mr. Henry Lovett, builder, of Kentish Town, was summoned before Mr. Mansfield, at the Marylebone police-court, by the district surveyor of St. Pancras, for neglecting to give notice of the erection of a wooden building, used as a skittle-alley. The builder had refused to amend the irregularity, but the magistrate adjourned the case for fourteen days, to enable him to do so. On the 10th instant the adjourned summons was heard, and as it then appeared that no alteration had been made in the building, the defendant was fined 5*l.*, and 12*s.* 6*d.* costs.

ACCIDENTS.

PLANKS improperly placed at the Charing Cross Railway Terminus, during the execution of certain works at the departure gate in the West Strand, were the cause of an accident on the 21st ultimo, to Mr. William Reid, Conduit-street, that has resulted in his death. On the day of the accident, the western gate for foot-passengers being closed for needful repairs to the pavement, planks were put from the edge of the pavement to the footway outside the carriage-entrance, as the road was wet and muddy, the carriage gate being shut on one side. The evidence on the inquest showed that on the evening of the 21st, the deceased, accompanied by his grandfather, came up by the train to the Charing Cross station. Mr. Reid, who had a bag in one hand and an umbrella in the other, ran down to the gate to secure an omnibus, and tripping against the planks, fell against the gate and injured his head. He was taken to Charing Cross Hospital, where the wound, described then as being a slight scratch, was dressed, and he went home; but shortly after he became worse, and subsequently died. The jury found that "the deceased died from erysipelas and inflammation, the result of accident at the Charing Cross Railway Station, caused by the planks being improperly placed."

At Penzance, at the town-hall in process of erection, a fatal accident has occurred to a workman from a false step. A young man, William Rowe, fell 30 ft., and so seriously injured that he died in two or three days. On the inquest, the foreman said—William Rowe has worked for us almost ever since we have been here, as a labourer; on Wednesday last, the 9th instant, he was engaged with Robert Robinson in carrying stone towards the top of the building, and had to traverse a wooden gangway, which was formed of two 10-inch planks: this end of gangway had been used, from the commencement, as the walls increased in height; and deceased had, therefore, been accustomed to its use for many months: between three and four o'clock on Wednesday I saw deceased working with Robinson, but did not witness the accident: there was not the least risk in using the gangway when I saw it. In answer to a jurymen, he said,—I have put an additional piece of railing pole, near the gangway, and a platform under to catch any one who falls; but no such fatal accident as this has happened for forty-six years, and we had no idea that any one would fall.—The jury, who had viewed the place where the accident occurred, said additional precautions had been taken, and the sudden corner the men had to turn was a dangerous one, but the danger was now diminished. Robinson said,—I am a mason's labourer, and was on Wednesday last was carrying up stone with the deceased to the builders of the new buildings. In the afternoon we carried up several stones over a gangway, which I considered good and sufficient for a quarter to four, as we reached the scaffolding—Rowe being behind, as the tallest man generally is—he rested his end of the barrow, partly on the scaffold and partly on the gangway; the weight at my end was right in the angle, against William Phillips, who awaited the stone—a con: Rowe then made a step from the gangway to the scaffold at a time when he was quite clear of the hand-barrow, but did not step far enough, and fell backwards into the beams of the first-floor, 26 ft. below, not saying a word, but a slight exclamation. The accident arose entirely from deceased's own want of care. Deceased was twenty-eight. The surgical evidence showed that the deceased's right thigh bone was fractured, his ribs fractured the same side, his lungs lacerated, and that there were other injuries.—The jury returned a verdict of accidental death.

RECENT PATENTS CONNECTED WITH BUILDING.*

WARMING AND VENTILATING APPARATUS.—J. Kissack. Dated November 24, 1864.—In brickwork or masonry, of any suitable external form, erected in any convenient place, such as a vault or cellar, at a lower level than the rooms or places to be warmed and ventilated, the patentee forms a furnace or fireplace with the bars inclined downwards from the front to the bridge, or horizontal, in the usual way. The mouth of this furnace or fireplace, and the front of the ash-pit, are fitted with doors which can be closed almost air-tight, but they are provided with slides or shutters to regulate the supply of air to maintain combustion, the object being the economisation of fuel. The arch is formed in any suitable way. The heated gases or products of combustion are led over and alongside, or either over or alongside, the arch into flues where a number of pipes are disposed horizontally, or nearly so. These pipes are open at the surface of the brickwork or masonry, or, if under cover, they are continued to the outside of the main building to receive fresh air. At the back end, somewhere about the bridge of the furnace, they, the said pipes, converge and join into one, two, or more main flues, fitted with controlling dampers, through which the air heated to any desired temperature by regulation of the air admitted to maintain combustion in the furnace or fireplace, is led to the place or apartment to be warmed and ventilated, the heat imparted to the air being sufficient to cause a continuous inward current through the pipes.

APPARATUS FOR LIFTING OR ASSISTING TO LIFT WINDOW-SASHES AND OTHER LIKE FRAMES.—Dated November 23, 1864.—At present balance-weights are employed to lift or assist in lifting window-sashes of the class known as "guillotine," and the object of this invention is to

substitute for the weights an apparatus which, while producing similar effects, avoids the inconveniences attendant upon the employment of weights. The apparatus consists of a spring barrel, to which one end of the sash-line, band, cord, or chain is attached, while the other end is attached to the sash-frame, and is carried over a pulley in the usual manner. To every sash-frame the patentee applies two such apparatuses, one for each sash-line. As soon as the sash-frame, supposing it to be the under one, is commenced to be raised, the springs come into play, lift or assist in lifting the sash, and wind the sash-lines upon the barrels. The apparatus is applicable to other frames as well as window-sashes, which have an up-and-down movement.

PORTABLE WATER-CLOSETS.—J. H. Wilson. Dated June 29, 1864.—The object of this invention is the construction of water-closets in such a manner that the pan, cistern, valves, and other parts thereof, connected together in such a way that they can be removed as a whole, and when placed in any convenient position, on board ship or other place, and connected to a soil-pipe, are at once ready for use. In some cases the patentee attaches the soil-pipe to the apparatus before leaving the manufactory. The invention consists simply in the use of a pan formed, by preference, of cast-iron, enamelled internally, and embossed or otherwise ornamented externally, and supported on suitable feet or rests, which are cast with or attached thereto. The supply-cistern is placed so as to spring up from the upper edge of the back of the closet-pan, and may be of one piece therewith, or be permanently attached thereto. The supply-cistern, on the side immediately above the pan, is so shaped curved, or recessed, as to form an easy back to the closet-seat.

Miscellaneous.

THE LATE MR. C. O. PARNELL.—Professor Hayer Lewis writes.—As one of the intimate friends of the late Mr. C. O. Parnell, allow me to set right a statement in your pages, that "he had gone to Baden in hope of relief from painful illness." He left London in apparently the best of health and spirits, on the 17th July, for his annual vacation of a month. The intense heat of the weather brought on a low fever, from which he was not able to rally, and he expired on 27th July, from pure prostration.

LEAD-POISONING.—Since we first drew the public attention, many years ago, to poisoning by water in which lead was dissolved, as by the action of certain qualities of water on lead cisterns and pipes, various instances of lead-poisoning through the impregnation of water with lead have been discovered and remedied; and we now observe that a correspondent of the *Times* instances a case in which water boiled in tinned vessels has been found to have produced symptoms of poisoning by lead. The tin used in lining the domestic vessels is said to have been an alloy of tin with lead. We should rather feel inclined, however, to regard the introduction of lead in this case as being accidental rather than intentional. The *Times* correspondent wishes to know "whether there be any coating for iron which would resist heat and the ordinary action of water, and which could be substituted for what is called tin." He does not seem to be aware that of late years enamelled pots and kettles have been very much used instead of tinned ones. They appear to be quite capable of resisting heat so long as they contain water or moisture. The same writer gives the following as an easily applied test for lead in water:—"Take two tumblers: fill one with water which is known not to have been in contact with lead: fill the other with the suspected water. Dissolve in each about as much bichromate of potash as will stand on a groat. By daylight the water in each tumbler will be of the colour of pale sherry and water. Cover the tumblers so as to keep out dust, and let them stand in a warm place in a room with a fire in it for twenty-four hours. If the suspected water be free from lead it will still have the same colour as the other; but if there be lead in the water it will have a more or less opalescent tint, as if a drop or more of milk had been put into it. If there be a great quantity of lead in the water, a very slight film of lead will be deposited on the glass. Bichromate of potash can be got of good druggists, and a few drachms will be enough to test many samples of water."

* Selected from the *Engineer's* lists.

AN INTERNATIONAL ARCHAEOLOGICAL CONGRESS is to be held at Antwerp next year. The Archaeological Academy of Belgium have appointed a commission to make the arrangements.

THE SEWERAGE OF WOOLWICH.—Operations have been commenced in Beresford-square, Woolwich, for the purpose of diverting part of the drainage of the town into the new southern metropolitan outfall-sewer. The contract has been taken by Messrs. Hill & Keddell, the well-known contractors, of London, at a cost of 8,910*l.*, and will be carried out under the experienced superintendence of Mr. J. Houghton and Mr. John Barnett, engineers to the Metropolitan Board of Works.

PROPOSED MEMORIAL CROSS AT NEWLAND.—The warden of the Beauchamp almshouses has given the work of designing and erecting a cross on the site of the old parish church of Newland, to Mr. Forsyth, of Worcester, sculptor. The cross will stand on the ground covered by the sanctuary of the old church; and from the base of the steps surrounding the pedestal, to the summit, will be 23 ft. high. In character, the work will be similar to that of an Irish cross. The shaft and a portion of the base will be constructed out of a light grey-coloured Staffordshire stone. There will be trefoils in the arms of the cross, and on the west the centre will bear the sacred monogram in inlaid black marble. Beneath this, the western side, the shaft will contain an inscription denoting that the cross is intended to commemorate the spot whereon the old church stood. The east, north, and south faces will each have an inlaid black marble cross. Part of the base will be of red Mansfield stone, with a band of black marble running above. There will be a flight of three steps on which the base will stand, the dimensions of the outer steps being 14 ft. square.

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The preparations at Birmingham are, in every department, in an advanced state, and there is every promise that the meeting will be one memorable in the history of the Association. The president of the Association is Mr. John Phillips, M.A., LL.D., F.R.S., F.G.S., &c., Professor of Geology in the University of Oxford. The manufacturing industries of Birmingham and the district, the striking geological feature of Dudley and the South Staffordshire coal field, and the beauty and interest of the neighbouring towns of Lichfield, Stratford, Worcester, and Malvern, to which places excursions have been arranged; the central position of Birmingham, and the good accommodation available for the sections, will insure the scientific interest and general success of the meeting. The chief railway companies will convey members and associates at a single fare for the double journey, from Monday, September 4, to Saturday, September 16, inclusive, on the presentation of a pass-ticket, signed by the local secretaries. The following is the programme for the Evening Meetings: Wednesday, September 6, 8 p.m., Inaugural Address; Thursday, September 7, 8 p.m., Soirée and Conversazione; Friday, September 8, 8.30 p.m., Lecture by Mr. J. Beete Jukes, M.A., F.R.S., Local Director of the Geological Survey of Ireland, &c., "Probabilities as to the Position and Extent of the Coal Measures beneath the Red Rocks of the Midland Counties; Monday, September 11, 8.30 p.m., Private Dinner given by the mayor; Tuesday, September 12, 8 p.m., Soirée and Conversazione. Arrangements have been made for the following excursions, programmes of which will be issued:—Saturday, September 9: 1. Warwick and Stratford-on-Avon; 2. Coventry and Kenilworth; 3. Worcester and Malvern; 4. Wroxeter, Shrewsbury, Wenlock, The Wrekin, and Coalbrookdale. Thursday, September 14: 5. The Dudley Caverns, the South Staffordshire Coal Fields and Ironworks; 6. Lichfield, Walsall, Cannock Chase, and the Burton Breweries. The sections will be presided over by the following gentlemen:—Section A.—Mathematical and Physical Science: Mr. W. Spottiswoode, M.A., F.R.S. Section B.—Chemical Science: Professor W. A. Miller, M.D., F.R.S. Section C.—Geology: Sir R. I. Murchison, K.C.B. Section D.—Zoology and Botany: Professor Thompson. Sub-section D.—Physiology: Professor Acland, M.D., F.R.S. Section E.—Geography and Ethnology: Sir Henry Rawlinson, F.R.S. Section F.—Economic Science and Statistics: The Right Hon. Lord Stanley, F.R.S., and Section G.—Mechanical Science: Sir W. G. Armstrong, C.B., F.R.S.

THE BROUGHAM DINING HALLS, FLEET STREET.—We direct attention to the opening of this establishment, which is set on foot by a company, under the auspices of Lord Brougham, Mr. Blanchard Jerrold, and others, to provide cheap and wholesome dinners to classes who have been hitherto in the habit of having only unwholesome whilst dear food.

THE NEW LAW COURTS.—On Monday, and for some days past, workmen were busily employed in converting the old Insolvent Debtors' Court, in Portugal-street, into a court for the commissioners appointed in connexion with the new law courts. Considerable alterations are being made for the accommodation of the public. The commissioners, it is expected, will commence business in about a month or six weeks, towards the end of the long vacation.

NEW AMERICAN FURNACE.—The *American Artisan* gives particulars of a patent just issued to Horace Boardman, for an improved iron-making furnace. A smelting or reducing fire in combination with a gas or combustion chamber, with tuyères for admitting atmospheric air, and provided with openings in the division-wall between the reducing fire and a gas or combustion chamber, is so arranged as to permit the ignited gases at a high temperature to act directly upon the ore while it is in contact with the carbonaceous fuel within the reducing fire; the gases being at the same time aided in their passage through the openings in the division-wall by a vacuum in the upper portion of the reducing fire by means of a steam-jet or any equivalent device. This smelting or reducing fire may also be combined with a reverberatory furnace and a baling-hearth, so that the converted ore, in a metallic state, can be separated from the cinder or slag, and be balled ready for the shingling-hammer, while the escaping gases from the grate of the reverberatory furnace, having been applied to heat the baling-hearth, are conveyed to the gas-chamber, and after receiving a second portion of oxygen are made to aid in smelting and deoxidising the ore; thus greatly reducing both the consumption of fuel and the labour in the process of making wrought-iron.

THE PARKS.—In the Green Park, a ride is being formed from the corner opposite Buckingham Palace, to the turning into Pall-mall, at Stafford House. The railings have been taken down, and will be re-erected several yards back into the park. There is already a ride from Buckingham Palace to Storey's-gate, parallel with Birdcage-walk. It is said that there is to be another, from Notting-hill-gate to the Marble-arch,—and that Cumberland-gate and Hyde Park-corner may eventually be similarly connected. Equestrians could then go in comfort between Notting-hill and the Marble-arch, Hyde Park-corner, Albert-gate, Kensington, Constitution-hill—where a ride has not yet been made—Birdcage-walk to the Houses of Parliament, and along the Green Park new ride to Pall-mall and the clubs. In Regent's Park there is only a gravelled siding, and no regular ride. The arrangements for forming a park for the south-eastern portion of the metropolis are now completed, the Metropolitan Board having, after eight years' deliberation, fixed upon a site and concluded negotiations for its purchase. The site consists of 65 acres of land in the parish of Rotherhithe, bounded by Jamaica Level, Union-road, the Rotherhithe New-road, and the South-Eastern Railway. The board will be put in possession of the fee on the 29th of next month, when the purchase-money, 58,000*l.*, will be paid. A loan of 80,000*l.* will be negotiated by the Board, for the purchase of the land and for laying out the park. Of the 65 acres, only 45 acres will be devoted to the purposes of the park; the remainder will be appropriated to building plots, and a road to encircle the park; so that the Board will be re-couped a portion of its outlay. But it will be necessary to remove some of the nuisances in the locality, which the local authorities have not been successful in removing. Thus the Atlas Manure-works, close to the site of the park, still emit at times vapours not only detrimental to health, but also destructive to the vegetation in the surrounding fields, so that the park trees and shrubs would be destroyed in the same manner. Mr. Salmon's manure-works have been recently located in the same neighbourhood; and not far removed from the farther side of the park is a monstrous pigstye; whilst beyond this again there are railway arches in which chemical operations are carried on, giving rise to choking, burning, and oppressive vapours.

THE BRITISH ARCHAEOLOGICAL ASSOCIATION.—The meeting at Durham is satisfactorily progressing. On the 23rd, a description of the cathedral was given by Mr. Gordon Hills.

THE ANGLO-FRENCH EXHIBITION AT THE CRISTAL PALACE.—Mr. Blanchard Jerrold has undertaken to look up the French exhibitors, and send over the articles which have not yet arrived for this exhibition. The committee purpose giving a dinner to the French exhibitors before long. Mr. Coningsby says that they will do this, even if unaided; but some assistance would enable them to provide an entertainment more worthy of themselves and of the acceptance of their guests; and they are quite willing to accept aid from those who may wish to render it. We hope they will have every success.

CHURCH OF ST. PUDENTIANA, ROVE.—Mr. S. W. Tracy asks us to mention that he made surveys with measurements, which he believes are the only ones, of this church, and that he also made the drawings from which the illustrations in the *Illustrated London News* were engraved. He adds:—"In addition to the drawings above referred to, I have a ground-plan of the church, and a sketch of the well down which tradition says the mutilated remains of the Christian martyrs were thrown, by way of sepulture, by St. Pudentiana and her sister, the daughters of Pudens, in whose house the church was formed. I reserve for a future occasion any remarks on the evidences afforded by the existing remains and the opinions recently expressed by others on this subject. Some interesting paintings are still to be seen in a portion of the crypt under the modern church, now converted into a family vault."

THE IRON AND COOPER TRADES.—*Nipand's Circular* of 19th August gives the following quotations:—Manufactured Iron.—South Staffordshire: marked bars, 8*l.* 10*s.*; hoops, 9*l.* 10*s.*; sheets, singles, 10*l.*; doubles, 11*l.* 10*s.*; latens, 13*l.*; angles, 8*l.* 5*s.* to 9*l.*; gas strips, 8*l.* to 8*l.* 10*s.* The commoner makes of the district in bars are being quoted at 7*l.* 10*s.* to 8*l.* at works; puddled bars, 6*l.* 2*s.* 6*d.* to 6*l.* 7*s.* 6*d.*; scrap bars, 6*l.* 10*s.* to 7*l.*, according to quality.—North Staffordshire: bars, 7*l.* 10*s.* to 7*l.* 15*s.*; best, 8*l.*; best best, 8*l.* 10*s.*; best T iron, 9*l.*—Welsh bars, 6*l.* 15*s.* to 7*l.*; Welsh rails, 7*l.* 2*s.* 6*d.* to 7*l.* 5*s.* at works. These prices are quoted as "at works." The copper market remains quiet, but very firm, at the following rates: tough, 86*l.* per ton; best selected, 89*l.*; manufactured, 93*l.*

PANIC OF FIRE IN A CHAPEL.—Brickfields Congregational Chapel, Stratford, has been the scene of a great excitement in consequence of an alarm of fire in the midst of the service. The first lesson was being read, when many of the congregation exhibited great uneasiness at a smell of fire. As the smell became stronger, the chapel-keeper, fancying he saw smoke issuing from the vestry-door, walked down the aisle for the purpose of ascertaining the truth of the case. On opening the door a volume of smoke rushed into the chapel, and then indescribable fear and confusion ensued. The cry of "Fire" having now been openly raised, the fear of the congregation was increased by another cry, "Take care that the gas does not explode." It required all the coolness and courage of the most prudent to guard against a terrible catastrophe. There was a general rush to reach the doors, and it being between the lights, and the chapel fast filling with smoke, the excitement was rendered still worse by the darkness of the place. As the outlet at the doors was blockaded, and people could not get out quickly enough, many jumped over the pews, and endeavoured to reach the doors by scrambling over the heads and shoulders of others. Shrieks for help now came from the gallery, the staircase of which was literally crammed, and it was only by the greatest efforts that some of their uncontrollable fright were prevented from jumping into the body of the church. At length the chapel got cleared. Providentially, though the excitement had been great, there was really little damage done. It appeared from the statement current, that the officiating minister had been out for the afternoon, and, having been smoking, had, on coming into the vestry, put the remaining part of his cigar into the pocket of his overcoat, which he hung up. In the pocket were some fuses, which appear to have ignited and set the coat smouldering, besides other woollen things in the vestry. There was nothing highly inflammable; or, added to the excitement, the consequences would have been disastrous.

THE SUEZ CANAL.—According to a telegram from Ismailia, dated August 17th, the floodgates of the Suez Canal have been thrown open, and a vessel laden with coal passed direct from the Mediterranean to the Red Sea on the 15th inst. Intelligence of the event was at once despatched to the Emperor Napoleon at the Châlons camp, and his Majesty returned a congratulatory reply. So many accounts previously have appeared of the actual termination of the undertaking, that it is necessary to remark that the size of the vessel is not stated, and that much must assuredly remain to be done before the waterway across the isthmus will be available for sea-going vessels of ordinary dimensions. That the work will ultimately be completed according to the design, may, however, be regarded as probable. Since these words were in type, a letter has appeared in the *Times*, asserting that what is open must be no more than a fresh water canal, of not more than 3 ft. to 5 ft. in depth.

ANCIENT EGYPTIAN FASHIONS.—The Egyptians shaved their heads and chins, and looked with abhorrence on the rough-haired and long-haired Asiatic nations. They only allowed their hair and beard to grow when in mourning, and looked upon it in any other circumstances as a sign of low and slovenly habits. Most of them wore over their shaven plait, wigs made of curled hair, with a series of plaits at the back. Poor people, who could not afford the expense of real hair, had their made of black sheep's wool. By a singular contradiction, the great people wore artificial beards, which they likewise affixed to the images of their gods. The beard of an individual of rank was short and square; that of a king equally square, but much longer; and that of a god was pointed and turned up at the end. Ladies wore their hair long, and worked into a multitude of small plaits, part of which hung down their back, and the remainder descended on each side of the face, covering the ears completely. They generally had an ornamental fillet round the head, with a lotus-bud in front by way of a *ferretière*. Some of the *crème de la crème* indulged in a head-dress representing a peacock, whose gorgeous plumage set off their dark tresses; and princesses were usually distinguished by a coiffure of extraordinary dimensions, combining all the riches of the animal, vegetable, and mineral kingdoms.—*Rimmel's Book of Perfumes*.

TENDERS

For rebuilding 44, Chancery-lane. Mr. J. Blyth, architect.—

Piper & Wheeler	£2,444	0	0
Foxley	2,573	0	0
Mansfield	2,529	0	0
Fatman	2,198	0	0
Myers	2,471	0	0

For building new warehouse, and alterations to old ditto, at Aldermanbury Postern. Mr. T. J. Hill, architect.—

Hardiman & Sandon	£1,629	0	0
Henshaw	1,447	0	0
Lovett & Brown	1,425	0	0
Turner & Sons	1,345	0	0
Bishop	1,321	0	0
Sahey	1,284	0	0

For additions to Woodlands Parsonage, near Reading. Mr. J. H. Money, architect.—

Rabbitts	£255	0	0
Salisbury	224	10	0

For the erection of new buildings, with furnace-shaft and storehouse, in connexion with the Albert Oil Mills, Hammersmith. Mr. G. H. Simmons, architect.—

Accepted.	£4,945	0	0
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For St. Stephen's Church, Dulwich. Messrs. Banks & Barry, architects. Quantities supplied by Messrs. Strudwick & Co.—

	Church.	House.	Total.
Carruthers	£9,477	£2,087	£11,564
Colls & Son	9,190	2,930	11,120
Brown & Robinson	9,394	2,055	11,449
Ennor	9,130	2,290	11,420
Perry & Co.	9,324	1,844	11,168
Sweyer	8,879	2,233	11,112
Stimpson	8,838	1,950	10,788

For alterations and additions to Syston Lodge. Mr. R. W. Johnson, architect.—

Bland	£520	0	0
Neale	514	15	0

For works to be done in restoration of All Saints' Church, Somerby, Leicestershire. Mr. R. W. Johnson, architect.—

	Church.	Chancel.	Total.
Halliday & Cave	£ s. d.	£ s. d.	£ s. d.
Barnes & Weaver	1,127 10 0	185 0 0	1,312 10 0
Fast	1,123 2 0	121 15 0	1,244 17 0
Morrison & Tinkler	1,055 17 3	142 0 9	1,197 18 0
Repell & Johnson	958 0 0	162 15 0	1,120 15 0
	944 10 0	139 10 0	1,083 0 0

For house and shop, at Brixton, for Mr. J. W. Clarke. Mr. A. J. Hiscocks, architect.—

Adamson & Sons	£2,275	0	0
Atias & Sons	2,100	0	0
J. Taylor	2,100	0	0
Rider & Son	2,098	0	0
McLachlan	1,993	0	0
Colls & Son	1,894	0	0
Marsland & Sons	1,976	0	0
Ober	1,961	0	0
R. Taylor	1,590	0	0
West & Morse	1,915	0	0
Neale	1,895	0	0
Sharpe	1,885	0	0
Pearse & Stone	1,784	0	0

For three houses in Melton. Mr. R. W. Johnson, architect.—

Made	£739	0	0
Porter	737	0	0
Grove	719	0	0
Barnes & Weaver	671	0	0
Fast	630	0	0

For alterations at Rotherby, Leicestershire. Mr. R. W. Johnson, architect.—

Neale	£380	0	0
Pearson & Whit.	335	0	0

For villa residence in Northamptonshire. Mr. R. W. Johnson, architect.—

Watkin (accepted)	£1,550	0	0
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For alterations on the estate of Mr. W. A. Pochin. Mr. R. W. Johnson, architect.—

	At Barkby	Grange.	Total.
Neal	£315 0	£198 0	£511 0
Duxberry	308 10	199 5	498 15
Dland	303 15	189 17	492 12
Neale & Sons			

For first portion of works in restoration of St. Michael's Church, Edmonthorpe, Leicestershire. Mr. R. W. Johnson, architect.—

Weaver	£555	17	0
Halliday & Cave	491	18	0
Fast	475	10	0

For improved dwellings for the industrial class, Southampton. Messrs. Guillaume, Parmenter, & Guillaume, architects.—

Day	£4,025	0	0
Adams	2,360	0	0
Philips	2,216	0	0
Gambing	3,169	0	0
Brown	3,150	0	0
Hill & Nisw	3,135	0	0
Sanders	3,100	0	0

For the new Borough Gas, Hall. Mr. David Thorp, surveyor to the Corporation.—

Neal	£50,933	0	0
Hutchinson	50,400	0	0
W. & J. Hall	50,424	18	2
Musgrave	50,238	0	0
Simpson & Malone	50,210	16	1

For three houses at Croydon, for Mr. W. Chambers. Mr. J. Tolley, architect.—

Savage	£2,550	0	0
Day	2,400	0	0
Pollard	2,245	0	0
Loose	2,144	0	0
Richards (accepted)	1,987	0	0

For residence at Croydon. Mr. R. C. Baxter, architect.—

Rawlings	£2,987	0	0
T. Ason	2,745	0	0
Colls & Jay	2,731	0	0
Hill & Keddell (accepted)	2,647	0	0

For Presbyterian Church, Tottenham. Messrs. Habershon & Pile, architects.—

Wood	£1,960	0	0
Humphrey	1,650	0	0
Simpson	1,640	0	0
Sanders	1,685	0	0
Clarke	1,689	0	0
Cushion	1,640	0	0
Rogers	1,619	0	0
Hill & Keddell (accepted)	1,596	0	0
Ramsay	1,583	0	0

For schools and master's residence, Chickensand-street. Mr. T. Stately, architect.—

Masters	£1,600	0	0
Little	1,584	0	0
Dudley	1,880	0	0
Hill & Keddell (accepted)	1,907	0	0

For bar fittings, &c., complete, for Mr. Harris, at Nos. 5 and 6, Richmond-place, Barnsbury. Mr. C. Foster, architect.—

Lawrence	£290	0	0
Starkie	224	0	0
Davey	215	0	6
Sparrow	210	0	0
Smith	207	0	0
Davies	160	0	0
Stone	83	0	0

For alterations, &c., at 34, Charles-street, Middlesex Hospital, for Mr. Fortescue, Mr. C. Bradley, architect.—

Stableford	£163	10	0
Wicks	151	0	0
Hailey	423	0	0
White (accepted)	400	15	0

For Church of St. John the Evangelist, Brentford. Mr. J. T. Jackman, architect.—

Osborne	£2,128	0	0
Cowland	1,760	0	0
Gascyne	1,581	0	0
Jackson	1,569	0	0
Nye	1,554	0	0
Adamson & Sons	1,551	0	0

For rebuilding No. 177, Piccadilly, for Mr. James Toovey, bookseller. Mr. Josiah Houle, architect.—

J. & W. Bird	£3,735	0	0
J. & C. T. Anson	3,639	0	0
Patman & Fotheringham	3,640	0	0
Mansfield & Son	3,580	0	0
J. & W. Sanders	3,169	0	0
Keyes & Head	2,868	0	0
Little	3,052	0	0

For house at Teddington, for Mr. R. C. Carrington. Mr. J. T. Jackman, architect.—

Brunden	£275	0	0
Hiscock	658	0	0

For St. Mary's National Schools, Wandsworth. Mr. J. W. Denton, architect. Quantities by Mr. Stanham.—

Bowley, Brothers	£1,590	0	0
Aviss & Sons	1,728	0	0
Nicholson	1,700	0	0
Adamson & Sons	1,524	0	0
Galland & Thomson	1,650	0	0
Taylor	1,639	0	0
Scott	1,639	0	0

For building two houses in Park-road, Battersea, for Mr. John Riches. Mr. C. Bowes, architect.—

Lathey, Brothers (accepted)	£650	0	0
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For alterations at No. 10, Bush-lane, Cannon-street. Mr. F. H. Williams, architect.—

Garnham & Sons	£1,039	0	0
Ryder	994	0	0
Ennor	946	0	0
Wren	724	0	0

For rebuilding No. 5, Carleton-street, Marylebone, for Mr. Taylor. Mr. Edwin Ball, architect. Quantities supplied.—

Mannoch & Co.	£300	0	0
Huggett & Husey	738	0	0
Grover	695	0	0
Duncaison	637	0	0

For first contract for St. Stephen's Church, Kensington. Mr. J. Peacock, architect.—

Manley & Rogers	£3,377	0	0
Jackson & Shaw	8,343	0	0
Mansfield & Son	8,361	0	0
Wells	8,193	0	0
Myers & Sons	8,150	0	0
Dove, Brothers	8,085	0	0
Carter & Sons	7,963	0	0
Simms & Martin	7,777	0	0

For the erection of a villa, in the London-road, Devises, for Mr. W. Brown. Mr. Weaver, architect.—

Long	£1,095	0	0
Plank & Ash	1,089	14	0
Randell	1,085	0	0
Mullings (accepted)	1,060	0	0

For the erection of a pair of villas, in the London-road, Devises, for Mr. J. Shilstone. Mr. Weaver, architect.—

Mullings (accepted)	£1,105	0	0
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For taking down and rebuilding schools, at Potterne, Wilts. Mr. Weaver, architect.—

Watts (bricklayer, slater, and plaster)	£233	10	0
Davis & Sprules (carpenters)	135	10	0
Crudge (plumber, glazier, &c.)	15	10	0

For building an additional wing to the male side of the Wilts County Lunatic Asylum. Mr. Weaver, county surveyor, architect.—

Long	£1,942	19	0
Mullings (accepted)	1,810	0	0

For alterations and additions to Novech House, near Chippenham, Wilts, for Rev. M. Brown. Mr. Weaver, architect.—

Puniger	£375	0	0
Plank & Ash	380	0	0
Dawson & Son (accepted)	310	0	0

For the erection of a Vicarage House at Lacock, near Chippenham, for Rev. E. F. Nicholl. Mr. Weaver, architect.—

Mullings	£1,985	0	0
Long	1,975	0	0
Downing & Son (accepted)	1,950	0	0

For alterations and additions to warehouse, No. 39, Red-cross-street, for Mr. T. Loveridge. Mr. H. Ford, architect.—

Rawlins (accepted)	618	15	0
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For new warehouse front, &c., No. 15, Noble-street, for Messrs. Tubbs & Lewis. Mr. H. Ford, architect.—

Hardiman & Sandon	£447	0	0
Hills & Sons	380	0	0
Hills & Sons	382	0	0
Larke	348	0	0
Price	288	0	0
Palmer & Son	195	0	0

TO CORRESPONDENTS.

F & A.—C. T.—D. T.—C. R. W.—C. W. R.—T. R. H.—C. Committee of the National Sunday League.—J. W. P.—B. W. W.—C. (next week).—B. H.—An Amateur.—T. P. (thanks).—C. A. B.—F. J.—W. U. C.—J. N.—Kingdon.—J. F.

We are compelled to decline pointing out books and giving addresses. All statements of facts, lists of tenders, &c., must be accompanied by the names and addresses of the sender; not necessarily for publication.

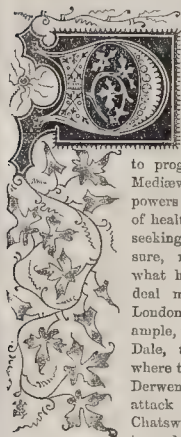
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The Builder.

VOL. XXIII.—No. 1178.

Out and About: in Derbyshire.



DERBYSHIRE presents remarkable variety, and offers something to interest most minds,—suit most tastes. The lover of nature, the lover of art; the inquirer as

to progress, the student of Medieval practices and powers; the invalid in search of health, and the eager spirit seeking excitement and pleasure, may each there find what he wants, and a great deal more. Starting from London, take a run, for example, to Derby, then to Dove Dale, to pleasant Rowsley, where the Wye is lost in the Derwent, and whence you attack Haddon Hall and Chatsworth, and make a trip to vulgarized Matlock; get

across the country to Chesterfield, for the purpose of viewing Hardwick Hall, Bolsover Castle, and Wingfield Manor House; and then rail away to Buxton, and the route will include several churches of interest, many remarkable sepulchral monuments, some historic houses of world-wide fame, rich with associations; a large number of fine pictures, several wonderful caverns, Nature's architecture, sparkling with gems; not to speak of man's work, that has opened them: and some of the loveliest views of moor, of mountain, and of plain, that ever gladdened eyes and filled the heart with delight and thankfulness. One is tempted to exclaim with an untaught poet of a more northern county,—

"Look round on this world,—it is sweet, it is fair;
There is light in its sky, there is life in its air;
Sublimity breathes from the forms of its hills,
And beauty winds on with its rivers and rills;
The dew, as with diamonds, its meads hath besprent;
From its groves are a thousand wild melodies sent;
While flowers of each tint are by morning impregn'd;
Oh! why is there woe in so lovely a world?"

But we will think not of the woe in the world just now; only of the pleasant, elevating, and instructive things that are to be found in it, and especially in this part of it; and will seek by a little gossip on the line we have indicated to interest in it such of our readers as do not happen to know the places included, and to awaken the recollection of those, doubtless the much larger proportion, who are already acquainted with them. The tourist student taking this road should not forget his sketch-book, and might return by way of Manchester, Chester, Shrewsbury, Hereford and Gloucester, or Worcester,—of this part of the business, however, some other time.

Derby, the Derwent-by, or Derwent town, of the Saxons and Danes (first from the Celtic *Dur*, water), has little of its old architecture now to show. The ugly red bricks of the locality are at present used with little pretence to taste. Few modern red-brick towns in England, by-the-by, are pleasing to the sight. A new church of some size is growing up not far from the railway-station, the west front "inspired" by that of Tintern Abbey. The fine, well-known Perpendicular tower of All Saints' is hampered with a wretchedly ugly church tacked on to it, by Gibbs, in 1725. The Albert memorial win-

dow, by Clayton & Bell, which has been set up at the east end of the chancel, is richer in colour and more effective than the majority of modern works. We had not an opportunity, however, to examine it properly. Some modern monuments in the church deserve more than a look, including one to that Elizabeth Countess of Shrewsbury, the noted "Bess of Hardwick," who built so much in the county. This remarkable woman married four times, and raised herself to greater power each time. Her second son, William, was the first Duke of Devonshire. It is well known that a fortune-teller asserted her death should not happen while she continued building. Whether because of this or not need not be asked; certain it is she built the original Chatsworth, Hardwick, and Oldcotes, and ultimately died during a hard frost, when the men had left off work! Her character has been variously painted. Fuller speaks of her as a woman of undaunted spirit and wit, beautiful and discreet, living a creditable and happy life; while Lodge says she was proud, selfish, and unfeeling, kept her husband in terror, and died immensely rich without a friend. She is said to have set up her own monument in All Saints' Church. It is noticeable how many good things the world owes to people who have been called bad by their contemporaries.

Kedleston Hall, Lord Scarsdale's place, four miles from Derby town, built by the Adams, Brothers, exactly a hundred years ago, has an entrance-hall of striking character, given by a range on each side of noble Corinthian columns of Derbyshire alabaster, with white marble capitals. These columns are 25ft. high. Waagen, in his "Art Treasures," describes them as "of one piece," and they have that effect, but examination shows that this is not the case, each being in two or three pieces cleverly put together. The ceiling is poor, the ornaments of genuine "Adelphi" character, and the colour of the walls is not well calculated to give the best effect to the columns; nevertheless this hall, 67 ft. long between the walls and 42 ft. wide, is unquestionably a fine one, and leaves an impression on the mind. The doorways of the withdrawing-room are formed with handsome columns and pediment of alabaster; the floor of the curved corridor that connects on each side the central building and its six-columned portico, on high stylobate, reached by handsome external flights of steps, with the wings, is an excellent piece of work: still, as in most of the buildings and art of the time, no bit of sentiment or feeling is to be found. The inscription, To his friends and himself (*Amicis et Sibi*), is, nevertheless, a feature in that direction. There are several good pictures,—a head, ascribed to Rembrandt, in the music-room; a fine Giordano; a curious landscape, with Scripture composition in foreground, by De Momper, Velvet Breughel, and old Franks, conjoined; a particularly fine Claude; a head by Salvator Rosa; and some others; but notably the picture of Daniel foretelling ruin to Nebuchadnezzar, ordinarily attributed to Rembrandt, but by some, and with more correctness, as we venture to think, to Solomon Koningk, his worthy scholar and follower. Rembrandt would scarcely have painted such a Daniel,—the blot in the picture. This remarkable work was in the Manchester Great Exhibition, and may be remembered by the deceptively-painted opal in the king's throne, even by those who have forgotten the composition. Tradition and the housekeeper point to a picture over one of the doors as "Shakspeare, by Vandyck." Who would not rejoice if these two respectabilities could be believed? Six and thirty small works, in Limousin enamel, after a series of wood engravings by Albert Durer, are so hung as to do them great injustice. Coming out, the Circular Saloon, 42 ft. in diameter, and 20 ft. more than that in height to the eye of the dome, will

commend itself to the attention of all who are interested in planning. The park is charming, and the church, close to the house, shows some bits of Norman work and two monuments below the paving, where in each case a sculptured head, in full relief, is seen within a quatrefoil opening. Heads, in such a position, of smaller size and in lower relief, are less uncommon.

Alton Towers, with its exquisitely beautiful grounds, its hill and dale, art and nature, come hereinto the route, but we have recently alluded to its beauties that we run on to Ashbourne Church, noted as a dated example of thirteenth century work. A small brass plate (perhaps 7 in. by 3½ in.), of some age, now in the church, gives the inscription, showing that the building was dedicated in the year 1241,—"*In honore scilicet Oswaldi, Regis, et Martyris*," &c. The original inscription is engraved in Pegge's Sylloge, and reproduced in the "Companion" to the Oxford "Glossary." The chancel, large, and the north transept, have lofty lancet windows. Some valuable monuments to the Cockayne family are being injured by damp. Amongst the Boothby monuments, one of a child in unquiet sleep is a good work by Banks. It has a pedantic inscription in English, Latin, Italian, and French.

The town itself is quaint and interesting, with many schools, almshouses, and other parochial structures scattered about; and the views of the valley in which it stands, seen when approaching it, are fine. Canning made it talked about years ago by these two lines in one of his "skits,"—

"So, down thy dale, romantic Ashbourne glides
The Derby Dilly, carrying six insides."

The drive from Derby to Dove Dale is charming, too, though it is hard now-a-days, when sitting behind a pair of horses after a railway journey, to avoid remembering the little girl, who having ridden fifty miles in a train, then took a coach to her uncle's house, some five miles further, and being asked on her arrival if she had come by the train, replied,—"*We travelled a little way in the train, and then all the rest of the journey in a carriage.*"

Approaching the dale we reach Ilam, with its pretty prim cottages, built for effect, and a memorial cross, by Darick, after the fashion of that at Waltham, but including a fountain, inscribed to Mrs. Mary Watts Russell, by her husband, the owner of the estate. The inscription says,—

"Free, as for all these crystal waters flow,
Her gentle eyes would weep for others' woe;
Dread is that fount; but long may this endure,
To be a Well of Comfort for the poor."

This fount, however, would seem now to be dry too, or, at any rate, drying. The water in the basin round the cross, when we were in the neighbourhood, had evidently been there for some time, and was not attractive. The disinclination of even water to run away at Ilam is understandable: it is certainly a pretty spot. Ilam Hall comes well into the picture; and, as we approach the Izaak Walton Hotel, Thorpe Cloud on one side (a truncated cone as seen here though a pointed mountain viewed from behind), and Bunster Hill on the other, mark the entrance to the picturesque Dale. The name of the hotel alluded to will remind readers of the connexion of this beautiful piece of Derbyshire and Staffordshire (here the counties touch) with the well-known hosier of Fleet-street, "Father of angling," and his son-in-law, Charles Cotton, who has sung the merits of the Dove with brave words. The Tiber, the Tagus, and the Po cannot show such streams,—

"The Maeus, the Danube, and the Rhine,
Are puddle-water all, compared to thine;"

and Tame and Isis, when conjoined, are made to lay their trophies at its feet. This is simply stuff, but Dove-dale is a lovely place notwithstanding. The stream here smoothly flows, with its often-painted "stepping-stones," and there rushes impetuously through a narrower

channel and dashes itself into foam against fallen stones that impede it; while on either side tree-covered hills alternate with craggy masses of rock; in one part grass-land smiles, in another precipices frown. The view from the Lover's Leap (of course there is a lover's leap) is truly grand; including an amphitheatre of Scotch firs, ash, and beech, mixed up with limestone rocks of quaint shape. The more prominent rocks have names of old standing, and "Dove-dale Church," "The Sugar Loaves," and other masses are pointed out to the tourist. The "photographing gentlemen," as our guide put it, are changing the names; why or wherefore does not seem clear. Thus on their views they call the group long known as "The Twelve Apostles" "Tissington Spires North;" surely a stupid alteration. Do pray, gentlemen of the camera, leave the old names alone.

The path here and there is rugged, and in ascending to Reynard's Cave, the highest aim of the enterprising examiner of Dove-dale, the difficulty almost amounts to danger: at any rate, care and a steady head are necessary.

Ilam Hall, though just out of Derbyshire, must not be passed by as without a few notes and praises. It is one of the best of the modern Gothic houses erected at the commencement of the present century. The first stone was laid in 1821, and the late Mr. Shaw was, we believe, the architect. As the residence of a private gentleman, not pretending to be a palace or a castle, it is complete and homogeneous. Good taste appears to have had direction over every part of it: nothing incongruous or poor meets the eye. The grounds, too, are charming, and the ancient village church within them, and near the house, backed by Thorpe Cloud, comes into the view from the windows. Why called Thorpe Cloud, by the way,—this mountain? Thorpe is the hamlet whence it springs, and the Cloud will be seen most days hanging lovingly around its shoulders. The Hall contains some fine pictures: two good Vandycks, Landseer's "Dogs of St. Bernard rescuing a Traveller," a landscape by Gainsborough, a portrait of Congreve, who wrote at Ilam his comedy, "The Old Bachelor," which was produced in 1693, and part of "The Mourning Bride," produced in 1697; a charming sea-piece by Calcott, full of movement; a good picture by Opie, "The Dame School" (the head of the old woman worthy of Rembrandt), and Howard's "Pleiades and the Morning Star," suffused with poetic feeling. There is, too, an admirable bust of the late Mr. Watts, by Chantrey, who also executed an elaborate and beautiful monument to his memory, erected in the churchyard by. In this, Mr. Watts is represented as rising from his bed, by the side of which are his only daughter and her children, who it is understood, wait to receive his dying words. An open book in his hands, to which he is directing their attention, prevents the immediate recognition of this idea by one viewing the monument for the first time. It is, nevertheless, a work of high merit, and can scarcely be contemplated without some emotion. The church, mostly of the Decorated period, was restored not long ago by Mr. Scott: the font is Norman, rude and coarse.

And now away to Rowsley, with its model inn "The Peacock," dear to anglers, and indeed to all who like a pretty place, quiet kindly attention, and a good cook. Autumn is upon us:—

"Now sheaves are slanted to the sun
Amid the golden meadows;
And little van-tan glensers run
To cool them in their shadows."

But all is at present green and fresh: we do not yet see those varied tints that make,—

"The gorgeous autumn woods so beautiful
That even old Winter means, as he sweeps through,
To spoil such solemn beauty."

In the neighbourhood a good deal of the land belongs to Mr. Whitworth, the well-known great-gun maker. This includes Darley Dale stone-quarry, from which the getting of stone has been stopped, in order that it may be rendered, by planting, an ornament to the estate. Darley Dale Church is distinguished by the possession of a number of early gravestones, besides some that were taken away, and are to be seen in the museum of the late Mr. Bateman, not far off. Several noticeable incised stones are set up in the church, especially two, in memory of members of the family of Rolleston, in the sixteenth century; one of which, dated 1513, we have no hesitation in placing amongst the finest examples now remaining. The inscription around this—partly in Latin, partly in English—is very

curious; it runs thus:—"Hic jacet corpus Johes Rolleslei armigri Eleasabeith uxoris ejus the rede dei qui join the yere of owre Lord a thowsand V. C. and thritten."

A stained-glass window, in memory of Raphael Gillum, put up not long ago, over archaic as it may be, displays by some of the figures a very tender expression, and gives those who will look into it something to think about. The very ancient yew tree outside, the tree which seems to mourn over what it shadows, measures 32 ft. in circumference in the largest part. We do not remember one bigger.

In Rowsley Church stands the monument to Lady John Manners, by Calder Marshall and Forsyth, of which we gave an engraving some time ago. The lower part (arches and small marble columns) is rather confused; and the angles being taken off below the slab makes the tomb look somewhat top-heavy. The figure, however, is devout and charming, and the whole effect very praiseworthy. The floor of the little chapel in which the monument stands has a pavement of marble mosaics, by Tomlinson, of Bakewell, rich and satisfactory. The church, Norman in manner, was designed by Mr. Salvin the younger.

Close by is Haddon Hall, whose general external appearance is best seen approaching it from Rowsley. The building stands beautifully: well elevated and embowered in trees, above which appear its towers and battlements,—a capital skyline. Coming nearer, the bridge over the Wye leading up to its gate-house gives another picture, and entering the outer court the nineteenth century is quite cut off, and the mind may revert without difficulty to the men who fought for the Roses and those who danced with Elizabeth: to say nothing of that earlier time when the manor belonged to the Conqueror's son, Peverill "of the Peak." This old Hall has many ghosts for those who can see them; much music for those who can hear. Such practical gossip as we can get out of it will serve to begin another paper of jottings Out and About.

THE DURHAM CONGRESS OF THE BRITISH ARCHEOLOGICAL ASSOCIATION.

ON Monday, the 21st of August, at Durham, commenced the twenty-second annual congress of this Association. The business of the meeting occupied the entire ensuing week. It will be remembered that the Association was induced to direct its steps to this interesting northern city by the invitations received from the University of Durham, the mayor and corporation of the city, the clergy, and local antiquarians. The results of the week have justified the invitations as much as they must have gratified the members of the Association and other visitors.

At 3 o'clock on Monday, Bishop Cosin's Hall, on the Palace Green, was filled to overflowing by the members and their friends assembled to receive his Grace the Duke of Cleveland, the president of the Association for the year. Amongst those present, the venerable Bishop of Exeter was noticed by all with especial interest and regard. Upon his arrival the Duke of Cleveland was introduced by Lord Houghton, and then delivered his inaugural address.

His Grace recommended the study of archaeology, and represented it in the light of a complementary science to geology. He alluded to the marks of the most remote periods of history as being less abundant than in some other counties, and then noticed the considerable and interesting remains of the period of the Roman occupation which the county of Durham possesses. He pointed out undoubted memorials of the Saxons and the Danes, and then described the richness of the city and its neighbourhood in monuments of Mediaeval times, both churches and castles. The Duke concluded his address with a warm tribute to the memory of two able and sincere friends of the Association and of the science of antiquity, viz., His Grace the late Duke of Northumberland and the Rev. Mr. Hartsorn.

After the delivery of complimentary addresses by the Venerable Archdeacon Bland on behalf of the cathedral authorities, the Mayor of Durham, and the Rev. T. Chevallier on behalf of the University, the Association proceeded to examine the castle, under the guidance of the Rev. G. Ormsby.

The castle is a noble pile of building, magnificently placed on the lofty and precipitous rocks above the river Wear. A castle was erected

here in the time of William the Conqueror, but Mr. Ormsby showed that it was hardly probable that any part of that edifice could now be traced.

The castle soon became the possession of the prince-bishops of Durham, and was altered and enlarged by them at various periods. Hugh Pudsey, bishop from 1154 to 1193, must have raised a large part of what yet remains. Mr. Ormsby conducted the party to the upper story of an immense structure forming the northern side of the castle, where the walls still exhibit Norman arches and windows elaborately enriched with chevron ornaments according with the era of Bishop Hugh. The lower parts of this building are cased and concealed by works of various subsequent ages, and by modern fittings. Bishop Hatfield's hall, a magnificent apartment of the Perpendicular era, was examined. The ancient keep on a lofty mound is so transformed to the purposes of the students' lodgings of the modern university as to possess but little mark of antiquity. The entrance gateway to the castle has considerable remains of Norman work. The last point to which Mr. Ormsby led the way was what he believed to be the ancient chapel of the castle, perhaps the most interesting feature within it. He was inclined to assign to it an age coeval with William the Conqueror. It is situated in the basement, under Bishop Hugh Pudsey's work, and consists of three aisles or avenues, so narrow that a man may stretch his arms across from pillar to pillar. It is three or four bays in length (under 30 ft. long altogether), and was lighted by an east window to each aisle, and by some windows on the north side; upon which side, however, it is well nigh buried to the top of its walls in the ground. It is vaulted throughout, and the ancient pavement remains. The altar-space is raised one step, and the brackets which were above the altar yet remain.

The Rev. T. Chevallier doubted the possibility of using such a place for a chapel, and mentioned a suggestion made to him by a learned authority, that it must have been a water-tank.

Mr. Gordon Hills thought the building as old as the chapel in the Tower of London, and considered the features to mark it as a chapel so distinctly as to preclude all doubt on the subject.

In the evening, a public dinner, at which upwards of 200 persons sat down, took place in Bishop Hatfield's Hall, at which the Duke of Cleveland presided. His Grace was supported by the Bishop of Durham, Lord Houghton, the dignitaries of the cathedral, and members of Parliament for the city. The vice-chair was taken by the Mayor of Durham, and there was a full gathering of the members of the Association, with as many friends as the great hall would hold. Not a few who would gladly have been present were unable to obtain tickets, merely from want of space to receive them.

On Tuesday morning a party of about 100 persons started at an early hour to visit Lumley Castle, Chester-le-Street, the Roman station at Lancaster, and Lancaster Church.

Lumley Castle, which overlooks the Wear, at a few miles distance from Durham, was built by an ancestor of the Lumley family in the reign of Edward I., but much of the present building dates from about 1700. In the great hall, with its minstrel gallery, are nearly twenty large portraits, representing the ancestors of the family, commencing with its founder, Lulph, the Saxon. If these were genuine portraits, they would, of course, possess extreme interest to the antiquary; but they have been suspected to be "counterfeit presentments" in more than one sense; and Mr. J. R. Planché confirmed this suspicion, and suggested that they were copies of old engravings worked up into a fanciful series of family portraits. The Rev. John Dodd, who acted as *diacone* here, pointed out the chief objects of interest. Viscount Lumley was created Earl of Scarborough in 1670.

From Lumley Castle the party drove to Chester-le-Street, which was of old a Roman station, and was called by the Saxons Concastre. In 883 a bishopric was founded here, under Eardulph, the last Bishop of Lindisfarne, who found refuge in this spot from the Danes, bringing with him the body of St. Cuthbert; but in 995 the Danes ravaged the Northumbrian coast, and the bishop and monks fled to Ripon, bearing with them the remains of the saint. When the invaders retired, he and his followers set out on their return towards their deserted cathedral. But at Wardlaw, a hill on the south bank of the Wear—so the legend runs—the carriage containing the body of the saint became fixed, and the united efforts of the whole party

could not move it. Fasting and prayer for three days followed this phenomenon, and then the saint made known his wish to rest in Durham. However that may be, St. Cuthbert's remains were taken to the city, and Chester-le-Street lost its bishopric. The old cathedral at Chester-le-Street was of wood, but it was removed by Egelfric, about 1045, and a stone church erected in its place.* In one of the aisles of the present building is a stone effigy, supposed to represent St. Cuthbert, really a priest of the thirteenth century. In the north aisle, called the Aisle of Tombs, are fourteen monuments—recumbent figures, with descriptive tablets above them—supposed to represent various members of the Lumley family, from the time of the Conquest down to the sixteenth century. The Rev. H. Blane, in his paper descriptive of the church, expressed some surprise that there was no notice of these monuments in Gough; but the inexorable Mr. Planché declared that he was not at all surprised at the omission, since Gough no doubt thought them of no value as monumental remains. Mr. Planché regretted to say anything which might give pain to those who cherished a feeling of reverence for these tombs; but there could be little doubt that with the exception of two in marble and one in sandstone, they were merely bad imitations of other monuments, and were, in fact, spurious.

From this point the party made for Lanchester. Close by the village, in a very commanding position, are the remains of a Roman encampment—no mere earthwork, but a walled station, with what was once solid, well-finished masonry. Dr. Collingwood Bruce, who gave an interesting description of the fortifications, *ambulando*, surmised that the Picts and Scots may have broken down the wall at various points, but the ruin has been chiefly wrought by those who looked upon the stonework as a valuable quarry, and built from the materials which it supplied farm-houses, boundary-walls, and mansions, ruthlessly using even the sculptured stones. The remains of the aqueduct, along with the altars and coins which have been from time to time found among the ruins, show what importance was attached to the station.

A heavy thunderstorm broke out while the visitors were under Dr. Bruce's guidance. Fortunately the village church formed a convenient and not a distant meeting-place, and here Mr. Edward Roberts undertook at short notice to point out some of the leading archaeological features. A fine Norman chancel arch, with later work of about 1220, and some fragments of painted glass in the vestry, were noticed. Dr. Bruce and the Rev. Mr. Greenwell clearly pointed out that the church had been chiefly constructed with material taken from the neighbouring Roman camp.

The weather was still most gloomy when the party, of whom a considerable proportion were ladies, left the village for Ushaw College, about four miles from Durham. Here they were received by the rev. president, Dr. Tate, and the Roman Catholic clergy, with unbounded hospitality, and were waited on by servants who evidently looked upon their duties as a labour of love. Solid food was in abundance, and wine flowed without stint. Mr. Headlam, M.P., the Judge Advocate-General, expressed the universal feeling when, in the name both of Association and visitors, he thanked the ven. president for the good cheer and the most generous reception accorded to them. Ushaw College is hardly more than sixty years old, so that of archaeological study in the strict sense there was none. Upon the destruction of the seminary at Donay, during the French Revolution, some portion of the inmates settled near Lanchester, and for their accommodation a college was begun and dedicated to St. Cuthbert. There are in the college some 300 students. Dr. Lingard, Cardinal Wiseman, and Mr. Justice Shee have been among the students of whom Ushaw is justly proud. The completeness of the arrangements for the accommodation of students, and the lavish and tasteful ornamentation of the chapels, could not be overlooked. So much of interest was to be seen, and so much remained unseen, that it was difficult to take leave of Ushaw; but the visit, necessarily hurried as it was, left most agreeable impressions on all the party. With some small misadventures in the thick darkness that prevailed, the return to Durham was safely accomplished.

* This was succeeded in the thirteenth century by the existing fine structure when the church became collegiate. Of the work of 1045 a few broken stones only remain.

Wednesday morning, after the cathedral service, was devoted to a description of Durham Cathedral and its monastic buildings, by Mr. Gordon Hills, the party being assembled in the new library, anciently the monks' dormitory, to hear a preparatory discourse, after which they were conducted first to the cathedral and then over the monastic buildings. The general plan of the cathedral is that of a cross, with remarkable appendages at the east and at the west ends; that at the east end being known as the Nine Altars, and that at the west end as the Galilee. The present church was begun nine years after the introduction of the Benedictine monks. They were introduced in 1083. Bishop Carleph, who began the present building, died only two years afterwards. Although Carleph did not live to see much of his work completed, it continued to progress rapidly at the eastern end. The nave was raised to the roof under Ralph Flambard, who succeeded Bishop Carleph, and held the see from 1099 to 1128; and, although there was no record of the final completion of the church, it must have been completed shortly after that period. A very remarkable building, of which Mr. Hills said he was sorry to say they could see little now, was the chapter-house, which was erected before 1140. It was remarkable for its apsidal end, the whole of which was pulled down near a century ago, and converted into a square room. There were one or two interesting remains of it in the room in which they then were, and among these were three large corbels—figures sustaining a weight on their heads—or, according to the Greek, *caryatides*, from which the vaulting sprang. There had been a fourth, but what had become of it he did not know. Before leaving the library, Mr. Hills showed that parts of the substructure of the deanery and refectory were older than Carleph's cathedral, and evidently intended for a set of buildings on a smaller scale than was eventually carried out. He also pointed out that the monks in this monastery had inhabited that part usually assigned to the lay brethren, with the reasons which led to this deviation. The attention of his auditory was also directed to a drawing of Carleph's church, by Mr. Robson, late architect to the dean and chapter, from which they would see the changes that had been effected in later times in the upper parts of the building. The party then proceeded to the cathedral, and Mr. Hills having taken a position at one of the pillars in the nave, said they were now in that part of the church which was erected by Ralph Flambard, and which extended from the cross arch to the west, being the nave of the church. He needed not, he said, to call their attention to the extraordinarily massive construction of the piers and arches—the circular piers being no less than 25 ft. 6 inches in circumference—but what he wished to point out was, that in the eastern part of the nave the arches had no ornamentation whatever, having only plain moulding, while at the bay in which they then stood (opposite the main entrance) they had chevron moulding which was continued up to the end of the church. They found that the vaulting was constructed with the same ornament, but with this difference between the two, that while everything to the top of the walls had round, or what was called Norman arches, the vaulting itself was of the pointed form. This had led to some misapprehension as to the date of the vaulting. He could not trace the mistake further back than to the writings of Brown Willis in the last century, who told them that Prior Melsonby vaulted the nave of the church between 1238 and 1244, but when they came to examine it they would find it impossible to believe that this could have been the case; and he thought they must rather conclude, seeing the way in which the vaulting harmonised with the ornamentation in that part of the body of the church, that, having carried up the walls under Ralph Flambard, the workmen commenced the roof and carried it on in the same ornamental style as that in which they had completed the nave. The probability was, that the vaulting was put on in Bishop Pudsey's time, and one reason for that opinion was the circumstance that the ornamentation was similar to that found in the Galilee or Lady Chapel, which was well known to have been constructed by him. The nave now was very bare indeed of ornamentation from what it was from the time it was first devoted to worship down to the Reformation, because at the Reformation the magnificent roof-screen, which was considered the choicest in the country, and an altar named after the Saviour, were removed from

beneath the western arch of the central tower. Having referred to the several altars which stood in that part of the church, and to the spot where the sanctuary was situated, he drew attention to the line of blue marble in the pavement extending between the northern and southern doors. That, he said, was a great peculiarity in the building, for to the east of that mark no woman was ever permitted to go, up to the time of the Reformation. Various reasons had been given for such exclusion, which it was hardly worth while to quote; but it might simply be stated that it seemed to have arisen from the misconduct of certain monks at one of St. Cuthbert's monasteries, to which a nunnery was attached, and he resolved never again to allow men and women to be associated at any of his monasteries. The mark, however, might have had another meaning originally, for he had a strong suspicion that, in early times, there was some intention of shutting off the choir at that point. The Galilee Chapel at the west of the building was next visited. This chapel, Mr. Hills said, was erected by Hugh Pudsey, possibly towards the conclusion of his episcopate, which began in 1153, and lasted nearly forty years. In placing the chapel there the bishop stopped up and enclosed the ancient west door of the church. They were told he was led to erect that building to the worship of the Virgin Mary, and for the use of females, for whom, being at the time excluded from the rest of the church, it became necessary to provide some other place. This was perhaps one of the earliest lady chapels erected. One object which Bishop Pudsey had in erecting that chapel was to give a becoming shrine to the remains of the Venerable Bede. Bishop Langley, before the Reformation, caused a considerable alteration to be made in front of the great altar, and his own tomb to be erected there, and it was to him they owed the construction of the new flat roof, the roof having previously been pointed, and he also put in windows of a pointed character all through the west front, and constructed the massive buttresses over the river banks. The latest work which had been carried on at that part of the building was the reconstruction of the north side. The work was now finished, and he thought they had every reason to be satisfied with the admirable style in which it had been executed. The Nine Altars Chapel was next visited, when Mr. Hills called attention to the magnificent screen dividing the choir from the chapel. Right in the middle of the quadrangular space to the east of the screen was originally placed the shrine of the saint himself, where Bishop Carleph's church originally terminated with an apse. The question of the identity of the body of the saint was one, Mr. Hills said, which was raised in very early times; for there were some people who disbelieved that the body could be preserved uncorrupted for so many years. When Abbot Turgot, by whom the main part of the church was erected, under Bishop Carleph, prepared the place for the reception of the body of the saint, he caused an examination of the remains to be made, and it was found that the body was cased in more than one coffin, and carefully protected on the external coffin with hides, the body itself being wrapped in cere clothes, which were pressed so firmly that it was recorded by Reginald the Monk that he could not in any place insert his finger betwixt the cloth and the body. It is an opinion now pretty well received amongst medical men that such a mode of preservation would effectually retain the form of the body in almost lifelike appearance for a great number of years. That it was the identical body of the saint which had so long been preserved was conclusively shown, because some hundred years before that time it was reputed to be so lifelike that the hair and nails were said to have grown upon it; and a certain monk was alleged to have been deputed to trim the hair and nails, Reginald recording that in the coffin were the scissors and comb which the monk had used. On the suppression of the monasteries in the reign of Henry VIII., the body was again examined on breaking up the shrine. The commissioners were surprised to see the body so perfectly kept, and orders were afterwards given for its reinterment. It remained undisturbed from that period till 1827, when Dr. Raine and other gentlemen, anxious to find out if the body was still in preservation, caused the ground to be opened; and although the outer coffin and the series of inner coffins were much broken, they were sufficiently whole to show that they were those described by Reginald. They found that the form of the body had been lost

and reduced to a mere skeleton; but amongst a number of relics they came upon the very comb which had been spoken of so many hundred years before, and which was now preserved in the library of the old refectory. Richard Poor, who was Bishop of Salisbury, and founder of that cathedral, became Bishop of Durham. Under him the first measures to raise money for the erection of the nine altars were taken, but he died two years before the work was begun, in 1242. The architecture is much like that of the church which they studied at their congress at Salisbury; and it also agreed in a remarkable manner with the Nine Altars at Fountains. Mr. Hills then referred to the nine altars which gave the name to the chapel, and the saints to whom they were dedicated, stating that the altars were originally divided from each other by oak screens of elaborate tabernacle work, and were each fitted up with aubrics, chalices, cups, &c., everything of the most costly description. When inspecting the choir, he said that it was the most ancient part of the whole building, being that which was begun and erected in Bishop Carlisle's time; but the vaulting he attributed to Abbot Melsanby, who built the Nine Altars. The magnificent structure on the south side of the choir, in what was called the Decorated style, was the tomb of Bishop Hatfield, erected in his own lifetime, and upon which he had placed a throne, which was still used as the throne of the bishops of Durham. Proceeding to the transepts, Mr. Hills said that that part of the cathedral, as they would understand from the sketch by Mr. Robson, was not originally finished with a lofty tower as it was now seen, but in fact with a low Norman tower. The tower had seen very many vicissitudes; for not only was the Norman tower displaced, but a tower built by Hugh Darlington, a near successor of Melsanby, had also entirely disappeared. It was struck by lightning in 1429, and in part destroyed, and shortly afterwards the rest of the tower was found to be going to ruin. Of the history of the tower, as it was now seen, nothing was known until it was brought to light by Dr. Raine, who proved it to have been erected about the middle of the fifteenth century. It would be seen that it had been begun at a time when what was called Perpendicular work prevailed, and was rebuilt from immediately above the great Norman arches. They would notice the extraordinary bulk of the columns upon which it was supported; and he must say that that bulk was no more than was required, as the weight upon them was nearly 11,000 tons. The chevron moulding of the vaulting was found existing in the south transept, while it was absent in the north, showing that the north transept was finished first.

The party then left the church, and visited the chapter-house, cloisters, kitchen, and other parts of the monastic buildings, bringing the inspection to a close by a visit to the residence of the dean, formerly the prior's hospice.

Next to St. Cuthbert, though at a great distance, St. Godric was held in reputation in this neighbourhood. His sanctity seems principally to have consisted in extreme bodily penances. His cell was about 4 miles from Durham, and there the "cold ground" was his only bed, a stone his pillow, and bread made from flour mingled with ashes he considered too good until it had been kept mouldy for several months. But his crowning merit consisted in standing for whole winter nights up to his neck in water; which feat of holiness, it is related, "so angered the devil that he stole the saint's clothes." The miracles he wrought, added to these penances, gained for him admittance into the calendar of saints; and after his death a monastery was founded near his cell, called Finchale Priory, the ruins of which were visited in the afternoon. It is situated in a richly-wooded valley, or rather glen, through which the river Wear flows over a rocky bed, making a delightful sound of running waters. On one side the river there is a steep cliff studded with trees, and the priory is situated on sloping ground on the other side. Mr. E. Roberts, who undertook to explain and describe the priory, said that, notwithstanding the great sanctity of St. Godric, the monastery erected in honour of him, in the twelfth century, was always poorly endowed. The visitors to the shrine must, indeed, have been very parsimonious, for the monks were nearly always in debt; and it is recorded that, in one year, their expenditure was double the amount of their revenue. The church of the priory originally consisted of a nave, choir, two aisles, with a transept; but the arches of the aisles

were afterwards built up, leaving only the nave, transept, and choir, and the rough stones are now to be seen filling up the arches. The architecture generally has a very naked and unornamental appearance. The cause of taking away the aisles has been much debated; but it was attributed by Mr. Roberts in his explanatory description to the poverty of the monastery, the monks not being able to effect the necessary repairs. About the year 1860, small sums were obtained and appropriated to the re-edification of the church and house. It seemed to him that the state of repair in which the aisles then were, induced them to take down the arches, so as to save themselves the expense that would have been consequent upon the rebuilding of the same. One very great regret which he had to express with regard to those ruins was, that they had been converted into a fruitful quarry for the use of all persons in the neighbourhood. They had taken away the stones and used them in the construction of other places. For some time that practice was rigidly put a stop to, but he heard now that it was a recurring evil, and that the stones were being carried away in large quantities and used in the erection of farm-buildings in that locality. In this way the figures and sculptured stones had been removed, and he thought that it was desirable that the inhabitants of Durham should endeavour in some way to prevent such destruction of so fine a memorial of the past as that. The carrying away portions of the remains of the priory deprived them of a monument which could not be replaced, and of information which they could not otherwise gain. The conventual buildings were on the south side. The ground rose rapidly from the river, but the building, instead of rising in proportion, had its floors raised to the level of the upper land. That was a nice example of the manner in which the builders of that day accommodated their buildings to the land which they had to deal with, and suited their work to the place and materials. The date of the priory seemed to be about the time of Henry III., or from 1194 to 1200. He wished it to be understood that he gave that as his own opinion. There was a short tower in the centre. The windows were lancet and were rabbited. They had not been glazed with glass, but enclosed by lattices. In the transept there were places for altars, one no doubt having been the shrine of St. Godric, to whom, with St. John the Baptist, the church was dedicated. The nave was wider at the west end than at the east in a greater degree than is usual. When describing different portions of the conventual buildings, Mr. Roberts pointed out several errors into which he conceived Dr. Raine had fallen. He noticed also some popular errors, one of which is that an arch which led into the prior's apartments was the way into the kitchen of the monastery—such an opinion having no better foundation than the existence of a modern fireplace for the use of the picnic parties who frequently visit the beautiful spot.

At the evening meeting, in the castle, the first paper read was a very elaborate one by Mr. J. Hodgson Hinde, "On the progress of the Roman arms in Britain, with especial reference to the position of the northern frontiers at different periods."

Mr. T. Wright, in moving a vote of thanks to Mr. Hinde, drew attention to several points on which he thought Mr. Hinde was in error, and discussed briefly the object of the wall of Hadrian, which he said was intended as a protection against those extensive marauding expeditions of the Caledonians from the North, by rendering it impossible for them to carry away their plunder.

The Rev. Prebendary South then read a paper "On a Roman altar found on restoring Gileford church in 1861," with explanation of the inscription. The date he assigned to the altar was about 150 A.D. The altar had been converted into the capital of a pillar, and having been appropriated to assist in the building of a Christian church, the discovery of the original character of the stone had been made after it had been so appropriated for upwards of 1700 years.

On Thursday morning, a special train carried the excursionists to Barnard Castle, where Captain Robinson acted as guide. The castle, now in ruins, was built by Bernard Balliol, in the beginning of the twelfth century, and the most interesting of the remains are a four-circular Norman tower, and a Norman gateway. The work was dismantled in 1630, and the internal

arrangements have become almost totally obliterated. The sunny brightness of the morning displayed to the visitors the charming scenery of the Tees, on the banks of which river the castle stands.

The next point in the progress of the party was Staindrop church, where they were received by the Rev. J. F. Hodgson, who drew attention to the architecture of the building, showing how from a humble Norman edifice it had increased to the size and dignity required for a collegiate church. Mr. Planché interested the visitors by his remarks on the sumptuous monuments of the Nevilles, which the church contains.

A short drive through Raby Park brought the Association to the princely seat of the president, Raby Castle. Here they were received with the most thorough hospitality; and in the upper hall, where about 200 guests sat down, the Duke and Duchess, with the Marquis and Marchioness of Normandy, Lord Houghton, and other visitors, were unremitting in their attentions to the wants of the travellers. Mr. Planché, as a vice-president of the Association, in a few apt words, acknowledged the hearty kindness of the noble entertainers, and the Duke of Cleveland warmly expressed the gratification which the presence of the Association afforded him.

In the lower hall a history of Raby Castle was then read by the Rev. J. F. Hodgson, in which the industry, learning, and enthusiasm of that gentleman were conspicuous. Nothing could be more complete than his acquaintance with the subject which he undertook. The difficulty was to condense it into an illustration of the building suited to the time at disposal. The stately castle to which it refers, as it now stands, was erected soon after 1345, as proved by the licence to fortify it, extracted from the close rolls of Bishop Hatfield, of Durham, and by the general coincidence of the architecture with that period. Passing through a fine gate-tower, the bailey of the castle is entered. The castle itself consists of a quadrangular mass of great dignity and splendour, with an open court in the centre. One side of the court or quadrangle opposite its entrance is occupied by the two halls, one above the other, of such stupendous proportions that carriages are admitted to drive across the quadrangle and into the lower hall. The sides of the quadrangle have the kitchen and offices springing from one end of the hall, and the principal chambers of the castle from the other, according to the usual distribution of the age.

At the evening meeting in the Town-hall at Durham, an elaborate and excellent paper was read "On the Norman Ancestry of the Nevilles," by Mr. Planché. Mr. C. Carr furnished an interesting account of a supposed Anglo-Saxon inscription of considerable length found on an oak beam at Hexham Castle, but which, it was maintained by some present, was English of the fifteenth century. The evening was brought to a close by a short paper by Mr. T. W. King, of the *York Herald*, pointing out the MSS. relating to Durham in the Library of the College of Arms.

On Friday, the excursion was planned for Tynemouth Priory and Newcastle. At Tynemouth the Association was met by Mr. Sidney Gibson, the historian of the priory. The entire form of the church is traceable, and the mode of its division into two parts, for monastic and for parochial use, was pointed out. The most considerable remains are at the east end of the church, and present a specimen of almost unrivalled beauty of the purest Early English work. A miniature lady-chapel, of elaborate Perpendicular work, in perfect condition, is attached to this part. A few fragments of the conventual buildings remain.

At Newcastle the Association was greeted by the deputy-mayor and sheriff of the town, the presence of the mayor being prevented by illness.

Dr. Collingwood Bruce pointed out to the visitors, with great animation, the main features of archaeological interest in the castle, which, though not the largest, is reckoned the most complete specimen of a Norman stronghold now existing in this country. William the Conqueror ordered it to be built; but no remains of that structure now remain. The present castle was built by Henry II., between 1172 and 1177, and the cost of it appeared to be 892l. 11s. 9d. In 1342 the castle was besieged by King David of Scotland, and bravely defended by Sir John Neville; and in 1388, before the battle of Otterburn, Harry Hotspur defended it from Lord Douglas.

Having afterwards visited St. Nicholas Church,

they then inspected that portion of the town walls and of the tower still visible in Pink-lane; thence to Westgate-street, and to the old Dominican chapel in the Friars. Passing along the west walls, they visited St. Andrew's Church, and thence along Blackett-street, through the market and the news-room, they proceeded to All Saints' Church, where they inspected Roger Thornton's brass, one of the finest specimens of monumental brass to be found in the kingdom. After noticing some of the curious old houses which are to be found in the lower part of the town, the party directed their steps to the Assembly-rooms, where, by the hospitality of Mr. Hodgson Hinde, a sumptuous repast was awaiting them. In thanking the host for his hospitality, Mr. Nathaniel Gould, an octogenarian vice-president, excited the utmost interest and amusement by his vigorous delineations, from his own recollection, of Newcastle and its inhabitants, upwards of seventy years ago. He described himself as one of the few now living who had learned his alphabet from the almost forgotten horn-book.

The evening meeting, at the Town-hall, Durham, was almost engrossed by a description of the ancient Roman city of Eboracum (Wroxeter, Salop), by Mr. Thomas Wright. A large audience listened with undiminished attention to his account of the discoveries made in the excavations proceeding in late years, under his direction, and of his hopes and difficulties in the further progress of the work. Mr. J. B. Berge followed with a complete and concise account of the Durham Mint.

On Saturday morning an excursion was arranged to Brancepeth Castle and church, and to Bishop Auckland. Brancepeth Castle, about five miles from Durham, is the seat of Lord Boyle. It is most beautifully situated, and stands on a bold eminence overlooking a large expanse of landscape, with a most exquisite foreground of wooded dells, running streams, and undulating turf. The castle itself was originally built by the celebrated Geoffrey Neville, but very little of the original work remains, and though the castle presents the external form of a baronial residence of the thirteenth century, the walls have the freshness of yesterday. The company were admitted into all parts of the interior, which comprises a baron's hall, an armoury, and all the mimic resemblance of an ancient castle. In one chamber there is a treadmill which conceals a secret staircase that leads down one of the towers into the grounds.

The church is a fine old structure, which has been recently restored, and presents several features of interest to the antiquary. Mr. Hodgson Fowler explained with conciseness the chief points of interest at Brancepeth church. It contains some monuments of the Balmers or Nevilles, and some remarkably interesting woodwork.

From Brancepeth the party went by railway to Bishop Auckland, where the palace of the Bishop of Durham is situated. The Bishop of Durham received the company on the lawn in front of the palace in a most genial manner, and himself pointed out the most ancient part of the residence, which is the lower window in the court facing the chapel. With that exception, the palace has undergone so much renovation and restoration that scarcely any of the old work remains.

The party then went into the chapel, and his lordship and Mr. Sidney Gibson pointed out some of the difficulties which the renovations of Bishop Cosin, since the Reformation, created in settling the original date of the work. Mr. Le Keux made some observations, and Mr. Gordon Hills was called upon for his remarks. He commended the graceful beauty of the pillars and arcades, and noticed the singular varieties occurring in different parts of them. He, nevertheless, with confidence assigned the work to the period between the erection of the Galilee and the Nine Altars at Durham, which would make it an erection of about 1210.

The dining-hall of the palace was not sufficiently large to accommodate all the company at once, but after one-half had been amply provided for in a most hospitable style, the other portion of the party was admitted. The bishop presided at one end of the table and Mrs. Baring at the other. The present Bishop of Durham is renowned for his hospitality, and he seemed to have pleasure in entertaining his numerous visitors, who retired highly gratified with their reception.

At the Town-hall, in the evening, the Mayor of Durham, whose courteous attention to the Association throughout the week maintained the

ancient dignity of his office, gave a *conversazione*. Three papers remained on the roll of business to be disposed of: they were all of considerable value; on "Bishop Richard de Bury," by Mr. Sidney Gibson; on "Ancient Wills and Inventories relating to Durham," by the Rev. G. Ormsby; and one on "Durham and its Palatinato," by the Rev. J. H. Blunt. The two latter subjects were skillfully epitomised by their authors. The intervals of refreshment were enlivened by some admirable vocal music from members of the cathedral choir. "The cloud-capt towers," from its appropriateness and excellence, obtained rapturous applause. The proceedings terminated with the usual complimentary vote of thanks to all who had furthered the objects of the Association, and an acknowledgement to the mayor, moved by Mr. N. Gould, with a finale of "God save the Queen" from the choir.

Some members of the Association, under the guidance of Mr. E. Roberts, have organized a further excursion to Hexham and Lindisfarne.

CHESTER BLUNDERS.

CHESTER has a singular fascination for the world. It is known far and near as possessing a peculiar and unique style of street architecture, that is charmingly quaint and picturesque. No one is considered to have seen Old England who has not seen Chester. Its pleasant rows, with their sheltered walks; its half-timbered houses, with their cunning carvings, legends and gables, and latticed casements, and strange signs dangling here and there, are objects that stand apart in the recollection of travellers who have seen the hundreds of cities between Chester and China, or London and Lisbon, or Paris and Peking. What, then, should be the aim of the Chester people? Should they obliterate these distinctive features, or perpetuate them? We are induced to put this question in the hope that it may have the effect of awakening Chester to a sense of the error committed in adopting for the new buildings in the neighbourhood of the railway station, and in the length of road between it and the ancient city, the commonest type of the most commonplace and third-rate plain, brick, oblong-windowed houses. The handsome railway hotel is a mistake of a similar kind. The visitor arriving at Chester is disappointed to find an Italian palace provided for his accommodation. He would have preferred and enjoyed the appearance of a structure built in the style his associations of idea must have led him to expect. In this matter the originators of the Grosvenor Hotel, within the confines of the city, have acted much more wisely. This is as handsome an edifice as the eye could wish to see employed for such a purpose, and as capacious as a legion of travellers could require; and yet it fulfils the expectations raised by the reputation of the city, and the row-like arrangement of its basement story forms exactly the covered way all places intended for the alighting and departure of travellers require. But we see, and with great regret, that the land between the railway station and the city will perpetuate no such characteristic picturesqueness, unless the disposition of it is re-considered. Already tall, featureless, stiff brick houses are in course of construction, and adjacent plots of ground are marked out as to be let on building leases. It seems to us that, to reduce Chester to an imitation of some third-rate quarter of the metropolis is as great a piece of folly on the part of its magnates as the killing of the goose that laid the golden eggs. The importance of a place is regulated in great measure by its traffic. The thousands of visitors who are attracted to Chester by the beauty of its street architecture must surely be an item worthy of consideration. Diminish this attraction and one great source of traffic will disappear. Already too many commonplace houses have usurped the sites of ancient beauties for the Chester leaders of taste to permit any further losses. The north gate and the east gate are both structures that are out of place, and that we would gladly see replaced by those that were taken down to make way for them. What has the north gate,—"a handsome structure, of white stone, of the Doric order, forming a capacious elliptic arch, divided from two smaller ones at the sides by couples of pillars,"—as erected by the late Mr. Thomas Harrison, at the expense of one of the Earls of Grosvenor,—to do with Chester,—pleasant, sunny, shady, gabled Chester? And Watergate and

Bridgegate are just as incongruous. Let Chester be Chester, not a pretentious mixture of Greece, Italy, Harley-street, and Holborn.

The Rows should be kept up. If extensions be required they should be made in the same genial spirit. Every quaint structure now standing should be carefully preserved, and, if we may say so, affectionately handled, repairs should be attended to, and no obliterations permitted. Cheshire is allowed to be "the mother and nurse of the gentility of England," as Smith, the antiquary and Rouge-dragon Pursuivant, asserted it to have been, and Chester to have been the head-quarters of mystery plays and city shows; and it is most disappointing to find either of them dwindling from this "high estate" for the want of the employment of brains as well as hands.

On the occasion of a recent visit to this queen-mother of cities, the extent of the traffic proclaimed itself in the fact that the spacious station was what is technically known on the line as *blocked*. It was so full of trains they could neither be got out nor in.

THE NEW BOULEVARD OF FLORENCE.

THE contract for carrying out the great work of constructing a grand boulevard or "stradone" around Florence has been at length decided in favour of an English company, represented by Messrs. Cresswell, Stephen Breda, & Co. Much discontent has been expressed by the other companies, candidates for the contract, that more time was not afforded them before they were entirely thrown over; but the Comune, in an answer to a letter of complaint from Mr. French, the banker—published in the "Nazione"—affirm that they delayed for twelve days the signing of the contract; that, finding that the money, 50,000 francs, agreed upon to be deposited, as guarantee, was not forthcoming, they argued, naturally, that a company not in a condition to produce, at the given time, or even after some days of delay, a sum of 50,000 francs, was not in a position to have at command the 25 millions of francs, which will be the sum, at least, necessary for the completion of the work; and that consequently the finishing of the work might be retarded—an event which the municipality have striven hard to avoid.

The present works are to extend eastwards from the iron bridge beyond the Ponte alle Grazie, on the south-east of the city, to the iron bridge near to the entrance of the Cascine on the north-west, making a semicircle that will inclose three-fourths of the present city. The boulevard is to be divided into six sections, the first comprised between the iron bridge near San Nicolo and the Porta alle Croce; the second to extend from the Porta alle Croce to the Porta Pinti; the third from the Porta Pinti to the Porta San Gallo; the fourth, from the Porta San Gallo to the Porta Vecchia; the fifth to the Canal, called Canale Macinante; the sixth from the Canal and the right shore of the Arno to the iron bridge near the Cascine. The whole project has been under the supervision of the engineer Poggi and his coadjutor Tito Gori. These have taken under their more especial consideration the position of the boulevard, the drainage, the laying down of the gas, the roads, the footpaths, the planting of trees, the sluice or great reservoir for the reception of the drainage, the means of the final disposal of the same, and also the devising of means for the protection of the city against the ravages caused by the annual inundations, especially from the Mugnone, a river at the north of the city outside the Porta San Gallo. For all these works, and the cost of indemnification, the engineers Poggi and Gori have estimated a sum of 1,846,890 francs. A deduction of 43,750 francs is made, arising from the demolitions.

The contract includes the demolition of the old walls round the city; the works to commence a month from the signing of the contract. One great object was the speedy erection of houses, of which there is great need. And as the month of August is that in which the notices for leaving are chiefly given by the tenants of houses in Florence, that also formed another stringent reason for expediting the signing of the contract, that the appropriations and subsequent indemnifications might be more advantageously arranged.

The consignment of the walls and adjacent edifices destined to be razed, will be made to the contractors one month before the day on

which the work will be put in hand. The area destined for the new buildings will be divided by the commune into lots, which may be of different configurations, length, and depth. The purchasers may unite two or more lots, or divide one into many, or diminish it in extent, on giving notice to the commune, who will have power to object to the plan when the superficies of any one lot shall remain less than 1,200 square metres, and the frontage facing the high road less than 30 metres in length. This is to prevent the erection of too insignificant buildings. The Government reserve to themselves the right of retaining for the public use those parts of the land already appropriated to public works, and the gardens Gherardesca and Lucca, on the north of the city.

On the lands consigned to the contractors and on those which may be sold by them by public auction, edifices especially destined for habitations are to be erected. The designs for these houses, and the disposal of the lands adjoining them, are to be laid before the municipality, to see that no manufactories are to be erected thereon, to which use they have the power of refusal. Where practicable, great care has been taken not to impede the progress of the new streets already commenced on the north side of the city, in which first-class houses are being erected; but where houses of third-rate class have been begun, and which might impair the grand outline of the boulevard, these will be stopped, and indemnification made. Also, wherever advantageous alterations are proposed by the owners of houses already existing on the line of the boulevard, these can be done on the plans being subjected to, and approved of by the municipality and contractors. Mr. Norton, we understand, is concerned as architect.

No building is to be less than 12 metres in height from the footpath to the eaves of the roofs, or have less than 18 metres of frontage, nor have less than a ground floor and first floor. The enclosure facing the road, of building or land, is not to exceed, if by a wall, 1 metre 80 centimetres in height; any higher enclosure must be of gates of open ironwork. The commune is to have the right of surveillance of the works, of obliging the contractor to modify his designs, and, above all, to see that the solidity and salubrity of the buildings be secure.

The auctions for the sale of the houses to be taken down and for the sale of land, all must take place within six months from the signing of the contract. Within two months from the day on which the contractors become possessed of the lands, the designs for two-fourths of the frontage of the Boulevard are to be laid before the commune; for another fourth within six months of the appointed day; the remaining fourth within a year. The works are to be begun eight days after the time assigned by the commune, without any change of design or projection being made by the contractor. The buildings are to be raised to the first-floor within twelve months, covered within eighteen months, finished within thirty months, counting always from the day designated by the commune for their commencement.

For every week of delay, the contractor is to pay a fine of a thousand francs to the municipality. Four weeks after the delay incurred, the commune is to have the power of conducting the termination of the works in hand, or conceding them to others, or to the same contractor under new terms of guarantee.

The commune will charge themselves with the appropriation of the lands necessary for the execution of the works, for which the contractor or grantees shall pay them at the rate of 61 fr. per square metre, with the exception of about 600,000 square metres situated in the third, fourth, and fifth sections, which land is to be given as a subsidy to the company. Each purchaser of land is to deposit 50,000 francs with the commune, to be returned at the completion of the works, or forfeited. There are details of workmen's wages employed in the making of roads, drains, defences against inundations, &c., all to be reimbursed by the commune. The agreement of the latter is to enlarge the Porta Rossa and other thoroughfares within the year.

The one great object to be brought about is the speedy conclusion of the boulevard. If fines and forfeitures can effect this, the boulevard will rise in an incredibly short space of time. It must be remembered that, independently of the construction of houses, the company undertake, for the government or commune, to have completed, from the day of signing the contract,—within eight months, the demolition of the walls;

ten months, the construction of the drains; twelve months, the ground-plan; eighteen months, roads made and elevation of paths formed; twenty-two months, the trees planted; thirty months, the footpaths finished.

The company, or contractors or grantees, appear by all the rules and regulations laid down, the guarantee money deposited, &c., to be most stringently bound to complete their contract; for, according to the ultimate wording of the contract, "when the possessor of the land shall have forfeited 200,000 francs, the communal administration shall proceed to the completion of the works at all risks to the owner of the property. And for a still more secure guarantee for the execution of the compact, the commune take to themselves the right (by way of reimbursement) of appropriating the deposit made by the purchaser, and in case of that not being sufficient, to have recourse to the fund raised by the sale of the houses. Hence it is proposed that the sum placed as a guarantee shall be as a deposit made between agreeing to the stipulations of the contract and the commencement of the works; and that the guarantee money shall be gradually increased, in proportion to the real value of the constructions being raised, the original deposit never to be less than the first sum agreed on. The advantage seems to a looker on to be all on the side of the municipality. With an impoverished exchequer—an inactive population—they will have their city extended, beautified by foreign capital, mostly foreign labour. It is hoped that those who have courageously undertaken this great work may reap a plentiful pecuniary harvest.

ON RAINFALL AND GUTTERS.

The fall of rain and the best method to be employed for its removal from the roofs of buildings, is a subject which recommends itself to the serious attention of the architect. In temperate latitudes, where the rainfall is frequent and copious, the style of roof generally applied to buildings to cause the rain to shed freely is that of the pent-roof. This is formed by the meeting of two oblique sides, at an acute or other angle, and is a style of roof almost invariably seen to surmount dwelling-houses, and may be frequently met with in larger buildings. Where the uppermost surface of a building is extensive, it is usually divided, so that it may be covered by three or more pent-roofs, running along its entire length. These allow the rain to shed into gutters, or alleys, which in some cases decline slightly towards the extremities of the building, and so carry the water off through down pipes at the ends, until it approaches subterranean drains, and is finally conveyed to the river.

Where down pipes can be conveniently used the gutters are generally horizontal. As a rule, these roofs are hipped towards the ends of the building, so that the angle of which they may be formed seldom faces the observer. In many old buildings and dwelling-houses, mansard roofs were employed, which caused the rain to shed more freely at some portions than at others. Latterly this style of roof had fallen into desuetude.

In many of the dwelling-houses lately erected, flat or platform roofs have been constructed, while in buildings with any pretensions to magnitude, the curved or arched roof seems gradually to have superseded every other. In localities where snow falls abundantly, it is obvious that the employment of flat roofs would be very injudicious; but many large buildings in London have been covered, and moderately sized buildings still are covered, with flat roofs, over which a thick coating or layer of asphalt, or tar and lime is laid. In buildings where the pitch of the roof will not allow the rain to shed freely, metallic sheeting is preferred, either in the form of zinc, galvanized corrugated iron, or sheet lead. The largest roof of the pent or oblique style known, is that which was erected over the riding-house at Moscow. The span of this roof was 235 ft., and its slope about 19 degrees. The slope of the curved roofs attached to the more important and extensive modern buildings is segmental, and falls very often as a circumference from its tangent.

This circumferential or arched style of roof has come to possess a wonderful fascination for modern engineers. This kind of roof being invariably constructed of iron, the architect can

no longer work altogether alone. It may, therefore, be hoped that these giant undertakings may eventually bring about something more in the shape of harmony between art and science than can be now perceived. The hand that startled Belshazzar seems to have run along the walls of modern history, dooming the works of man to decay or extermination. Those which are fashioned more beautifully will fade from want of strength, and those which seem likely to last are excessively ugly.

The adoption of the huge circular style of iron roof seems like the beginning of an age in which men look forward to meeting in greater numbers one of the mighty wings of an ideal civilization beneath which its children seek a momentary protection.

There is the roof over the Birmingham station, the Charing-cross roof, the roofs at Blackfriars, and finally one upon this plan is projected which will exceed even the dimensions of the colossal roof of Moscow.

Now, it is an important point, where the roofing of any kind extends over a large area, to ascertain the facility with which it may be capable of shedding rain from its surface. The deflection of the roof of a gas-holder has been known to have been serious, simply owing to a quantity of snow falling and being retained on its surface, and in one or two cases this circumstance has been alleged as sufficient to have caused the falling in of the roof. The weight of water retained on a badly-constructed gasometer roof during a copious and heavy fall of rain frequently endangers its safety should the pitch of the roof not allow the rain to run off freely.

The phenomena associated with the final descent of water are complex and numerous; and no doubt if such immense arched roofs come into use as the one now contemplated, and in course of being constructed for the new terminal station of the Midland Railway in London, the subject will have to undergo a sound and proper investigation. At present it would seem that no absolute rule is used in the practice of architecture to determine the requisite size of gutters in proportion to the buildings to which they may be attached. One or two sizes of gutter are made in enormous quantities, and used mostly without any approximate calculation as to quantity of discharge and probable rainfall. A house of several stories in height will invariably have a larger gutter than a cottage, although the area upon which the rain descends may be uniform in each case. The fall of rain, moreover, decreases in quantity in proportion to the height of the building.

The annual depth of rain at the top of Westminster Abbey was found to be $12\frac{1}{2}$ in.; on the top of a house 16 ft. lower down it was $18\frac{1}{2}$ in.; and on the ground it was $22\frac{1}{2}$ in. It is more often considered by builders that the top of a house is a reservoir which may be drained at leisure; and consequently it is no uncommon thing to see the down-pipes and gutters of buildings discharging large quantities of rain long after the fall of rain has ceased.

A strict adoption of the necessary rules of architecture should obviate any such occurrence, as it must tend to a deterioration of the structure which could be avoided. The new station roof which will shortly be erected in New-road, St. Pancras, will be 800 feet in length, and will possess a span of 240 ft. It will, therefore, be the largest structure of its kind in the world. The greatest radius of the curve of the arch of which it will be formed will measure 160 ft. in length; that is, from the centre of the top to the ground.

If the roof were flat, it would expose an area to rainfall of 192,000 square feet. Whatever weight of water, therefore, may come upon the roof in this shape will be by its real form distributed over an extended area, and the velocity of its descent will be increased, causing it to act with accumulated force on the off-sides of the gutters.

The mean annual fall of rain in England is estimated at 32 in. The absolute rate at which it falls probably cannot be fairly ascertained; but its maximum rate may be taken as at 1 in. in an hour. The fall which took place on the 6th of the present month gives the highest known record both as to time and quantity, it having fallen 2-682 inches in a little over three hours. It might be of advantage to give a proper consideration to this carefully-measured result, because, as it is acknowledged that the formulae for attaining to a knowledge of the phenomena which regulate fluids when in motion are too

complex to lead to a ready and practical result, it is possible that by some few simple experiments with the above data some more accurate opinion may be gained.

It was found by Mr. Watt that, in a canal 18 ft. wide at top, 7 ft. at bottom, and 4 ft. deep, having a fall of $\frac{1}{4}$ in. in a mile, the velocity was 17 in. per second at top, 14 in. in the middle, and 10 in. at the bottom. When water is at rest, it will escape at the rate of $11\frac{1}{2}$ cubic inches per second per inch of the width of the opening through which it flows; but this opening must be cut downwards from the level of the water. If this quantity of water should be arranged to flow into a cistern, and a cut showing one square inch of section were made in the material of the cistern, beginning from the line of atmosphere lying on the water, the mobility of the water and the now active pressure of the atmosphere, both acting in the direction of the escape, would just be equal to whatever other force was required to cause the $11\frac{1}{2}$ cubic inches of water to enter the cistern, and the supply and loss would be in equilibrium.

The rate of discharge of a gutter could therefore be ascertained by filling it and letting its contents escape through a square inch of aperture, caused to descend as the gutter emptied, and a just proportion arrived at between it and the size of the roof. The effect of water on a foot square of surface, with a velocity of 1 ft. per second, was determined by Bouquier to be 1 lb. 7 oz. At a velocity of 6 in. per second, water will transport fine sand; at 8 in., sand as large as flint-sand; at 12 in., it will move fine gravel; and at 24 in. it will roll along pebbles of 1 in. in diameter.

SANITARY STATE OF THE ARMY IN INDIA.

SINCE attention was first drawn in the *Builder* to the great need of sanitary reform in India, much has been done towards making a commencement of such improvements as were most pressing required. The Royal Commission of Inquiry appointed in 1859 has not been idle, although its elaborate report, including a voluminous mass of evidence and reports on which its conclusions are based, has only now been issued in a printed form.*

Suggestions for carrying out sanitary works in India, including water supply and drainage, &c., and improved plans for barracks and hospitals, have been prepared by the Commission, jointly with the War Office Commission, and sent to India; and several of the evils described in the report and evidence have been, or are being, removed by the zealous co-operation of the military and civil authorities in India; so that the abstract of evidence and the report itself would already require modification as regards the habits of the soldiers. They still, however, represent the condition of stations and towns. As to the statistical reports, it may be recollected, we have already given some account, gleaned from the graphic and valuable observations by Miss Nightingale, to whom they were submitted in manuscript by the Royal Commission.

The inquiry has shown—

1. That by far the larger proportion of the mortality and inefficiency in the Indian army has arisen from endemic diseases, and notably from fevers, diarrhoea, dysentery, cholera, and from diseases of the liver.

2. That the predisposition to these diseases is in part attributable to malaria, in conjunction with extremes of temperature, moisture, and variability.

3. But that there are other causes of a very active kind in India connected with stations, barracks, hospitals, and the habits of the men, of the same nature as those which are known in colder climates to occasion attacks of these very diseases, from which the Indian army suffers so severely.

In examining into these causes, the Commissioners find that the stations generally have been selected without reference to health. Many of them are situated in low, damp, unhealthy positions, deficient in means of natural drainage, or on river banks, close to unwholesome native cities or towns.

The towns and bazaars in the vicinity of military

lines are in the worst possible sanitary state, undrained, unpaved, badly cleansed, often teeming with offensive and dangerous nuisances; with tanks, pools, and badly-made surface gutters, containing filth and foul water; the area overcrowded with houses, put up without order or regularity; the external ventilation obstructed, and the houses overcrowded with people; no public latrines, and every spare plot of ground covered with filth in consequence; no water-supply, except what is obtained from bad shallow wells and unwholesome or doubtful tanks. These towns and bazaars are the earliest seats of epidemics, especially of cholera, before their ravages extend to the European troops in the vicinity.

None of the stations have any subsoil drainage; and there are no other means of removing the rainfall except surface gutters. The ground about the lines is often broken up into pits and hollows, filled with stagnant water, or it is traversed by unwholesome ravines or nullahs. In certain states of the weather and wind nuisance is experienced in the lines from these causes, and from the foul state of neighbouring native dwellings. Many of the older stations are irregularly built; and the buildings are arranged so as to interfere with each other's ventilation.

Both barracks and hospitals are built at or close to the level of the ground, without any thorough draught between the floors and the ground. And the men, both in barrack-rooms and sick wards, are exposed to damp and malaria from this cause, as well as from want of drainage. The ventilation is generally imperfect; and from the arrangement of doors and windows, men are exposed to hurtful draughts. Many of the rooms are too high, and as a consequence there is much surface overcrowding, both in barracks and hospitals, although with large cubic space. In a number of instances both the space and area per bed are much too small.

Barracks and hospitals have frequently no glazed windows, and only wooden shutters. Both barrack-rooms and sick wards are, as a rule, dark.

There are often four, or even six, rows of beds between the opposite doors or windows, increasing greatly the already existing difficulty of ventilation and exposing the inmates to foul air.

The greater proportion of the force is lodged in barracks in such large numbers per room as to be very injurious to health; many of these rooms being several hundreds of feet in length, and some of them containing from a quarter to half of a regiment each!

Water sources have been, with one or two exceptions, selected without analysis, although it is always hazardous to omit this precaution. The supply is taken from shallow wells and tanks, both of which are very liable to pollution. In a few cases, the water is derived from rivers. It is drawn by dipping, and carried in skins, thereby increasing its impurity. No precautions are taken for purifying drinking water. This unsatisfactory condition of the water-supply is one of the cardinal defects at Indian stations.

Abution and bath accommodation is often very deficient, and sometimes there is none. Very often there are no baths, and where baths exist there are none enough.

Privies and urinals are generally of a bad or defective construction. The contents are removed by hand, often producing great nuisance. There is no drainage for either privies, abution-rooms, or cook-houses: the foul water is received into cess-pits or carried away by hand.

Hospitals are constructed on the same general plan as barracks. They have no proper abution or bath accommodation; no water-closets, only open privies situated at a distance; no drainage, no water-supply, except what is drawn and carried by hand labour.

The arrangements for the prevention of disease are either non-existent or most deficient. There are no proper sanitary authorities in towns, and no trained officers of health in any town or cantonment.

Stations on the plains and slopes of India up to 1,500 ft., and on the raised coasts of the sea, are comparatively salubrious. They only require adequate sanitary arrangements.

Stations on low inundated lands are hot beds of malaria.

Native lines are laid out, and huts built, without sufficient reference to health.

There is no drainage, clearing, or levelling, and little attention to cleanliness or ventilation.

Native hospitals are almost altogether wanting in means of personal cleanliness or bathing, in drainage or water-supply, in everything, in short, except medicine.

The statistical evidence shows that the mortality in the Indian army varies from 11 per cent. in the most unhealthy, to about 2 per cent. in the most healthy places, even in their present unimproved state. It has been estimated that the lowest of these rates, or 2 per cent. (double the rate at home stations since the introduction of sanitary improvements), may be taken as the possible mortality under improved sanitary conditions.

The annual death-rate for the whole of India has hitherto been about 69 per 1,000. The European establishment is 73,000 men, and will, at the present rate of mortality, require 5,037 recruits per annum to fill up the vacancies caused by death alone.

A death-rate of 20 per 1,000 would require only 1,460 recruits per annum, so that the excess of mortality is 3,570 lives per annum.

Estimating the cost of recruiting, training, and landing men in India at no more than 100l. per man, the excess of mortality will be equivalent in cost to a tax of nearly 1,000l. per diem, irrespective of the cost of the extra sickness indicated by a high death-rate.

If the time should ever arrive when, under the influence of improved culture, drainage, and sanitary works, India should be freed from the local malaria which exists everywhere there now, as it once did in some form or other over Europe, we may cherish the hope of realizing what statistical inquiries appear to point to, namely, that the natural death-rate in times of peace of men of the soldiers' ages in India, will be no more than 10 per 1,000 per annum. But a reduction of mortality also indicates increased physical strength and greater fitness for duty in the army generally, as well as a smaller proportion of "constantly sick" in hospital; and hence a greater effective numerical strength. Fewer recruits would be required to supply the losses from disease, a point of very great importance.

Amongst the recommendations of the Commissioners they urge—

That works of drainage and water-supply be carried out at all stations. That all existing water sources be subjected to analysis, and those rejected which contain matters injurious to health. That the present method of drawing and distributing water be discontinued wherever practicable. That all water used for drinking purposes be filtered, or otherwise purified.

That all future barracks and hospitals be erected on raised basements, with the air circulating under the floors, and that in all existing barracks and hospitals the floors be raised as much as possible, and a free current of air allowed to pass beneath them.

That all new barracks be constructed to hold no more than a quarter-company in each building, or, at most, half a company in one building, in two separate rooms, having no direct communication with each other. That a barracks be constructed in detached pavilions, containing no more than from twenty to twenty-four beds. That future barracks and hospitals be arranged *en défilé*, to receive the benefit of prevailing winds; and that detached cottages be erected for married soldiers.

That barracks and hospitals be in future constructed with single verandahs only; and for no more than two rows of beds between the opposite windows.

That the cubic space per man in future barracks be from 1,000 to 1,500 feet, and the superficial area from 80 to 100 square feet, varying according to the salubrity of the position. The same space and area to be allotted in existing barracks.

That the beds be so arranged, with respect to windows, doors, and wall-spaces, as to ensure the benefit of free ventilation, without exposing the men to draughts. That, in existing barracks, where the space between the doors is too small to admit of this, precautions be taken to shelter the beds from draughts. That in all future barracks the wall-space be made sufficient to keep the beds at the least 3 ft. apart, and, at the same time, out of the door draught.

That the ventilation of barracks and hospitals be sufficiently provided for independently of doors and windows.

That all barracks and hospitals be provided with sufficient glazed window-space to light them, and that they be better lighted at night. Gas to be introduced where practicable.

That all barracks be provided with sufficient abution and bath accommodation, with a constant water-supply. That drinking-fountains, supplied with filtered water, be provided.

That barrack cook-houses be improved and better ventilated.

That, wherever practicable, iron or earthenware water-latrines, supplied with water, and drained to an outlet, be introduced, instead of the present system; that, where this is impracticable, all cesspits be abolished, and metal or earthenware vessels, to be removed twice a day, substituted. That improved urinals, supplied with a jet for lavatory purposes, as well as with a free supply of water for the cleansing and drainage of the urinals, be provided.

That the cubic space in hospitals be fixed at 1,500 ft. and upwards, and the superficial area at from 100 to 120 and 150 square feet per bed, according to the healthiness of the position; and that the wall-space per bed be never less than 8 ft. In existing hospitals the same space and area to be allowed.

That every hospital be provided with a constant supply of pure filtered water, and with drainage.

That every hospital be provided with abution accommodation, with fixed basins, and with baths, having hot and cold water laid on, conveniently accessible from the wards. That, wherever practicable, water-closets, with drainage and water-supply, be introduced for hospital wards, and privies converted into water-latrines.

That a sufficient number of bill stations, or of stations on elevated ground, be provided; and that a third part of the force be located on these stations in rotation.

* Report of the Commissioners appointed to inquire into the sanitary state of the army in India; with abstract of evidence and of reports received from Indian military stations. London: H.M.'s Stationery Office.

That the sanitary duties of regimental, garrison, and inspecting medical officers, prescribed in the new medical regulations of October 7th, 1859, be applied or adapted to all stations in India; and that properly-trained army medical officers of health be appointed to this service at the larger stations.

Considering the constant reference to sanitary subjects necessary in carrying out public works in India, the Commissioners deem it requisite that every cadet of engineers should attend a course of sanitary instruction at Chatham.

In order to the gradual introduction of sanitary improvements for barracks, hospitals, and stations, as well as in the seats of Government and throughout towns in proximity to military stations, they recommend the appointment of commissions of public health, one for each presidency, so constituted as to represent the various elements, civil, military, engineering, sanitary, and medical.

That in order to render available for India the experience obtained in dealing with all classes of sanitary questions in England, two officers of the Indian Government be appointed in England to be associated with the War Office Commission for this special purpose, unless it should be thought preferable to appoint a similar commission specially for the Indian department.

From the evidence given by the Commissioners, it would appear that the three great towns, Calcutta, Madras, and Bombay, are still in a sad state, sanitariously speaking, although it is satisfactory to think that Bombay has recently been provided with an excellent water supply, and that extensive works of drainage and water supply have been undertaken at Calcutta. As to Madras, the sanitary condition of the town, as described by Sir Charles Trevelyan, is as bad as that of Calcutta. The soil upon which the city stands is white sand. The river Kooam, which passes through it, is a tidal estuary, receiving all the town drainage along its course; but as the mouth of the estuary is silted up for most of the year, it becomes a foul, stagnant, open cesspool, which is washed out once a year by the floods. Sir C. Trevelyan describes the drainage as being "extremely defective." There are, he says, plenty of drains,—in one sense too many,—for they are offensive in the extreme, because there are no means of propelling the offensive matter and getting rid of it. The drainage is effected by open drains "of the most offensive and scandalous description." There are no means of flushing them, on account of deficiency of water; and such is the offensive state of the general atmosphere from these defects, that a high wall is maintained between the Government House grounds and the body of the town, in one of the most thickly populated portions of the town, expressly for the purpose of excluding the noxious smell that may issue from the drains, thereby excluding the sea breeze, and preventing the improvement of the adjoining part of the town, and thus greatly aggravating the evil.

The water supply for domestic use is likewise "extremely deficient," and it has become partially deteriorated by offensive matter from the drains. Sir C. Trevelyan states that the introduction of a pure water supply is an extremely popular subject, and anxiously desired by the people; and that it is a matter of urgent necessity, on the commonest principles of duty, to provide it.

The evidence as to prevalent diseases, and especially as to virulent or Asiatic cholera, is interesting at the present time. Sir Ronald Martin states that out of every 100 deaths of Europeans serving in the presidency of Bombay, between 1830 and 1846, the proportions of deaths attributable to the four great endemic diseases were as under:—

Fevers	...	23051
Dysentery and Diarrhoea	...	32111
Diseases of the Liver	...	9597
Cholera	...	10320

Cholera has been known to prevail as an occasional epidemic at different years, seasons, and places throughout India from 1774 to 1817; and there are authentic records of its existence in Batavia so far back as 1629. But in India, since 1817, cholera has engrained itself on the endemicity of the soil, and has become a disease of annual recurrence at many of the large stations, commencing generally at the beginning of the hot season, but sometimes in the rainy and cold season. It has proved everywhere, all over the world, the same disease, with the same mortality whenever it has fastened on a congenial soil; and its great tendency in India as elsewhere is to attack populations living in low, damp, crowded, and ill-ventilated situations, especially if supplied with impure water. While the proportionate mortality of those attacked is everywhere the same, the proportionate number seized in high and low situations differ most widely. Cholera and epidemic diseases in general are of rare occurrence in the elevated ranges of India, where the water is comparatively pure.

Troops, both European and native, while on the march, have been observed to become more liable to seizure by this disease, and when the attacks have occurred in cantonments after the march, it has been found that the virulence of the epidemic has been proportionate to the length of the march.

Referring to dysentery and cholera, Surgeon-Major Grant says that, in his experience, the most influential cause of these diseases in our Indian army is overcrowding in barracks; and that in garrisons he has observed the most appalling mortality from bad air. Even at hill stations, far removed above the influence of malaria, he attributes the prevalence of diarrhoea to neglect of ordinary sanitary arrangements. He also says that bad water is a common exciting cause of cholera in India.

Dr. James Bird states that—

"Diarrhoea, dysentery, and fevers have prevailed, and have been attended with great mortality" at stations at which he has served, "from want of due precaution in the selection of sites. Cholera, as an epidemic, appears mainly to owe its development and origin to miasmas, favoured by elevated temperature and peculiar atmospheric conditions of climate; this development being greatly aided by preceding established conditions of filthy endemic situations, badly-constructed and ill-ventilated habitations, unhealthy articles of food and drink, producing predisposition to disease, aided by unhealthy trades and depraved moral conditions of vice and poverty. The other diseases are mainly local, and miasmatic in their origin."

The evidence shows that the local causes of epidemic disease in India are precisely the same as those which exist in this country, aggravated by a higher temperature and by the presence of malaria.

As to the comparative salubrity of high-lying localities in cholera seasons, it may be recollected that, on the last occasion when London suffered from cholera, Bermondsey and other low-lying localities on the south side of the river were first and most virulently attacked; and that comparatively few cases occurred in the higher-lying districts of the metropolis. Whether this difference was exclusively owing to difference of water supply, may be questioned; but certainly the supply to the low-lying districts from the Thames was at that time very bad, compared with what it now is; and, on the whole, we think it may be safely predicted that the improved water supply, much as it still requires to make it perfect, and the many sanitary improvements which have of late years been carried out in London, will greatly diminish the virulence and mortality of cholera, should it still reach us, although there are but too many localities ready, like fuel for fire, where it will break out as fiercely as ever, should the epidemic torch be only applied to the choleraic combustible.

The report under notice of course enters fully on other questions besides those in which we are more especially concerned; but of these we have not room to speak. The whole, however, forms a searching and thorough inquiry into the state of our Indian army, and cannot but lead to vast and speedy improvements in its condition, to the saving of much life and no less money.

THE CATTLE PLAGUE.

STILL the terrible pest amongst the cattle remains unabated.

When we see the present sad position of affairs, and fear for the future results, we cannot but regret that the notes which have been made, and the warnings which we have from time to time given, should have been attended with such small practical results. It is now, however, of no use indulging in idle regrets, for the murrain is a confirmed and serious fact. Not only is milk,—that important article of human food,—lessened in quantity, but the "Roast Beef of Old England" is also in danger. The destruction of beasts in the cow-sheds of the metropolis has been already enormous, and the typhus fever, or whatever the prevailing malady may in reality be, is spreading throughout the herds in all directions. Nevertheless, great part of those who are the most directly concerned at present, appear to be in quite as helpless a state as were the inhabitants of London at the time of the Great Fire of 1666, when the Lord Mayor, and other authorities of the city, seemed paralysed and apparently deprived of action, while, day after day, the fire roared and rolled on in its destructive course. Just so a disease, which, in money amount, will prove as disastrous as the Great

Fire, is destroying one of the main elements of that food which in an especial manner promotes the health and strength of the people of the British nation, while nearly all that the authorities can do is to look on in helpless despair.

The Privy Council, which has no small energy and great powers at its disposal, have as yet been of but little practical use. It is true that they have appointed a limited number of inspectors of cattle, and have issued certain instructions through their secretary, but we maintain that this high official body has not yet fully done its duty.

Meetings have been held at the Mansion House, in some of the large metropolitan parishes, and provincial towns. Learned professors are making lengthy communications to the newspapers. The cow-keepers and the wholesale cattle salesmen are at variance. In fact, at the present time this most important question is in a hopeless state of perplexity and confusion.

As regards the Government interference in Great Britain, we fear that the manner of action used in foreign states would not do here. Respecting the manner of dealing with this kind of disease in Russia and some other parts, Professor Gamgee mentions that concealment of the existence of the plague in any herd is punished by the imprisonment of the owner of the animals, from one to six months, besides fines. On the declaration being made that the disease has appeared in any shed or on any farm, an official inspection is made to ascertain that it is the plague which has appeared. The infected district is then closed for the introduction or exit of stock, and the holding of markets, and a check is even placed on the movement of the people. Wherever the sick animals have been seen, both sick and healthy are killed. Butchers are engaged to dress the carcasses, and those that can be eaten are disposed of: the others are buried five or six feet below the ground and disinfected with chloride of lime. The cleansing of stables is also most carefully conducted under supervision.

Time are used on the ground, and boards are placed over this, on which the animals lie. All woodwork is removed; and, in addition to the free use of disinfectants, the walls are frequently lime-washed. The transport of cattle occurs in vans or other conveyances under direct supervision of a competent inspector. The police are made to accompany suspected animals from sheds or farms to slaughter-houses; and, when beasts are killed on a farm, every precaution is taken that the meat is directly conveyed to a butcher's stall without danger of being distributed within reach of live stock liable to take disease. All food, litter, utensils, and other objects which have been placed in close proximity to diseased cattle, are burned or disinfected. Any fresh animal brought into an infected district or shed must be shown to the inspector, even if only introduced to be slaughtered. If, however, it is intended to be kept, it must be kept separate from other stock, on pain of a severe penalty. Cattle smuggled into an infected district are confiscated. When the disease appears a man is employed for the immediate supervision of the animals. He is to keep the sick under lock and key. No market can be kept within three miles distance of an infected farm. Diseased animals cannot be turned out into fields, commons, or other public places. When suspected animals require to be removed to a distance, they are in those districts not allowed to travel on the road, but are removed in railway trucks under careful supervision. The purchase of dairy stock for the supply of large towns occurs under special inspection, and a ledger is kept showing the names and residences of buyer and seller; and all newly bought cows have to be kept for a period of not less than ten days.

It will be observed in connexion with the above treatment that no attempt is made to cure the disease. Indeed, Mr. Gamgee says,—"The treatment of diseased animals should be discontinued as much as possible; and this is found of great service in exterminating the disorder."

Again, this gentleman says,—"*I quite agree with the Austrian veterinarians, that to cure in this case is to kill; because so long as sick and convalescent animals are kept about, the danger of propagating the malady is enormous.*"

To us this seems to be rough management, especially when we consider the great value of stock of this description, and that in connexion with diseases of this kind which affect the human body, a large percentage of cures are

sure to be effected by the removal of the sick to places which are well circumstanced as regards sanitary arrangements, aided by proper medical means. See, for instance, the large number of cures which are effected in the London fever and small-pox hospitals; and these might be increased to three times the present extent, if persons were taken to those institutions in the early stages of the disorder. In connexion with cholera, the removal of those stricken to the hospitals, and of their families, who still appeared to be in good health, to proper situations, has had an almost magical power in checking the pestilence; and in localities where this plan has been vigorously applied in extirpating it altogether. With experience of this kind before us, it would appear to be the wisest and least expensive plan to provide sanitariums on a sufficiently large scale, in some of the open and solitary spaces which still remain in the neighbourhood of the metropolis, and to which tainted herds might be readily conveyed by special trains, where there would be facilities for burying, or in other ways disposing of the beasts which have died, or those which have been destroyed. In order to prevent the passage of sick animals through the streets, railway trucks might be drawn to the localities from which it is necessary to remove the cows, &c., and it might be well if operations of this kind were performed at night. We have good authority for stating, that if plans of this kind are rightly managed, two out of three of the infected animals might be saved.

The idea of attempting to stop the importation of foreign cattle is, in the present state of affairs, ridiculous. We have the pestilence in our midst, and here it must be battled with. We believe that no quarantine regulations, however strict, will prevent the introduction of cholera to our shores, if the peculiarities of the air and those other subtle agencies which spread malaria abroad point in our direction. With care we have examined the accounts of former plagues, but we can find no distinct proof that they have been imported by infection. If, however, it should be considered needful, quarantine ground for foreign cattle might be established on the coast, as in the neighbourhood of the Nile. The supply of foreign cattle has, in the present state of our population, become a necessity.

There is one part of the Privy Council order in connexion with the present cattle plague to which we decidedly object; and we wonder how such an order could have been allowed to be promulgated. The order runs as follows:—"That every animal within such district, being in such disorder, or slaughtered on account thereof, shall be buried, if practicable, on the premises where it had died or been slaughtered; and if this be not practicable, as near thereto as may be convenient." We can fancy few worse arrangements than this. Ardently did we strive to prevent the intramural interments of human bodies, and yet inducements are here held out for the burial of plague-stricken animals within the range not only of our cattle, but of our citizens.

As we have already said, this most important matter is ill managed. Within the Metropolitan district we should know the exact extent of the mischief which has been already done; accounts should be also kept in the various counties; and each week we should be enabled to trace the progress of the disease, and to note its increase and decline.

The arrangements for slaughtering and disposing of animals are abominable. Take, for instance, the account of Mr. Ebsworth, the medical officer of health for the parish of St. Mary's, Newington. While paying a visit to a patient who was seriously ill, his attention was directed to the condition of a slaughter-house on the other side of the street; and it was reported to him that fifteen cows had been ordered by the Government inspector to be destroyed at the Bricklayers' Arms station, and then to be buried. The animals were destroyed; but instead of the carcasses being buried, they were carried through the parish of St. George to Mitcham, where, says Mr. Ebsworth, they were boiled down, and carried back through the parish of St. Mary, Newington, in the shape of cat's meat.

Very properly Mr. Ebsworth brought this matter before the notice of the district magistrate, when Mr. Stanley, a veterinary surgeon, who has been appointed an inspector of animals by the Government, gave some explanation, and expressed an opinion that the disease could not be communicated through a dead animal. With

this opinion neither the medical official nor the magistrate agreed. Professor Simonds took part in the discussion, and mentioned that "there were the greatest difficulties, if not impossibilities, in finding places near London in which the dead carcasses of diseased animals can be buried." In the present case the animals were sent to the Bricklayers' Arms station, and were then taken to the slaughter-house in Kent-street, where there is a dense population. [Could anything be worse than this?] But it appears that there were no sufficient means at this spot for the purpose, and so they were taken to Mitcham. Mr. Simonds did not think that there was danger from boiled animal matter, but that the conveyance of dead carcasses through the streets might spread disease. And here it is to be noted that the veterinary authorities differ. Mr. Stanley says: "*The disease could not be communicated from a dead animal.*" The famous Professor of veterinary science says it can; and so we go on groping in the dark and confounded by various counsels.

But in connexion with the disposal of the dead beasts, common-sense suggests the idea that in the pressing emergency of this sad visitation, which is in reality a national calamity, we must find new and sufficient means.

What is there to prevent the conveyance of the dead animals to the waste lands which spread for miles in the neighbourhood of Woking, or the parts beyond the Aldershot Camp? In such situations it might be found safe to utilize the carcasses. There are several other situations in which this work might be carried on. Some parts of the Thames shore might be appropriated to this purpose, to which the transit of dead animals might be cheaply made from particular points by means of lighters.

It is advised by some, that when the disease attacks a cow-shed, it should be closed in the same manner as the houses were formerly in the time of plague in old London. This will never do; for there can be little doubt that in the ancient times the mortality of the population was greatly increased by the shutting-up-system. We are still convinced, that by means of thorough attention to cleanliness and to ventilation, the removal of animals from the crowded cow-sheds and other unnatural conditions; using a wise means of separation, and resorting to the very earliest stages of the disease to medical treatment; if the means of comparison are afforded, we shall soon find a marked decline of this plague; but in its present stage, we want some competent authority which will actively and vigorously lead in the right direction.

The Russian Government, we observe, have determined that no single head of cattle shall leave a Russian port without examination and a certificate of health.

Cousul-General Mansfield sends a despatch from St. Petersburg, in which he gives the important information that *water impregnated with iron is a remedy for the disease*. It was found, he says, that cattle on a farm where there was chalybeate water were not attacked, or recovered very rapidly after drinking plentifully of the water. The hint was not lost. Rusty iron was put into the cattle-troughs, and highly chalybeate water thus produced, and the cattle which drank of it speedily recovered. This fact cannot be too widely circulated at the present moment.

SANITARY MATTERS.

Canterbury.—The evidence adduced before the Government Inspector appointed to inquire into the sanitary condition of Canterbury has fully established the fact that the Local Government Act is needed to give Canterbury that reputation for cleanliness which its position as a cathedral city demands. The arguments set forth by the opponents of the scheme were completely nullified by the evidence of two out of the three witnesses called by the council in support of the action taken by that body. In the first place, there is the evidence of Mr. Saunders, the sanitary inspector of the city, whose testimony is unquestionably fair and impartial. He clearly stated at the investigation that numerous thickly-populated districts in Canterbury had no system of drainage whatever; that the Pavement Commissioners had no power to aid owners of property in making sewers in these places; that sewage matter from a number of cottages was conveyed through an open dyke into the river Stour; and that poor residents below were compelled to use for all domestic purposes the water

thus rendered putrid. Added to this is the strong testimony of Mr. Rigden, a surgeon of considerable eminence in the city, and whose practice peculiarly fits him to give reliable evidence. With these facts before them, the authorities at the Home Office can have little difficulty in deciding that the Local Government Act is required here.

Chichester.—Mr. Simon, medical officer of the Privy Council, has recently paid a visit to Chichester. The conclusions of his report are as follow:—1. "That the death-rate of Chichester is unnecessarily high, and that preventable disease often prevails. 2. That the causes of this are, absence of proper drainage; polluted water; a large cattle market held in the city streets; an inefficient administration of the Nuisances Removal Acts. 3. That the removal of these causes is of urgent necessity, and that steps ought without delay to be taken.—For establishing a complete system of drainage; for removing the cattle market outside the city; for the more efficient administration of the Nuisances Removal Acts."

Portsmouth.—An extensive system of drainage, the cost of which will be 90,000*l.*, is about to be commenced at Portsmouth. The tender of Messrs. Furness, of London, for 47,000*l.* for the first portion of the works, has been accepted by the local Board.

Sheffield.—The highway committee of the town council have issued an elaborate report on the drainage of Sheffield, and they discuss the question of adopting a plan or plans for preventing the accumulation of sewage, and removing its offensiveness from the town. The committee remark that to talk about the abatement of the nuisance arising from the sewage is easy, but to devise a plan and carry it out is most difficult. After careful inquiry they find that "the nearest available ground for the application of the sewage of Sheffield as a manure in a liquid form, and following the natural inclination of the valley of the Don, is between Mexbrough, Bolton-on-Deame, and Conisbrough; the next is below Doncaster; and when Thorne is reached, there are several hundred acres of barren land, called Thorne Waste. There also, for many miles around, exists a vast extent of level ground which would, no doubt, be much improved by the application of sewage manure." The natural drainage of Sheffield and the district is through the valley of the Don, and to that river the committee consider their attention must be directed. The report proceeds to say, "that one of the plans suggested is the removal of the sewage by railway to barren lands on the hills and mountains above Sheffield. This in other localities might be available, but the difficulties in the way of its adoption here are almost, if not altogether, insuperable. The weight of even the daily amount of solid matter will be too vast for removal, while the carriage of 30,000 or 40,000 tons of liquid sewage, day by day, appears impossible. If it could be accomplished, it would have the advantage of simplicity, and of certainty as to cost. Of the other plans the most important, and the one which calls for serious consideration, is that pertaining to the whole valley of the Don. The valley of the Don comprises within its water-shed the towns of Penistone, Sheffield, Chesterfield, Rotherham, Barnsley, Doncaster, and Thorne, and the extensive villages of Stockbridge, Dronfield, Whittington, Swinton, Mexbrough, Worsbrough, Wombwell, Wath, and Conisbrough. To carry out this system it will be necessary to construct an outfall sewer, extending, in the first instance, from Sheffield to Thorne, or further, with branches from Rotherham, Mexbrough, Swinton, Barnsley, Worsbrough, Wombwell, Conisbrough, and Doncaster. Chesterfield and its vicinity might probably be drained into another water-shed. At Thorne there is a very large quantity of barren land, which would form an excellent receptacle for the sewage; and the application of the sewage for the improvement of the soil might probably be combined with the warping system, and aid further in bringing a vast extent of land into a state of comparative fertility, and improving the condition of the land in that part of the country." For accomplishing their purposes an Act of Parliament will be requisite, under the powers of which a commission of sewers might be instituted with authority to purchase land, construct works, borrow money, levy rates, &c. The committee is of opinion that it will be prudent on the part of the local Board, before entering on any costly experiments, to confer with the authorities of the chief towns and villages in the valley of the Don, and to discuss with them

the propriety of their joining in the scheme, and of appointing an eminent engineer to examine and report on its practicability.

Sunderland.—The returns of the registrars show that the deaths in the fortnight ending Wednesday week were 116, against 93 in the corresponding fortnight of last year. The increase has been occasioned entirely from diarrhoea, and chiefly among children under twelve months, there being 40 deaths under one year, and 22 above one year and under five. In the six weeks ending June 28 the total deaths from diarrhoea were 6; whilst in the same time, from that date to August 9, they had increased to 51. The number of deaths was highest in the North Bishopwearmouth district, and chiefly in what is called the New Town, Ayre's Quay, and Deptford portions of the district.

Edinburgh.—The medical officer of health for the city, Dr. Littlejohn, has issued a volume full of valuable statistics and suggestions regarding the sanitary condition of the city of Edinburgh. The following contains a summary of the suggestions with which his report concludes:—

It will be observed that the suggestions offered range themselves under two great divisions,—viz., those which it is the duty of the authorities to carry into execution; and, 2ndly, those which should be adopted by the inhabitants themselves. The measures proposed differ much as to their relative urgency; but I have no hesitation in stating that the sanitary condition of the Old Town, and particularly that portion of it comprising the districts covering the central ridge, with the Abbey and Grassmarket at either extremity, is a subject that can only be properly dealt with by the municipality, and should be taken up without delay. It includes the following points:—

1. The satisfactory paving and draining of the closes.
2. The improvement of the house accommodation of the poor, by insisting on the introduction of water and gas, the cleaning of common stairs, and the performance of necessary repairs.
3. The diminution of overcrowding of the population, by limiting the number of persons in each apartment, by lowering the houses in height, and by removing all tenements in a ruinous condition.
4. The opening up of the worst localities by means of new streets, which should pass at right angles to the long and unwieldy closes, and give increased facilities for their thorough cleansing. Such new communications would also afford sites for improved dwellings for the poor where they are most required, and would form an era in the sanitary history of Edinburgh.

In the modern part of the city there is less call for interference on the part of the authorities.

Belfast.—The local water commissioners, in committee, have been considering the question of procuring an immediate supply of water for this town. After some discussion, committees were appointed to negotiate with reference to certain springs contiguous to the town.

Plan for Carrying off the Sewage of Towns.—The town surveyor of Bolton, Mr. H. Baylis, has adopted a plan by which the nuisances occasioned in a small river, flowing through a manufacturing town, have been abated. The propriety of considering the plan with regard to the Liffey has been suggested at Dublin. The carrying out of the scheme is said to be not necessarily expensive. The bed of the river has been first cleaned, and then paved, at an inclination from the river wall on each side towards the centre. At the angle formed by these pavements, which is, of course, in the midst of the bed of the river, is formed a paved trench of semicircular form. The heavy saturated water and sewage matter run into this trench, and the water of the stream, be it large or small, enters into combination with it, and carries it continuously away with the current. When the weather is dry, and the stream small, the trench acts as a flowing drain, the paved bed of the river being dry and clean, there being no possibility of deposit resting thereon, because, as the river water or stream level is diminished, the surface is scoured by the water in its descent.

CONTINENTAL NEWS.

Berlin.—Amongst the more important buildings now in progress in this city is the Rathhaus, or Hôtel de Ville, which is already more than half finished. Some idea of its size may be gathered from the fact that the costs are estimated at four millions of thalers (600,000). It is almost entirely of stone, and its three stories contain innumerable offices, committee-rooms, &c. Mr. Wasmann is the architect. A new and magnificent "gymnasium" is being erected here, chiefly at the private expense of the king, who was present at the laying of the foundation-stone, and who has been pleased to give his name to the institution. Gymnastic exercises on the bars, &c., take the place of our out-door amusements in Germany; and, as the members of the gymnasium are chiefly young men, these

institutions have ever now taken active part in revolutionary movements, and have been consequently regarded by the powers that be as hot-beds of the most dangerous kind. The king, therefore, not only countenancing, but encouraging these gymnasia, is looked upon as a healthy sign of the times. Banath Lohse is the architect, and has introduced all modern appliances of ventilation, warming, &c.—The French Academy has elected Ober Banrath Prof. Strack as member of the Fine Arts Department, in the room of Dr. Stüler, deceased.

Wirttemberg.—At Stuttgart, there is a good deal of building going on. A new Protestant church is being erected, from plans of the architect Lein. Then a new English church is just roofed in. It is cruciform, and in Early English style, the material being a greyish sandstone. The local superintending architect is a Mr. Wagner, but we believe the plans came from England. A new building for public archives is also in progress, the estimated cost being about 25,000*l*. Then the erection of a new post-office has been determined upon: it will be erected on the site of the present one, and is to communicate with the chief railway station by means of a tunnel. The costs are expected to amount to 40,000*l*. Many of our readers have probably noticed, and still more will probably notice, the utter confusion now existing at the railway station. Though its size was by no means inconsiderable, the increased traffic rendered an enlargement at last positively necessary. The Chambers have voted 4,000,000 of florins (about 340,000*l*) for extensions, which are now being carried out as rapidly as the traffic will admit. 12,500*l* have also recently been voted for an extension of the telegraphic system throughout the kingdom. In curious juxtaposition to these sums, stands an appeal to the "German people," to aid in restoring the very interesting chapel attached to the Castle of Hohenstaufen, the cradle of Barbarossa and other emperors, under whom Germany reached the zenith of its greatness. An ancient doorway in this little church has the inscription, "Hic transibat Cæsar," and marks the way Barbarossa went to Mass. The committee now beg for 700*l*.—and cannot get it!

ST. PETER'S CHURCH, VAUXHALL.

THE corner stone of this church was laid by his grace the Archbishop of Canterbury, on Thursday, the 16th of April, 1863. The architect, Mr. J. L. Pearson, had formed the conception of a still more perfect design, but the committee compelled him reluctantly to omit much that would have rendered the building more beautiful and effective. The contract was offered for competition to eight builders; the tender of Messrs. Longmire & Burge, for 6,387*l*., being the lowest, was accepted. The specification was divided into three sections; a heavy fine to be paid if the works were stopped at the end of the first or second portion. The committee were, however, able to proceed with the whole, and the church was consecrated on the 28th of June, 1864, being the Vigil of St. Peter's day. It is calculated to hold nearly 900 persons, every place being free to the poor, who, to the number of 7,000, are crowded around. The parish of St. Peter's, Vauxhall, was cut off, in 1861, by the Rev. R. Gregory, from his own district of St. Mary's, Prince's-road, the Rev. G. W. Herbert being appointed first incumbent.

The church stands upon a portion of the old Vauxhall Gardens; the principal entrance being from Upper Kennington-lane, through the west porch or narthex; this porch is 23 ft. long by 7 ft. wide, and is groined internally. The nave is 78 ft. long, and 24 ft. wide, and has two aisles 10 ft. wide. It is entered from the west end, and is divided into five bays. The arches are of brick, and rest on circular stone columns with carved and sculptured capitals. Above the nave arcade, on each side, is a blank triforium, which it is proposed to enrich with painted subjects taken from the Old Testament for the north, and from the New Testament for the south side. Only one of these is at present executed; it was presented by Messrs. Clayton & Bell. The clerestory above this has four two-light windows on each side of the nave, with traceried heads. At the west end of the south aisle is the baptistery, about 16 ft. square: the font is plain and square, and rests on clustered columns. The south aisle is lighted by four wide lancets, and the north aisle by two, and by two windows at the west end. There is a large external

door in the north aisle opening into the space where it is proposed ultimately to erect the tower. The chancel has an apsidal east end, and is 42 ft. long and 23 ft. wide. The lower portion of the east end it is proposed to enrich by means of frescoes, the most prominent feature of which will be a band of seven subjects, representing the Passion of our Lord. Immediately above these is the chancel triforium, with seven two-light windows, and lancet arches and columns inside; and over this the clerestory, which has eleven lancet windows, four of which are already filled with painted glass, a memorial gift of Mr. B. Lancaster, one of the principal benefactors of the church. The sedilia and credence shelf are formed in the south wall of the sacrum, and consist of four recessed pointed arches, with columns, &c. The reredos is of alabaster, enriched with carving, executed by Messrs. Poole, of Westminster; the mosaics are the work of Dr. Salviati, of Venice. The stalls are of oak, and of solid character. Behind them, on the south side, is the organ-chamber; and on the north side a wide aisle, with an elegant vaulting shaft in the centre, about 28 ft. by 36 ft., for the accommodation of the school-children. East of this are the vestries. The whole of the church is groined in brick, with stone ribs springing from vaulting-shafts of red stone, with carved capitals. The chancel arch is carried up to the groining. On the north side of the nave, at the east end, is the pulpit. It is square, and of stone, with an incised picture towards the west, representing St. Peter preaching on the Day of Pentecost: it is also richly carved. Between the nave and the chancel is a low stone wall, with metal screens upon it. The floors are of red and black tiles. The seats are of deal. The church is lighted by circles of gas, hanging from the under side of the nave arches. It is warmed by hot water. The total cost, including all charges (but exclusive of all ornamentation), is 8,500*l*. About 1,200*l*. still remain as a debt upon the building, for the payment of which donations are earnestly requested from those who rejoice to see the Church at work among our London masses.

There are meetings held in the district, to which the poor can come in their working clothes; and when they are sufficiently instructed to value the privileges of worship, they attend the hearty congregational services in church, which are not such as to attract strangers from a distance, but suited to the needs of the parishioners. St. Peter's Church, with its surrounding schools, parsonage, orphanage, and other parochial buildings, forms a striking ecclesiastical group.

PRIZES AWARDED BY INSTITUTION OF CIVIL ENGINEERS.

The council have awarded the following premiums:—

1. A Telford Medal, and a Telford Premium, in books, to J. W. Bazalgette, for his Paper "On the Metropolitan System of Drainage."
2. A Telford Medal, and a Telford Premium, in books, to Calcott Reilly, for his Paper "On Uniform Stress in Girder Work."
3. A Telford Medal, and a Telford Premium, in books, to E. Hele Clark, for his "Description of the Great Grimsby (Royal) Docks."
4. A Telford Medal, and a Telford Premium, in books, to Captain Whatley Tyler, R.E., for his Paper "On the Festiniog Railway."
5. A Telford Premium, in books, to J. England, for his Paper "On Giffard's Injector."
6. A Telford Premium, in books, to T. Hawthorn, for his "Account of the Docks and Warehouses at Marseilles."
7. A Telford Premium, in books, to E. Fletcher, for his Paper "On the Maintenance of Railway Rolling Stock."
8. A Telford Premium, in books, to E. Johnston, for his Paper "On the Chey-Air Bridge, Madras Railway."
9. A Telford Premium, in books, to Godfrey Oates Mann, for his Paper "On the Decay of Materials in Tropical Climates."
10. A Telford Premium, in books, to W. J. Walker Heath, for his Paper "On the Decay of Materials in Tropical Climates."
11. A Telford Premium, in books, to Joseph Taylor, for his Paper "On the River Tees, and the Works upon it connected with the Navigation."
12. The Manby Premium, in books, to H. Bardett Hederstedt, for his "Account of the Drainage of Paris."



ST. PETER'S CHURCH, VAUXHALL. INTERIOR, LOOKING EAST.—MR. J. L. PEARSON, ARCHITECT.



SCULPTURE, CANTERBURY CATHEDRAL.

The niches in the south porch of Canterbury Cathedral are being filled with statues by Mr. Pfyffers, in pursuance of a scheme which has been laid down by the Dean. The niches on the south face contain the founder and foundress, King Ethelbert and Queen Bertha; and four archbishops—Augustine, who planted Christianity in Kent, and founded the archiepiscopal see; Lanfranc, who built a large portion of the former church; Anselm, the greatest divine of the early days of the English Church; and Cranmer, the chief of the Reformation. On the eastern side of the porch, chronological order is observed. The eight historical personages here represented belong to the Saxon period. First in the upper row we have Gregory the Great, with whom originated the mission of Augustine to England. Mr. Pfyffers has adopted the conventional representation of his subject, and has placed the dove on his right shoulder, symbolizing the suggestion of his discourses by the Holy Spirit. On a scroll are inscribed his celebrated words "Non Angli sed Angli." The next is Archbishop Theodore of Tarsus, the first introducer of the study of Greek into England, and founder of the school attached to the monastery, the predecessor of the King's school. The next is Archbishop Dunstan, a portion of whose shrine yet remains in the cathedral. The next figure, and the last in the upper row, is that of St. Elphege, or Alphege, who was murdered by the Danes at Gravesend, whither they had taken him after the sack of Canterbury in 1012.

In the lower row we have represented four kings of the Saxon period, beginning at the south-east corner:—Alfred the Great, holding a book inscribed "Leges Angliæ"; Edmund, king of East Angles, from whom Bury St. Edmunds is named; the Danish King Canute, who bequeathed his iron crown to the church at Canterbury; he is represented at the moment when he rebuked the flattery of his courtiers by letting the waves come up and wet his feet. On his shield is inscribed "Vox Domini super aquas" ("The voice of the Lord is over the waters.") Next, and last in this row, is the figure of King Edward the Confessor, taken from his Great Seal, yet extant.

Most of the statues, costing 24*l.* each, have been presented by individuals. They are executed with much ability, in Caen stone, and are to be treated with some hardening process. The scheme includes as many as sixty-seven statues, proceeding round the west end.

CHICHESTER CATHEDRAL AND SIMILAR RESTORATIONS.

SIR,—In the *Builder* for the 19th of August appears a letter from "Civis Cicestrensis," in which he refers to the suggestion of your correspondent "F. S. A.," that it would be well, in restoring Chichester Cathedral, if the lantern were left open. The writer advocates this modification of the structure as it came down to us, which, in his opinion, would be an improvement, and endeavors to dispose of the very obvious objection to such a proposal that it is a modification, by advancing views of church restoration which I sincerely hope are not generally held, and with regard to which I trust you will permit me to offer one or two remarks.

"Restoration and re-construction I venture to look on as differing very wide from each other," says your correspondent; and, while recognizing the good results of the conservative spirit in which Mr. Scott ordinarily works, he, in the same breath, calls the special instance which is under consideration "Chinese copyism." Now, while quite admitting that, where modern interpolations have substituted inappropriate features for original ones, the re-construction of those is not restoration, it appears to me, Sir, not to admit of a question that, in a case where a Medieval structure has perished, of which drawings so complete and fragments so numerous exist that it is possible to re-construct it as it stood, then at least, re-construction, and re-construction only, will fully "restore" that which is lost; and of this case the tower in question is, I apprehend, a signal instance.

I do not gather from any of the letters which have appeared on the subject, or from Willis's Essay on the architectural history of the fabric, that there exist grounds for believing that this lan-

tern was open at the time of its original construction. If this can be shown to have been the case, such a fact would be a strong and legitimate argument in favour of what it is proposed to do, which I contend the beauty of an arrangement not contemplated by the original architect is not; but the case is not put on the footing of restoring an ancient arrangement, but of effecting a desirable alteration. Still it is only proposed to "restore" the fabric; but the word is to be stretched to carry a meaning which neither itself nor the architectural process which it represents ought legitimately to convey.

In dealing with the buildings from which we have learned most of the little we as yet know of Medieval architecture, we cannot be too scrupulously careful to guard them from alterations, and to transmit them intact, as far as is in our power, to succeeding generations. This can never be done, unless we carefully confine our work to that which it is absolutely essential to do, and to restrain our disposition to alter or, as we term it, improve, the grand old fabrics, when necessary repairs are in hand. For want of the proper appreciation of this duty, how many unnecessary, capricious, and destructive changes have been introduced, how many valuable features have been irremediably lost, how often has "restoration" been but an excuse for mutilation, alteration, modernization, and every sort of tampering!

Fortunately, many opportunities offer where we architects of the present day can have our own way, and show what skill and taste we may have, in entirely new buildings; and many occasions occur where, in necessary enlargements, we have opportunities of adapting new work to old; but I deprecate most earnestly the idea that in treating any monument of the architecture of our country, be it a village church or be it a cathedral, we are to hold ourselves at liberty to make such alterations as our taste or caprice may dictate in the work of those who made the architecture which we can only learn and copy.

This is not a question so much of the Chichester lantern as of the general principle. Chichester is in too good hands for one to feel any doubt that what is done will be right; but Mr. Scott's views of restoration are not those which are universally held and acted upon; and my object in this letter is to oppose the view implied, and indeed expressed, in your correspondent's letter, that restoration includes the right to make modifications at will. Where such must necessarily be made, make them and call them by their right name; but wherever they can be avoided, let us be content, and even thankful, to discharge the pious task of repairing and re-establishing the works of our forefathers, without interfering to modify their designs, or to substitute our own conceptions for theirs.

R.

SUSSEX ARCHÆOLOGICAL SOCIETY.

The annual general meeting of this Society was held this year at Amberley cum Pulborough. The meeting took place under the presidency of the bishop of the diocese, and on a site of which he is the especial owner.

Pulborough is a place full of archaeological interest, from the fact of its standing on the old Stane-street, running from Chichester through Halmaker to London, and passing Bignor. The neighbourhood abounds with Roman remains; and it is regarded as an undoubted fact that the existing Pulborough quarries were worked by the Romans nearly 2,000 years ago. There was no regular commencement of the meeting. The Rev. P. Boyston guided the visitors to Pulborough church, with its lych gate and brasses, and to Old Place and New Place, the Park Mount, and Hardham Priory, accompanied by Mr. Gordon Hills, the architect.

Old Place, the residence of the Apsley family, stands above the church. It is an interesting fragment of a manor-house of the time of Henry VI. New Place contains portions of a manor-house built by the same family, probably in the time of Henry VIII., though containing traces of a still older building.

Next followed a ride to Hardham, a short two miles off. Here is a farmhouse, built over some famous old cellars, or rather the crypt of what is still called Hardham Priory, the chapter-house of which, with its arched windows, and other portions of its original structure, still remain. Mr. Hills pointed out various portions of the

walls which indicated the former extension of the building; and said no doubt existed that the parish church originally stood on the north of the chapter-house.

A train took a considerable party from Pulborough to Amberley, where, by the permission of the railway authorities, it stopped close under the castle walls. Amberley Castle was thus reached by a short walk of two or three minutes. The objects of interest at Amberley are the castle, which was a very ancient residence of the Bishops of Chichester, and the church, recently restored by the Rev. G. A. Clarkson, the vicar.

Relative to the castle and church, Mr. Clarkson delivered a summary of a paper which is to appear in the forthcoming volume of the Society's transactions. Amberley lies about five miles north of Arundel, twelve north-east of Chichester, and 5½ miles from the Standard in Cornhill. In 1861, it was described as one of those picturesque old-world villages still to be found beyond the influence of the railway navy. In August, 1863, however, it was brought more into communication with the outer world by means of the railway which runs through it, connecting the Mid-Sussex and the South-Coast lines of the Brighton Company. The castle is built on the first portion of the South-Down chalk, after passing from the Wealden in a southerly direction. According to a distinguished archaeological writer, Mr. Matthew H. Bloxam, the castle is not a castle at all, though called so. It is one of those defended manions, of which we have a list of nearly 400, crenellated, embattled, and, to a certain degree, fortified under the Crown. Many of these embattled manions were, in after times, popularly denominated castles, but they want many of the characteristics of the old castles. The history of Amberley dates from an early period, and is associated with the struggles and the fortunes of Ceadwalla, the son of a sub-king of the West Saxons. It was subject to the decrees of the Council of Nice, described in Doomsday-book, and, in the reign of Henry I., and subsequently, seems to have come gradually and entirely into the possession of the Bishops of Chichester, who built here an episcopal seat.

As to the size of the castle, if castle it be, the buildings inclose a farmhouse, another dwelling, and a plot of ground on which Edgington had pitched a tent for the rest of the business of the day; comprising a dinner, of which from 250 to 300 persons partook. Some business, however, was transacted in the interim, and another stroll was taken round the ruins and the church.

The company left the castle by trains which stopped for their special convenience at the different stations.

KENT ARCHÆOLOGICAL SOCIETY.

The eighth annual congress of this Society took place at Hever Castle and Tonbridge, and notwithstanding the retired situation of Hever, the beauty of the weather and the rich scenery of the district induced a large party to assemble.

Hever Castle was built by Sir Geoffry Boleyn, in the time of Henry VI., and added to by his son, Sir Thomas Boleyn, father of Lady Ann Boleyn, the unhappy wife of Henry VIII., whose visits to this castle add much to its celebrity. Through her the property became vested in the Crown: thence it passed through the Waldegraves and Humphreys to the Waldos, in which family it still remains. The building is moated round by the River Eden, and is in good preservation. It is castellated, with two portcullises in perfect condition. The internal arrangements are of an inferior character, though in many instances rendered interesting by legends of the courtship and estate of its royal owner.

The Rev. William Witherforce Battye, the rector of Hever, explained the principal points of interest.

The annual meeting was held in the hall of the castle, when the Marquis Camden presided.

The Society next proceeded to the church, where are some interesting brasses, as shown in the first volume of the "Archæologia," after which the company again crowded into the vehicles prepared to convey them to Tonbridge. They proceeded through a very enclosed and well-timbered part of the weald to Chiddingstone, the seat of Mr. H. D. Streetfield, where the party alighted at this interesting village, examining the church and the old timbered houses. They also went into the park to see the chiding stone, as it is called, and which is said to have given name to the parish, as the

scoolds of ancient times were taken there for punishment, but history has been silent on this point. It is a large sound stone work, about 18 ft. in height, resembling the Sphinx head, and probably a remnant of Druid worship. After traversing a delightful country, the members found themselves at Tombridge Castle, an interesting remnant of olden times, but modernised and now the residence of the Rev. T. P. Fleming. Mr. Fleming here entertained the Society with some curious information as to the ancient customs of the place. He then proceeded to explain the old structure. In the new hall, arrangements were made to dine 250.

SURREY ARCHÆOLOGICAL SOCIETY.

The general meeting of the members of this Society was held at Titsey Park, the residence of Mr. Granville Leveson-Gower, M.P., one of the vice-presidents.

Those of the members and their friends who resided at a distance assembled at the Redhill Junction Railway in the morning. Here vehicles of all descriptions were in readiness to convey the party in the first instance to Godstone church, where, however, there were but few archaeological remains for examination.

Having seen and heard all that could be gleaned in connexion with Godstone church, the party proceeded onward to Barrow-green, the residence of the Right Hon. Edward Cardwell, who gave permission to inspect the curiosities of his mansion. Mr. Charles Percival, LL.D., gave an account of Oxted and the Burgh family. The mansion, he observed, took its name from a very large and remarkable barrow in the neighbourhood, which he hoped would soon be excavated. The pilgrims' road to Canterbury passed near to Barrow-green, the route of which could in several localities be clearly defined.

The church at Limpsfield was next visited, Mr. Eales giving an account of it. The party then proceeded towards Titsey Park, the woods and gardens of which were open to visitors, by the special invitation of the owner. In front of the mansion there are the remains of a Roman villa, recently discovered, which were described by Mr. W. W. Pocock. The church, which is in close proximity to the mansion, was also visited, and a description of it given by Mr. Gower.

After luncheon, the party returned to Redhill Junction.

PENZANCE ARCHÆOLOGICAL SOCIETY.

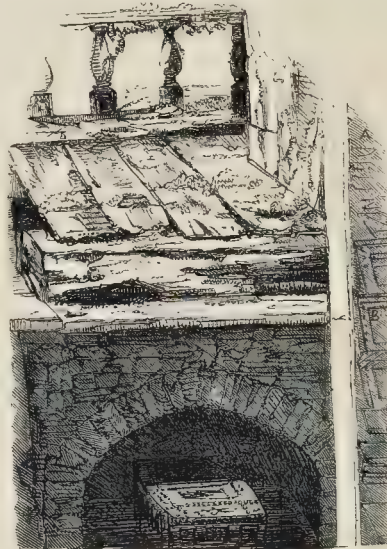
THE annual picnic of this Society has taken place. A large party was expected to join the mail train from Plymouth at the Truro station, and thus swell the Society's party at Penzance, so as to proceed across the hills to Gurnard's Head, a distance of about seven miles from Penzance. On arriving at Truro no party joined the train. The weather was bad, but at the hour of starting the sun shone out. The members of the Society and their friends then mustered at the end of the Marazion-road pretty strongly, there being about 150 to be conducted to the scene of the proposed archaeological exploration. After proceeding about five miles, the company left the conveyances and proceeded on foot to Mulfra Quoit, or Moel-vre (bare hill) Quoit, which was duly inspected. Mr. T. Cornish also led the way through the heath to Bosphrennis hut—Bos-porth-ennis (the house of the island port)—having reference, no doubt, to Portmure, on the sea-shore close by. After this the party were conducted by Mr. Cornish to a large mound of stones, which are supposed to be unopened remains of an ancient barrow or burial-place. A fallen cromlech was also exhibited in a field but a few yards off, of which the tenant of the land told of his having heard that many years ago a miller made the top stone of the cromlech round as it then was, in order to convert it into a millstone, but that he found it too hard. The story is not probable, because there is no brook adjacent at which the top of the cromlech could have been used as a millstone. There is no other top cromlech stone at present known to be of a circular form. The party having regained their vehicles, were conveyed to Gurnard's Head, where the picnic took place; after which the company were driven to two specimens of barrows pointed out by Mr. Millett. Having been opened, there was no doubt as to their ancient character. The whole of those present crept

into the subterranean barrows, which were lighted up by means of magnesium wire. The members of the party then returned to Penzance.

AN ILLUSTRATION OF DRY-ROT.

So great is the mischief caused by dry-rot, that good must be done by keeping attention directed to the causes of it. Several cases of this serious disorder in buildings have come under the observation of the writer, and in all those in which investigation was made, the cause evidently arose from damp, or want of ventilation. In some instances both these evils were combined. One of the cases referred to was observed in the old church of St. Pancras, during the time when extensive alterations were either just completed or in course of progress; but long before the works referred to were

long a time before; and in a short time beams, planks of flooring, railings, &c., were reduced to rottenness; the colour changed, and a heavy dark brown dust fell, and represented the once solid timber. On making an examination with a view towards discovering the cause of the attack, it was found that in the graveyard near the church, there were graves and several vaults: there were also vaults in the inside of the church. Most of them were filled, or nearly so, with water, which had run from the overcrowded graves. In the interior there were water-logged vaults, and the walls were saturated with damp. It was also seen that from the want of proper spouts and drains, near the outer walls, the drip from the large pent-roof had fallen into the foundations. In this situation, when the window-frames were properly arranged, a drain dug round and from parts of the church, and other alterations, which should long before have been made, were completed,



Dry Rot in a Church.

commenced, the church was in a most unwholesome condition; and some of our readers will remember the accounts which appeared in this paper at a time when there was much agitation respecting the closing of intramural places of interment, descriptive of the ill-ventilated state of the church. Both old and young complained of the bad air in the church, which caused persons to leave during the service; affected with headache, dizziness, and sickness; and several persons who with their families had been for long in the habit of attending the church were forced to discontinue doing so. On entering the church, even after the doors had been for some time open, the air was thick, heavy, and unpleasant to the smell, reminding one of those charnel-houses in which are dead men's bones. In many parts the graveyard, in consequence of the immense accumulation of bodies, had risen to a height of from 5 ft. to 6 ft. and 7 ft. above the original surface of the floor of the church and the burial-ground.

When the dry-rot made its appearance, it spread with amazing rapidity. Sometimes in the course of a night, a fungus of about the consistency of newly fallen snow, and of a yellowish white unwholesome colour, would be found to have spread over a considerable surface. The fungus was without shape, but in some cases it rose to a height of 2 in., 3 in., or 4 in. above the planks or other surfaces on which it grew. It could be cut with a knife, leaving a clear edge on each side, and there did not seem to be any covering or membrane over the outer or under surfaces. The smell of those matters was unpleasant, and seemed like the concentration of the smell which had pervaded the church for so

the dry-rot vanished, and we have heard no complaint of the foulness of the air.

Our engraving shows,—A. Grave-yard, raised above the surface of the ground by the deposit of the dead. B. Original surface of Church. C. Vault, partly filled with water, in which were coffins.

THE CASTLE HOWARD TUMULI.

LATELY we mentioned the renewed examination of the British barrows on the Earl of Carlisle's estate at Castle Howard. The operations have now been completed for the present year; and a particular account of them has appeared. They have revealed a distinct system of burial, generally of single bodies, placed in hollows dug in the apices of natural hillocks, which seem, so far as present researches have gone, to indicate the mode of burial of a distinct tribe or a particular social grade of the pre-historic Britons. Over the whole of these rude burials a slight mound has been raised, but this modern cultivation has nearly obliterated, rendering the places of burial very difficult of identity. The burials were all of the latest race of Britons who resorted to cremation. In no instance during these Castle Howard diggings has any trace of the long-skulled tribes, who buried the body entire, been found. In like manner, all trace of Christian burial has been wanting. The first opening of the low round barrows (the eighth of this year's explorations, and the eleventh of the Castle Howard series) was made on the summit of a natural hill north-west of the last great burial-mound described,

on Taylor's Moors. The small tumulus was formed of stone and sand, and had been much ploughed down, but was still 20 ft. in diameter, and (say) 1 ft. high. Just below the tilled surface a cup or dome of pure charcoal was found, beneath which was the deposit of burnt bones, placed in a central hollow formed in the natural ground, 1 ft. wide and 1 ft. deep. The appearance of the sides and immediate locality showed that the body had been consumed on the spot. The skull indicated youth. There was no flint implement, nor any guide to the sex of the interment. This burial was of the rudest and most primitive description.

The next opening made was on the apex of a hillock about 150 yards west of the large tumulus on Windmill-hill. Here, again, the plough had nearly eradicated all traces of the interment. The mound as measured was 120 ft. diameter and 1 ft. high. An opening was made in the centre, but little trace of burial was found. A few inches below the surface a deposit of burnt bones was met with, piled round with stones in the cist fashion. Below this burial a large stone slab was found, and below it a second (or rather the first) burial, in a deposit of charcoal. This body had been most imperfectly burnt, and was one of considerable stature. Some bones were yet quite recognizable, the pelvic bones in particular. The first burial had been placed in a hollow in the natural ground, and had been covered by the flag on which the upper burial was made. At the south side of the hollow with the first burial a perfectly plain incense-cup was found, with the mouth to the body. The cup was 3 in. in diameter, and had no marking beyond a groove on the bottom, and showed no wheel-marks. The best idea of the shape is obtained from the twopenny pork-pie of the present day. There was no flint nor any ornament. This barrow was peculiar for having two burials, one upon the other.

The next opening was in a tumulus in a meadow adjoining Windmill-hill, which, although 27 ft. across, yielded no trace of any burial. It was thought this mound had been dug over and over again for rabbits.

The next excavation was made in a small mound on a hill west of the large tumulus on Windmill-hill. 9 in. below the surface (again ploughed down), in a central hollow in the natural ground, 2 ft. diameter and 1 ft. deep, a deposit of burnt bones, with many signs of burning, and two incense-cups, were found, one cup broken, and above the interment, the other perfect, and among the bones of the skull. The broken cup was of a bluish tender ware, pierced near the bottom, and beautifully marked externally with triangles having reversed lines. The fragments were nearly all recovered. The perfect cup was 3 in. in diameter, and resembled the base of a truncated cone. It was cord-marked horizontally, and was pierced with nine perpendicular lines of three holes, the upper eighteen being pierced through on the square, the lowest row being oblique, as if to drain off moisture from the bottom of the vessel. This was the first instance where two incense-cups had been found with one burial, the two differing in type also.

The next opening was made in the centre of a mound 30 yards west of the last, on a rounded hill, slightly added to and much reduced in size. In a circular hollow, 2 ft. wide and 8 in. deep, and about 12 in. below the surface, enormous quantities of charcoal were met with, some lumps being as big as a man's hand, and quite as perfect as if burnt yesterday, instead of having been buried over 2,000 years. The deposit of calcined bones was made in the midst of the charcoal, and on the top of the burial, near the bones of the skull, on the south-west, a small globular incense-cup was found, grooved horizontally, and profusely marked with dots on the sides and on the bottom. There were cord-marks on the edge. Up to this point no trace of flint implements had been found with any of these peculiarly rude burials.

The next opening was made by Mr. Monkman, in the "Rye-hills"—a sandy tillage field. The tumulus had been a very large one, and was still 40 ft. in diameter, but reduced to about a foot of forced earth. The mound was all sand, and was full of rabbit-burrows. The labour of driving a 15 ft. trench through it was lost, for the interment had been long since destroyed by the plough. Fragments of a fine cinerary urn and traces of the cremated interment were found near the centre, and four pieces of wrought flint were also found.

The next opening was in an immense tumulus

in the Slingsby-avenue, of which an estimate of 70 ft. diameter would be moderate. This mound had been so completely and frequently overturned for rabbits that every trace of the original purpose for which it was reared was lost, as was also a whole day's labour.

The last opening for the present year was made by the Rev. Mr. Greenwell and Mr. Biggs in a small barrow left unexamined in Cook's Moor, to the extreme west. The "house" was 24 ft. diameter and 1½ ft. high. In the central hollow, 2 ft. wide by 1½ ft. deep, the burnt body was found in quantities of charcoal. There was no urn nor pottery, but there was a very fine thumb-flint, thus in the last opening disposing of the theory that no flint implements accompanied the low barrow burials.

A volume of description of the barrows is, we believe, in preparation by Mr. Greenwell, at whose cost the researches have been made.

THE PYRAMIDS OF EGYPT.

MAHMUD BEY, Astronomer to the Viceroy of Egypt, has published an interesting treatise, with the view of proving their dates from their connection with Sirius, the "Dogstar." The late Viceroy Said Pasha ordered him to work out this problem. He found the exact measurement of the largest to be 231 metres at the base, and 146'40" from the ground to the apex. Hence follows that the sides are at an angle of 51° 45'. Mahmud Pasha found that the angles of the other three pyramids, near Memphis, were on an average inclination of 52°. The fact that the sides of these monuments are placed exactly true to the four quarters of the globe, seemed to point to some connexion with the stars, and Mahmud Bey found Sirius sends his rays nearly vertically upon the south side, when passing the meridian of Ghizeh. He then found, on calculating back the exact positions the star occupied in past centuries, that the rays of Sirius were exactly vertical to the south side of the Great Pyramid, 3800 B.C. Sirius was dedicated to the god Sothis or Toth Anubis, and hence the astronomer deduces, that the Pyramids were built about 3800 B.C.—a date nearly coinciding with Bunsen's calculation, who fixes the reign of Cheops at thirty-four centuries before Christ.

DIOPHANTINE ANALYSIS AT OXFORD, IN 1865.

A WORKMAN having propounded the error, current among carpenters, that a triangle whose sides are as 3, 4, and 5, is the only right-angled one whose sides are commensurable, I corrected him by showing several others. This led me to observe that all these appeared to belong to two series; one of which, beginning from 3, 4, and 5, continually shortens the triangle, or brings the two short sides nearer to equality; while the other series, starting from the same, continually lengthens it, or brings the two longest nearer to equality. For example:—

Shortening Series.			Lengthening Series.		
3	4	5	3	4	5
20	21	29	8	15	17
119	120	169	5	12	13
696	697	985	12	35	37
4263	4264	6149	7	24	25
	&c			&c	

In the shortening series the two short sides differ always by the greatest common measure of all three; and in the lengthening series the two longest always differ by either once or twice that measure. This led to a conjecture that it might be a property of all such triangles to have (when reduced to their lowest terms) two sides differing by either 1 or 2; and I wrote to an Oxford mathematician to ask if this could be proved to be the case. He replied that, as the question belonged to the "Diophantine Analysis," he had referred it to the man he considered best up to that subject. Accordingly, in about a week I received a supposed demonstration that the above is universally true of all prime right-angled triangles. The process was by ordinary algebra, but jumping over steps that I was unable to supply, and arriving at the result that (x, y, z , being the three sides in their lowest terms), either x, y , or y, z must be 1 or 2. Meanwhile, however, I had found this was not the case, as one example will suffice to show. For x, y, z , may be 161, 240, and 289, in which the two nearest, instead of differing by once or twice their greatest common measure, differ by forty-nine times!

E. L. GABBETT.

CONDITION OF WATERING PLACES.

You have long directed attention to the deplorable condition of the dwellings of the "poorest poor;" but the condition of the dwellings for those several degrees above the poor seems to merit attention, especially at the present moment, when anticipation, just or unjust as the event may prove, exists of the possibility of this country being again visited by cholera.

I have recently visited a watering-place on the east coast, and found a block of buildings, chiefly designed for the reception of visitors, of rather recent erection, admirably planned to engender or propagate disease such as typhus or cholera. The houses are in pairs; the lower floor, level with the ground, being for sitting-rooms, the upper for bedrooms. The walls extend on each side backward, forming, as it were, the one-half of the letter H. Close to the kitchens, and only a couple of yards from the rooms for human habitation, is a cesspool, one for each house, and in the space between, one pump for the use of the inhabitants of the two houses. Now if builders, I will not say architects, plan and erect houses in this way, can we wonder at the extension of disease? Only think of all the water for drinking, cooking, and personal ablution being derived from such a source!

M. D.

* * The name of the place and the position of the houses have been communicated to us, but we forbear at present from publishing them.

ST. MICHAEL'S CHURCH, ST. ALBAN'S.

"A WORD on the spot [says the poet Gray] is worth a cartload of recollection." What I am about to write to you is "touching." Lord Bacon's church is noted before the church itself, now a mere carcass or shell, but instructive in every way,—a fitting subject for a peripatetic lecture from that M.A. in architectural characteristics, the Professor Willis; fit to fill a note-book for future publication of our modern "Oxford antiquary," Mr. J. H. Parker.

That Mr. G. G. Scott has undertaken his work of restoration or alteration with a knowledge of what he is about, and a resolute determination to carry out his own views in re-making the church as it was before the attempted revival of the Classic style under Holbein, John of Padua, and, still later, Inigo Jones, there cannot be a doubt; but he has such a task before him that, I am afraid, he will only reproduce—

"Small thanks to France, and none to Rome or Greece,
A patch'd, vamped, future, old, revived, new piece."

And yet I am assured "No." I assuredly hope so.

At every visit I make to the church,

"Brushing with hasty steps the dew away,
To meet the sun upon the upland lawn,"

I tremble for the fate of a Jacobean south chancel doorway, plain and unpretending, under which Francis Bacon, when alive, entered the church wherein his mother was buried, and with whom, in his Will, he desired to be buried. It is still happily standing, though in discordance, I admit, with the Gothic architecture of the well-proportioned chancel, but in full accordance with Bacon's statue and the architecture of all that remains of Gorhambury as it stood in the days of Queen Elizabeth and King James.

The churchyard, by sheer necessity, is made to shelter a pile of lofty pews; some green-painted, some red-baized,—skirted with brass coffin nails (may I so call them?)—and enough, if lighted, to set Barry's Houses of Parliament, the Penitentiary, and Father Thames on fire. Happily these are condemned to firewood, for household purposes; and open carved seats will replace them, much to the comfort and cleanliness of the congregation.

The artificial earth, some 3 ft. deep, the accumulation of centuries of burials and neglect, that surrounded the outer wall of the church, has been removed sufficiently deep to admit of a tiled gutter and tile drain-pipes. The plumbers are on the roof of the nave.

The exterior of the chancel is strongly shored up, and properly so, for it was (is) more than nodding to its fall; but I hope every hewn stone will be preserved that can be made available. A new "London stone," in London, would not be the London stone of the Romans or Jack Cade. A new rough-hewn red sandstone in the Coronation Chair in Westminster Abbey could not be the Coronation-stone of King Robert I. of Scot-

land, or King Edward I. of England. The cut and reset Koh-i-noor of England and Queen Victoria, is no longer the uncut and inestimable diamond of the Sikhs and Runjeet Singh. A Preservation Society is as much needed as a Restoration Society. C.

THE ARCHITECTURAL MUSEUM. PRIZES FOR ART-WORKMEN.

THE following competitions are open to all *bona fide* art-workmen, whether members of the Architectural Museum or not. It will be seen that the complaint of a stone carver in our columns some little time ago is thus answered.

The Council offer a first prize of 20*l.*, a second prize of 5*l.*, and a third prize of 2*l.*, for the most successful carvings in stone of a subject from Flaxman's illustrations of Dante, entitled "The Triumph of Christ."

A first prize of 15*l.* for the best, and a second prize of 5*l.* for the next best rendering in wood of a poppyhead not less than 10 in. high and carved on both sides.

A first prize of 5*l.* for the best, and a second prize of 5*l.* for the next best reproduction of the head of the Statue of Germanicus in *repoussé* or bossed up silver.

A prize of 10*l.*, given conjointly by the Eccelesiastical Society of London and Mr. Beresford Hope, is offered for the reproduction in translucent enamels, on a flat "plaque" or plate of silver, of the figure of S. Barbara, ascribed to Nino Pisano, and marked 7451 in the Statue or Sculpture Collection at the South Kensington Museum.

A prize of 10*l.*, given by Mr. Raskin, is offered for the reproduction of the same figure in opaque enamels on copper, similar to those of the chalice No. 2,231, the altar cross No. 2,332, and the two plaques Nos. 2,191 and 2,192, at South Kensington.

The Council of the Architectural Museum offer a first prize of 10*l.* for the best, and a second prize of 5*l.* for the next best panel filled with marble mosaic work, without figures or animal life, suited to architectural decoration.

In addition to the above prizes, certificates of merit will be given in deserving cases, and the Council of the Architectural Museum may, at their discretion, award the sum of 1*l.* 1*s.* or upwards, or a book, for objects showing merit, although not sufficient to secure a prize.

The conditions will be obtainable at our office.

THE ATLANTIC AND OTHER CABLES.

It is suggested by a correspondent of a daily paper to start three ships instead of one, each ship having a wire rope of great strength attached to the stern, of at least three miles in length. At the end of this rope (he continues) I would attach a thick ring weighing several hundred pounds, through which the end of the cable at Valentia should be passed; the ships would then be obliged to follow the cable, as the least deviation would be indicated by the angle described by the ropes. The ships should be from two to three miles apart, the *Great Eastern* in the middle; and when within ten or fifteen miles of the broken end of the cable they would, by a signal from the *Great Eastern*, stop, and begin the winding up. When the cable is raised a mile high, the first and third ships should stop, leaving the *Great Eastern* to finish the work. By this means the slack of at least six or seven miles of the cable would be available to raise it at the surface of the water even if the depth were two miles.

The underwriters interested in the lost cable, it is said, have settled with the insurers, as if the cable were indeed a total loss. A new cable has already been begun, so as to prevent all possibility of improvement in the "fanciful cable." The whole affair seems to be in the hands of the unsuccessful cable constructors.

In Europe, Asia, Africa, and Australia there are fifty-two submarine cables, which are of the aggregate length of 5,625 miles, and the insulated wires of which measure 9,763 miles. The longest of these is 1,550 fathoms, and the shortest 1½ fathom. There are ninety-five submarine cables in the United States and British North America, which measure 68 miles, and their insulated wires 133 miles. The overland telegraph line between New York and the west coast of Ireland, through British Columbia, Northern Asia, and Russia, will be 20,479 miles long, 12,740 miles of which are completed. It

has at length been resolved that this line shall cross from America to Asia at the southern point of Norton Sound, on the American side, to St. Lawrence Island, and from thence to Cape Thadæus, on the Asiatic continent. Two submarine cables will be required for this, one 135 miles long, and the other 250 miles long. Cape Thadæus is 1,700 miles from the mouth of the Amoor River.

THE PROPOSED NEW ROYAL EXCHANGE FOR MANCHESTER.

THE Exchange Committee have exhibited at the old Exchange a drawing for a new Exchange, upon the basis of the enlarged scheme suggested by the corporation.

The style is Italian. The principal entrance is placed in the Cross-street front, and the drawing accordingly exhibits the Cross-street and Market-street frontages. The Cross-street front presents two projecting pavilions, with a receding centre, the angles surmounted by towers. The pavilions, or wings, are united on the lower story by a portico of Doric columns, from 25 ft. to 30 ft. in height. The Market-street outline is in keeping with that of Cross-street, having two wings, one at either end, the recessed centre not being so deep as that on the Cross-street side. This frontage is terminated at the junction of Market-street and Exchange-street by a tower, placed so as to front directly towards Victoria-street. Another entrance at the junction of Exchange-street and Bank-street will be so placed as to front into St. Ann's-square.

The ground-floor will be occupied principally by the large room, which will be lighted not only from the roof in the centre, but also by windows looking into the three principal streets.

The area of the site is about 250 ft. by 200 ft. The upper stories contain suites of offices for public companies and others.

THE BUILDING TRADES.

Ipswich.—The master builders resolved that no answer could be forwarded to the operative bricklayers, as to their desire to have an advance of wages to 4*s.* a day, until the names of the persons who issued the circular should be attached to it. The men, to the number of sixty-nine, thereupon signed a round-robin, and demanded an answer, which was sent, and to the effect that they could not agree to advance the rate of wages to 4*s.* a day; but in order to enable them to complete the contracts now on hand, they would agree, that after the first week in October the rate of wages should be in classes of 3*d.*, 4*d.*, and 4½*d.* an hour, the class of the men to be determined by the masters on arriving at their value. The men would not accept these terms, and turned out.

Pershore.—A meeting of journeymen bricklayers has been held in this town, to consider the low rate of wages, and adopt means for raising the same. All the speakers agreed as to the impossibility of maintaining themselves and families with the low rate of wages paid, while provisions of all kinds were so high. For years past the masters in Pershore, they said, had been paying only 3*s.* per day, which, taking into consideration the loss of time, &c., averaged, in the majority of cases, scarcely 10*s.* per week during the year. It was also stated that the bricklayers in Pershore were receiving from 3*s.* to 9*s.* per week less wages than the bricklayers in neighbouring towns, the highest rate of wages paid in Pershore being 18*s.* per week, whilst in Evesham it was 21*s.*, and in Worcester 27*s.* It was unanimously agreed to inform the master builders in Pershore of the men's determination to cease working after the 26th ult., unless at an advance of 6*d.* per day.

Jedburgh.—At a meeting of the joiners of this town it has been resolved to ask the masters for an advance of 2*s.* per week of wages, as they were below the other towns in the district.

Penryn.—We have already mentioned that there has been a strike of the quarrymen at the extensive Penryn Quarries, North Wales. The quarrymen have since had several interviews with the proprietor, Col. Pennant, M.P., and an arrangement has been arrived at, and all the men have resumed work. The chief point complained of by the men was, that when the rock happened to turn out bad many of them did not earn more than 6*s.* to 7*s.* per week, and they

applied that they should be secured a minimum rate of wages irrespective of how the rock turned out. This has been conceded, at least in principle, by Col. Pennant, although no fixed minimum has yet been determined upon. An advance is also to be given to those who are engaged in making slabs.

JOINT COUNTIES LUNATIC ASYLUM FOR CARMARTHEN, CARDIGAN, AND PEMBROKE.

THE building is nearly ready for occupation. The establishment was intended to contain 305 patients, but owing to the architect's plans being curtailed of two wings, it is only suited to accommodate 212 patients.

The architect employed by the committee of visitors is Mr. David Brandon, of London. The building was begun in March, 1863, by the contractor, Mr. George Pollard, Taunton, Somersetshire. Mr. George Pratt has superintended the erection since August, 1863, as clerk of the works. Mr. Chaplin and Mr. Beard were employed as foremen and managers to the contractor.

The walls are built of stone chiefly from Tygwyr quarry, with Bath-stone dressings. The whole of the exterior walls are cased with brick inside with a hollow space to prevent the damp coming to the interior. Flues and other means are adopted to carry off the foul air from the sleeping dormitories, corridors, &c.

The towers, east and west, which are 85 ft. high, contain large slate cisterns capable of holding 6,000 gallons each of water; this water is pumped up from "Job's Well" by means of a steam-engine, to the top of these towers, from whence it finds its way to other cisterns and taps throughout the whole of the building. Hot-water cisterns are fixed below those of cold water, and this is used for baths for lunatics and the washing up connected with the patients.

The whole of the stoves and ranges and fittings in kitchen, hot-water supply, &c., have been executed by Mr. Thos. Potter, of London.

The site has an elevation of 190 ft. above the level of the sea, and commands a view of the town and environs of Carmarthen, with an extensive and charming view of the Vale of Towy, and the hills near Brecon in the east, and on the west the high range in Pembrokeshire. It is situated about one mile from Guildhall-square, Carmarthen.

RAILWAY MATTERS.

THE report of the directors of the London, Chatham, and Dover Company shows in a tabular statement that the receipts of the general undertaking, 72½ miles open, amounted for the half-year ending the 30th June to 146,619*l.*, and for the same half of last year to 125,207*l.*, showing an increase of 17·10 per cent. The total receipts of the same mileage for the half-year ending the 30th June, 1863, amounted to 82,348*l.* The aggregate number of passengers conveyed on the company's lines and branches during the past three half-years was 11,388,157, of which 8,658,693 were third-class, 1,832,362 second-class, and 892,102 first-class passengers; and of the total number of passengers mentioned, 8,873,550 were conveyed over the Metropolitan Extensions, of which 6,706,962 were third-class, 1,428,586 second-class, and 737,002 first-class.

The invention of Mr. Preece, the superintendent of telegraphy on the South-Western Railway, for communication between passengers, guards, and drivers of trains, and which is now in use in certain of the express trains on the South-Western line, has been thus described:—In the middle of every carriage is a small circular wooden top, the form of which is covered with glass protecting an enamel face, on which is inscribed "To warn the guard, break the glass and turn the handle," which handle projects from the disc. The glass breaks at the slightest tap, and the handle on being turned sets ringing three electric bells, one in a van at the fore end of the train, another in a van at the aft end, and the third immediately in front of the driver on the engine. The men then act in accordance with the following instructions:—

"When the guards and engine-man hear the bell ringing, they will at once look carefully along each side of the train, and in case any violent oscillation be seen, or a carriage be on fire, or other occurrence of a serious

character be observed, the train will be stopped as speedily as possible, and, when stopped, must be protected by signals as prescribed by the rule-book. Should, however, the guards and engine-men fail to observe anything which really necessitates an immediate stoppage of the train, their duty will be to stop the train at the next station or junction, so as to protect the train, when stopped, by fixed signals. When the train is stopped, the passenger who broke the glass and rang the bell will communicate with the guard; but should he fail to do so, the guard will detect the compartment from which the passenger gave the alarm by looking for the broken glass; and in case the alarm has been mischievously and wantonly given, or from insufficient cause, the names and addresses of all the passengers in that compartment will be taken, in order that the law may be enforced.

The traffic receipts of the railways in the United Kingdom for the week ending August 18, 1865, upon a mileage of 11,957, amount to £72,355, being equal to 61l. 12s. per mile. For the corresponding week of last year the receipts were £36,733l.; the number of miles open 11,673, or 63l. 2s. per mile.

WATER POWER IN WAREHOUSES.

We have on several occasions alluded to the application of turbines to hoisting purposes in Manchester and other Lancashire towns, which have the advantage of a high-pressure water service; and Mr. Pearce, of Bradford, has now adopted another very ingenious arrangement in the shape of a water-engine, which was put down by Messrs. Ramsbottom & Co., of Blackburn. The engine is supplied with water from the corporation mains on a pressure of 60 or 70 lb. to the square inch. The water enters a pair of water-engines, each of which possesses a pair of cylinders and pistons. The cylinders oscillate upon trunnions, and the effect of this oscillation is to reverse the valves in a peculiar arrangement, thereby causing a continuous rotary motion, which puts the hoist in motion. The engine has been applied with success to printing-machines, to a mortar-grinding machine, and other apparatus requiring a motive power on a small scale. The experiments made on this occasion were quite satisfactory. The hoisting of three sheets of wool or tops, each weighing about 5 cwt., did not occupy more than seven minutes, and the quantity of water consumed in the process was about 120 gallons. A series of experiments followed, and including the sheets raised in the first experiment, no fewer than fifteen sheets of wool, weighing in the aggregate 3 tons 15 cwt., were raised from the ground-floor to the highest story of the warehouse in the short space of forty-five minutes. The entire quantity of water consumed was only 570 gallons, the cost of which was about 6d.

CHURCH-BUILDING NEWS.

Leighton Buzzard.—The musical chimes at the parish church have been restored by a Leighton gentleman. The tenor is 26 cwt. The spire of this church is 192 ft. high, and exceeds in height all within a considerable circuit. The new church spire already spoken of will thus be a comparatively small one. Colonel Hamner, who laid the chief stone of the new edifice, laid a donation of 500l. on it. So also did the Rev. Henry Foulis, the incumbent of a neighbouring parish, and a liberal benefactor to the Brompton Hospital for Consumption.

Neath (South Wales).—Neath Abbey Church, which has been closed for some time, whilst undergoing extensive alterations, has now been re-opened for divine service. Through the assistance of Lord Dynevor, Mr. Howel Gwyn, and other landed proprietors, a new aisle has been added to the church, which now consists of a centre aisle, with one on either side, and a chancel. The chancel has been laid with encaustic tiles, the gift of Mr. E. A. Moore, of Llanlais, the Duke of Beaufort contributing an ornamental altar-rail; the Commandments and Lord's Prayer, in illuminated church-text, being represented by Mrs. Gwyn, of Dyffryn; and the reading-desk and lectern by Mr. F. A. Aylwin. The glass in the windows is "lined" in imitation of the old lozenge pane, and ground or leaded to render the light in the church diffusive. In the south aisle is a memorial window, which has recently been erected, representing the Angels at the Sepulchre announcing the Resurrection of our Lord, with the following inscription, in Welsh, from Luke, chap. 24, v. 5:—"Why seek ye the living amongst the dead? He is not here, but is risen." The church wants a stained-glass window in the chancel.

Irlam (Lancashire).—The foundation-stone of the new Church of St. John the Baptist, Irlam, has been laid by the vicar of the parish of Eccles, in which Irlam is situated. The site of the church, and also for a churchyard in connexion with it, is the gift of the late Mr. J. Greaves, of Irlam Hall, who was also the chief contributor to the building fund. The new church is intended to seat about 300 persons, and when completed will have cost about 2,000l. It will be a Gothic building, externally of stone, Runcorn stone being used for the walls, and white Stourton for the dressings. Internally it will be faced with different coloured bricks, unplastered. The passages and floor of the chancel will be tiled in patterns. Above the chancel, which will be seated for the choir, there will be a low tower containing a belfry, and capped by an octagonal broached spire. Opening from the chancel by an arch to the east will be a circular sacristy, or private chapel, and to the west the nave. To the south will be the organ-loft, timbered, and approached by an external door. There will be also a separate door, with timbered porch, for admitting the congregation. The work is being carried out by Mr. J. Bradburn, of Eccles, from the designs of Mr. J. Medland Taylor, of Manchester, architect.

Stainby (Lincolnshire).—Stainby Church, having undergone a restoration, has been opened for divine worship by the Bishop of Lincoln. The old church had a nave and north aisle, with a small modern tower. The whole of the church and tower, except the north aisle, has been taken down and rebuilt. The church now consists of nave and chancel with north and south aisles, with organ-chamber and the vestry at the east end of the north aisle. At the west end of the church is the tower surmounted by a spire 108 ft. high. The style adopted is Early Decorated, from designs by Mr. R. Coad, of London. The church is approached by two entrances; one through the tower at the west end, the other on the south side of the church; the priest's door being on the south side of the chancel. The church is lighted by tracery windows, there being two windows in each side and a tracery window in each end of the aisles. The chancel is lighted by a three-light tracery window at the east end and two windows on the south side. Each window in the chancel is glazed with stained glass by Messrs. Clayton & Bell, of London. The roofs are all in deal, stained and varnished. The rafters are boarded on the back, and open to the ridge. The whole of the fittings in the church and chancel are in oak, with an oak screen dividing the organ-chamber from the chancel. The chancel is paved with tiles from Mr. Godwin's, of Lurgardine. The exterior dressings are in Clipsham stone, with rubble-stone walling dressed and laid in courses. The interior facings and arcading are in Carby stone. The building is covered with Westmoreland slates, with a ridge in Clipsham stone. The church is prepared for heating by Messrs. Stuart & Smith, of Sheffield. The whole of the wood and stone carving has been done by Mr. Phillips, of London. The bells are from Mr. Taylor, of Loughborough. The whole of the expense (nearly 5,000l.) has been defrayed by the Rev. Geo. Osborne, rector of the parish of Stainby and Gundry. The contractors for the whole of the works were Messrs. Halliday & Cave, of Greetham, Oakham; and Mr. Geo. Walters was foreman of the works.

Carlisle.—A deficiency in Carlisle Cathedral, says the local *Journal*, has now been supplied. When, a few years ago, the Archaeological Institute of Great Britain held their meeting at Carlisle, the members who devoted themselves mainly to the study of ecclesiastical architecture, pointed out that Mr. Owen Jones's brilliant ceiling seemed to render the introduction of more colour below necessary to make it in keeping with the rest of the building. This has now been done. For the past three weeks workmen from Messrs. Hardman & Co.'s Dublin house have been engaged in decorating the organ, and their work is now nearly completed. The design is so chosen and executed as to harmonise with the colours in the roof. The pipes are painted blue, of the same tint as the ceiling, but of various degrees of shade, the large and prominent pipes being darker, and the colour gradually fading down lighter as the pipes grow smaller on each side. The groundwork of blue is embellished with red and white bands, and flowered decorations of gold. Simple sprigs of gold ornament the smaller pipes, while on the larger the embellishments of gold and red and white are larger and more elaborate.

PROVINCIAL NEWS.

Mickleham (Surrey).—The new almshouses here have been opened. The building stands on the site of the old almshouses destroyed by fire some twelve months since. It has been erected by public subscription, under the immediate superintendence of Mr. Henry P. Grissell, of Norbury Park, and is built of flint, faced with stone, being intended in some degree to correspond with the National School, which it closely adjoins. The building consists of a centre, two stories high, and two wings, and contains the requisite accommodation for eight families.

Lowestoft.—Arrangements have been recently concluded by the Town Improvement Commissioners with Capt. Robert Crowe, for the purchase of a valuable estate, containing about nine acres of building land, upon the North Common, for the erection of first-class mansions and villas, to meet the requirements of this charming and much-increasing watering-place. The architect has provided in his design an esplanade 57 ft. in width, upon the summit of the cliff; and which from its great elevation above the sea will present building frontages probably unrivalled along the coast. It is not intended to disturb the bold and picturesque nature of the slopes, but simply to provide suitable walks and seats thereon for the convenience of the public. A Gothic clock-tower, with reading and lounging rooms, will also be added. An immediate commencement will be made by Capt. Crowe, who has decided to expend about 25,000l. to complete this investment. The architect appointed to the Belle Vue Park Estate, as it is called, is Mr. W. Oldham Chambers, of Lowestoft, who will have the superintendence of the works, and from whose designs the erections will be carried out.

Birmingham.—The foundation stone of the Curzon Exhibition Hall, about to be erected by a limited liability company on land adjacent to the Old Wharf, at the top of Suffolk-street, principally for the accommodation of the Dog Show, but available also for other purposes, has been laid by Viscount Curzon, M.P. The buildings will occupy a site having a frontage towards Suffolk-street of 119 ft. and a depth of 131 ft., and comprise a lofty hall 108 ft. long and 91 ft. wide, with principal central entrance at the end from Suffolk-street. There are four shops, two on each side of the principal entrance, and at the extreme end of the front on the right will be the second entrance to the hall and gallery, while on the extreme left there will be a gateway entrance to extensive vaults in the basement. On the first floor the entire frontage and depth over the shops is to be occupied by refreshment and retiring rooms. There will be also a refreshment-room on the ground-floor. A gallery will be carried entirely round the interior of the hall, on the same level as the upper refreshment-rooms. A second staircase to the gallery is approached from the side of the hall. The main approach to the hall will be under an arch supported by columns with carved capitals, and up a flight of stone steps, through a vestibule groined in brickwork. The gallery will be carried by wrought-iron ornamental lattice girders and deal joists on cast-iron columns, sixteen in number. Light will be obtained by a large circular end window and skylights extending the whole length of the hall; and a wide louver ventilator, of corresponding length, will give ventilation. The style adopted is a free treatment of Gothic. The walls will be of brickwork, and of a plain character, the main front being treated in a somewhat more liberal manner by the introduction of stone strings and cornices, columns, arches, carved work, and coloured bricks. The architect is Mr. Edward Holmes; and Messrs. Horsley Brothers have contracted to complete the designs by the 1st of November next. The entire cost of the structure will be about 7,500l., exclusive of internal fittings.

Liverpool.—The erection of the new public offices for the transaction of the parochial business of the township of Toxteth Park, now will be commenced, the formal ceremony of laying the first stone being dispensed with. The building about to be erected is on the north side of High Park-street, immediately west of the reservoir of the corporation water-works, and will cover an area of 1,050 square yards. The building will be in the Roman style of architecture. The front elevation, in High Park-street, will be of yellow patent brick, with stone facings, the architraves and window heads and sills being of red sandstone. This elevation will consist of a centre with two wings, the entire width of the

elevation being 90 ft. The height of the central portion, from the ground to the apex, will be 49 ft., whilst that of the two wings up to the cornice will be 20 ft., and the depth to the extreme back about 100 ft. From the roof, in the centre of the building, a dome will rise, forming a prominent feature in the external appearance of the structure. The Board-room will be immediately under this dome, by which it will be lighted. The main entrance will be on the west side of the High Park-street frontage, leading to the several offices and the Board-room. The chief office for receiving the poor-rates will be 30 ft. by 27 ft., lighted from High Park-street, and in the wings on each side of this apartment, there will be two other offices respectively appropriated to the department of the superintendent registrar, and that of the Government tax collector. The Board-room will be in the centre of the interior, and will, of course, be the principal apartment in the building. Its dimensions will be 50 ft. by 30 ft., and its height from the floor to the dome, 45 ft. This apartment is intended to be devoted to the meetings of guardians, as well as to the annual general vestry meetings, and all other meetings connected with the business of the township. Corridors of ample dimensions will run entirely round the Board-room, giving access to the several offices and waiting-rooms within the building. At the rear of the building there will be a court-yard, with all sanitary conveniences, together with a dispensary. The architect is Mr. Layland, and the builder Mr. Samuel Campbell, whose contract amounts to 5,788*l.* The price paid for the land was 12*s.* per square yard.

Books Received.

Papers upon the Supply of Water to Towns.
By BALDWIN LATHAM, C.E. London: Spon. 1865.

THESE papers are of practical value. They treat of water supply from various sources, and are illustrated by diagrams of strata, water-bearing and otherwise, and of well-sinking, with designs of wells, &c. Rainfall is also treated of, and the circulation, evaporation, and absorption of rain-water, water supplies from collecting areas and their quantities, examples of water-works supplied from such areas, as well as from rivers and streams, and from springs and wells.

VARIORUM.

A CHART of the Atlantic Telegraph has been published by Messrs. Bacon & Co., showing the Atlantic and other Submarine Telegraphs in Europe and America; a View of the *Great Eastern* steamship; Diagrams of the Morse Telegraphic Machine and Alphabet; a View of the Atlantic Ocean from Valencia, Ireland, to Trinity Bay, Newfoundland; showing a Sectional View of the Soundings, drawn from Official Documents, with the number of Fathoms marked across the Ocean and other illustrations; of a subject now interesting many persons. It might have been done better. — "Vaugher's Parliamentary Companion," for the Session 1865 of the New Parliament. This is a small but useful publication, which appears monthly during the session, and contains lists of the Houses of Peers and Commons, with the town residences of members, and other information. — "Collingridge's Guide to Printing and Publishing." Collingridge, City Press, Aldersgate-street. This Guide has been issued from the City Press for many years, and it contains a great quantity of information concerning printing and publishing, useful not only to authors but to professional and mercantile men as well.

Miscellanea.

THE HAYMARKET THEATRE.—Mr. Walter Montgomery's short management is proving, we are glad to hear, successful in a pecuniary point of view, while it has served to afford enjoyment to playgoers at a usually dull period of the year. He has placed before them several standard plays very well acted. The new tragedy, "Fra Angelo," produced on Wednesday evening, proved to be better adapted for the Surrey than the Haymarket, though manifesting ability on the part of a young author.

THE COBURG STATUE AND THE ANGLO-FRENCH EXHIBITION.—The cast of Mr. Theed's statue of the late Prince Consort, which stands in the Centre Transept of the Crystal Palace, has been lent by her Majesty to the committee of the Anglo-French Exhibition, as a mark of approval and sympathy with their object.

QUEEN'S COLLEGE, LIVERPOOL.—The Rev. Wm. Allen Whitworth, M.A., late scholar of St. John's College, Cambridge (sixteenth Wrangler in 1862), and joint editor of the *Oxford, Cambridge, and Dublin Messenger of Mathematics*, has been appointed Professor of Mathematics and Natural Philosophy in Queen's College, Liverpool.

COBDEN MEMORIAL SCHOOLS AT OPENSHAW.—The schools about to be built in Tipton-street, Openshaw, in connexion with the Methodist Free Church, will be designated the "Cobden Memorial Schools." The committee propose building an unpretending and substantial structure, to contain two large school-rooms and four class-rooms; and, probably 700*l.* would be sufficient for the purpose. Several subscriptions have been sent, and others are promised.

COVENT-GARDEN THEATRE.—Mlle. Carlotta Patti made her first appearance this season at Mr. Mellon's concerts last Monday. Her reception showed how great a favourite she is, and her singing how well she deserves to be so. The same evening was also to be noted by the production of a new waltz, "The May Waltz," composed by Mr. Mellon himself expressly for these evenings. It was well received. When hundreds of listeners will stand for three hours closely packed, hours which cannot be the three coolest out of the twenty-four, there must be something good to keep them in a quiet and agreeable state of mind. Such is the case at Covent-garden Theatre every evening.

MEMORIAL OF SIR DUNCAN M'DOUGALL, IN ST. PAUL'S CATHEDRAL.—The formal ceremony of unveiling a bust and tablet memorial of the late Colonel Sir D. M'Dougall, has taken place in the crypt of St. Paul's. The sculptor was Mr. George G. Adams, of Sloane-street, and the cost 300 guineas. A white freestone slab supports a moulded marble base, on the plain portion of which, between the moulded bastions, the musket and sword are carved in relief, united in the centre by a wreath of bay. Above this moulded base is a square block of pure white marble, on which is the inscription. The monument is placed on the right side of the entrance to the Nelson and Wellington tombs. On the left side is a marble tablet, by the same artist, to the memory of Capt. L. Thompson, one of the defenders of Kars, to which the Emperor of the French contributed.

THE ALBERT HOLIDAY AT THE ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON.—On Saturday, the 26th of August, being the forty-sixth anniversary of the Prince Consort's birthday, the gardens of the Horticultural Society were thrown open, by command of the Queen, to the public, free, in commemoration of the birthday of their founder. At eleven o'clock the military and volunteer bands commenced playing. There were numerous refreshment-stands, and the two annexe gardens were set apart for those who desired to picnic on the grass with the provisions they had brought with them. In spite of the great crowd, not a single accident has to be reported, nor any wilful damage done to the flowers, shrubs, or buildings. The visitors included a decidedly superior class to those of last year. The number of visitors was 130,000.

NEW LIGHTHOUSES AT BUDDONNESS.—The foundation stone of the new lighthouses at Buddonness, the works in connexion with which have been in course of erection for some months, has been laid by the Master and other members of the Fraternity of Masters and Seamen of Dundee. The new lighthouses—the plans of which were prepared by Messrs. Stevenson, of Edinburgh, the engineers to the Northern Lights Commissioners, as well as to the Dundee Seamen Fraternity—are to be considerably higher than the present ones, by which the lights will be seen at a greater distance at sea. The height of the largest of the two is to be 101 ft. above high water, and it will be seen at a distance of fifteen miles; while the present is 71 ft. in height, and is seen at thirteen miles. The lower light will be 61 ft. above high water, and will be seen at twelve miles and a half; while the present is 48 ft., and is seen at eleven miles and a half.

THE RUINS OF BURY CASTLE DISCOVERED.—Workmen engaged in the construction of a main sewer along the line of an intended new street in Bury, leading from the old market-place to Castle-croft, came in contact with some heavy masonry which interfered with their progress, and on digging down from the surface it was discovered to be the foundation of the western side of the long-buried ruins of Bury Castle. The rubble walls are much decayed, whilst the abutments, eight of which are at present exposed, are in a state of capital preservation, each stone plainly marked with an X, which is believed to be the delph or quarry mark.

ST. JAMES'S TOWER, TAUNTON.—At a vestry meeting held for the purpose of considering Mr. Ferrey's report as to the state of the tower of St. James's parish church, it was resolved "that the churchwardens be requested to obtain from Mr. S. K. Pollard a specification for the complete repair of St. James's tower, and that persons be invited to tender for the execution of the work; that an estimate be obtained for the rebuilding of a *fac-simile* of the present tower, and that both be presented to the meeting on an early day." Mr. Pollard's estimate for the repair of the tower was about 1,200*l.*, which Mr. Ferrey considers a fair one; and Mr. Pollard and his colleague obtained an estimate for rebuilding the tower, which was 2,600*l.*

PARTIAL DESTRUCTION OF AN IRON CHURCH BY A THUNDERBOLT WIND.—On Thursday evening in last week, a great wind from the south-east blew over Dalston, with thunder and lightning; and portions of roofs, bricks, boughs of trees, and blinds from the windows of tradesmen, were thrown in all directions, the lightning, to crown all, striking St. Mark's church, Ridley-road, on the south-east corner, and passing to the ventilator on the roof of the church, dashing it inside. The whirlwind next stripped above 50 ft. of the roof on the south-east end, and passing over to the north-west gable, there carried off about 40 ft. The structure was composed of iron, and fragments above 4 ft. in length, and 2 ft. in breadth, were hurled into the air above 80 ft. high, and carried to a distance of several hundred yards. Several walls were blown down in the neighbourhood: one, running 100 ft. long and 6 ft. high, was completely destroyed, in Philip-road, Dalston.

THE SOUTHAMPTON WORKHOUSE PLANS.—The poor-law guardians of Southampton must be an unusually wooden-headed Board. Having applied to all the local architects for plans, with secret mottoes, and got five plans, they submitted these to Mr. Hawley, the poor-law inspector for the General Board. Mr. Hawley selected one marked "Air" as the best, and "Si je puis" as the next best. To "Fortuna cetera mando" he stated a number of objections. By this time the names of the architects had cozed out, and got into the wrong-heads of the Board, whose proclivities ran upon the author of "Fortune," whose design, therefore, has had the good fortune to be selected by the Board as the most suitable to their ideas of what a workhouse ought to be. The author of "Air" is Mr. T. A. Skelton, a young local architect; and Messrs. Guillaume, Parmenter, & Guillaume are the authors of "Si je puis." On the ground of *want of experience* in workhouse building, Mr. Skelton's plan was rejected; and, "Fortune" being notoriously blind, the second best plan, by experienced architects, was invisible, and the wilfully blind board could only see the plan whose architect they were bent on patronizing.

IRON PAVEMENT.—One noticeable feature of the extensive new goods sheds and sidings in course of construction by the railway company at Ipswich, says the *Suffolk Chronicle*, is the iron pavement manufactured by Messrs. Ransomes & Sims, and termed Knapp's patent, which has been used in three or four of the principal thoroughfares in London. It consists of a number of cast-iron cells some 3 in. square, on the upper edges of which are small knobs at short intervals, to enable the horses to get a secure foothold, the cells being filled up with earth. The pavement is manufactured in pieces 17 in. square, so made as to lock the one into the other so securely that it is next to impossible for the surface to become irregular. This pavement is placed upon a foundation of concrete. The cost slightly exceeds that of the very best granite, but it is calculated that its durability far exceeds that of any other pavement; and the foothold it gives the horses is considered to be much superior.

THE LATE SIR JOSEPH PAXTON.—It has been decided to erect a monument in Coventry to the memory of the late Sir Joseph Paxton, who for ten years represented that city in Parliament. The site chosen is in the Coventry Cemetery, which was designed by Sir Joseph, and laid out under his superintendence.

THE PNEUMATIC DESPATCH.—The tubular line and works of the Pneumatic Despatch Company from the Euston-square terminus of the London and North Western Railway to the central depot at the Bull and Gate, Holborn, are nearly completed. Under the direction of the company's engineer, Mr. Rammell, a carriage was passed backwards and forwards in the tube, in anticipation of the speedy opening of the line. The actual terminus of the trunk line, apart from that between Holborn and Euston-square, is to be constructed in St. Martin's-le-Grand, on a site near the corner of Newgate-street, and to this spot the tube will be eventually carried: it has already reached the brow of Holborn-hill. The present line may be regarded as the trunk of a future extensive pneumatic system, the branches of which will intersect the principal districts of the metropolis.

A GAS ENGINE.—The gas is introduced by an ordinary housepipe into a cylinder containing two chambers, each of which is filled with it. The gas being mixed with common air, which is sucked in by an appliance, at the rate of eleven parts of air to one of gas, is exploded by means of an electric spark in each chamber alternately, and the force of the explosion produces the motive power, corresponding to steam in an ordinary engine, which propels the machinery. The quantity of gas contained in the chambers is very small, and the contents of each chamber are exploded eighty times per minute, the exhausted air left by the explosions being carried off as soon as produced by a waste-pipe. The engine is employed in Mr. Middlemas's manufactory in driving machines used in the making of bread.

ANCKLAND: FALL OF A NEW BUILDING.—In this New Zealand summary, the *Daily Southern Cross* for May last gives an account of the fall of a new building in Queen-street, Auckland, intended for a theatre and auction-rooms. While eighteen workmen were engaged in and about the building, suddenly and from an unexplained cause the wall of the building fronting Queen-street cracked and fell, carrying away the entire scaffolding, and portion of the wall on the south side. The roof of the adjacent shop was crushed in, and the whole premises were completely destroyed. The woodwork of the roof of the theatre very fortunately remained intact, being supported by the side walls, and the workmen who were on it were thus enabled to effect their escape. It is stated that the front wall is to be raised up again, and that the framework of the roof, which has slipped forward, will then be raised by screw-jacks. The side walls will remain to be partially rebuilt, but the back wall is apparently uninjured.

WORKING CLASS DWELLINGS FOR LIVERPOOL.—The sub-committee of the Health Committee appointed to report on this subject have issued a report of Messrs. J. B. Hughes and Newlands presented to them. The following are the conclusions of this report presented as *quasi* principles for discussion:—1st. That within reasonable limits from the seats of labour, it is impossible to build workmen's dwellings merely such suited to the class contemplated, at rents which they can afford. 2nd. That, within the same limits, it is possible in good thoroughness to build workmen's dwellings, combined with shops: the shops paying the difference of rent, that is, the deficiency caused by the low rents of the houses. 3rd. That it is probable, if almost certain, that landowners outside the borough will set their faces against the railway scheme, on the ground of pauperizing their parishes. The workmen working in Liverpool, and living in parishes outside, would, with their families, in the case of poverty or distress, be chargeable on the parish where they are domiciled. 4th. If the railway scheme is not opposed at the grounds above noted, and the minimum charge for carriage be 6d. per week, cottages may be built without land for a garden, to be let at 3s. per week, which, with the railway carriage, will make the rent 3s. 6d. per week, quite as much as a workman of the class intended to be benefited can pay; but if with land sufficient for a small garden, at 3s. 8d. per week, including carriage.

UNHEALTHY STATE OF MIDDLESEX SESSIONS COURT.—During the progress of business in the first court of the Middlesex Sessions, in Clerkenwell, on the 10th ult., Mr. Cooper rose and said, as senior counsel of these sessions, and seeing generally intelligent and active magistrates on the bench, he begged to call their attention to the wretched ventilation of the court, a court never intended to hold the number of persons who usually crowded it. The consequence was, the foul air breathed over and over again hung over the floor of the court, there being no draughts from below to blow it up through the ventilator, which was very defective. The magistrates quite agreed with Mr. Cooper as to the state of the court, and were sure it would receive the attention of the proper authorities. Mr. Francis (the deputy clerk of the peace) said the matter should be duly brought before the magistrates on the next court day.

ACCIDENT.—Mr. Smith Flesher, of the firm of Messrs. Flesher, Brothers, of Burley, in Wharfedale, builders, who are the contractors for the erection of a new wing to a house, was standing upon a scaffold erected outside the building, and had just completed the laying of a large projecting stone forming part of the ornamental cornice, when the stone, along with two other courses already fixed, gave way, and he was precipitated to the ground from an altitude of about 20 ft.; the stone first mentioned, which weighed nearly half a ton, falling upon his head and killing him on the spot. A cousin of the unfortunate man, named Christopher Flesher, who was upon the scaffold at the time, seeing his danger, sprang forward, and caught one of the upright poles to which the scaffold was fixed, the falling fragments dreadfully crushing and lacerating his right leg. It is a sad coincidence that the eldest brother of Mr. Flesher, about twenty-two years ago, and also on a Saturday, lost his life by falling from the top of the tall engine chimney then just erected at the works of the late Mr. Peter Garnet, paper manufacturer, Otley.

RAILWAY BRIDGE BETWEEN CANADA AND THE UNITED STATES.—The International Bridge, which is to cross the head of the Niagara river from Fort Erie, in Western Canada, to Buffalo, in the state of New York, will obviate the use of the dangerous ferry which at present receives the traffic of the two Canadian lines of railway terminating at Fort Erie. When the bridge is finished, a perfect connexion will be established between the Buffalo and Lake Huron section of the Grand Trunk Railway and the Erie and Niagara Railway on the Canadian side, and the Atlantic and Great Western, the Erie, the New York Central, and the Lake Shore Railways, on the American side of the river. The International Bridge is to be a massive structure of stone and iron, and with two stories, to serve the purposes respectively of the railway and ordinary traffic. The contracts for its construction have lately been signed in England, and it is to be completed and ready for opening within the term of two years. There are also proposals to build international bridges connecting Sarnia with Port Huron, Morrisburg with Waddington, and Windsor with Detroit.

ST. MICHAEL'S CHURCH, FINSBURY.—This new church, which is situated in Mark-street, Paul-street, Finsbury, the centre of a thickly-populated and poor district, has been consecrated by the Bishop of London. The right rev. prelate, before proceeding with the consecration, directed that several vases of flowers, with which the communion-table was decorated, should be removed; and obtained an undertaking from the incumbent, the architect, and churchwardens, that a charcoal cartoon of the Crucifixion, on the east wall of the chancel, should be effaced on the following day. The church, which contains 1,000 sittings, all of which are free, was erected at a cost of 7,500*l.* by Messrs. Sharpenden & Cole, of London, of which 3,500*l.* were paid for the site. The whole of this sum was raised by subscription, 6,000*l.* being given by one anonymous gentleman. The building, which was designed by Mr. James Brook, of London, is of the Early Pointed style of architecture, the tracery heads of the windows being geometrical. The plan consists of a nave, 97 ft. 6 in. long, 26 ft. 9 in. wide, with equal aisles, 10 ft. 6 in. each; and the chancel, 38 ft. long by 24 ft. 3 in. wide, having an aisle and sacristy to the north, and on the south side a small transept containing the organ. The roofs, which are open to the rafters, are 70 ft. high to the bridge of the nave.

CRYPTS.—An "Amateur" writes,—"I am about to build a house with a terrace walk before it, somewhat as represented in your paper of Aug. 12th, as the Bank of Scotland. I should esteem it a favour any of your correspondents informing me whether it is practicable to make the crypts habitable in regard to damp, and how the roof could be carried out to prevent rain and snow percolating through the gravel walk above. I thought of laying a coat of asphalt on the roof, then filling in with bricklayer's rubbish, and laying gravel thereon; but I have no doubt many of your correspondents can suggest a better plan. The ground naturally falls to the south, so that the ground line of the south wall of the crypt will be on a level with the garden."

BATH ABBEY CHURCH.—A tender has been accepted from Mr. Bladwell for carrying out, under the direction of Mr. G. G. Scott, the groining of the roof of the nave in the Abbey Church at Bath, at a cost of 8,000*l.*, and of the aisles of the church, at an outlay of 2,500*l.* The work will be taken in three compartments or bays, the first two being taken at a cost of 2,000*l.* Having made themselves responsible for this further instalment of the work of restoration, the committee look for increased help from the public. During the recent excavations, it was found that the cause of the sinking of the northern turret in the west front was that it had no sufficient foundation. It is now proposed to underpin the turret, so as to make it secure before the reparation of the west front is commenced.

LOUTH TO GAINSBOROUGH.—The question of providing additional railway accommodation between Louth and the neighbouring towns has been started and has died out, and been revived and failed again several times. Once more, however, the attempt is now under consideration, in the shape of a line from Louth to Market-Rasen, and thence to Gainsborough, thus placing these towns in direct communication with Manchester, Sheffield, and other large northern towns. Messrs. Rogers & Marsden, architects and surveyors, of Louth, have received instructions to prepare a preliminary survey and take the necessary levels, so as to ascertain the best route. Those of our readers who are acquainted with this district will be aware that this line would traverse some of the hilliest and most picturesque parts of the country; and the traveller from the south would receive a very different impression of Lincolnshire from that usually held, viz., that Lincolnshire people live in a swamp and are web-footed.

FORMATION OF A PARK FOR SOUTHWARK.—The arrangements for forming a park for the south-eastern portion of the metropolis are said to be completed; the Metropolitan Board having, after eight years' deliberation, fixed upon a site for it, and concluded their negotiations for its purchase. The site consists of sixty-five acres of land, situated in the parish of Rotherhithe, and is bounded by Jamaica Level, Union Road, the Rotherhithe New Road, and the South-Eastern Railway. The Board will be put in possession of the fee on the 29th of this month, when the purchase-money, 58,000*l.*, will be paid. The Finance Committee of that body have received instructions for negotiating a loan of 80,000*l.* for the purchase of the land, and for laying out the park. Of the sixty-five acres, only forty-five will be devoted to the purposes of the park, as the remainder will be laid out in building plots and a road to encircle the park, so that the Board will be recouped a portion of its outlay by the sale of the plots in question.

POOR RATES.—The House of Lords has decided, in the case of *Jones v. the Mersey Docks and Harbour Board*, that the only occupier exempt from the operation of the 43rd Elizabeth, c. 2, is the Sovereign, as not being named in the statute; and that the direct and immediate servants of the Crown, whose occupation is the occupation of the Crown itself, also come within the exemption. But this ground of exemption does not warrant many decisions which have held that property used for public purposes is not rateable. So also trustees, who are in law the tenants or occupiers of valuable property upon trust for charitable purposes, as hospitals or lunatic asylums, are, in principle, rateable, notwithstanding that the buildings are actually occupied by paupers who are sick or insane. It was consequently held (reversing the decisions of the courts below) that the Mersey Docks and Harbour Board were liable to be rated for the relief of the poor in respect of the docks in their occupation.

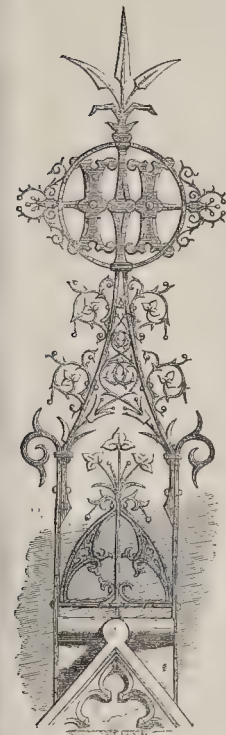
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The Builder.

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Out and About:
in
Derbyshire.

ADDON HALL, wherein we stood at the close of our previous notes, although it has remnants of Norman work, and a great hall and a gatehouse of the fourteenth century, is mainly a Tudor building. When the general feeding of lord and retainers together in the dining-hall had ceased, and a private dining-room formed part of the necessary accommodation, the labourers were ceasing to be serfs (little better than chattels, indeed, they had been,—even saleable); and dined in their own cottages.



The dining-room at Haddon was fitted up by that Sir George Vernon who, from his style of living, got to be called the King of the Peak, and shows in a panel near the fireplace the year in which this was done, namely, 1545. Sir George himself died in 1567. Besides the date the carving shows, with many coats of arms, his initials joined by a love-knot with those of his wife; the half-unwise exhortation,—

Deeds God and honour the King;

and, in the oriel, portraits in low relief of Henry VII., his queen, and the jester Will Somers; in order, perhaps, to commemorate the circumstance that Prince Arthur, the first son of Henry VII., had often visited Haddon. The carving in this room is altogether interesting; notice especially three panels of interlaced or knot work very ingeniously designed and pleasing in result.

A buttery-hatch, with shelf to receive the dishes, will be seen, near the window, opening into a passage leading to the kitchen. The panelled ceiling—the room is low—was originally painted, and has been murderously chip-ped all over, with the intention that plaster might be applied. The carved shields under the ceiling show the bearings of the Avonells, Pipes, Pierreponts, and Vernons, but not those of the Mannors'. The latter, now its owners, were brought into the family by the daughter of this Sir George, the beautiful Dorothy Vernon, who, according to the story, ran away from the Hall, during high festival, with Sir John Mannors, son of the then Earl of Rutland. In the ball-

room or gallery, a remarkable apartment, 109½ ft. long and 18 ft. wide, with three large bays in its length, and which was fitted up later, say 1589, we get the crest of Mannors, a peacock, added. The panelled plaster ceiling and the carved panelling, Corinthian pilasters, and so on, which decorate it, are well known, through the pencil, to many more than those who have paced its floor and contrasted the now deserted aspect of the place with past scenes of antique pageantry and revelry. "Man plods his way through thorns to ashes," says Byron: some of the race, however, contrive to reach that goal by paths strewn with rose-leaves.

The floor of the Long Gallery shows some noble oak boards; tradition says, all out of one tree. The plank in the centre is the widest; those on each side get gradually narrower. Wonderfully flat and straight and sound that floor is. There are some pictures in this apartment and a few elsewhere, mostly of little value, but including amongst them two or three, at any rate, that deserve more care than they have lately received: they are fast going to ruin. The Duke should get some competent man to look to them at once. The State bedroom, with its coarse and ugly relief over the fireplace, representing Orpheus and the Beasts, has a very large oriel, in which, by the way, stands a handsome old looking-glass mounted in brass and tortoiseshell, and is hung with Gobelin tapestry. A large quantity of tapestry of various sorts will be found in other of the apartments. When the custom of painting the walls of rooms declined in England, in the fourteenth century, tapestry got to be used; Arras became celebrated for its fabric, and large quantities of it were brought over. Much, too, was made in our own country; and everywhere,—

"Clothes of gold and arras were hang'd in the hall,
Depayeted with pictures and bystories many folde."

The amount of money spent on these hangings was enormous, and our merchants made large fortunes by dealing in them. Three entries alone, from the wardrobe accounts of Henry VII., quoted by Mr. Parker, show an expenditure on such stuffs of some equivalent, in the aggregate, to about 12,000*l.* of our money. After the reign of that King the use of it declined, and we get sometimes stamped leather in its place, and oftener wainscoting. The latter, it may be remembered, when it shows an imitation of a piece of linen folded, the "linen panel," as it is called, may usually be taken as belonging to the succeeding reign, the time of Henry VIII.

The building, generally, at Haddon, barring an overdose of whitewash, is kept in a fair and not overdone state. The chapel, however, wants a little attention. This, which by the way, was a parish church, has on the south side of the nave some Norman work; and the east window contains some stained glass, in memory of Sir Richard Vernon, dated 1424. The walls of the chapel have been covered with painted groups, the arches with scrolls. Masons' marks are obvious here, and several points of interest present themselves to the investigator. The old altar slab, it will be noticed, has been put down for the present table to stand on.

Getting on to the upper terrace, the well-known flight of steps, loved of artists, leading to the balustraded enclosure known as Dorothy Vernon's Walk is seen. This flight of steps,—there are twenty-six of them,—is seldom painted to look so lofty as it is. The "Walk" to which it leads, shadowed as it is by ancient trees, and commanding a beautiful view of the house, and, in one part, of the adjacent country, is a charming one, full of poetic influence. A stroll here by moonlight would be a thing to remember. For a more extensive view, the Eagle Tower, one of the more ancient portions of the pile, must be ascended (in going up, notice some of the guard-rooms and the arrangement on the stair-

case used by the old archers to string their bows), and when on the top a lovely prospect is seen, including the Valley of the Wye, masses of trees, and here and there old houses,—

"Stone porch, with ancient coat and crest,
And English gables English ivy-drest."

Chatsworth is close by. Let us go there next, prepared, let it be, for a different scene. Haddon preserves the past, Chatsworth speaks chiefly of the present. The estate was purchased in the sixteenth century by Sir William Cavendish, the then husband of the after Countess of Shrewsbury of whom we spoke at Derby. She completed a mansion here, which Sir William at her instigation had begun. This, however, wherein Mary Queen of Scots was detained, has disappeared, and the whole history of the present house and grounds is told by an inscription in the hall that says they were founded in the "year of liberty" 1688 (the year of the Revolution, in which the Earl of Devonshire, afterwards the first duke, had chief share), were entered upon by William, sixth duke, in 1811, and completed by him in the year of his sorrow (*anno maroris sui*: the year in which his niece, the wife of the present duke, died), 1840.

Chatsworth,—shades of Talman, Wyatville, and Paxton, forgive us!—is an overpraised place, and yet one of the finest residences in the kingdom. Approaching it through the Park from the Haddon end, the visitor descends upon the house, so that its chimney-pots come first, which is not advantageous, and the lines of the building show straight, square, and uninteresting. It is the result of an enormous expenditure, and includes an immense assemblage of costly works; nevertheless, we repeat the belief that it has been overpraised and so must now disappoint many. The way in which visitors are shuffled through it by a young woman or two who really know nothing about it, has something to do with this feeling, and might be remedied. This is not the case in the gardens, where the guides show all necessary intelligence; but there the artificiality apparent, the Crystal-Palace character, so to speak, is unsatisfactory, spite of many beauties. We do not use the term in any degree as depreciatory of the marvellous and beautiful creation at Sydenham, the growth of a dozen years; but at an hereditary seat, world famous, one does not look to find built-up rock-work and a manufactured rocking-stone. The waterfall is an ugly abomination; but the lofty Victoria Jet, throwing water 267 feet into the air, may be set against it and give a good balance on the right side.

There are some fine pictures scattered about, but in the badly lighted picture-gallery proper the majority are uninteresting. The names, by the way, of some of the artists, are written in an odd manner,—thus we get close together Holbein, Mabenge, and so on. One of the most noted works in the gallery is that representing the consecration of a bishop, believed to be Thomas à Becket, and attributed to John Van Eyck, the co-founder, with his brother Hubert, of the art of oil painting. This picture is a puzzle. It is signed thus, at the base of the stone archway represented as enclosing the group,—

"*Johes - de - Eyck - fecit - ano - MCCCC - ZI - 30 - Octobris*," and is the earliest picture known bearing the painter's name. It is, however, so inferior in some respects to other works of his of the same period, that, but for this scarcely questionable signature, and the fact that many of the heads have evidently been repaired and repainted so as to account for some of the inferiority, we should hesitate to accept it as the work of John Van Eyck or of that date. Some of the robes are, for all that, wonderfully painted. There is a Wheel of Fortune picture marked with the double H of Holbein, and dated 1533, and, with this exception, we did not happen to find another picture in the gallery attributed to this painter which we are willing to accept as

his work. The Hall and chapel contain some of the best work by Verrio we have ever seen. The maidens who show visitors the house, or, rather assist in getting them out of it as quickly as possible, point to a painting (on the back of one of the doors) of a fiddle hanging on a hook as Verrio's *chef-d'œuvre*; but there is no occasion to believe them. In the chapel just now alluded to, and in many of the rooms, will be found some supremely good wood carvings of flowers and animals, generally attributed to Grinling Gibbons, but which are for the most part the work of Samuel Watson and his associates. Watson, a Derbyshire man, was buried at Heanor, and has a monument, according to Black's "Guide," thus inscribed:—

"Watson has gone, whose skillful art display'd,
To the very life whatever nature made;
View but his wondrous works at Chatsworth Hall,
Which are so gazed at, and admired by all,
You'll say 'tis pity he should hidden lie,
And nothing said to revive his memory."

The dining-room has some good family portraits by Vandyck and Gerard Honthorst, and two chimney-pieces, with life-size figures of Bacchantes, higher than the shelf, by Professor Westmacott and Sievier. The south gallery has a grand collection of drawings by Raffaele, Rubens, Rembrandt, Leonardo da Vinci, Holbein, Albert Durer, Giulio Romano, and many other of the wonderful fellows of old time: these are now arranged in schools. In the shape of sculpture, too, there are some charming things, especially by Canova and Thorwaldsen, not grand but graceful. Canova's statue of Napoleon's mother, inscribed with what designates her "the unhappy mother of the greatest son," is one of the best of his works. Scattered amongst the sculpture, too, are exquisite specimens of Derbyshire and other marbles, and the largest vase of Blue John, the well-known fluor spar, that has ever been worked. This brilliant spar, only to be found in this county, and in one cavern, gets its title of fluor from its fusibility; but why it was christened Blue John, any more than why zinc ore is called Black Jack, deponent knoweth not. William Talman was the architect, if not the builder, of the earlier portion of Chatsworth, and in 1692 Sir Christopher Wren appears to have reported on the works. The west front was finished by Talman in 1706. The great northern wing, extending 385 ft., was built under the direction of Sir Jeffrey Wyatville. There is much to praise—much to admire—at Chatsworth, a princely house in a park eleven miles round. Nevertheless, and perhaps without due regard to the punning motto of the Cavenishs, to be found in more than one place in the building, "*Cavendo tutus*," safe by caution, we maintain the opinion that Chatsworth is overpraised. With which dash of heresy we stop short for the present.

THE DAILY-LIFE MUSEUM, TWICKENHAM.

The particular knowledge that is important to daily life has been unhappily that which there has been the chief neglect in acquiring and imparting. To know what food one should eat, what clothes one should wear following the seasons, and how one should proceed in order to secure the comforts of a home, have been recognised as conducive to some of the ends of existence, alike by political economists and divines. As said our greatest epic poet,—

"To know
That which before us lies in daily life,
Is the prime wisdom."

But, till lately there was neither effort on the part of the richer classes, for the acquisition of such knowledge, nor sufficient perception of the special importance of it to those who, being poor, are beset at once by the two misfortunes of having nothing wherewith to replace loss, and generally nothing saved wherewith to prevent the necessity that such condition entails, of living at the most uneconomical rate.

The lines we have quoted are appropriately given by Mr. T. Twining in the heading of a synopsis of the contents of "The Economic Museum, or Museum of Domestic and Sanitary Economy," which he has established, at Twickenham, as a repository of information for every-day life, or "with a view to impart in a manner at once scientific and entertaining, that knowledge of common things which is so necessary for securing health and comfort." To the formation and maintenance of this collection, with the

special library attached to it, and to the dissemination of information by lectures and publication, Mr. Twining has, with noble philanthropy, devoted the last fifteen years of a life that is attended with much bodily suffering, and has expended what must amount to a considerable sum from his private means. The museum should be known to all those who feel particular interest in what relates to the condition of the people,—whether the dwellings alone, as of certain classes, be considered, or the entire range of life that passes in or is associated with homes; that is to say, it should be better known than it is. This is not the first time that we have endeavoured to bring the collection and library to the notice of our professional readers.

The classes or divisions of subjects illustrated in the museum, are numerous; and each class requires more space for the adequate illustration than it has been possible to afford in the building at Twickenham. The whole matter of domestic and sanitary economy deserves to have devoted to it, specially, a national museum, besides numerous local museums. Mr. Twining's own idea is given in the introduction to a first part, which he has printed, of a catalogue of the library. He says,—"Economic collections, varied in form and dimensions according to local requirements and resources, should be established throughout the length and breadth of the land. London should have its Economic Museum on the fullest scale; provincial towns should have affiliated collections; mechanics' institutes should have a room allotted to illustrations of the science of common life; lecturers should be supplied with portable Economic collections; and educational establishments, even down to the village school, should have their Economics, or cabinets of useful objects."

For each sort of institution or collection, Mr. Twining's arrangement, whether as to classification, labelling, or economy of space, will be most suggestive. As the collection is the work of one individual, we may rightly ascribe to it as an educational agent, an importance not second to that of any collection in London for the illustration of a special subject. But the museum is intended chiefly as a place of reference to facilitate the formation of the other museums.

The small building in which the collection is arranged, has been erected by Mr. Twining in the grounds of his residence, Perryn House, at a very short distance from the Twickenham railway station. The entrance is in Whitton-lane, and is easily found. The public days are Wednesdays and Saturdays; and the hours are from 2 to 5 p.m., when explanatory lectures are given by the curator. Admission, however, may be obtained on other days, by appointment. The railway company grant a reduction of fares to schools, and to large parties of the working-classes. We need scarcely say that admission is gratuitous.

Mr. Twining's object is, as stated by himself, "to initiate a general system for diffusing the knowledge of domestic and sanitary economy much more effectually than it can be done by books alone, and as a standard element of the education of youth, and of the instruction of adults;" and he will afford facilities and assistance to philanthropists in this country or abroad, desirous of forming economic collections on any scale for popular instruction. The collection, together with the library, is considered calculated to be appreciated by clergymen, teachers, district visitors, medical men, and "others engaged in the intellectual training of the people, or interested in promoting health and comfort among the poor;" and, we say, amongst the "others" the architect should be ready to find himself. "Here" in the museum, as are the words of the preface to the synopsis, "all classes of society, and especially those whose income is small, are shown how their dwellings should be constructed in accordance with sanitary principles, what household improvements they may derive from the discoveries of science, or borrow from the customs and appliances of other nations, what fabrics they should wear, what food they should eat, and how it ought to be cooked, how they may distinguish things which are genuine, wholesome, substantial, durable, and really cheap, from those which are cheap only in appearance, and in short how they may live with judgment, and get the best money's worth for their money." Special divisions of the collection are devoted to hygiene, education, emigration, and some other subjects.

The effort for the formation of the collection originated in 1850; it was sanctioned by the

Council of the Society of Arts in 1852; and an exhibition of Domestic Economy formed part of the Paris Exhibition of 1855, when the cross of the Legion of Honour was conferred on Mr. Twining. Temporary exhibitions have since been held in various parts of Europe, as Brussels, and Vienna, promoted by M. Ducpetiaux, M. Helm, and others. The present collection was commenced at the House of the Society of Arts in 1856; the food department was exhibited, so far as it had taken form, in 1857 at South Kensington, and gave rise to the present food-museum at South Kensington. In 1858, the collection was transferred to the Polytechnic Institution, where several classes were added, and where it was particularly noticed by us. In 1860, it was placed where it now is.

The contents of the building at Twickenham are divided into nine classes, namely, Building Designs, Building Materials, Furniture (including "Ironmongery"), Clothing, Food, Fuel, and other Household Stores; Health; Home Education, Self-Instruction, and Recreation; Miscellaneous, and the Library. The first eight classes occupy the largest portion of the building, or a space of 80 ft. by 29 ft. This space is divided by four longitudinal passage-ways, which are each bordered on both sides by table-space, and screens or wall-space,—the screens not running up so high as to interfere with the light; which is partly through the roof, and partly from windows in the upper portion of the external walls. The collection is arranged to be viewed following the order of classes as we have given them. The narrowness of the passage-ways conduces to the intended examination; but in a more frequented museum, the principle of disposition would not be available to the like extent: it is well, however, to recollect the disadvantages for purposes of study, which the system of large halls and Crystal Palaces may have. The corridor-arrangement prevents the likelihood of any of the objects in a series, escaping attention. One end of the building, beyond the space mentioned, is devoted to lobbies, a workshop, and the curator's room; the other end includes the library, and a space for stores, and other heavy objects.

The building itself is not presented entirely as an example of the sort of construction that might be economically adopted for buildings of the same dimensions; although such may have been the idea when the structure was designed. The "fibrous slab" was used for external walling, and for flooring; and the results have been very unsatisfactory.

A special programme or catalogue of each of the classes into which the museum is divided, has been for some time in preparation; but, as yet, a portion of the library catalogue, to which we have alluded, has alone appeared.*

The library consists of British and foreign publications and documents on domestic, sanitary, educational, social, and charitable economy, selected and arranged with certain objects in view. Amongst these, are the affording an example for the formation of similar libraries; the presenting to persons desirous of forming economic and educational museums, or of compiling lectures, the facilities for reference; and the supplementing information given on the labels in the Museum, by books to which the labels would be made to refer. "Books and Documents of Reference," in a "Preliminary Department," are classed under the heads "The Economic Movement," "Benevolent Congresses," "Exhibitions of Inventions, &c.," "Museum Catalogues," "Publishers' Catalogues," "Tradesmen's Lists," "General Information," and "Special Scientific Knowledge (including Domestic and Sanitary Science, Medicine, Chemistry, Natural History, Agriculture, Arts and Manufactures)." Then follows Section I., "Domestic and Sanitary Economy," with the heads, "Knowledge of Common Things," "Arts and Manufactures," "Trades and Occupations," "Servants and Housework," "Household Economy and Miscellaneous Receipts," "Cottage Gardening and Farming," "Dwellings," "Food and Household Stores," "Cookery," "Adulteration," "Physiology and Hygiene," "Domestic Medicine," "Midwifery, Infants, and the Sick Room," "Special Branches of Hygiene" (including "Climate and Locality," "Warming and Ventilating," "Clothing," "The Skin and Cleanliness," "The

* "Handbook of Economic Literature, being a Descriptive Catalogue of the Library of the Twickenham Economic Museum, or Repository of Useful Knowledge for Every-day Life," Part I.; "Domestic and Sanitary Economy." Printed for T. Twining, esq., by C. Whiting, Beaufort House, Strand, 1862. 8vo., pp. 95.

Head," "The Eye," "The Ear," "The Teeth," "The Stomach"; "Accidents and Sudden Illness," "Industrial Pathology," "Public Health and Safety," "Temperance," "Gymnastics," and "Travelling, Emigration, &c." Appended to the title of a book, or document, in the body of the catalogue, is in nearly every case a short statement of the nature of the contents; so that the catalogue becomes of considerable value for reference. Its second part is intended to comprise sections of the library which are devoted to "Educational Economy," "Social Economy," "Charitable Economy" (or matter relating to British and Foreign Provident and Benevolent Institutions); and "Periodicals." Under Educational Economy, will be lists of publications adopted in schools, and specimens of lesson-books on common objects, and of pictorial illustrations,—this section being in connexion with Class VII. (Education) of the Museum. Mr. Twining is of opinion that the educational system promoted by societies, in the schools for the working classes, has, in regard to training the intellect, teaching to make intelligent use of knowledge acquired, and coupling physical with mental hygiene, so as to realise the "*mens sana in corpore sano*," advantages which are not found in that system which is influenced by the notions of those who are rich and able to pay for education of their children. The section headed "Social Economy" represents those branches of social science which deal especially with the condition of the working-classes, relations of employer and employed, and schemes for benefiting and laws relating to the poor; and contains with other material, some compendiums of law, and books required by magistrates and parochial authorities.

In the Museum, Class I., "Building Designs," comprises numerous drawings and models of different dwellings that have been erected in town and country, for the working-classes. The models, on a uniform scale, help to explain arrangements to those who are not accustomed to architectural drawings. In the same class are illustrations of "*Cités Ouvrières*," and villages of an improved character. Endeavour is made to show how existing dwellings might be altered. Homes of the people in former times are represented; and illustrations are given of the best construction for the several parts of buildings.

The next class comprises specimens of "Materials for Building and for Furniture," such as different kinds of stone, artificial stone, bricks and tiles, paving materials, mortars and cements, roofing materials; wood of various kinds, with botanical illustrations, and exemplification of processes for preserving and rendering fireproof; varieties of window-glass, and processes of the manufacture; and materials and appliances for house-painting, whitewashing, and staining, besides paperhangings. It would be easy to add greatly to the specimens in this division of the museum; but the illustration, by consecutive series, in the case of some of the materials and processes, is useful whilst exceedingly suggestive. Thus the visitor to the museum is shown by specimens of bricks, what are "burs," "shuffs," "place bricks," and "grizzles" and what is a "good stock-brick" and what a "malm" brick. He sees a specimen of bricks defective through bad quality of the clay, and another of bricks defective from improper burning. Then he finds a series of specimens of painter's work, bad work as well as good, including "knotting with red lead and glue," "common priming and stopping," and "ground colour for green" each marked as *inferior* work, "patent knotting, best," "common priming, inferior," "finished with two coats to look like three, and be charged as such, inferior," and specimens of the best priming, and of two coats, three coat, four coat, and five coat work. To some of the materials, as the bricks, prices are attached,—those which are considered as average. Along with the illustrations of work of each class, are generally found representations of the tools that are used in the trades or handicrafts.

Class III., "Fixtures, Furniture, and Household Utensils," affords information of the way in which the most useful metals are extracted from the earth, and are converted into some of the fittings of houses. Similarly the manufacture of earthenware is illustrated. Specimens of different kinds of "ironmongery," fittings, apparatus for cooking, cutlery, lighting apparatus, brushes, and foreign and British manufactured articles contrasted, are in this class. Different estimates, referring to the specimens, show the amounts for which working men may furnish

themselves with assortments of articles in hardware, earthenware, and glass, according to their weekly wages, taken as beginning from 15s. a week, and ranging to 8l. per week.

Class IV. is devoted to textile materials, fabrics, costume, and clothing. The materials are shown as produced, and in various stages of preparation for the loom, and as dyed: they include matting, druggets, and carpeting, and fabrics for apparel, including trimmings, hosiery, shoes, waterproofed articles, and head-coverings. Clothing for infants, as used in several countries of Europe, is shown; and there are also specimens, models, and prints, of costumes of various parts of the world. In the same class, are priced lists of outfits suited to the various requirements of the working classes.

Class V., "Food, Fuel, and other Household Stores," starts with illustrations of the philosophy of nutrition, including a statement of the proximate constituents of food; or we should rather say, so far as the subject may be considered understood; for, at present, as we apprehend, very little compared with requirements for the preservation of health, is known of the action of food upon particular constitutions and bodily conditions. Tables of the dietaries in different public institutions are given; and these seem to prove that the condition of those who are confined in prisons is as well cared for, in one respect, as has been so often reported. Specimens of food of various kinds are shown, divided into what is derived from the animal and vegetable kingdoms. One division of the latter kingdom is devoted to lustrous seeds or pulse, and to roots and bulbs; another to vegetables of which the stalk, leaves, or tops are eaten; also there are secreted or extracted products, condiments, narcotics, and various kinds of drinks. There are also specimens of adulterated articles. Thus there are samples of flour as adulterated by sago, potato-flour, bean-meal, chalk, carbonate of magnesia, gypsum, pipeclay, and alum. Sweetmeats are shown as adulterated by gypsum, white clay, Dutch pink, chromate of lead, rose-pink, red lead, Venetian red, red ochre, burnt umber, Prussian blue, ultramarine, Brunswick green, and arsenite of copper. There are, moreover, substances used for adulterating tea, coffee, and hops, or as substitutes for them. Culinary science, and the preservation of food are illustrated in the same class; which, further, includes specimens of fuel, and materials for ignition, and of materials for washing and cleaning.

In Class VI., "Sanitary Department," endeavour is made to grasp a wide range of subjects. Public works for water-supply, sewerage, and protection from inundations: appliances for ventilation of dwellings; for prevention of inconvenience from damp, smoky chimneys, and noxious effluvia,—the latter including disinfectants; appliances for hygiene, as baths; "the hygiene of dress"; nursery appliances; orthopedic apparatus, artificial limbs; means of relief from different defects of the teeth, the hearing, and the vision; appliances for the sick-chamber, household remedies, antidotes to poisons, drugs and their adulterations, and treatment of accidents; articles of which the manufacture is injurious; and the prevention of injuries and diseases which attach themselves to certain occupations, are all in some measure illustrated. The subject of industrial pathology, a most important one, was brought under the notice of the Society of Arts, by Mr. Twining, in 1854.

Class VII., already adverted to ("Home Education; Self-Instruction; Recreation") has rather an indication of its importance in the subject of domestic economy, than the illustration to be desired, which requires space similar to that afforded at South Kensington. Instructive toys, illustrations of the various sciences, the formation of herbaria, processes used in the arts of design; the principles of taste in outline, colour, and subject; prints and figures suitable for cottage-decoration, music, and gymnastic exercises, all come within Mr. Twining's scheme. A diagram on the wall shows at one view, the different sizes of drawing-paper.

In Class VIII., "Miscellaneous Articles not referable to the foregoing Classes," are such matters as scientific appliances for household use, including clocks, barometers, thermometers, scales and weights, and measures; stationary, miscellaneous household-requisites, toilet-articles, "The Housewife's Work-box," the "Cot-tager's and Emigrant's assortment of Tools for carpentering, shoemaking and farriery," garden and field implements, seeds, and appliances

for locomotion and the conveyance of burdens, and contrivances for lightening labour, useful to travellers and emigrants, and for self-help in emergencies. Samples of museum-fittings and appliances, with estimates for the use of persons desiring to form economic collections on any scale of development, belong to the same class.

As we have sufficiently explained, scarcely one of the divisions of the wide subject, domestic and sanitary economy, can be considered as illustrated, in the museum at Twickenham, more than suggestively for the formation of other museums. Mr. Twining, in addition to his remarks already quoted, observes that economic collections might be varied in scale and character, and "blended with almost every rational device for popular recreation," that they might be made "a place of resort for the sight-loving as well as for the studious portion of the public," and "established on purely philanthropic or on partly commercial principles," as well as that they might "respond to the special pursuits of any class of men, agricultural, mining, manufacturing, commercial, seafaring, military, &c., and be made to represent the requirements and resources of any race, climate, or locality." In certain seaports, emigration would claim a distinct collection. Institutes and associations for self-improvement, and schools, (as before said, even down to that of the village), should have their collections or cabinets, for which local tradesmen could supply examples, and others could contribute the manual or intellectual labour. Mr. Twining calls particular attention to the importance of clearly written and sufficiently explanatory labels, and offers to forward specimens of these, as well as drawings and estimates of fittings, such as he has adopted (and many of which are of peculiar contrivance), and to render other assistance. In every respect, he has initiated a good and great work, one which deserves the notice and co-operation of our professional, no less than our general readers; and we trust that he may have the reward which alone he seeks, namely the satisfaction of having shown the way to the production of a great amount of social improvement. As to the division of his museum and library which may be of the chief professional interest to architects, he has not collected all that has been published, but he has got together so much, and so much more than we believe there is at any other single place, that no architect having to plan dwellings for the *industrious classes*, (as they are called, as if exceptionally,) should feel himself in a position to commence work, until after having visited the Twickenham Museum, and well studied the drawings, books, and other material there waiting his attention.

THE EARLY LIFE OF SIR THOMAS LAWRENCE, P.R.A.*

I HAVE been requested to prepare for publication the following particulars of the early life of the late Sir Thomas Lawrence. The circumstances under which they were originally collected are these. About a month after Lawrence's death, I was asked by Mr. Thomas Campbell, then poet laureate, whether I could help him in a life of Sir Thomas Lawrence, which he intended to publish, by supplying him with any particulars as to the painter's boyhood. I replied that I thought I could, and shortly afterwards obtained the following reminiscences from my wife's aunt, who was then living, at a very advanced age, at Melksham. Campbell's design was subsequently abandoned, and these reminiscences are now given for the first time to the public, as nearly as possible in the words of the narrator, Mrs. Nalder.

"The late Sir Thomas Lawrence was the youngest of five children, there being besides him Andrew, a clergyman; William, a major in the army, who died a few years ago; and Lucy and Ann, who are, I believe, still living. Their father, Thomas Lawrence, was originally an exciseman, and eloped with his wife, who was the daughter of a clergyman of the name of Read, at Tenbury.

I think it must have been about the year 1765 that I went to reside with Mr. and Mrs. Lawrence: at that time they kept the White Lion Inn, and American Coffee House, at Bristol. I remained with them about two years. Some

* This account, drawn up by Mr. T. B. Smith for the Wiltshire Archaeological Society, will interest a larger circle of readers than that of the Magazine of this very excellent society.

time after this, Mr. Lawrence wrote to me that he had taken the Black Bear Inn, at Devizes, and that he should be very glad if I would come to them there at once, to superintend the bar, and to assist his wife in the domestic arrangements of the establishment. I accepted the proposal, and on my arrival saw for the first time the late president of the Royal Academy, then a very beautiful and engaging child, between two and three years of age. He was a boy of remarkably fascinating manner, and frequently amused himself by endeavouring to draw little pictures on paper with a blacklead pencil.

I perfectly recollect, as I was one afternoon sitting alone in the bar, watching him whip his top in the entrance-hall, his running up to me, and saying, 'Miss Lea' (that was my maiden name), 'sit as you are, and I will draw your picture.' I did as he desired, and in a few minutes he produced what was always considered an excellent likeness of me. He was at that time in petticoats, and, I think, not more than four years of age. I shall never forget the pleasure with which his father caressed him when shown this his first attempt to portray the 'human face divine.' He snatched it from the table, and ran out of the house to purchase a frame for it. It hung for some time in the bar, and was much admired by persons frequenting the inn. I subsequently gave it to one of my brothers, on his going abroad, and it was lost, with all the rest of his property, in the French Revolution of 1790.

The next likeness which young Lawrence executed, was that of your mother's first husband, Mr. Bennett Swayne. These portraits, I think I may venture to affirm, were the foundation on which the painter's future fame was raised, as from this time numbers of persons became anxious to have their likenesses taken by a child in petticoats, and the reputation which he thereby acquired was the cause of his talents being at length directed solely to that occupation which nature had so distinctly pointed out for him.

The crayon picture which I now present to you, was done by young Lawrence when about fourteen years of age. It is one of the first which he executed in this style, for which he used to charge three guineas, frame included. It is a portrait of Miss White, who afterwards married the Rev. W. Jacobs, rector of Shillingstone, Dorsetshire. Her father at that time kept the Castle Inn, at Marlborough, and between him and Mr. Lawrence there existed a degree of intimacy which induced the young artist to bestow especial pains upon the picture. It was given me by Mrs. Jacobs herself. Many years afterwards, at an interview which I had with Sir Thomas, in town, he inquired what had become of it, and expressed a hope, when he came into Wiltshire, of being able to call upon me, and look again at one of his earliest productions.

And here I cannot help remarking on the great kindness with which I have always been received by the late president whenever I called upon him, which was as often as I visited London, and the pleasure which he took in describing to me the portraits on which I found him engaged.

To this testimony of the kindness of Sir Thomas Lawrence I must be permitted to add my own. On Mrs. Nelder's last visit to him in town, she was speaking of my fondness for paintings, when he very kindly gave her a note for me, as an introduction to his studio in case I should call when he was from home. This introduction, however, I never had an opportunity of presenting, but gave it to the Queen, when I sold her the picture of Miss White, as I shall presently relate.]

"To return to the artist's boyish days. I often remember his father saying, with tears in his eyes, when looking at his early productions, that he had no doubt but that I should live to see him a great man, though he himself might not. And years afterwards, when Sir Thomas was lodging in Piccadilly, and his portraits were beginning to engage the attention of the fashionable world, I called upon his father, in Gerard-street, Soho, and was reminded by him of the predictions which he had so often uttered, in the Bear Inn, at Devizes, of the future greatness of his son.

With regard to the elder Lawrence himself, I may add, that he was a man of somewhat eccentric habits. Although remarkably neat in his dress and general appearance, yet he had so great an aversion to new clothes, that whenever his wife noticed that any portion of his attire

was getting worn or shabby, she used to send to the tailor to replace it, effecting the exchange while he was asleep. He was remarkably fond of politics, theatricals, and recitations, and prided himself on his readings of Milton and Shakspeare. He was also a great favourite of Garrick's, who frequently visited the house, staying sometimes a week or a fortnight at a time, during one of which visits he presented his host with a folio copy of the *Spectator*, to which the latter, as may be imagined, attached ever afterwards great value.

So fond was Mr. Lawrence of books, that in almost every room in the house there was a bookcase, containing a choice selection of volumes for the use both of his guests and of his personal friends."

Such are the particulars which I obtained from my dear and respected friend, who died a few weeks after she had related them to me. I have often since regretted that I had not drawn her attention to the subject before her faculties were dimmed by age, as she could then doubtless have given me much information which had, in 1830, entirely escaped her memory.

Sir Thomas Lawrence was born at Bristol in the year 1769. Of the gentility of his father's character, I heard much from the late Sir Robert Blagrove, with whom I spent an evening at the Bear Hotel, Devizes, some twenty-two years ago. Sir Robert told me that when a subaltern, he had been recruiting at Devizes, and was quartered at the Bear for nearly three months. Though upwards of eighty years of age at the time that I met him, he proved to be a most lively and entertaining companion, and, amongst other things, entertained me by singing with great heartiness the chorus of a song, with which, he said, "the jolly old landlord used to amuse him in his younger days."

Some references having been made in "Waylen's History of Devizes,"* to the sale of the portrait of Miss White, of which mention has been made above, the following additional particulars of the sale may perhaps not be considered out of place.

It having become generally known that this picture had been sent to the Duchess of Kent, and the Princess Victoria, for their inspection during their visit to Earlsote Park, in 1830, it became an object of considerable interest, and on the sale of the Earlsote collection two years later, Mr. George Robins, the auctioneer, wished me to allow it to be included in the catalogue. This I declined to do. It is somewhat remarkable that among so valuable a collection of paintings as that possessed by the late Mr. Watson Taylor, there should have been only one by Sir Thomas Lawrence (a portrait of Earl Camden, whose private secretary Mr. Watson Taylor had been during the Earl's lord-lieutenancy of Ireland in 1798). While this sale was going on, a picture dealer called upon me, and, after a minute examination of the portrait of Miss White, offered me 150 guineas for it. I however declined the offer, as I had made up my mind, whenever I sold it, to give the refusal to the Queen. In 1839 I addressed a letter to Lord Melbourne, then First Lord of the Treasury, on the subject. The matter was by him referred to Sir Henry Wheatley, the keeper of Her Majesty's Privy Purse, and in a few days the bargain was brought to a close, and the portrait placed in the picture gallery at Buckingham Palace. Sir Henry informed me next day that Her Majesty was very well pleased with the purchase, and had been comparing it with a sketch which she had herself made of the picture when lent to her at Earlsote Park.

On the back of the canvass is the following autograph:—

"Be pleased to keep this picture from the damp and from the sun.
T. Lawrence, 15th Sept., 1794."

Sir Henry Wheatley showed me on this occasion, a most excellent likeness of himself, in full regimentals, by Lawrence, for which 1,000 guineas had been paid. This was one of the painter's last productions.

I may here, perhaps, be allowed to insert some letters referring to that period in Lawrence's career, when he had first begun to attract attention in London. They were addressed by his father to the Rev. Dr. Kent, a worthy clergyman of rather eccentric habits, who then lived at Whitley House, in the parish of Potterne, near Devizes. Among other eccentricities he always rode on a white horse. The doctor and his horse appear to have attracted the young artist's notice;

as one day Dr. Kent rode up to the Bear Inn, Devizes, which was at that time kept by Mr. Lawrence, sen., and demanded in an authoritative manner to be shown a caricature of himself and horse, which he heard was in Mr. Lawrence's possession. Mr. Lawrence, suspecting his son Tom had been exercising his pencil at the doctor's expense, called him from his play, and asked him if he had ever drawn the likeness of that gentleman and his horse? Tom said he believed he had, and, taking the inquirers into his bedroom, they there found, sketched on one of the walls thereof, a very excellent picture of the doctor and his favourite white charger.

Dr. Kent was so pleased with this performance, that he immediately took young Lawrence to the shop of a bookseller, Mr. Burrough, Mr. Smith's grandfather, and there made him a present of the first box of colours he ever possessed, and also a choice selection of books. The Rev. Doctor's friendship was from this time the most substantial and useful kind to the young artist and his family, and terminated only at the doctor's death. Shortly after this first introduction Dr. Kent received from his protégé a very spirited head of our Saviour sketched in chalk. It is in an oval frame 9 in. by 7 in., and it has written on the back of it by Lawrence,

"Dr. Kent is requested to accept this trifle from his grateful friend and servant,

T. LAWRENCE, JUN."

This picture, which is one of the earliest of his productions extant, is now in the possession of Henry Kent Norris, esq., of Devizes, a relative of the doctor's, and would prove a very valuable addition to any collection of the works of the late Sir Thomas.

With this introduction I proceed to give the letters, the originals of which are at present in Mr. Norris's possession:—

Rev. Dear Sir,—Although I begin with hoping most sincerely that you are well and happy, I wish to inform you that next Wednesday will be a very flattering day to my youngest son, from the opening of the Royal Exhibition to which their Majesties mean to go to-morrow, and will see of his portraits of the Queen, of the Princess Amelia, the sons of Lord Ducie Moreton, sons and daughter of Lord George Cavendish, son and daughter of the Earl of Abercorn, Gen. Patterson, a Mr. Lasker in the East India Service, the celebrated Mrs. Carter, Mr. Locke, Andrew Lawrence, and Miss Farren, for which last he is to receive one hundred guineas, and he has now with the most general approbation raised his price to 20, 40, and fourscore guineas, with plenty of business to go on at these prices, being the highest ever known in this or any other kingdom at his age, who will be one and twenty the 6th May, on which day would you be pleased to have your money lodged with Messrs. Hoare, or remitted to you (with very grateful thanks!) by the post.

My son will continue in Jernyn-street; in the meantime we have taken an excellent house and a cheap at 100 guineas a year, taxes included, within two doors of Soho-square, in Grosvenor-street, and have let a small part of it to a single gentleman at 60 guineas, and mean to furnish the remainder, neat and plain, as we conveniently can, and have always every convenience for your reception, when you shall be pleased to honour with your company (and for as long a time as you please) which I hope will take place in three weeks at farthest.

I have further frankly directed to you, viz., for the 26th, the 30th, and May 6th, and will therefore close my present account with assuring you how very much

I am, ever yours,
With the most perfect respect and gratitude,
T. LAWRENCE.
Wife and children always join their best wishes and readiest services.

Rev. Dear Sir,—I received the favour of your's, and am truly and very much concerned for your being so much troubled and distressed, and most sincerely wish a speedy end to all of them, and a succession of blessed peace and perfect happiness.

I wished for your company yesterday at the Chapel of the Foundling Hospital, where the devotion, preaching, and singing, work altogether for the benefit of the bearer, and leave the mind in a state of tranquillity and humble resignation to the divine will. Wednesday will most assuredly become a day of triumph to our youngest son: for then the exhibition opens; but to-morrow is the public dinner, which will be held in the grand room, where Sir Joshua will sit at the head of the table, at his right hand the Prince of Wales, and on his left the Primate and Metropolitan of all England, and to which treat a much greater number are invited than was before ever known with only three excuses returned.

Their Majesties and the Princesses were there on Friday, and expressed the highest degree of satisfaction: in short it is spoke of as the best.

All my son's pictures were received, being twelve in number; while many others were rejected for want of room.

I am informed that Sir Joshua dwelt in contemplation on the merits of one of his pieces for upwards of twenty minutes; and when it was told him that another artist endeavoured to copy after him in his manner, his reply was, "They may all study after him, but in his opinion they would never overtake him."

It is the united wish of this family to be favoured with your company; and in very deed I most sincerely hope it would prove a pleasing relaxation to all your care, which we, in our little way, but accompanied with our very best endeavours, would alleviate if we could not remove. Pray write more fully, for so you have now promised. I told you what would the Haunted Tower was like to enact: it is advertised for the four and fiftieth time.

The nation is like to continue at peace, and the stocks continue to rise.

No payment for the Queen or Princess yet, but his

* "History of Devizes," 1859, p. 453.

business increases most rapidly at 20 guineas a head, which is a greater price than was ever charged by Sir Geoffrey Kneller—surprising at his age; but, as Hamlet said, "I must die," and so it is.

Lady Lincoln, for change of air, is coming to Sunning Hill, near Windsor, and Lucy with her, who we expect soon in town for a short time; and Tom has given Nanny his invitation at his expense to give her the shooting, who pleads attention to duty an excuse. My son will include agreeably to yours, with the most grateful acknowledgments, on the 6th of May: and I am,

Ever so, Rev. Dear Sir,

26th April, 1760. THOS. LAWRENCE.
Rev. Dear Sir,—Words are wanting to express my sense of gratitude to Heaven and to the world, for the great name my son has so wonderfully acquired from the opening of the exhibition. That you may form a judgment of my reason for being thus thankful, I herewith present you with extracts from different papers of yesterday that I have seen. —W.B. It opened on Wednesday.

The Diary says:—

"Mr. Lawrence, young as he is, trends close already on the kibe of the most eminent of the profession. Such a head as that of Mr. Locke, pained as we understand at a stage sitting, and such a portrait as Miss Farrer's, might create envy in the mind of the first artist that ever existed."

"We have seen a great variety of pictures of Miss Farrer; but we never saw before, so he said, and character upon canvases. It is completely Elizabeth Farrer, arch, careless, spirited, elegant, and engaging."

The *Illustrated*, after speaking of Sir Joshua's performance, proceeds:—

"If any picture from another pencil can do thus, it is the claim,—we say this with astonishment!—of young Reynolds. For the whole length of Miss Farrer, which for winning ease, for expressive attitude, for the mind's eye, and that peculiar style of feature so difficult to catch, of sweetness without insipidity and spirit without distortion, can never be exceeded."

The *Morning Herald*:—

"The portrait of Miss Farrer, by Mr. Lawrence, possesses great merit, and is extremely characteristic. The background is very fine."

The *Morning Chronicle*, after speaking of Sir Joshua, says of Lawrence:—

"The picture of Her Majesty, No. 100, is admirable in point of likeness. The drapery is well disposed, but the landscape will admit of improvement. The full-length of Miss Farrer is an excellent production: he hath given all the richness and fascination of the original with exquisite effect."

Of the other portraits, that of his brother, the clergyman, is by far the best. This picture, with respect to likeness and coloring, is, we had almost said, unrivalled."

The *Gazetteer*:—"Mr. Lawrence hath this year fulfilled all the promises which he gave a year ago. We cannot speak with sufficient commendations of the beauties he hath exhibited. Miss Farrer is one of the most delightful portraits we ever saw. The Queen is a most perfect likeness, and the small angel is a cabinet jewel."

And again, in the same paper,—"Lawrence deserves the greatest encomiums for his portraits. That of the Queen by this artist, is certainly a performance of which Vandyke himself would have been proud."

London Evening:—"Lawrence hath improved since last year, astonishingly! His portrait of Miss Farrer yields to none in the room. That of the Queen has already been mentioned by the public; and these, with the other portraits, speak him one of the most promising geniuses of the age. That Lawrence bids fair to be the first portrait painter in the kingdom, is not saying too much."

The *Times* to-day (with which I will conclude) says of the portraits,—"Those of the Queen, by Lawrence and Sir Joshua, and that of Miss Farrer likewise, by Lawrence, appear to be the best."

You will perceive by the catalogue the great number of artists, and then judge of the grateful surprise of Rev. Dear Sir, your most devoted servant.

30th April, 1760. THOS. LAWRENCE.
Rev. Dear Sir,—I this morning met B. D. Esq.* He has not been wanting in his polite attention towards us, and has been communicating your good wishes.

We went together to the Royal Exhibition, where I communicated to him a little of my intelligence extraordinary, and he in return uttered his thoughts respecting when the town would have occasion to mourn his absence, which would not be these four or five days, and that he would call at 57, Greek-street, in the intermediate space. He was going to visit at the habitation of the Prime Minister, where I having no pretensions, we on that account agreed to bid farewell.

I cannot sufficiently express my satisfaction, and you believe me, at the great name my son has so deservedly acquired: he is, in a manner, become the theme of every applauding tongue. But more of this when I shall have the grateful pleasure of waiting upon you where your last favour was addressed, and where I hope you will sleep with the most pleasing conscience, and attended with the most grateful welcome by all.

I am, Rev. Dear Sir, ever yours,
4th June, 1760. T. LAWRENCE.
P.S.—We have no encouragement to return for any impertinent inquiries that may be made. I will (may I not?) hope for the favour of seeing you very suddenly.

Tom is going this day, to drink the health of his Majesty, where Sir Joshua will be the toast maker.

The Rev. Dr. Kent,† Whitley, Devises, Wilts. At a long life passed in literary pursuits, his end was accompanied by acts of benevolence, of which his relations and friends were partakers.

Not were the poor omitted in his bequests, as the dissenting his last will be given to the hospitals of Sarum and Bath, to the Society for the benefit of Clergy-men's Widows and Orphans in this diocese, the needy in this and the neighbouring parishes, besides other charitable donations, bear testimony.

* B. D. Esq., I suspect, is meant for Bernard Dicken-son, of Bowden Park, near Devises, who was intimately acquainted with both Dr. Kent and Mr. Lawrence.

† It appears that Dr. Kent died in 1760, and was buried at Potterne. In the elegant parish church of that place we find a marble monument erected to his memory, from which we have extracted the following:—

Henry Kent, D.D., died 27th Dec., 1760, aged 61 years.

He left, also, to Merton College, Oxford, of which he was formerly fellow, all his valuable and extensive library, together with a handsome sum for its augmentation.

To return to the subject of this paper. Lawrence was elected a Royal Academician in 1790. It appears, however, to have been the wish of George III. that this honour should have been conferred upon him some two or three years earlier; a fact which gave rise to the publication of some "Loyal Odes to Disloyal Academicians," from the caustic pen of Peter Pindar. They are eighteen in number. The following is an extract from the introduction:—

"The foundation of the following odes is simply this. The president of the Royal Academy reported lately to the Academicians his Majesty's desire that a Mr. Lawrence might be added to the list of the R.A., his Majesty being perfectly convinced of the young artist's uncommon abilities, and consequent fair pretensions to the honour. Notwithstanding the royal wish, and the wish of the president, and the wish of Mr. Benjamin West, the R.A. received the announcement of his Majesty's wish, Sir Joshua's wish, and Mr. West's wish, with the harder name, *disgrace*. The announcement happening on the night of an election of associates, at which Mr. Lawrence ought to have been elected an associate (a step necessary to the more exalted one of R.A.), the number of votes for Mr. Lawrence amounted to three, and that of his opponent, Mr. Wheatley, to sixteen."

In these odes I find Lawrence's name mentioned only twice.

"Refuse a monarch's mighty orders!

It smells of treason!—on rebellion! borders!

"S' death, Sirs! it was the Queen's fond wish as well

That Master Lawrence's should come in!

Against a Queen so gentle to rebel,

This is another crying sin!

What! not oblige in such a trifling thing

So sweet a Queen, and such a goodly King!"

Ode i.

Go, Sir, with halts round your wretched necks,

Which some contrition for your crime bespeaks,

And much offended Majesty implore.

Say, piteous, kneeling in the Royal view,

'Have pity on a sad abandoned crew,

And we, great King, will sin no more.

Forgive, dread Sir, the crying sin,

And Mister Lawrence shall come in!"

Ode xvii.

The reputation which Lawrence had acquired subsequently induced the Prince Regent to commission him to paint the portraits of the sovereigns, statesmen, and generals who had been actively engaged in the last great contests with Napoleon. He commenced his labours in 1814, with the portraits of the King of Prussia, of Plottoff, and of Blücher, wherever then in England. In 1818 he proceeded to the congress at Aix la Chapelle, thence to Vienna, and in 1819 to Rome, where he completed the series with the portraits of Pope Pius VII. and of Cardinal Consalvo. All these pictures are now, I believe, in the Waterloo Hall, at Windsor Castle. Mr. Lockhart gives the following account of this commission in his life of Sir Walter Scott. "On Scott's arrival in London, in 1820, one of his first visitors was Sir Thomas Lawrence, who informed him that the King (George IV.) had resolved to adorn the great gallery then in progress at Windsor Castle, with portraits, by his hand, of his Majesty's most distinguished contemporaries. All the reigning monarchs in Europe, and their chief ministers and generals, had already sat for this purpose. On the same walls the King desired to see exhibited those of his own subjects who had attained the highest honours of literature and science, and it was his pleasure that the series should commence with Walter Scott."

Lawrence received the honour of knighthood from the Prince Regent in 1815; was elected president of the Royal Academy in 1820; and died in London, after a very short illness, on the 7th of January, 1830.

It remains only that I should add a few words as to the personal appearance of the late president, though as I never myself saw him, I am only able to repeat what I have heard from others. I have already said that, as a child, he was remarkable for his beauty and his engaging manners; as a man he was a general favourite with ladies, and was always pleased to be in their society, though he never married. When in the prime of life, he was an exceedingly handsome and well-built man. His features were open, with a commanding expression, yet kind, conciliatory, and captivating. Of his conversation, Sir Walter Scott once said, "He is, from the habit of coaxing his sitters, I suppose, a

"A young portrait painter of some merit. P.P."

little too fair spoken, otherwise very pleasant."

His manners were most courteous. And I cannot better bring this brief sketch to an end than by repeating the eulogium once passed upon him by King George IV.—"Lawrence is the most perfect gentleman in my dominions."

WOOD-WORKING MACHINERY FOR NEW ZEALAND.

MESSRS. THOMAS ROBINSON & SON, Rochdale, Lancashire, have just executed a large order for an enterprising English company who propose to establish large timber works at Wairoa-kaipoire, some sixty or seventy miles from Auckland, the capital of the colony. The order embraces machines of a gigantic size; one or two of them, indeed, being larger than any hitherto manufactured for the purpose of cutting timber, either in this country or any other.

Three timber frames for sawing logs into boards, capable of receiving logs of 8 ft. square, 5 ft. square, and 4 ft. square; two rack or saw benches, with a travelling top, 50 ft. long, and working with a saw cutting 26 in. deep; one planing and squaring machine, capable of planing timber 15 in. wide and 20 ft. long; one self-acting saw bench, 6 ft. long and 3 ft. wide, carrying a saw 16 in. in diameter, and cutting 15 in. deep; one moulding and planing machine, to work timber 3 in. thick and 9 in. wide; two mortising machines of large size; one tenoning machine for joiner's and carpenter's work, by which the tenon is cut at one operation. The order further comprised two travelling cranes capable of lifting fifteen tons each, and two powerful cranes for taking the logs of timber from the river; as also grinding machines, &c.

The total weight of metal used in the construction of the machines we have thus catalogued exceeds 300 tons; and the value of the machinery, when completed, will exceed 7,000l. Bearing in mind that it was only, so to speak, yesterday, that steam power was successfully applied to wood-cutting machinery, one is in doubt which to admire most, the mechanical skill and ingenuity of Messrs. Robinson & Son, or the pluck and enterprise of the company, who are prepared to expend so much capital in establishing this gigantic joiners' shop at the Antipodes.

From what we can learn of the natural history of the district of Auckland, however, there is evidently scope for the operations of such an establishment there. The Kauri pine, the timber from which we are assured equals in durability the Baltic pine-wood, attains there an enormous size. They are often found growing to a height of 90 ft. without a branch, and they have frequently a girth of 40 ft. Some are met with, indeed, with branches 3 ft. in diameter.

The largest timber-frame included in their order is as wonderful a piece of mechanism as the timber which it is made to cut is wonderful as a product of nature. The height of the frame is 30 ft.; it weighs altogether about 50 tons; and, armed as it will be with ten saws, each of 14 ft. in length and 12 in. in breadth, it will cut a log of Kauri timber 50 ft. long into beams in less than fifteen minutes. This powerful sawing-machine will be driven direct by a horizontal high-pressure engine fixed on the same level as the foundation-plate of the frame. The two smaller timber-frames enumerated in the list we have given are very similar in principle and structure. The one intended for logs 5 ft. square will carry forty saws, while that for logs 4 ft. square will carry forty-eight saws. At Messrs. Robinson's works at Rochdale, logs of timber may be seen being rolled into timber-frames, to be cut up into boards, and afterwards transferred to one or more of a row of wood-cutting machines to be by them squared, planed, tongued, and grooved, tenoned, mortised, or moulded, as might be desired. The rapidity with which some of these machines perform their work is wonderful. Rough boards from the saw-frames fed into one end of the machine appear at the other squared, planed, and shaped ready for immediate use. One planing-machine is capable of planing and tonguing and grooving 1,200 deal boards, such as are used for flooring purposes, in a day.

LANCING BUILDING LAND COMPETITION.—The successful competitor is Mr. Webb, Dulwich.

ST. JAMES'S PARK: THE NEW RIDES. PROJECTION FOR A NEW WALK.

HAVING reason to know that the *Builder* regularly finds its way to Her Majesty's Office of Woods and Works, I thought it a convenient medium,—Mr. Editor being agreeable to spare the space,—to present a few observations to come under the notice of the Chief Commissioner, which the works now going on at the line of separation of the St. James's Park and the Green Park have suggested.

Those of the public desirous of seeing metropolitan improvements progress, and who know how greatly the power of the honourable Commissioner to aid in the furtherance of public works is dependent on his personal influence with the House of Commons, would rejoice at the accession of political capital for use to that end he would acquire by the construction of the new road—a *la Rotten-row*—side by side with the Birdcage-walk; enabling, as it will do, the numerous horsemen members of St. Stephen's to have an easy and safe career in their daily approach to the House.

The honourable Commissioner, seemingly encouraged by the appreciation of that work, is now making a further hit in the same direction, by the formation of a similar line of ride on the opposite side of the park, designed also for the enjoyment of the same class in the approach to the public offices and the clubs of St. James's. At the same time, it must be admitted that these concessions to the high class few are made, at least, at some sacrifice—a sacrifice of beautiful green sward area of the Royal Parks in a part where there is the least of it to spare. It is virtually a circumscripting of the recreation ground of the masses, the space diverted becoming wholly unuseful for any purpose other than that particular one to which it is given over.

The administrative policy, however, in respect to the royal parks pursued by the present Chief Commissioner, shows him by no means unmindful of the claims of the other classes, and indeed in these quarters the honourable Commissioner is always favourably regarded for the liberal concessions he sanctions; and if he could be induced to embrace in the work now going on a little matter of improvement hereafter to be pointed out—accommodative to those classes—it would perhaps tend to silence many who will incline to question the fairness of the spoliation of the parks intended for the recreation of the many, to the promotion of equestrianism partaken of only by the very few.

Of the vast community engaged in the various different departments of facture and trade of that emporium of the world's fashion, the West End (by which term is here meant the district traditionally known by the name, and which may be distinguished as being comprised within the circle scribed with a half-mile radius round Burlington Gardens), no few have their homes in Westminster or Piccadilly and other further off neighbourhoods in that direction, inclusive of districts which the rail from Victoria has opened out. Mostly these persons make the passage of St. James's Park on foot, *via* Buckingham Gate, one way in the morning in proceeding to their occupations, and again in the evening in the return therefrom.

Those who would like ocular demonstration of this should some day take up a position opposite the great bronze gates, the central entrance to the palace, through the hours which it is usual for the different grades above adverted to proceeding to, and returning from, their occupations. The hurried manner these crowds of pedestrians will be observed all to pursue their way sufficiently indicates the boon that the opening out of any new cut having the effect of shortening the journey would confer. As one of this crowd of daily to-and-fro-passers this way, I have, during the short time the iron railings have been down for the formation of the new ride, been in the habit of crossing the works and passing the Green Park obliquely, over the grass to the entrance to the Park from Piccadilly, opposite Devonshire House, and the striking convenience of the line has reminded me of the desirability of a permanent communication being formed in that direction. To effect this it only requires the removal of the existing gate of entrance to the Green Park which stands at the bottom of Constitution-hill from its present position, and setting it at the first angle at the western end of the Mall, in a line with the north wing of the palace (it would there still serve all the purposes of its present intent), and the

laying down from thence to the Piccadilly gate, at the corner opposite Devonshire House, of a 15 ft. wide gravel path. By this it will be seen that between the last-named point and Buckingham Gate the walk would become a continuous straight line.

The introduction and use of such additional footpath as is here projected could surely be prejudicial to nothing nor inconvenient to any one, whilst it would afford to a vast mass of the public the choice of a pleasurable walk in their daily "up" and "down" journey, over one of the most agreeable and health-invigorating spots of all London's open spaces, and a save in distance (measuring the projected line as against the present tortuous route by the stableyard, from a point at the top of St. James's-street), of some 300 paces, avoiding, too, at the same time a couple of crossings, both of them now, at times, very dangerous ones, by the rapid nature of that particular carriage traffic to which the road here has of late become subject. F. C.

A WORD OF ADVICE TO MARGATE.

How much Margate depends upon its visitors and upon the reports of medical men possibly townspeople themselves have never cared to calculate; but can the stream of visitors be depended upon, and the influence of the medical profession be favourable, if things are allowed to go on longer as they have done this summer? What are the facts? The largest and most costly houses in the town—those in the Royal Crescent—have to complain, through the medium of the public press, that for weeks the kitchen refuse has been entirely unremoved! In addition, numberless visitors to the Marine-terrace address letters of complaint, again and again, to the local authorities, of the intolerable stench coming into the back windows of all the houses. Others complain of nuisances from pigsties, &c., in crowded localities. The very fort, though upon high ground, does not escape. At times its approach has been almost impossible, from the horrible effluvia arising from the vast natural cesspool dirty people have turned to account in "No Man's Land." Those who have sought another route to the same place, have had to encounter nuisances even worse, in the shape of stagnant pools of bilge-water at the top of Love-lane and King-street. Many more cases occur to mind. Now all these nuisances are so palpable, it scarcely seems credible that the authorities could have allowed them to remain a single day. Yet the season is nearly over; and, so far as visitors can see, nothing has been done. Who must be to blame? There is certainly a sanitary inspector in the town (although no office bears any such outward sign), because a hand-bill may now be seen in shop-windows requiring an "assistant sanitary inspector." Sadly he must be needed! Although we can hardly believe it, we are informed that the houses in Love-lane, affording examples of so terrible a nuisance, and the marsh, from which rises the horrible stench at the back of Marine-terrace, are actually the property of the sanitary inspector himself.

By saving a small rate, the town may be ruined. Movement is much needed at Margate, if it is to keep its place; but before all, and above all, there must be cleanliness and the means of cleanliness.

RESTORATION OF THE CITY CROSS, WINCHESTER.

MR. BUCKLER writes to us thus, touching the pastoral staff of William of Wykeham:—"It would have been well if the sculptor had placed the pastoral staff in the left hand of the statue of William of Wykeham, as it is wrong in the right hand, as described at p. 606. Reference to the effigy in the cathedral would have averted the mistake; for although not grasped, it does not rest on the left side by accident, in the monuments of Wykeham and Waynflete.

At the consecration to the episcopate, before the newly-consecrated bishop blesses the people, the consecrator places the pastoral staff in his left hand ("*consecrator tradit ei baculum pastorem in sinistra*"), and it is thus held by the bishop on subsequent occasions, with very few exceptions, which I need not particularize, when it is held in both hands; and it is always satisfactory to be correct.

CLOSED BURIAL-GROUND OF ST. GEORGE'S, HANOVER-SQUARE.

LARGE shut-up areas within a great metropolis are a waste, loss, and obstruction; just in the proportion as the opening out of such inclosures would be an enlargement of liberty, an embellishment, and promotive of public health.

Fronting Hyde Park, and within 250 yards of the Marble Arch, an open space of ground, concealed from view, sleeps in wilderness, unknown save to the four ranges of houses which circumvent the ghastly quadrilateral, and afford a view from their back windows of trees and shrubs fitfully planted, which seem to flourish upon the hungry gravel superstratum. This plot had a central opening reserved on the south towards Hyde Park of 80 ft., within which was erected a one-story building, 80 ft. by 18 ft., very much like a stable with a belfry, completed in the year 1764, when the whole was dedicated to the objects of a cemetery—at that period suburban—for the parish of St. George. Since then several hundreds of tombstones have been stood on end, together with a few more pretentious monuments; but in the year 1854 burials were discontinued, when the mortuary chapel was finally closed, and the leaden coffins which filled the vaulted catacombs in a double range of 80 feet in length, were removed and deposited together in a pit, packed in superincumbent gravel.

The small funeral chapel still remains, with about a score of votive tablets, both within and without. The reading-desk, the benches, even the trestles stand as in the days of mourning, in one half of the building; the other half serving as a residence for the family in charge of the desolation, who have also a fair and not neglected portion of the burying-ground to form a pleasure-garden, besides a plot at the north end for leguminous productions.

The trees periodically planted by mourners have grown with exceeding luxuriance, and seem to profit by the mortal tribute deposited in the naturally sterile soil; so that the whole extent wears a not unpleasantly sylvan appearance; and, were it not for the bristling tombstones, the aspect of this vast expanse of over four acres would really double the value of the numerous houses that command a view over it.

The whole Park frontage belongs to the parish of St. George, Hanover-square, seventeen houses being at the disposal of the vestry, besides the frontage court to the mortuary chapel, measuring 80 ft. by a depth of 40 ft., with clear open to the Park.

This most invaluable scope of land has already been set apart and consecrated, therefore no expropriation ought to be made of the sacred soil; but there is a use to which it might be justly dedicated; and even a parish vestry need not be offended if that mode of appropriation should turn out more profitable than letting out grounds to building speculators.

What is suggested to the vestry has, however, no affinity to the appropriation of any portion of the dormant burying-ground by lease or transfer of any kind, but only to its application for the legitimate purpose of founding a church in aid for this most important populous and wealthy district, which actually stands in need of another parochial temple for devotional worship more than any other quarter of the metropolis.

There could be no desecration of the hallowed site in its dedication to religious worship—that of the Established Church: the mortal remains, now resting within the verge of the central plot, might be carefully deposited in catacombs, vaulted under the foundation of a noble temple upon the finest site to be found anywhere. There is already an opening to the park, available without loss, and, save the structure itself, the only outlay needed would be for the purchase of one house in Seymour-street, to make a carriage and foot thoroughfare, so as to give access from the north side, and to confer upon the church a free circulation and ingress for all comers.

With respect to this now unused cemetery, as well as all others shut up within the metropolis, an immense improvement might be made by laying the tombstones in a horizontal position: it has been done in many old churchyards, with great benefit to the living: where so treated, the grass, shrubs, trees, and flowers, grow luxuriantly in the intervals; and when walks are cut and access given, the monumental records, hitherto concealed and unsought, may be read by loiterers and wanderers, awaking,

perchance, at times a happy reflection and rescuing many a legend from obscurity and darkness. Why should the resting-place of the dead be revolting or disagreeable to the living? The old churchyards, heaped up many feet by the mortality of centuries, were barred out by countless obstructing stones, and shapeless mounds. There is no longer a necessity for this—indeed, every perch of open turf is imperatively needed for a civic population swollen beyond example or precedent. The health of every crowded locality is improved by opening out and planting all such sealed inclosures. The object of sculptured epitaphs is to commemorate the dead; whereas the effect of locked cemeteries is to consign them to oblivion. It is not thus in Italy, where the Campo Santo is a favourite resort. The Romans placed their tombs on the roadside. Our Cathedrals of the Middle Ages consigned them to cloisters; but the Parisians first introduced the amenities of trees and flowers at Père la Chaise.

QUONDAM.

INDUSTRIAL EXHIBITIONS.

Wakefield.—The Industrial and Fine Arts Exhibition here has been opened. In every department embraced in the exhibition the collection is large and interesting; and, indeed, the result achieved is such as could scarcely have been expected when the subject was first mooted. A suitable building for this enlarged exhibition had to be provided; and the Tammy Hall having been just vacated, the committee entered into an agreement for that building for six months; and the mayor and corporation having granted an open space of ground between the Court-house and the Mechanics' Institution for the same length of time, advertisements were inserted in the papers for plans for a building either of wood or brick. Several designs were forwarded, but the plan which seemed to meet with universal approval, and from which this building is erected, was by Mr. William Watson, and the contractors were Messrs. Latham & Son, both of Wakefield. The building consists of a large vestibule, with a picture-gallery on either side, that on the north for oil-paintings, and on the south for water-colours, &c. These galleries will contain about 500 paintings, commencing with Hogarth down to the present time, contributed by a large number of artists and owners of art-works. Also, a good collection of photographs, chromolithographs, pencil drawings, pen-and-ink sketches, and a few choice examples of sculpture, bronzes, &c. Besides these galleries, the temporary building contains a large central hall, 100 ft. by 60 ft., and a refreshment-room, &c. The Tammy Hall is entered by steps from the central hall, and contains besides offices a lower room with shafting, which, in consequence, has been assigned to machinery in motion. Above this is an upper room 223 ft. long by 80 ft. wide, the walls of which are coloured with a neutral tint. Thus the exhibition is held in six rooms, which contain about 17,500 square feet of floor and table space, and 17,000 square feet of wall space. The number of exhibitors, including the fine-arts department and children, amounts to nearly 2,000. Regarding the classification and arrangement of articles, which in all exhibitions of a similar character has been found the most difficult part of the undertaking to perform satisfactorily, the articles have been arranged partly in sections, and always so as to produce a pleasing appearance. In arranging the catalogue, the committee determined to throw all the goods exhibited into sections, rather than adopt the more ordinary plan of classes. This has enabled them, by placing together all things that had any relationship, or naturally succeeded each other, to make each group larger, and at the same time get rid of that awkward class, the miscellaneous.

Birmingham.—The Industrial Exhibition for the working men of Birmingham and the Midland Counties, has been opened in Bingley Hall. The inaugural ceremony was preceded by a procession through the principal thoroughfares of the town. Among those seated in front of the orchestra were Lord Lyttelton, Lord Leigh, Mr. Newdegate, M.P.; Mr. Bromley, M.P.; the Mayor; Mr. Elihu Burritt, United States consul; and others. Lord Lyttelton delivered the inaugural address. Much, he remarked, had been said about the obligation resting on the upper classes to mingle more with the lower, or hard-working classes; but he thought the middle classes were perhaps more in need of being reminded of their duty in this respect towards

those both above and below them. Having pointed out the mutual dependence of classes, and the desirableness of intercourse for the purpose of making society more compact, he insisted that it was the duty of all to work, whatever might be their position; and he characterised such exhibitions of industry as that in Bingley Hall, as a mutual encouragement to all classes to do their share of this general duty. It was difficult to say what the staple trade of Birmingham was. He had heard it said that there were as many as 300 distinct handicrafts in Birmingham, from which it followed that its industry was like some great machine fixed to its place by many springs. It did not matter much if one or two broke; the general fabric remained sound and undisturbed, unlike those places where the staple trade formed a main spring, without the action of which all the rest stopped.

Liverpool.—A movement is on foot for holding, in Liverpool, in January next, an industrial exhibition, the contributors to and exhibitors in which will be working people. The objects of the promoters (some of whom are amongst the most prominent men of the town) are the promotion of mechanical and artistic tastes, industry, ingenuity, and economy of time amongst the working classes, and the establishment of a means of disposing of the articles privately constructed or invented by the exhibitors. Between twenty and thirty intending exhibitors have already applied for space for mechanical inventions, engines, manufacturing and nautical machinery. In the latter class is an ingenious hydraulic propeller for ships, &c. **Greenwich.**—An exhibition of the industrial manufactures of Kent will shortly be held at Greenwich. The primary object of the promoters is to afford an opportunity to the working classes of Maidstone and the other portions of the South-Eastern district to exhibit specimens of skilled workmanship produced by themselves. A separate class, comprising a selection of prize-holders from previous exhibitions, will be arranged in a separate portion of the building, and will be eligible for prizes to be competed for among themselves. The prizes offered for competition will consist of four classes: 1st and special, a gold medal; 2nd, silver; 3rd, bronze; and 4th, honorary certificates of merit. A memento of the exhibition will be provided for each exhibitor. The committee reserve to themselves the liberty of admitting works of art of superior merit or special interest, not the production of the working-classes, as a loan, such works, however, not to enter into the competition for prizes.

OPENING OLDHAM PARK.

This park has been formally opened by the Mayor. The formation of the park was suggested by a special committee appointed by the town council for considering the steps necessary to be taken for the purpose of employing the distressed operatives of the borough, thrown out of employment by the recent cotton famine. The Swine Clough Estate, valued at 10,750*l.*, was purchased, and, to render the park and approaches complete, the council purchased about 20 acres of adjoining land, making altogether about 72 acres, which have been obtained at a cost of 18,100*l.* Of this land, nearly 60 acres have been laid out as a park. The aggregate cost of the site, the buildings, roads, the laying out and making the main roads bounding the easterly side of the park, leading to Gladwick, and culverting over 200 yards of Sheepwash Brook to receive a large embankment in forming the roads, is about 31,000*l.*, of which sum 30,900*l.* have been lent by the Public Works Loan Commissioners, under the Public Works (Manufacturing Districts) Act, 1863, repayable, with interest at three per cent. per annum, by annual instalments extending over a period of thirty years. On the acquisition of this land, the committee offered premiums for the two best designs for laying out the park; and of those submitted, the designs and plans of Mr. Henderson, of Birkenhead, and Messrs. Woodhouse & Poits, of Oldham, were adopted. There are two principal entrances to the park, one situated on the westerly or Sheepwash side, and the other on the easterly or Gladwick side. At the entrance there are two gates, one leading to land intended to be appropriated for building purposes, and the other leading to the park. The entrance-building is of Yorkshire stone, in the Italian style, with small tower. The gates are of ornamental cast-iron, hung to stone piers. The terrace walk commences about 70 yards from

the entrance-gates, and is approached by a flight of steps. The terrace is 18 yards wide, and about 400 yards long. In the centre is erected a band pavilion, having an ornamental cast-iron front, commanding a view of the opposite walk, which connects the terrace with the roads on the lower side of the park. In the centre of this walk a fountain has been erected, built of stone, having two basins, and supported by five granite columns, with carved stone capitals. The jet issues from the mouth of a dolphin held in the arms of a boy carved in stone. This fountain is the gift of Mr. Josiah Batcliffe, the mayor. The terrace terminates with a stone balustrade, and a flight of steps leading to the higher ground, whereon is erected a building intended for a refreshment-room and place of shelter, with one upper story for a museum. The windows of this room are of stained glass, representing "Peace and Plenty" and "Industry and Commerce." The building and gates at the Gladwick entrance are similar in design to those of the Sheepwash. The park includes other buildings, such as a propagating-house, gardener's cottage, &c.; and affords ample space for the recreation and enjoyment of the people.

HOSPITAL VENTILATION.

We class among fever hospitals all those constructed for the reception of patients afflicted with contagious disorders; and any proposition tending to diminish or prevent altogether the spread of infection, should be listened to with the greatest attention. Nearly every hospital in Europe is at present overcrowded; consequently there are congregated often in one ward persons affected with maladies of such a different nature that it is indispensable for their recovery to have not only a good supply of pure air, but to be protected from contamination with other patients. This is proposed to be effected by the plan suggested by Dr. Bachrich, of Paris, which consists in having separate air-shoots or chimneys of canvas, or other inexpensive material, for each bed. The ward is divided into three parallel divisions, the central one being a depressed passage, with raised platforms on each side running the whole length of the apartment (like guard-beds), on which the bedsteads are placed. Inclosed by the uprights of the platforms, and on each side of the central division, are two continuous air-tubes, 1 ft. by 6 in. in section, communicating with the external air. This conduit is pierced with small holes about 8 in. apart, so that the air enters slowly into the ward, without direct draught, and is carried off from each bed by a separate pipe into a general flue. As the committees of two of the most important hospitals in this country and in France now on the eve of construction, viz., St. Thomas's in London, and the Hôtel Dieu in Paris, have signified their intention of adopting every improvement that modern science can suggest, the plan of Dr. Bachrich should be inquired into.

THE LOGGETTA DEL BIGALLO.

At the corner of the Piazza del Duomo, and the street called Via Calzavini, leading from the Piazza del Duomo to the Piazza Vecchia, most have been remarked by all visitors to Florence, what at first sight appeared a ruin of an old building enclosed in old patched scaffolding, worn black with age; but on closer inspection could be seen, where glimpses of it could be caught at a short distance from the scaffolding, or by peeping through the cracks of the old boarding, remains of a building of great architectural beauty.

There seems a peculiar fondness in Florence,—hard to be accounted for,—for leaving buildings unfinished; see the façades of the churches, the grand Duomo itself not excepted. The modern art-exhibitions contribute numerous plans from year to year, many of great merit, for façades for the Duomo, S. Lorenzo, &c.; but the marble exterior of the Duomo has been worn and patched up again with bright new marbles, shining out in strong contrast with the old black worn marble of the fourteenth century, and still the hideous brick front remains uncovered, though, as it is stated, the princely Demidoff has offered to complete it at his own expense. But to return to the subject of our engraving. This beautiful little loggia has remained bricked and boarded up since 1699 until the 14th of May of this year, chosen to inaugurate



THE LOGGETTA DEL BIGALLO, FLORENCE.

rate so much that was pleasing to the eye and taste as well as to social feeling.

During the last two years there have been workmen employed on the work of unbricking the arches, mending the marble ornaments of the pillars, &c.; and now, except a few low palings around, the loggia is left open to view. It formed in the thirteenth century the entrance to the hospital of the Misericordia. In 1240, the Dominican monk, Pietro da Verona, afterwards Pietro Martirio, whose martyrdom Titian has immortalised on his canvas, came to preach against the heresies then being promulgated in Florence by Paternon, and excited many of the citizens to a crusade against them, instituting a military sacred order of twelve bands, headed by twelve of the chief of the citizens, called "Capitani della Fede." These, after a victory gained over the heretics in the Piazza of Santa Felicità, in Florence, took the title of Capitani del Bigallo. The order devoted themselves to the care of pilgrims; and, after joining with the order of the Misericordia, on the latter removing to their present hospital on the south of the Duomo, in 1525, took exclusively the care of the abandoned orphans, and established themselves

in the building of which this loggia forms a part. The Loggetta is said to have been built from the designs of Niccolò di Pisano. It consisted of four arches, two of which are still closed. The two now open lead to a chapel enclosed by gates of Gothic wrought-iron work; inside are marble life-size figures of the Virgin and two saints by Alberto Arnoldi. On each side of the altar were formerly frescoes, by the son of Ghirlandajo. The statues over the north arch facing the baptistery were either by Niccolò or Andrea Pisano. The arches are ornamented with medallions, enclosing half-figures of saints, exquisitely carved. By the side of the statues are two frescoes, by Roselli and Ventura; the subjects, Pietro Martirio preaching to the people against heresy, and Pietro giving the white standard, embroidered with a red cross, to the twelve nobles heading the Crusade. The frescoes are well executed, and almost preserved entire.

The restorations of the Loggia have been carefully done, but show a falling off from the work of the thirteenth century. It is to be hoped many more equally interesting restorations may be effected to add to this interesting specimen of Italian Gothic.

NORFOLK HOTEL, BRIGHTON.

THIS well-known old family hotel, situated in the best part of the King's-road, has passed into the hands of a company, and has been rebuilt from designs, and under the superintendence, of Mr. Horatio Nelson Goulty, architect, Brighton. The new hotel contains fifteen sitting and sixty-four bed rooms, with bath-rooms, lavatories, and waterclosets on each floor, and every modern convenience. There are two coffee-rooms, a smoking-room, and a handsome well-lighted billiard-room. The kitchen is commodious and well ventilated, and is fitted up by Messrs. Jeakes & Co., of Great Russell-street, London, in good style. The hotel is replete with every convenience for carrying on the business. Attached to the hotel are coach-houses and stabling for the visitors.

The bells throughout the hotel are on the electric system, and have been fixed by Mr. Preece, of Southampton. The building has been erected in two parts; the northern portion by Mr. Reynolds, and the southern portion by Mr. Bland. It is expected to be opened by the middle of October.



THE NORFOLK HOTEL, BRIGHTON, SUSSEX.—MR. HORATIO N. GOULTY, ARCHITECT.

WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.

The members of this Society, with their friends, have paid a visit to Hereford, for the purpose of examining the architectural and other antiquities of that ancient city, and also for visiting—on the following day—several of the churches and other objects of interest in the neighbourhood. The party from Worcester, on arriving at Hereford, was augmented by several ladies and gentlemen residing in the city and county.

With the Rev. F. T. Havergal as *cicerone*, the party first visited All Saints' Church, which, it was explained, was the largest parish church in the city. Coningsby's Hospital, or the "Red Hospital," as it is more commonly called, from the colour of the cloaks worn by the inmates, was the next building visited. The party next adjourned to St. Peter's Church, taking a brief view of the old place in the market square on the way. After discussing the separation of the chancel and other details, in St. Peter's, luncheon was taken at the Green Dragon Hotel; and afterwards, a paper on the monuments in the cathedral, by Mr. M. H. Bloxham, of Rugby, was read by Mr. Walker, the author not being able to be present. The company then resumed their peregrinations, proceeding first to the cathedral, where, after viewing the Bishop's Palace, and some of the principal features of the buildings, old and new, which were described by Mr. Havergal, they attended divine service. The Castle-green, the Museum, Ethelbert's Hospital, and the site of Ethelbert's Well, were afterwards visited.

The Rev. F. T. Havergal invited the ladies and gentlemen remaining in Hereford, to take tea and coffee at his residence in the college, where they had an opportunity of inspecting a choice collection of ancient MSS., and other objects of antiquity.

The programme of the second day included a trip from Hereford to Weobley, calling at the White Cross, Stretton Sugwas, Credenhill, Brinsop, Mansel Lacey, and Yazor, on the way; but the experience of the morning showed that the journey must be curtailed a little, and this was done by omitting the proposed visit to Mansel Lacey and Yazor.

THE FRENCH EXHIBITION BUILDING.

In reply to the statement made by Mr. Maw and Mr. Payne that the French Commissioners have appropriated the design and system of classification published by them in our pages in 1861, and to the evidence they furnished of that fact, the Commissioners say, through Lord Cowley, first, that the document Mr. Maw mentions was never communicated to the Imperial Commission, and that it was therefore quite impossible for it to have derived from it any hint for the plans it has had drawn up; and secondly, that the difficulty solved by the Imperial Commissioners' plan was not the general problem of the form, whether rectangular or elliptic, which alone was sufficient to comply with the conditions laid down by his Imperial Highness the Prince Napoleon in the report at the close of the Universal Exhibition of 1855, namely, the arrangement of the products at the same time by specialties and by nationalities; but it was principally in the details of execution which, to respond to the necessities, so multifarious, of this grand assembly, required numerous practical observations, the fruit of experiments collected in the preceding Exhibitions.

For the rest, the Commissioners continue, Mr. Maw may, by giving his labours to the public, make public opinion the judge of his demand.

Mr. Maw writes in reply,—The proposal for a double system of classification made by Prince Napoleon at the close of the Exhibition of 1855, referred to in the Vice-president's letter, will be found at page 140 of the report of the French Commissioners. It is simply the revival of an idea broached, I believe, by M. Potonnier in 1850 for taking a longitudinal system for geographical classification. This mode of arrangement was freely discussed at the Exhibition of 1851, but given up as impracticable on account of not providing for the irregularities of relative geographical and specific areas.

A double system of classification was not even attempted for the French Exhibition of 1855, or

put into any practicable form till 1861, when the scheme was submitted to M. Mocquard of intersecting concentric and radial lines based upon an ellipse solved the difficulty, by providing an endless interchange of adjacent geographical and specific areas of various sizes.

The French design doubtless complies with the conditions of a combined specific and geographical classification; but the real question at issue is, whether it does not bear unmistakable evidence of having been taken from ours published four years previously?

A careful comparison seems to us to show that it is so. Mr. Maw repeats, "that not only has the general plan of our design, as well as the peculiar system of classification been adopted by the French commissioners, but also many of the subordinate features; as, for instance, the central garden, the elliptic form, and even the proportions of the ellipse on which the building is based—the widening of four of the radial avenues into transepts; the placing of an external arcade around the elliptical building, and the relative position of the annexed buildings, outside the ellipse, which collectively put the theory of an accidental coincidence entirely out of the question."

THE, SO-CALLED, DISCOVERIES IN ROME.

SIR,—Herewith I inclose a copy of an autograph note with which I was favoured, in 1859, by the late most eminent cardinal priest of the title of St. Pudenziana, in acknowledgment of a ground plan of his church, laid down to scale from a sketch made by myself, and the measurements taken with the assistance of my brother, the Rev. W. A. Buckler, on the 29th April in the preceding year, 1858. Allow me to add, that I am delighted at the increased attention devoted to ecclesiastical history and architecture, and hope that Mr. S. W. Tracy* will not be offended with me if, in pursuing similar studies, I have unconsciously taken precedence of him in visiting the said church, including the Martyr's Well, Chapel of St. Peter, and the Baths of Novatus.

The urbane editor of the *Gentleman's Magazine*, having taken the liberty to tamper with a former letter on this subject,† seems reluctant to realize the fact that I have more than a superficial interest in, and limited perception of, the visible features of an ancient structure in which I felt special concern.

During my comparatively brief visit to Rome, it happened that my habits were to a considerable extent subterranean. Before starting, I had carefully read "Fabula" and Dr. Northcote's useful volume on the Roman Catacombs.

I heard mass in the venerable crypt of the old Vatican, and visited the substructures of the churches of St. Pudenziana, San Martino in Monte, S. Lorenzo, S. Alessio, the newly-discovered church and catacomb of S. Alexander, the "Clementine cellars," &c.; and am amazed to find that such quiet and inoffensive proceedings should prove displeasing to any.

C. A. BUCKLER.

(COPY.)

"6, York-place, Portman-square, London, W.,

March 8, 1865.

MY DEAR SIR,—I am much obliged to you for your kindness in sending me a plan of the Church of S. Pudenziana, and I am glad to find that you derived so much pleasure from your visit to Rome.

I am, my dear Sir,

Yours very sincerely in Xt.,

C. A. Buckler, esq. N. CARD. WISEMAN.

UNDERGROUND ROOMS: CRYPTS.

Your correspondent, "Amateur," should in all fairness receive as reply to his important question, the same that Abernethy gave,—"Take advice." Surely if his child were ill, he would not write to the *Lancet*, and ask a professional opinion upon his case, free; and yet his application through the *Builder* is parallel. If no architect has been employed, he should employ one; but setting that question aside, the subject of the ventilation and consequent dryness of crypts and other underground portions of buildings, has not been well thought upon. The only way to ensure success is, by a system that will allow pure, dry air from above, to be poured in nearly upon the level of the floor, and the damp air to be freely drawn off: without this all asphaltic roofing and other appliances to keep out upper damp will be useless. G. W.

* *Builder*, August 28, 1865, p. 615.

† *Gentleman's Magazine*, 1865, vol. ii., p. 212.

WATER CISTERNS.

At this warm season, and while the apprehension of epidemics excites so much alarm, some little attention to the storage of pipe-water for household supply is of as much importance as the sewage question or other sanitary considerations. While the water is drawn clear and sparkling from the tap, it is taken for granted that it is pure and wholesome, although perhaps the cistern may not have been inspected or cleaned out for years.

A case in point will prove the necessity not only of looking after the pipes and conduits, but also of clearing out the repositories of the water.

Having taken a new house, the writer found all the appliances in fair seeming order, and that the test-tumbler looked bright and sparkled. Not being a lover of the pure element unmixed, the semblance sufficed; but some weeks after, on perceiving a heavy stercor from the sink, and on smelling the still clear glass, it was palpably fetid! Immediately the cistern was opened, and he discovered at the bottom of a large crystal supply, over an inch of black slime; and at the top, the carcass of a rat, swollen, blanched, and depleted. Of course it needed only to let off the water, to scrub and clean out the cistern. This was done, and the supply has been ever since as faultless as the various London companies. In truth, the house cisterns ought to be inspected from month to month during summer, and at least quarterly at other seasons; for there will always be some organic matter in the purest water, as well as other ingredients produced in its passage through pipes, whether of lead or of iron, and when, by only letting off the supply and sluicing out the cistern, all deposits may be cleared off, no housekeeper or paterfamilias should neglect the duty. There may be death in the pot where least suspected, and after the element of air, water is the most vital.

T. H. H.

WANTS AT ALDERSHOTT.

SIR,—One of the greatest wonders of the age is the growth of the little village of Aldershot: its progress is second to not even a colonial town. From a more than obscure village it has become a populous and important market town in less than twelve years, and an erection of twelve years' standing is a curiosity. The value of building land has increased so much that it now commands as much rent in a week as it did, up to 1853, in a year; and there is a continual demand for habitations of every description. What are termed cottages in other places have few representatives in Aldershot, and the working classes are driven from the town to the suburbs, of which there are not a few, in every direction. Farnham, as well as Farnborough, are, so to speak, suburbs of Aldershot, for numbers employed in the latter reside in the former; and Farnham professional men get considerable patronage at Aldershot, especially architects, as they style themselves, for there is but one in Aldershot with conceit enough to place his profession under that head. The ugly massive structures that are springing up with mushroom rapidity, at an enormous expense, display as much thought and inventive talent in their designers as existed in the Georgian days. Plate-glass and stucco reign supreme in Aldershot, and so great a favourite is the latter with the Aldershotites or Aldershoters, that they have suffered their market-house to be smudged with it to such a thickness that its features are threatening to fall off, and they now see the wisdom of not making the furniture of the same material.

Rents are enormously high in Aldershot, and both villas and cottages are in constant demand. There are numbers of pleasant sites to build them upon, but the local builders and architects are constantly employed increasing the number of shops. The streets are regularly planned, paved well, and kept clean. There are two gas companies' works, and water-works in course of construction, but there is neither public hall nor theatre, though there are several hotels with music-halls attached; and in the camp, which lies to the north of the town, there is a theatre for the use of the army, where civilians are sometimes invited. That a good theatre, a good public hall, and pleasure-grounds are called for, not a shadow of a doubt can exist, and in these undertakings a field is open for those capitalists

who pine for shares in joint-stock concerns. But above all, a railway is in most urgent demand, as the town proper, which consists of some dozen streets of shops, and which for plate glass would bear comparison with London itself, is three miles from five or six railway stations, each one having a share of its traffic. The number of mechanics continually pouring into the place and neighbourhood make a club or reading-room and library imperatively necessary. There are places of resort for the soldier, but none for these; nor are there houses for them to live in. Certainly there is a "Cottage Improvement Society" at Farnborough, but why should workmen be compelled to go three miles when there is abundance of land within a twelfth of that distance to build improved cottages upon?

Again, few places stand so much in need of another church as the colonial-like town of Aldershot. I.

WANT OF TASTE IN HOMES.

Sir,—I am here (Harwich) waiting for the train, and have just been priming myself for a visit to a friend in a neighbouring town by looking at the guide-book; and lo! 'tis said, amongst other things both good and qualified, that long rows of brick cottages extend and intersect each other to the confusion of casual gazers. Now this just reminds me of a defect which our local, if not our London architects need rectify for their reputations' sake; and no traveller with eyes can help noticing how brick upon brick crowds the outskirts of numerous towns in our good old country. Recently, I saw quite a colony of houses, all in line and all of brick, in Ireland, but a sad sameness marked them, though scores of rows ran hither and thither enough to puzzle the kindest "district visitor" going on good errands.

It seems to me that variety, though quaint, in the matter of bricks, on the Continent, need not be claimed as their exclusive *forte*; and it would certainly add but little to the expense, and much to the ornament and taste, of our streets if at least the corner houses had some distinctive mark and character, without unduly trenching on the pockets of those shrewd capitalists who usually "run up bricks for stone, and — for mortar" in a wholesale way, and could therefore afford a little to please many eyes as well as those of A TYRO.

EARLY ADVISERS OF CO-OPERATION.

I CANNOT help remarking that, in reading your various and interesting articles on the co-operative movement and the bearing it is likely to have on the subject of strikes, the name of Mr. Babbage should never be mentioned, or the chapter on "A New System of Manufacturing," in his valuable treatise on "The Economy of Machinery and Manufactures," ever alluded to. This was first published in 1828, and the following is the sixth paragraph in that interesting chapter:—

"Another advantage would be the total removal of all real or imaginary causes for combinations, the workman and the capitalist would so shade into each other—would so evidently have a common interest, and their difficulties and distresses would be mutually so well understood, that instead of combining to oppress one another, the only combination which could exist would be a most powerful union between both parties to overcome their common difficulties."

I need scarcely add that the above has reference to a co-operative system of manufacturing by the author, with a view to preventing strikes, and which, in common fairness, should not be ignored. FAIR PLAY.

THE "DIOPHANTINE" ANALYST.

IN the note on p. 631, headed "Diophantine Analysis," are two typographical errors I wish to correct. I. The heading should not say "at Oxford in 1865," as the fact occurred in 1863, and may have led to some polishing up of the subject by this time. II. In the last sentence but one, for "either x, y, z , must be 1 or 2," read, "either $x-y$ or $y-z$ must be 1 or 2,"—as the earlier part will make it clear that I meant. The result at which the learned analyst arrived was a supposed confirmation of my guess, that whenever x, y, z , are numbers prime to each other, and $x^2=y^2+z^2$, then either $x-y$ or $y-z$ is 1 or 2.

The example I had meanwhile found to the contrary, that $161^2+240^2=289^2$, was derived,

like all the other triads I gave, geometrically from the triangle of 3, 4, and 5, by some simple bisections. I may now add these simpler cases:—

$$\begin{aligned} 48^2 + 55^2 &= 73^2 \\ 65^2 + 72^2 &= 97^2 \end{aligned}$$

The fact is, that we may derive from any triad of this kind, any number of others, in which the two perpendiculars (or legs) shall differ constantly by the same number. Write the sides of the original triangle under each other, with the hypothenuse second. Then make a second column thus:—Take the sum of the two upper figures for a new top figure, the sum of the two lower for a new bottom figure, and the sum of all three for a new middle figure. Repeat the operation on this second column so as to get a third, and this will represent the sides of a new triangle. Continuing the process to any number of columns, the alternate ones, namely each that contains two odd numbers, will give a prime right-angled triangle with the same difference of legs as the first. (It is easily seen that no such triad can consist of two even numbers and one odd, nor of three odd, nor three even). Thus we get from 5, 12, 13, the following series with legs always differing by 7.

	I.	II.	III.	IV.
Short leg	5	18	49	121
Hypothenuse ..	13	30	73	178
Long leg	12	25	65	129

And from 8, 15, 17, the following series (omitting the merely computative columns), with the same difference of legs:—

	I.	II.	III.	IV.
Short leg	8	65	396	223
Hypothenuse ..	17	97	565	3283
Long leg	15	72	403	2332

The series whose legs differ by 1, is as follows (I having given the fifth of them incorrectly):—

	I.	II.	III.	IV.	V.	VI.	VII.
Short leg	3	20	119	696	4059	23860	137063
Hypothenuse ..	5	29	169	985	5741	33461	193065

I do not see my way to a triad with legs differing by any number between 1 and 7, nor between 7 and 17. The difference may be any member of these two series:—

$$1, 7, 17, 31, 49, 71, 97, \&c. \text{ (that is } 2n^2-1), \text{ or } 7, 23, 47, 79, 119, 167, \&c. \text{ (that is } (2n+1)^2-2).$$

These methods, however, do not elicit all the triads existing in a given range, for they would have passed over 161, 240, 289.

The curious property of these numbers formerly gave, and may give again, to the simpler ones, a practical value in building, on which I may address you some remarks.

P.S. Since writing this, I am persuaded I can, by a simple method, find all the right-angled triangles possible in a given range of numbers. The following twenty-two are, if I am not mistaken, all that can exist with neither leg exceeding 120. Nine of them contradict the mathematician's deduction, and seven were not discoverable by either of the above methods.

Long leg	4	12	15	21	24	33
Short leg	3	9	8	20	7	12
Hypothenuse ..	5	13	17	29	25	37
Long leg	40	45	55	56	60	72
Short leg	9	28	48	33	11	16
Hypothenuse ..	41	53	73	65	61	95
Long leg	80	84	91	99	105	112
Short leg	39	13	69	20	88	15
Hypothenuse ..	89	85	109	101	137	113

E. L. GARDETT.

PROVINCIAL NEWS.

Devizes.—The contract for the new bank which is about to be erected by the Wilts and Dorset Banking Company in Devizes Market-place, on the site of the old "White Swan" premises, has, we understand, been taken by Mr. Phillips, of Swindon.

Derby.—Mr. Humphreys's tender has been accepted for the stone, wood, and brickwork of the side shops and galleries of the new Market-hall, and Mr. Swinger's tender for the ironwork. The plans and specifications have been prepared by the borough surveyor, under whose superintendence the works will be carried out. Messrs. Haywood have finished their contract for the iron roof, and the roof is being rapidly covered in.

Birmingham.—Although the actual issue of books, and the throwing open of the news-room of the Central Free Library, cannot take place until after the visit of the British Association, inasmuch as the rooms have been placed at their disposal by the Council, the formal ceremony of opening has been made a fitting prelude to the proceedings of the Association.

LEEDS.

Proposed New Corporate Buildings.—The question as to the desirability of erecting a building on the vacant land at the east side of the town-hall has been lately discussed by the Repairs Committee of the Town Council. The building would be used for the accommodation of the barristers attending the assizes, as a banqueting-room for the mayor, and for other corporate purposes. The town clerk having, says the *Intelligencer*, expressed an opinion that the council had not the requisite powers, the carrying out of the project has been adjourned. 40,000*l.* is the sum mentioned as the probable cost of the building.

New Mechanics' Institution.—On Thursday in last week the foundation-stone of the new Mechanics' Institution for Leeds was laid by the mayor, who is also the president. For some years the necessity of a new building has been recognised; but various causes have contributed to defer its erection until the present time. Mr. Brodick, the architect of the town-hall, is the architect for the new institution, which is to be erected on the east side of Cookridge-street, opposite the new baths. Its cost is estimated at 20,000*l.*; and, to meet the expenditure, the committee have 14,000*l.* in subscriptions promised and in the value of the present building. In addition to a large lecture theatre, library, &c., provision is to be made for the School of Art, for the schools connected with the institution, and for a fine-art gallery.

THE BUILDING TRADES.

The labourers employed in the metropolitan saw-mills, whose wages are 1*l.* 1*s.* per week, have made a request to the proprietors of the mills for an advance of 6*d.* per day, grounded on the high price of provisions and house-rents. The advance asked for not having been conceded, the men employed at Messrs. Robinson & Bartram's mills, Belvedere-road, Lambeth; the York-road mills, the Bermondsey mills, and one or two smaller establishments, to the number of nearly 300, struck work, and subscriptions were organised for their support by the workmen in the other mills. The men also have a trade society from which to receive support. A general meeting of the men in all the mills has been held, and they have pledged themselves to support the movement, and insist upon the advance asked for.

Sudbury.—A meeting of the master builders of this town has been held, at which, after some little discussion, it was agreed to accede to the wishes of the men, who have accordingly resumed their work, having received the advance.

Norwich.—The carpenters and joiners of this city are seeking an increase in their wages of a half-penny per hour. At a meeting, largely attended, it was stated that delegates previously appointed had waited upon the carpenters and builders of the city, who reported that most of the principal employers were willing to concede the advance if others would do so, and the difficulty under which the men seemed to labour was that of getting a start. Comparisons were made of the rates of wages paid the different trades, from which the men argued that they were justified in seeking the advance. As no definite answer had been received from any of the masters, it was resolved,—"That in the opinion of this meeting before any further steps are taken, the men shall memorialise their several masters for a definite answer either *pro* or *con*." Other resolutions were passed by the meeting respecting the form of the memorial, the protection of any man who might be "marked," &c. There are about 300 carpenters and joiners in the city, and two-thirds of this number were represented at the meeting. The men have since had another meeting, which was also largely attended, and, as no satisfactory result was come to by the masters, two propositions were submitted,—one, to the effect that employers should be acquainted by circular that if their request was not acceded to, there would be a "turn out" on the 1st of March next; the other that the men should now "turn out." The latter was carried by a slight majority.

Hartlepool.—A general strike has taken place amongst the navies employed by Mr. Adamson, the contractor for the new reservoirs at Hart, near Hartlepool, which are being constructed by the Hartlepool Gas and Water Company. The cause of the difference is that a new foreman has

been placed over them; and it is said that he is more severe and strict than his predecessor, so the men were determined not to work until he was dismissed. Mr. Adamson did not feel inclined to accede to the arbitrary proceedings of the men, and refused to discharge him, and the consequence was that they all left work, and demanded their money that was due. Mr. Adamson was driving to the works when several of the men surrounded his conveyance, stopped the horse, and threatened violence unless he paid them at once. He was obliged to pull out his purse to convince them that he had nothing wherewith to pay them upon him, but seeing the excited state some of them were in he promised to return to Hartlepool to obtain the money and satisfy their demands. This he did; and now the whole works are lying idle, and 140 men thrown out of employment.

Stockport.—For some time, Messrs. Haworth & Co., contractors for the Heaton-lane sewerage, under the public works, have been using bricks supplied by Messrs. Simpson & Co., of Hemphaw-lane; but the brickmakers' union having taken exception to them, the brickmakers have succeeded in inducing the bricksetters to strike against their use! Fresh bricklayers were advertised for at 7s. per day, in opposition to the union.

Congleton.—During the last fortnight, the work at the tower of the new town-hall, Congleton, has been at a stand-still, in consequence of the masons refusing to work. This arose from the contractor, Mr. Burkitt, having given a portion of the tower-work to Mr. Burslem, to be executed at his stoneyard. This, the men contend, is contrary to the rules of the trade. The other trades are all busily at work.

Runcorn.—A number of quarrymen employed by Messrs. J. D. Wright & Son, Runcorn, have struck work. It appears that a great portion of the stone-getters have lately joined the union, and have demanded to be paid daily wages, and not as formerly by the piece. The union does not allow working by the piece: hence this demand. The places of the turn-outs have, to a certain extent, been supplied.

Cirencester.—The carpenters and joiners employed by Mr. Bridges at the restoration of the parish church have struck for an advance of 4s. per week, on the ground that the high price of meat, house-rent, &c., necessitate a rise in wages. (The present rate of wages is 11. per week of 59 hours. There are several large jobs going on in the neighbourhood which are said to be paying 6s. per day. The carpenters and joiners are working on hard English oak, which they regard as an additional reason for being granted an advance, which it is said some of the principal masters in the town are inclined to give.

SANITARY STATE OF ST. JAMES'S, WESTMINSTER.

THE ninth annual report of the medical officer of health (Dr. Lankester), for 1864-5, has been printed. It shows that the mortality in this, like other parishes, has been in excess this last year. The annual death-rate in 1856 was 682, and the highest death-rate to 1863 inclusive was 864, in 1859, while the death-rate of 1864 was 832. "From this," says the reporter, "it would appear that all your sanitary arrangements have been in vain; and that, in spite of our sanitary activity, mortality is on the increase. It will be observed, however, that this is not really the case; and that there has not been a regular increase of deaths for the last nine years. The year 1862 was not above the average, whilst the years 1863 and 1864 have undoubtedly been years of exceptional mortality." The report then goes on to show that the increase has not depended on those diseases of the zymotic class generally allowed to be most under the control of sanitary activity, such as typhus and typhoid fever, diarrhoea, &c. There has been a great increase of death in the Berwick-street division of the parish; less in the St. James's-square district; and least of all in the Golden-square district. Acute diseases of the chest were the principal causes of the high mortality of 1864. On these evils attendant on the use of gas, with reference to deaths from colds, the reporter says,—"Overcrowding may explain the death in the Berwick-street division; but we found an increase of death in the St. James's-square division, where overcrowding can hardly be said to exist. It is in this division of the parish that the benevolence of man has succeeded in producing

results precisely similar from quite a different cause. The use of gas without sufficient ventilation renders the air as impure as if overcrowding were present. One gaslight consumes as much oxygen and gives out as much carbonic acid as five human beings. The burning of gas gives rise to precisely the same consequences on the system; and I am convinced that a large amount of the mortality of persons above thirty, in London and our large manufacturing towns, is due to the utterly reckless way in which gas is burned in shops, workshops, factories, sitting and bed rooms. Gas may be burned in rooms with impunity, and even made to assist in ventilating rooms, by arrangements being made for securing the exit of impure air and the entrance of fresh air. Such arrangements are not only not common, but they are the exception of the houses in our parish; and such is the ignorance of the danger incurred by this process of slow poisoning, that it is with the greatest difficulty that even the most intelligent and wealthy of the inhabitants of the parish can be persuaded to adopt plans for preventing this poisoning of themselves and their families. One result of this poisoning of the blood by the impurity of the air is the extreme susceptibility of the system to cold. Hence persons have recourse to shutting up windows and doors, and enclosing rooms, and thus increasing tenfold their susceptibility to cold."

RAILWAY MATTERS.

THE traffic receipts of railways in the United Kingdom amounted, for the week ending the 26th of August, on 12,241 miles, to 749,042l., and for the corresponding week of last year, on 11,889 miles, to 712,036l., showing an increase of 352 miles and of 37,006l.

It is now definitively settled that the Great Western carriage works will come to Oxford. The Crisley meadow, which underwent an examination as to its subsoil, &c., having been reported by the Company's engineers as an eligible site, they have instructed their solicitors at Oxford to get the necessary conveyance from the town-clerk, and everything is progressing satisfactorily. The company, it is said, have taken every opportunity of satisfying themselves as to the eligibility and healthiness of the site, and the capabilities of Oxford to supply the wants and requirements of a large addition to the present population.

Extensive alterations and additions to the works and stations of the Great Northern Railway in Doncaster, involving an aggregate outlay of 50,000l., are now being made, or have been completed. New hammer-shops have been added to the already extensive plant; and a large and commodious goods station, with the requisite sidings, is in course of construction. St. James's Bridge is lengthened by two arches, to afford siding facilities for the goods traffic; and two gasometers, each 60 ft. by 20 ft., are being erected on the edge of Crispall by Mr. Knappton, of York, it being the company's intention to manufacture the gas required in the various departments. The necessary brickwork, excavations, &c., are entrusted to Messrs. Anelay, builders, Doncaster. The improvement of the booking-offices, the lengthening of the station-platforms northwards, and other works will shortly be proceeded with. When the whole of the contemplated improvements are carried out, both the passenger and goods stations will be complete. The Great Northern are preparing to accommodate their premises to the new traffic that will necessarily shortly come from the direction of Hull and other places, and to give further stimulus to the coal traffic between the metropolis and South Yorkshire, by selecting a new and more commodious site where the mineral traffic may be adequately worked both for their own and the Great Eastern Railway.

FROM IRELAND.

Belfast.—The foundation stone of a new Methodist College, Belfast, has been laid here. For the principal building the whole sum has been subscribed,—upwards of 12,000l.—and the only subscriptions now required from the public, and which it is confidently expected will soon be given, is an extra sum of 6,000l. or 7,000l., for the construction of extra and required buildings in the rear, to render the fabric complete. The building will be situated on a hill, almost oppo-

sito the Botanic Gardens,—the ground having been granted free by Mr. James Carlisle. The design, which was selected in a limited competition, comprises a longitudinal range of building, with two transverse wings, projecting both to front and rear; also a central rear building. The total number of students to be accommodated is 20; of boarders, 80; and of day pupils, 100.

Buncrana (Derry).—The foundation stone of a new hotel has been laid at Buncrana. The building will cost about 3,000l.

Crossgar (Ulster).—The foundation stone of a church for the Presbyterians of Lisara has been laid. The church will stand on a rising ground in the best part of the town, adjacent to the market-house, and will be a conspicuous object from the railway station, as well as from other points of view. The style adopted is Transitional. The plan is arranged in the form of a nave without aisles; with vestibule and turret-forming entrance-porch in front, and sessions-room, with hypocaust underneath, in rear. The nave, which is 54 ft. 4 in. by 35 ft. in clear, is lighted on each side by a row of double lancet-windows, and in end gable over pulpit, by a traceried window of five lights. The roof is to be open timbered, carried on four trusses, framed with wrought curved ribs, hammer-beams, &c. The principal elevation of the church is composed of a gable, with a turret and slated spire, rising from it at the side. The gable has a double-arched entrance doorway, the jambs and pier of which have angle shafts with moulded and carved capitals. Over the doorway is a large traceried rose window, 13 ft. in diameter, with moulded reveal, hood moulding, &c. The turret, which, with its slated spire, rises to a height of 75 ft., will have a belfry in its upper stage. The flank elevations of the church are divided into five bays each, by buttresses, with double lancet lights in each bay. The pews are to be open, with ornamental cut bench ends. The aisle passages will be laid with coloured tiles. The entire woodwork of the church is to be exposed, stained, and varnished. The building is so planned as to admit of a gallery being introduced. Four hundred persons, it is calculated, will find sitting-room on the floor; and the space available for a gallery would afford room for one hundred additional. The architect is Mr. W. J. Barre, of Belfast.

ACCIDENTS.

AN inquest has been held at Westminster Hospital touching the death of an engine-driver, who was killed at the Thames Embankment, near Westminster Bridge. Witnesses stated that the deceased was employed under Mr. Furness, the contractor, to work a donkey-engine on the tramway, and that one of the managers of the works had remonstrated with the deceased some hundreds of times about his neglecting to lash his engine as directed. It was necessary, however, to leave him some discretionary power in the management of the portable engine. A stone, when in mid air, spun round rapidly and struck a beam under the tramway. The shock brought the unsecured engine on to its side, and it fell bodily to the ground beneath. The deceased jumped from the engine and fell under the stone, which crushed him in a dreadful manner. He was killed on the spot. The jury returned a verdict of accidental death, and recommended that the lash of the engines should be made imperative for the future.

In the section of the Great Low Level Sewer, now being formed in the Old Ford-road, near the River Lea, men had been engaged in clearing the waterway, and had commenced pile-driving, when a large part of the soil fell in upon the labourers. All succeeded in getting away but two; one of these was afterwards rescued, but the other poor fellow was buried in the earth to such an extent that it was some time before his body could be recovered. Life was found to be extinct. The contractor, Mr. Webster, at once directed the necessary measures to be taken to prevent a further fall.

A fatal scaffold accident has occurred at the London and Westminster Branch Bank, in High-street, Whitechapel. The premises are now nearly finished. One of the carpenters was at work in the interior of the building with some others on a scaffold about 7 ft. from the ground, engaged in putting up the fittings of the fascia near the ceiling, when, in endeavouring to force the joists home, the planking slipped from under his feet and he fell through the opening thus

made. Immediately below the place where the unfortunate man was at work, was an opening through the floor from the basement, where it is intended to place a lift when the premises are completed. The hole was boarded over, but the sudden weight of the man falling upon the boards snapped them in two, and the man fell through to the floor of the basement, a distance of about 20 ft., and was killed on the spot.

An inquest has been held by Dr. Lankester in Marylebone Workhouse, relative to the death of a man who was strangled by a coal-lift at the Langham Hotel. The evidence set forth that the lift was used for kitchen purposes. The lifts were under the supervision of one of the men of Messrs. Easton & Amos, the engineers, and he instructed two other men as to their use. On the basement the lift was guarded by gates, and no other persons than those referred to had anything to do with it. It was shown that it was the duty of the deceased to go to the basement to have the lift raised. Instead of that, however, he mounted the railings and pulled the rope, which caused the lift to ascend, and on its reaching the floor upon which deceased was standing, the upper framework struck his chin, and before he could withdraw himself he became suffocated by his neck being jammed between the lift and the sill of the door. Some suggestions having been thrown out by the jury as to additional precautions being taken, and to which the proprietor of the hotel satisfactorily responded, a verdict of "Accidental death" was recorded.

In Chatham Dockyard one of the workmen was screwing a nut on a temporary bolt of one of the armour plates of the *Bellerophon*, iron ram, by means of a large screw wrench, when the wrench suddenly slipped from the nut and precipitated the man to the bottom of the dock, a distance of nearly 30 ft. Life was found to be extinct.

An accident, which immediately proved to be fatal, has occurred at Messrs. Aldebert & Co.'s premises, Bow-street, Long-acre. A bricklayer was, with other men, engaged in putting another story to the premises, when the deceased, in stepping from the top of a high ladder on to the scaffold, missed his footing and fell from a height of 35 ft. on a stage 8 ft. from the ground. On the lower stage were pieces of brick, one of which fractured his skull and penetrated the brain, in which it remained firmly wedged.

At the Town's Yard, Gaythorn, township of Chorlton-upon-Medlock, stones used for paving purposes are kept. The stones were piled against a wall, and almost reached the coping, so that the pressure must have been immense. The wall fell, and crushed a man to death, inflicting also rather severe injuries on another man. A third had a narrow escape. The length of the wall that fell was about 30 ft.

The whole of one side of a new building at Rochdale fell with a tremendous crash the other day, doing damage to the extent of 1,000l. Fortunately no one was injured, the shop people being away holidaying.

An inquest has been held at the Infirmary, Newcastle, on the body of an engine-fitter. Deceased was employed at Messrs. Stephenson's works, South-street, Newcastle. He was coming down stairs with an axle-box upon his shoulder. The steps are of wood, and laid at the edges with iron; and, having steel hobs in his boots, deceased slipped his foot, and fell upon the iron which he was carrying. His wound did not heal, and was eventually the cause of his death from pyæmia. Verdict, "Accidental death."

CHURCH-BUILDING NEWS.

Symondsbury.—A small church, built in memory of the late rector of Symondsbury, has been opened in the parish of Eype, a place so closely connected with Symondsbury that it may almost be said to be of the same parish. Mr. Talbot Bury, of London, was the architect; and the contractors were Mr. George Swaffield, of Shipton, who took in hand the masonry; Mr. Geo. Hayward, of Burton, who has done the carpentering; and Mr. Wm. K. Brown, painter, &c., Bridport, to whom has been given the plumbing, painting, glazing, and decorative portion. The style of architecture is Decorated. The building consists of a nave, 65 ft. long by 22 ft. broad; a chancel, 26 ft. long by 20 ft. wide; and an aisle on the north side, with a lean-to roof, which, from the interior, gives the north

side of the nave the appearance of having a clerestory. There are small transepts, projecting 7 ft. on the north and south sides, which cause the design to partake of the cruciform character. To the east, and adjoining the north transept, is the vestry, which, inside, is entered through a screen. The walls are built of local stones, but the facings of the windows, doors, and arches, and internal work, are of Bath stone. The bell-turret rises to a considerable altitude, 35 ft., near to the west end of the roof. This is made of wood. The lower part is covered with slates, and the spire with lead, near the top of which has been introduced a corona of the same metal. A lightning-conductor has been added. The roof, 44 ft. high, is slated with brown and grey-coloured slates, disposed in rows, and at the summit are some ornamental ridge tiles, the east and west ends of the roof having ornamented stone crosses. There are three entrances,—one for the vestry, a second at the north-west side, and the third at the south.

Bowes (Yorkshire).—The parish church has been restored and re-opened. Whilst the restorations were in progress, fragments of Roman pottery were discovered in the foundations, which in all probability had been dug from the remains of the old Roman camp closely adjacent. The church having fallen into a dilapidated state, and become totally unfitted for the assemblage of the congregation, it was resolved, about two years ago, that it should be restored, and ultimately the work was entrusted to the Messrs. Hay, architects, Liverpool. Messrs. Borrowdale, of Barnard Castle, obtained the contract for the masonry; and Mr. Hutchinson, of Barnard Castle, executed the woodwork. A new porch, with cross and gables, has been built on the north side, and a traceried window placed at the west end. All the windows, indeed, have been replaced, with the exception of one in the east gable. There are sittings for 100 persons, with open benches, stained and varnished. The nave and transepts are floored with wood, ventilated, and drained underneath. The church is heated by two stoves, the flues being in the walls. Drains and channels are placed round the exterior of the building, and a high-pitched roof has been substituted for the former flat one. The roof is covered with Westmoreland slates, and the timbers inside are stained, varnished, and polished. Crosses of suitable design have been placed on the gables; and iron-moulded gutters carried round the roof. On the west gable is a turret containing two bells. Polished York stone has been used in the approaches to the chancel and altar; and the north transept has a traceried screen of oak. In the interior of the church are two piscine, one in the south wall of the chancel, and the other in the north transept. In the floor of the church are many early English grave-stones, some of which have once held brasses, but the whole of which are now worn and defaced, and the inscriptions utterly gone. These grave-stones are now concealed by the wood flooring. In the churchyard is the grave of two lovers, whose fate suggested Mallet's ballad of "Edwin and Emma."

INTIMIDATION CASE AT LATCHFORD.

RICHARD MILLER, a joiner in the employment of Mr. Mottram, was charged on warrant with having, on the 22nd of August, at Latchford, unlawfully by violence to the person of one Samuel Lomax, endeavoured to force him to depart from his hiring.

Mr. Moore, on behalf of the defendant, pleaded not guilty.

Mr. Marsh said he appeared to prosecute, on behalf of Messrs. Gilson, the employers of Lomax. When the case was last before the magistrates, he stated his intention of asking them to commit the defendant; but on referring to the last Criminal Consolidation Act he found a material variation from the words in the previous Act, and was of opinion that he was not in a position to substantiate any charge under that Act. The Act was for an assault "under any conspiracy to raise the rate of wages." In the present case, although there was a strike, in consequence of the men demanding a higher rate of wages than the masters were inclined to give, it was not pretended that there had been any unlawful conspiracy.

After evidence *pro* and *con* was given, the magistrates retired; and, on their return into court, Alderman T. G. Rylands, addressing the defendant, said: "The Bench are quite prepared to admit that up to this time you have borne a respectable character, and they might have hoped that that character would have saved you from committing yourself in the way you clearly have done in connexion with the strike which is now taking place in the town. It is not the part of the Bench to express any opinion on the subject of strikes; they have only to deal with such cases as yours, if they arise. No doubt whatever rests on our minds that you have been guilty of the assault which is charged against you. They regret exceedingly that they have to deal with the case in the particular form which the law lays down. You are committed to Knutsford House of Correction for one month, with hard labour."

Miscellaneous.

DESTRUCTION OF THE CATHEDRAL AT SYDNEY.—A telegram has been received from Sydney, via Point de Galle, stating that "it is reported that St. Mary's Cathedral has been totally destroyed by fire."

BATTERSEA PARK.—Messrs. Hill & Keddell have been intrusted with the drainage of Battersea Park, for Her Majesty's Woods, &c., under the direction of Mr. Pennefather, architect. It will be commenced on Monday next.

THE PAXTON MEMORIAL.—Several correspondents express their regret that it is proposed to erect the Paxton statue within the grounds of the Crystal Palace, where it will merely rank as one of many works of art, and not be open freely to the public view. We think they are right, and that the question of site ought to be reconsidered.

CURZON EXHIBITION HALL, SUFFOLK-STREET, BIRMINGHAM.—Fourteen tenders, varying in amounts from 9,900l. to 9,276l. were received for the above building. One only being in accordance with the form supplied by the architect, the whole were rejected. The revised tender of Messrs. Horsley, Brothers, 7,076l., has since been accepted. Mr. E. Holmes is the architect.

COMPETITION IN BRISTOL.—The Liverpool and London Globe Insurance Company are about to erect offices for the use of the company, with suites of chambers over. The directors recently invited certain local architects to furnish designs for the intended building, and the following became competitors, viz., Mr. Ginnell, Mr. Hirst, Mr. Fripp, Mr. Ponton, Messrs. Pope & Bindon, and Messrs. E. Godwin & Crisp. Seven sets of drawings were sent in, and the directors have resolved to adopt the design submitted by Mr. Ginnell. Although no money prize was offered to the competing architects, the Board granted a special premium of fifty guineas to the design furnished by Mr. Hirst, which they deemed second in merit. The new building will have a frontage of about 55 ft.

THE LATE MR. APFOLD, F.R.S.—The death of this gentleman, well known as an amateur engineer, has been announced. His centrifugal pumps formed striking features of our Great Exhibitions, both in 1851 and 1862. The paying-out apparatus used in laying sub-marine telegraphs was mainly his contrivance. His own home displayed some curious mechanical arrangements. We remember the extent to which they startled his guests at a dinner there some years ago, at which we happened to be present. Doors opened when they were approached; water came into the basins when needed, without visible interference; the temperature of the rooms was regulated involuntarily; and the window-shutters closed in a quiet, dignified way, of themselves, when the gas was lighted. It was a curious dinner. Alack! How many of those who were present have departed from amongst us!

NEW OFFICES AT LIVERPOOL FOR THE LIVER FRIENDLY SOCIETY.—These new offices, in Prescott-street, between the London-road and the Old Swan and Kensington villages, are nearly completed. The frontage in Prescott-street presents an elevation in Grimsbill, Shropshire, stone. The height is nearly 60 ft., and the width 127 ft. There are four stories, three of which, exclusive of the basement story, are lighted from the front. The entrance is through a portico, on either side of which are Aberdeen granite pillars. The general style is Italian Gothic: ornamented caps decorate various lines of projection, and the carving and disposition of the stone impart to the whole an attractive appearance. The general office intended for the transaction of business with the public, is 33 ft. in length, and 22 ft. in breadth. Mr. Colshaw is the architect of the building. The contractor's estimate amounted to 6,000l. The land originally cost about 1,200l. Mr. John Westmoreland is the builder; Mr. Hugh Yates, of Everton, the mason; Mr. Thomas Hughes, the bricklayer; Messrs. Taylor & Tothill, the plumbers, painters, and glaziers; Mr. W. Callaghan, the slater and plasterer; Messrs. Thomas Harrison & Co., the ironfounders; Mr. Samuel Abbot, the cabinetmaker. Mr. J. B. Cooper, ironmonger, supplied the ranges; and Mr. James Clerk fitted up the engine. The building is ventilated with the patent ventilators of Mr. William Watson, of Halifax. Mr. William Taylor was clerk of the works.

STATUE OF THE LATE EARL OF CARLISLE.—A movement has been commenced under encouraging circumstances to erect a statue of the late Earl of Carlisle, in Dublin. The list of subscribers is headed by Lord Wodehouse, the present Lord Lieutenant of Ireland.

PROPOSED CHURCH FOR THE DEAF AND DUMB.—It is proposed to build a church in London for the use of the deaf and dumb, of whom it is thought there are no less than 1,800 in the metropolis alone without a suitable place of worship. The Queen has given 50*l.*, and a gentleman offers 25*l.*, if forty others will give the same amount within three months. It is to be hoped the project will be carried out.

GAS.—The Folkestone Gas Company have just declared a dividend of 20 per cent., leaving a balance of 268*l.* odd to dispose of. New works will shortly be commenced. The Eastbourne Gas Company have declared a dividend of 10 per cent., and a reduction in the price of their gas from 5*s.* 10*d.* to 5*s.* A rather formidable opposition to this company is springing up, on the ground of the high price still charged by the company. The Stafford Gas Company are largely extending their works, in order to supply the greatly increased demand for gas in that town and neighbourhood. A new tank and gasholder are in course of erection, at an outlay of about 5,000*l.* The new works, it is said, will enable the manager to make gas at a cheaper rate.

COMBUSTIBLE MUD.—At the proceedings of the Asiatic Society of Bengal lately, Major Risley described a combustible mud, which exists in large tracts, notably in the Pertabghur district in Oudh, where there is a jheel or swamp of it, which looks like ashes and smoulders like wood. The mud, when dried, blazes quite freely. It has been tried by a locomotive foreman, and found to give very nearly as much steam as wood. The Calcutta analysts call it an impure peat, resulting from the continued deposition of vegetable matter at the bottom of a marsh. It is curious that the natives, though well aware of its properties, make no use of it; their reason being that it owes its origin to "enormous sacrifices of ghee and grain burnt *in situ* by pyrolytic people in old time."

FIRE IN THE CATACOMBS, KENSAL GREEN CEMETERY.—A curious fire occurred some time since in the Cemetery, Kensal Green; concerning which a few words even now may not be amiss. Smoke was discovered issuing from the catacombs in the Dissenters' portion of the ground; and for some time it was impossible to tell exactly where the fire was. At last, however, a brigadier was fitted on with the fire-dress invented by M. Gallibert, similar to the one now being exhibited at the Polytechnic Institution. The necessary air was supplied by the steam-engine. The man descended, and found that the vault No. 16 was on flames. The fire was then soon extinguished. When the steam and smoke had in a great measure passed away, a party of men descended by No. 16 vault, which had contained ten coffins, some of which were leaden ones. Five of the coffins were almost totally consumed; and the others, with one exception, were more or less injured. The stench and the sight were horrible. Various conjectures got afloat as to the origin of the fire. Amongst them was one that the fire was the act of a Hindoo, who wished to dispose, in the Hindoo manner, of the body, supposed to be there, of one of the suite of the Queen of India. Other conjectures were based on an alleged discovery of coal and rags in one corner of the vault, though unguited. It seems, however, that the fire may have arisen from one of the persons employed on the occasion of the interment of the late Mr. Parkes, having thrown pieces of lighted paper on one of the coffin-lids. The vault was exceedingly dry; coffin-lids had been there many years were falling in pieces; and the cloth over the woodwork was in shreds like tinder. At the upper part of the vault there is a place for a candle, and it is believed that in lighting this candle when Mr. Parkes's coffin was being put on to the bier, which it rested, a spark must have been tipped, and that it smouldered away unobserved until gas emitted through some aperture in the lead of the enclosed coffin ignited, and at once communicated flame to the wood of the outer coffin, and so on to the others on the same bier. Although molten lead dropped all around the coffin of Mr. Parkes, it was but slightly injured.

BURSTING OF A CANAL.—The Grand Junction Canal lately burst one of its banks near Smeodon, in Leicestershire, and very seriously flooded the surrounding district. The canal was emptied for a distance of ten miles, and when this vast body of water was set at liberty it swept across the country towards the river Welland, doing immense damage to the harvest fields.

WELDING IRON.—An invention has been provisionally specified by Messrs. Standly & Prosser, of Cockspur-street, which consists in the employment of hydrogen or its compounds, alone or mixed with oxygen or atmospheric air projected from blow-pipes, for the purpose of welding plates or masses of iron, or other metals. They prefer to mix the gases in a reservoir at the base of the blow-pipe.

BLACKBURN SEWERAGE, &c.—The report of the borough surveyor, Mr. F. Smith, on the sewerage, paving, and other works executed during the twelve months ending June 30th, 1865, under the provisions of the "Public Works (Manufacturing Districts) Act, 1863," has been printed. It contains the following summary:—

	£	s.	d.	£	s.	d.
Sewerage and Private Drainage Works	17,155	5	11			
Forming, Paving and Flagging of Streets	16,839	10	4			
Improvements in the Corporation Park	323	14	3			
				34,322	10	6
Total amount of work executed under the Public Works Act to June 30th, 1865				33,209	4	1
Stock—Pipes, Gallies, &c., on hand 30th June, 1865	1,636	10	0			
" Sets, Flags, Sidewalks, &c., "	3,213	12	0			
				4,850	2	0
				72,381	16	7
Amount borrowed				£80,000	0	0

AN EXPENSIVE DISPUTE ABOUT WATER SUPPLY.—In November last the representatives of the townships of Dewsbury, Batley, and Heckmondwike, who, along with the Sheffield mill-owners, own the Dunford reservoir, went to Parliament to obtain borrowing powers, in order to raise money to repair it and construct additional reservoirs. The result of disputes between the townships resulted in the loss of the Bill; and now the ratepayers have been misled ill; and the costs, which amount to 4,687*l.*, made up of the following items:—Mr. Bateman, engineer, 953*l.* 18*s.*; Messrs. Younge & Co., solicitors, Sheffield, 422*l.* 12*s.* 6*d.*; Messrs. Pritt & Co., London agents, 605*l.* 14*s.* 10*d.*; Messrs. Walker & Dean, solicitors, Dewsbury, 1,461*l.* 5*s.* 6*d.* It is now, however, within the power of the Sheffield millowners to repair the Dunford Bridge reservoir, and charge the cost on the three disputing townships.

SANITARY INSPECTION OF CARLISLE.—Some gentlemen interested in this subject have appointed district committees, including the mayor, town clerk, inspector of nuisances, and city surveyor. In the course of discussion as to nuisances, Mr. Nelson called attention to the disadvantages of back-to-back houses, and the present asphalt arrangements. Mr. Kirkup brought under notice nuisances at the Citadel Station. The Caldwate gate committee, says the local *Journal*, "has already commenced operations by cursorily examining that mother of rookeries, or fever nests, the Willow Holme, with her offspring, viz., Armstrong-lane, Jane-street, and Chapel-lane. In sporting phrase, game was plentiful, and the scent strong. The owners of these preserves well deserve publicity at the hands of the committee. Incredible as it may appear, horses and donkeys, fastened up to their respective carts, stand out all night in these benighted and 'unbeknown' places; the ground in a filthy state, and in close wet weather emitting a fearful stench; vile heaps piled up in places. A poor woman, speaking from an upper window, hailed the committee's presence as that of guardian angels, and with corroborative names and dates she told of the ravages by disease and death in the several houses around. Opposition to such inquiries may be offered, but must be met and set aside. Indifference may be shown by some, and for a time, but this must not and shall not discourage us. The possibility or the prospect of an epidemic will readily turn the table, in our favour, and convert this indifference, it may be, into nervous anxiety amongst our inert opponents."

THE TOWER OF BABEL.—"A Carmelite monk," says the *France*, "writes from Bagdad that he has planted in the Tower of Babel, the ruins of which still exist, a statue of Notre Dame des Victoires, blessed by Pius IX. There was on the occasion a grand ceremony, attended by many Mussulmans."

PREHISTORIC MAN.—Mr. Milne Edwards communicated to the last meeting of the French Academy of Sciences a letter from M. Lartet, on the discovery of a curiously-engraved fragment of ivory found in one of the caverns of Périgord. The piece of ivory, says the *Reader*, in reporting the circumstance, was discovered in several fragments, which, when put together, showed a roughly-engraved figure of a mammoth, its most remarkable characteristic being a long mane, which feature at once recalled the celebrated Siberian elephant, so entirely preserved by ice. Although this rude drawing may or may not have been made by some one contemporary with the mammoth (most probably it was), yet it can hardly deepen the conviction of those who believe in the co-existence of man with the elephant *primigenius*.

MR. LAYARD ON SCHOOLS OF ART.—At the fifth annual distribution of prizes in the Reading school, Mr. Layard, M.P., who presided, said: In 1851, that in which the English artisan failed was in matters of taste: where form and colour were principally concerned, France and some other countries were far in advance of us. Yet it was a most remarkable thing that in 1862 we had so far gained on France and upon other European countries, that the struggle was no longer to keep up with France, but it became a struggle on the part of the French to keep pace with us. He had seen the French trade reports which had been sent in, and in many instances he found that the French representative workmen stated that we were distancing them, and that it would require all their skill to keep pace with us. In particular they alleged that they were in danger of losing ground in consequence of the increased skill and the increased appreciation of beauty in form and colour, which were manifesting themselves in this country. He held that to be a most interesting and important fact, and he would pause to ask how to a great extent this result had been gained? In consequence of the Exhibition of 1851, was founded in London an institution which he ventured to say was an honour to the country. Although, as a member of the House of Commons, it was often his fate to hear what were called the "Brompton boilers" ridiculed, he ventured to say that the institution established at Kensington was an institution which reflected the highest honour upon the country. He had seen nearly all the public museums in Europe of the same category; and, considering that the Kensington Museum had only been established for eight or nine years, he believed there was no institution in Europe which in so short a time could show such results. Whatever might have been the object of the original founders of Kensington Museum, the value of the institution was shown in the assistance and encouragement it gave to schools of art such as that which had been established in Reading. These schools of art had already exercised great influence throughout the country.

TENDERS

For a parsonage-house to the church of St. Mary, at Tolmers, Newgate-street, Hertfordshire, about to be erected at the cost of Miss Mills. Messrs. Lander & Bedells, architects:—

Muskin	23,042	0	0
Sharphing & Coles	2,759	0	0
Mann	2,729	0	0
Scrivener & White	2,569	0	0
Hill & Son	2,555	0	0
Norris	2,550	0	0
Sanders	2,444	0	0
Manley & Rogers	2,377	0	0
Pattinson	2,350	0	0
Osborne	2,180	0	0
Britt	2,027	0	0

For Camberwell local sewers, blocks 3 to 5. Mr. J. C. Reynolds, surveyor:—

Ridley	£49,000	0	0
Wainwright	47,000	0	0
Hill & Keddell	38,575	0	0
Niblett	35,500	0	0
Detlich	37,000	0	0
Munday	32,150	0	0
Blackmore	31,534	0	0
Robinson	29,305	0	0
Pearson (accepted)	27,900	0	0

For five houses at Holloway, for Mr. W. Reynolds, Mr. T. J. Hill, architect:—

Palmer	22,025	0	0
Reid	1,980	0	0
Dabbs	1,970	0	0

For the erection of new gasworks for the Severn-
Gas Company.—

Buildings, &c.	
Osborn	£1,690 0 0
Nowell & Doughty	1,637 0 0
Lambie	1,423 0 0
Grover & Son	1,401 0 0
Rose	1,398 0 0
Headley	1,134 0 0
Gasholder Tank.	
Munday	£749 0 0
Down & Son	630 0 0

For joiners' and plasterers' work to a house, St. Alban's,
Herts. Mr. Thomas Hill, architect. Quantities fur-
nished by Mr. R. H. Burden.—

Biggs	£394 0 0
Bottom & Boff	373 0 0
Young	370 0 0
Miskin	360 0 0
Smith (accepted)	368 0 0

For 137 cottages and 9 shops, for the Barton-on-Trent
Building Company, Limited. Mr. Henry Worth, Shef-
field, architect. Quantities supplied.—

Marriott	£18,500 0 0
Ridal	18,398 0 0
Lowe & Sons (accepted)	17,900 0 0

For alterations and additions to Tollesbury Lodge, for
Captain Isherwood. Mr. Horace Darken, architect.—

Holland	£3,931 10 6
Eade	2,753 0 0
Lee & Baker	2,340 0 0
Sudbury & Son (accepted)	2,217 19 0

For new drapery premises, Headgate, Colchester, for
Messrs. Hayter & Co. Mr. Darken, architect.—

Carpenter, Joiner, Bricklayer, Slater, and Plasterer's
Work.

Shepherd & Son (including mason)	£1,117 0 0
Naylor	980 0 0
Eade	975 0 0
Lee & Baker	905 10 0
Dobson (accepted)	765 0 0

Plumber, Glacier, and Painter's Work.

Winterbottom	£245 0 0
Rogers	189 0 0
Rix (accepted)	160 0 0

Mason's Work.

Pitt	£129 0 0
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Smith's, &c., Work.

Evans	£24 10 0
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For new railway inn at Brighthelm, for Messrs.
Nicholl & Co. Mr. H. H. Darken, architect.—

Page	£438 0 0
Harmer	630 0 0
Eade	620 0 0
Lee & Baker	615 0 0
Fudney	594 10 0
Lake & Gull (accepted)	549 10 6

Accepted for the erection of five dwelling-houses at the
park entrance, Kingston-upon-Hull, for Mr. John Bryson.
Mr. William Kirby, architect.—

Excavator, Bricklayer, and Plasterer.

Sergeant	£1,880 0 0
Mason (exclusive of chimney-pieces)	£290 0 0

Shaw

Slater.

Dawber	£157 5 0
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Smith and Bell-hanger (exclusive of stores).

King & Pesch	£136 15 0
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Carpenter and Joiner.

Jackson	£1,500 0 0
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Plumber and Glazier.

Gouldsbrough	£321 0 0
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Painter.

Wright & Dreyer	£75 0 0
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For cleansing and deepening the river, fish-ponds, and
ornamental water, and formation of islands, at Knuston
Park, Northamptonshire. Mr. Jno. Usher, architect,
Bedford.—

Whiteman	£505 0 0
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Winn & Foster	494 12 0
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Oliver	425 0 0
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Strickson	425 0 0
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Freeman	389 13 6
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Coker	389 1 8
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Harding	315 0 0
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Weaver & Mills	315 0 0
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For alterations and additions to house and premises,
and building warehouse, for Mr. H. D. Fisher, St. Neots,
Huntingdonshire. Mr. J. Usher, architect.—

Todd & Handley (accepted)	£496 12 0
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For alterations to houses, Malden-road, Kentish-town,
for Mr. A. Richards. Messrs. Pain & Clark, archi-
tects.—

Manley & Rogers	£375 0 0
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Rowe	364 0 0
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Gamble	356 0 0
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Ebbs & Sons	345 0 0
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For alterations to house, new lodge, and stable build-
ings, at Willenden-lane, for Mr. John Marrian. Messrs.
Pain & Clark, architects.—

House. Stable buildings, &c.	
Rowe	£1,157 0 0
Manley & Rogers	1,127 0 0
Ebbs & Sons	1,100 0 0

Manley & Rogers	1,074 0 0
Ebbs & Sons	1,030 0 0

For alterations and additions to St. Paul's Church,
Balsall Heath, Birmingham. Mr. Edward Holmes, archi-
tect. Quantities supplied by Mr. Mansell.—

Hardwick & Son	£2,167 10 0
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J. & W. Webb	2,078 7 8
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Haden & Son	2,008 0 0
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Matthews	2,003 0 0
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Jeffrey & Fritchard	2,068 0 0
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Wilson & Son	2,059 0 0
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Briggs & Son	2,045 0 0
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Wilkes (accepted)	1,548 0 0
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For alterations and additions to St. Mary's Church,
Moseley. Mr. Edward Holmes, architect. Quantities
supplied by Mr. Mansell.—

Briggs & Son	£1,590 0 0
Pratt	1,681 0 0
Hardwick & Son	1,560 0 0
Partridge	1,560 0 0
Child	1,538 0 0
Wilson & Son	1,475 0 0
Naden & Son	1,425 0 0
Horsley, Brothers	1,363 0 0

For new mansion, Sunningdale. Mr. Henry Clutton,
architect.—

Futcher	£7,997 0 0
Jenson	7,745 0 0
Macey	7,678 0 0
Downs	7,678 0 0
Myers	7,669 0 0

For Congregational Church, Liskeard, Cornwall. Mr.
John Tarring, architect.—

General Estimate.

Call & Pethick	£1,644 0 0
Firks	1,347 0 0
Clarke	1,341 0 0
Sargeant (accepted)	1,150 0 0

Separate Estimate—Galleries.

Call & Pethick	£290 0 0
Clarke	235 0 0
Firks	223 0 0
Sargeant (accepted)	248 10 0

For new Baptist Chapel, Luton, Beds. Mr. F. War-
burton Stent, architect. Quantities supplied.—

Sawyer	£1,021 0 0
Williams	1,075 0 0
Staines & Son	1,050 0 0
Brown	989 0 0
Smart (accepted)	1,014 10 8

For the restoration of premises recently destroyed by
fire in New Southwark-street, for Mr. Barnett Meyers.
Messrs. Tiltott & Chamberlain, architects.—

Myers & Son	£7,440 0 0
Pattuck & Son	6,440 0 0
Lawrence & Son	6,333 0 0
Holland & Co.	5,978 0 0
Brass	5,888 0 0
Webb & Sons	5,800 0 0
Piper & Wheeler	5,747 0 0
Hill & Kedwell (accepted)	5,726 0 0

For the erection of a villa at Lower Clapton. Mr. T. K.
Green, architect.—

Carter & Sons	£1,393 0 0
Newman & Mason	1,335 0 0
Hanshaw	1,344 0 0
Mansbridge	1,283 0 0
Culow	1,239 0 0
Tully (accepted)	1,333 0 0

For the erection of farm-buildings and foreman's cot-
tage, at Needingwood, Herts. Mr. Robert Hutchison,
architect.—

King	£588 0 0
Mitham	678 5 0
Saint	624 0 0
Banning	619 10 0
Allpress	601 0 0
Smith	596 0 0

For the first portion of new schools, St. Ann's, Wal-
worth. Mr. W. Wigginton, architect.—

Ennor	£1,187 0 0
Kilby	1,184 0 0
Axford & Co.	1,056 0 0
Marsland & Son	955 0 0

Alterations to Albion House, Commercial-road East.
Mr. W. Wigginton, architect.—

Shop. Front. Shutter.	
Johuson	£367 0 0
Dudley	374 0 0
Ennor	345 0 0
Warhatt	310 0 0
Hearle (accepted)	298 0 0
Bunnett (accepted)	57 10 0
Ennor	£67 0 0

Alterations to chapel, St. James's Church, Paddington.
Mr. W. Wigginton, architect.—

Evitt (accepted)	£296 0 0
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For alterations and new bar-fittings at the Queen's
Head, Piccadilly, for Mr. H. Bradshaw. Mr. Isaac Bird,
architect.—

Brown	£490 0 0
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Ebbs & Sons	321 0 0
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For taking down and rebuilding shop and premises,
No. 337, Strand. Mr. Charles N. Teague, architect.
Quantities supplied by Mr. T. J. Hill.—

Brass	£2,230 0 0
Hardman & Sandon (accepted)	2,223 0 0
Henshaw	2,196 0 0
Turner & Son	2,184 0 0

For rebuilding No. 70, St. Paul's Church-yard. Mr.
Richard Tress, architect.—

Corder	£6,979 0 0
Revel & Sons	6,887 0 0
Macey	6,840 0 0
Henshaw	6,540 0 0
King	6,080 0 0
Coleman	5,997 0 0

For new premises at Aldershot, for Messrs. Cope-
man & Lacy. Mr. Henry Peak, architect. Quantities
supplied.—

Terry	£2,897 0 0
Martin	2,844 13 5
Duke	2,478 0 0
Lacy	2,385 0 0
Mason & Son	2,299 0 0

For building villa residence, at Lamplugh, Exmoor,
for Mr. J. Bacon. Mr. T. W. James, architect.—

Moore	£2,740 0 0
Manley	2,680 0 0
Williams	2,470 0 0
Sickland (accepted)	2,400 0 0

For house and shop for Mr. Skerrett, Hanley. Messrs.
R. Scrivenor & Son, architects.—

Travers	£520 0 0
Hammond	471 0 0

For the erection of school and lecture-rooms, Canon-
street, Birmingham, for Canon-street Chapel trustees.
Mr. Edward Holmes, architect. Quantities supplied by
Mr. Mansell.—

Jones	£1,435 0 0
B. N. & W. Smith	1,420 0 0
Partridge	1,416 0 0
Hardwick	1,385 0 0
Matthews	1,315 0 0
Jeffrey & Fritchard (accepted)	1,260 0 0

For building chapel at Manor-road, Bermondsey. Mr.
George Legg, architect. Quantities supplied.—

Hilton	£3,943 0 0
Kent	2,800 0 0
Thompson	2,486 0 0
Price & Co.	2,440 0 0
Stones & Percer	2,422 0 0
Kelly	2,320 0 0
Garland & Soper	1,807 0 0

For workshops, show-room, and mill, for the Royal
Porcelain Company, Worcester. Messrs. R. Scrivenor &
Son, architects. Quantities supplied.—

Hughes	£19,811 0 0
Branson & Murray	17,880 0 0
Naden & Son	17,850 0 0
Webb & Son	17,650 0 0
Hilton	17,700 0 0
Barlow	17,630 0 0
Warburton, Brothers	16,770 0 0
Wood & Son	16,400 0 0
MacKenzie	14,722 0 0

For dwelling-house, George-street, Hanley. For Mr.
J. Warner. Messrs. R. Scrivenor & Son, architects.
Quantities supplied.—

Woodbridge	£835 0 0
Barlow	615 0 0
Steele	598 0 0

For finishing and decorating eight villas, Lancaster-
road, West Dulwich, for Mr. John Davis. Gardens,
fences, roads, &c. not included. Mr. Mandal Stap, archi-
tect.—

Green (accepted)	£2,722 0 0
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For building two detached villas, in Chatsworth-road,
Mr. Mandal Stap, architect.—

Sheldon	£1,614 0 0
Scott	1,686 10 0
Green (accepted)	1,600 0 0

TO CORRESPONDENTS.

J. R.—H. W.—C. A. R.—W. R.—S. B.—P. J.—W. G.—H. D.—
F. R. W.—G. M.—H. & K.—J. O. P.—W. A.—P. & Son.—H. V.—
Messrs. R. C. H.—M. G.—P.—H.—P.—R. T.—W. S.—R. R.—R. P.—
& Co.—E. H.—W. W.—G. C.—D. (copyrights are of ancient date).
T. & Son (shall appear).—R. T.

We are compelled to decline pointing out books and giving
addresses.

All statements of facts, lists of tenders, &c., must be accompanied by
the names and address of the sender; not necessarily for publication.

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Communications should be addressed to the
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J. W. BENSON, having erected steam-power
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the manufactory, Ludgate-hill, will be glad to
furnish to clergymen, architects, and committees,
Estimates and Specifications of every descrip-
tion of Horological Machine, especially cathedral
and public clocks, chiming tunes on any number
of bells. A descriptive pamphlet on Church
Clocks post free for one stamp. Watch
and Clock Maker by Warrant of Appointment to
H.R.H. the Prince of Wales, and maker of the
great clock for the Exhibition, 1862. 83 & 84,
Ludgate-hill, E.C. Established 1749.

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In September, in Six, with Plates and Woodcut.

IRON SHIP BUILDING, Its History and

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on the Laws of strain; the Strength, Form, and other conditions
of the Material; and an Inquiry into the Present and Prospective
State of the Navy, including the Experimental Results on the Re-
sisting Powers of Armour Plates and Shot at High Velocities.

By W. FAIRBAIN, C.E. L.D., F.R.S. &c.
* A New and Revised Edition of Mr. FAIRBAIN'S TREATISE
on MILLER and MILLWORK, Vol. II. is also just ready.

LONDON: LONGMANS, GREEN, & CO. Paternoster-row.

NEW AND ENLARGED EDITION, 1865.

BIDDER'S EARTHWORK TABLES,

showing the Contents of Excav

The Builder.

VOL. XXIII.—No. 1180.

Why we have Typhus.



NOTHER Blow for Life?" Yes. And a hundred other, if need be. We have nailed our colours to the mast, and will die fighting. It is dreary, disheartening work to speak without

being listened to; to implore without success. But now that some of our more powerful contemporaries are again uttering the same cries, and making the same prayer; now that the punishment for disregard is beginning to be appreciated, and the possibility of a consequent evil even more serious than usual looms in the distance, it may be hoped that earnest efforts will be made throughout the metropolis and other large towns to wipe away some of the known causes of disease, and to lessen the typhus crop. The resident physician of the London Fever Hospital, Mr. Jeaffreson, has recently pointed to a number of places continually producing typhus patients, and the *Times* has powerfully commented on the infamous fact that this state of things being known, the remedy being obvious, and the power of applying it being possessed, nothing is done to obviate the evil. To some of the very places named we drew attention eleven years ago, and showed indisputably, not merely that they were producing disease and death, but *why* they did so, and why they would inevitably continue to do so so long as their condition remained unchanged.*

Let us again do this,—again show why it is that the inhabitants of certain houses are continuously stricken with fever and other diseases, taking one of the parishes mentioned in Mr. Jeaffreson's statement, that of St. George, Southwark.—St. George the Martyr!

We will first show what has been going on in the parish in the production of fever, as set forth in a recently published document by Mr. W. Rendle, lately the medical officer of health of this parish, and now a vice-president of the Association of Medical Officers of Health, and which calls for the attention not merely of his fellow-parishioners, but of the inhabitants of other metropolitan parishes also.† The parish contains large numbers of the poor, and there is continued presence amongst them of fever and those other disorders that are preventable. In five years there have been 400 deaths from fever, representing no fewer than 3,400 cases. With reference to an inquiry as to this prevalence here of fever, specially made to Mr. Jeaffreson in April last, that gentleman replied,—“The number of fever cases sent from your parish to this hospital from July 29th to December 31st, 1864, was 183, a considerably larger number than that sent in the same period from any other London parish or union. The fact most prominent in relation to these cases was that they came continuously month by month from the same buildings, or building even. On in-

quiry this fact was sufficiently explained on my learning that houses from which five, six, seven, and even eight typhus cases had been sent here, still remained utterly unregarded by the sanitary authorities, and allowed to remain overcrowded and filthy in the extreme. I also found that families who had been frightened from homes from having lost relatives from fever in them, had had their places quickly supplied by fresh candidates for typhus, who entered infected rooms without even the forms of cleansing having been gone through.” He pointed out that if infected houses were scrubbed and lime-washed from top to bottom, and kept empty afterwards for ten days only, there was no doubt that they would become safe habitations, provided decent sanitary regulations were subsequently enforced. Sanitary inspectors should keep a close watch over the books which show the localities whence fever cases are removed, and on the occurrence of even one case have the spot thoroughly investigated, and, if necessary, emptied, repaired, and cleansed. By such means, he said, he had not a doubt that at least fifty per cent. of the typhus cases and typhus mortality might be prevented.

The writer thus confirms the opinion we have so often expressed as to the small value of the present sanitary inspection as carried out in some metropolitan districts. In Mr. Rendle's book several striking instances are mentioned of the slow way in which parish authorities move when health is threatened and death actually at work; but we must be content with mentioning a case in Webber-row, where two dissipated old people, who were not in want, occupied an upper room, containing about 600 cubic feet of air. During ten days six people lived and slept there, with rather less than 100 cubic feet of space for each. The room was filthy, and the smell most offensive. In a few days the woman took ill, and as may be supposed, produced fever; for it was not traced from anybody to this house. She laid so for three weeks: the old man took it soon after. The daughter, also, who waited on them, a week after that. A month from the first outbreak the man below took it, and this unfortunately destroyed the provider for a wife and six children. Then two of the man's children took it; then his wife's mother, who is also dead; then two more of the children. On the 20th and 26th the man and woman were removed; and on the 26th the woman below stairs applied to the vestry to have “the stench removed.” The neighbours began to cry out about it. The doctor said that it was worse than tongue could name. The relieving officer said that it was enough to infect a neighbourhood. The parish doctor had been asked if it would not be better for the people to go to the Infirmary or Fever Hospital, than to be there. He had recommended it, but the people would not consent, and until the woman stirred in the matter nothing was done. Then, on her request, and on Dr. Bateson's recommendation, they were removed, but “the removal, when effected, was too late—the mischief was done. No means could have been adopted better calculated for producing and spreading a bad fever.” In a room next to the sick, there was a large closet on the stairs, in which were stowed cabbage and other refuse; and once also for about three days all the chamber discharges,—and this in hot weather! After the daughter had been taken away ill of fever, there was no one to wait on the sick but the woman downstairs, who did it with fear, which was too well grounded. Her husband was attacked, and he was allowed to remain in the house until within a few hours of his death. Then two of the woman's children were attacked; then the mother, who was a healthy, active woman, was seized by the fever and died; and, says Mr. Rendle,—“If, within one week or ten days of the outbreak of this fever, the house had

been emptied and cleaned, there is not the shadow of a doubt but that much of this misery and death might have been prevented, and the people might, after a short interval, have again, and with safety, inhabited the cleansed and disinfected house; and the same truth is applicable to multitudes of cases here and elsewhere.”

Who can wonder at the spread of fever or any other pestilence under such circumstances, or in the alley to which we will now bend our steps, for the purpose of endeavouring to describe a place in which fever is at the present time rife?

Maypole-alley is the name of the object of our investigation. It is on the west side of High-street, Southwark, not far from the well-known “Tabard.” To this, which contains a large population, a narrow entrance leads, having on one side of it the shop of a “provision merchant,” on the other the shop of a baker. We have sketched its aspect. It is festooned with hams and slitches of bacon. Who of the thousands that pass it daily are aware of the crowd of half-poisoned men, women, and children who dwell beyond this opening? We descend and pitch upon one house. Long as our experience has been, we do not remember any home which for evil sanitary state was worse than this, of which we give illustrations. On opening the street door, close to the threshold we find an untrapped and broken sink (a reference to the rough ground-plan will help to afford an idea of the spot). A little further on is a closet: no water is laid on; and from the closet oozes forth the actual soil and refuse of the people. The drain is useless for its purpose; and at the inside of the door of this house is collected putrid water more than ankle-deep. In this dwelling we find the population of the rooms to be:—Seven, three, seven, four,—twenty-one people. The pavement inside the passage is composed of bricks ill set, pieces of stone, and boards rotten with the damp. Standing on one of these boards, and pressing with the feet, there comes a thick greenish-black substance with a poisonous smell,—in fact, the essence of cesspool refuse. The same dangerous semi-liquid flows beneath the beds and the rooms in which the people stay. Through the broken floors the fever-breeding air passes to the lungs of the people who are here lodged!

The closet, in its present position, without any trap, without any means of proper drainage, without any ventilation either at the back or at the roof, is of itself a cause of sickness and death, and as surely as darkness follows the setting of the sun, so certainly is human life sacrificed when men and women herd in such situations. Turning to the room on the right hand, on the ground-floor, three children are being removed to the fever hospital. Constantly there is fever raging in those rooms. Why should we wonder at it? For the room marked H in the ground-plan has not cubic space of more than 250 ft. or 260 ft.—not sufficient for one person's health, even if ventilation were attended to; and yet, here, before the fever-stricken children were taken away, seven people dwelt. Lying on the floor were the dirty grey mouldy-coloured blankets and other bed-things; dark and dismal was the appearance of the corner in which the beds lay, and which were placed in a position where the very foulest of gases would collect and remain until they assumed an almost solid shape. Strangely contrasting with these conditions, over the mantelpiece were looking-glasses, crosses, and figures of our Saviour, prints, photographs of relatives, fancy vases, and other articles, serving to show how great is the love of art, such as it is, amongst the poorest classes of the community. The majority of the tenants here are Irish; but the same desire for decoration will be found in connexion with the English population in the dark rooms of the metropolis and in the cottages of the peasantry

* See, too, “London Shadows,” by Geo. Godwin, 1854. “Town Swamps and Social Bridges,” by the same, 1859.
† London Vestries and their Sanitary Work: are they willing and able to do it? And may they be trusted in the face of a severe epidemic? London: John Churchill & Sons, 1865.

throughout the rural districts. The houses are all close together in a very narrow court, clustered, as it were, so that the fever is truly "nested." Within twenty yards is a Roman Catholic School for children, in which sometimes twenty, sometimes even fifty and more children are being "educated."

We believe that to this moment, no cleansing, whitewashing, or emptying has been done by the Local Board of Health, the vestry, or the officers, notwithstanding the warning in the Poor-law officer's book seven weeks ago, fever cases in succession during sixteen weeks, and one death recorded!

Happily the court is not at present crowded, as the people are mostly "hopping." The twenty-four houses usually hold more than two hundred persons. If these people had been all at home during this hot weather, the fever would probably have spread like wildfire.

The danger of inspecting such spots as this is not small, and often leads us, when occasionally risking it, to admire the cool, calm bravery of the medical men who constantly attend the sick in these fever-dens. There are other dangers besides those of the battle-field. Some of these our physicians brave daily in their missions of mercy. Honour be to them. And we would here take the opportunity of mentioning one who has long assisted ourselves in such inquiries as this, with a total disregard of personal consequences, Mr. John Brown. Fortune has not been kind to him, troubles have kept him down, but he deserves well of the public he has long aided us in humbly trying to serve.

To return, however, to Maypole-alley. From the women we hear the usual account of the loss of infant life. One woman, who, before coming here, had resided in Kent-street—a spot not far off—had lost seven children; and so goes the tale of death. But those who visit such localities should not depend upon the first accounts which are given. Ask, for instance, if there is plenty of water; and the answer will be generally, "Yes." "But on the Sundays have you any water?" and then the reply is, "No, sir, not a drop on Sundays, and not a drain on Monday morning." Costume is not especially attended to in Maypole-alley. Here in the open space, are some children playing and fighting in a state of perfect nakedness! as completely so as those of the heathen savage in Africa, on whose behalf such extensive missionary operations are organized. Let us send preachers to the heathen; but, at the same time, it should be remembered that missionary labours are needed in such courts and alleys as that which is now brought into notice. Thoughtful people would not fail to observe the thinness of the arms and legs, the enlarged stomach, the general pallor of the complexion, which cannot be disguised even by the thick coating (the only covering) of dirt and filth which is left upon the skin. On a second visit, an elderly woman was engaged in washing a chair with no clothing but one thin coloured garment, reaching scarcely to the knees. It stirs the temper to see such things; and it would be well if there were missionaries who, entering these places, would preach decency and cleanliness to the people living there. We must first, however, enable them to be decent and clean.

In this place poison lurks in all directions. In the house just now referred to, the water is brought from a tank far too small for the purpose, and the state of which there were not the means of investigation; but near to it is a sample of the water-casks which are supplied for the use of houses. The water supply has just come in. Look, shading your eyes and peering into the barrel, which will not hold sixty gallons of water. There is to be seen a thick coating of a coral-like formation. It is not, however, of such a hard nature. On passing a walking-stick into the water, the fungus, which has grown from neglect, falls away, and up to the surface rise large globules of gas; in fact, there is poison in those reservoirs. "God help us," said one woman, "if the cholera should come!" The casks for water are placed, for the most part, close to the closets and to bad and untrapped drains. In the back yards, which, in connexion with some of the houses, exist, the pavement is broken, and in this far more mischief-lurks than is generally supposed. Removing some of the stones and bricks, there is to be seen below terribly black wet soil, intensely putrid, and which extends far below the surface. From this cause alone arise, especially in hot weather, the germs of disease.

In one house the emanations from the closet

and the drain connected with it, were, without any overcrowding, sufficient to account for an outbreak of zymotic disease. Some of the doors which lead to the back part of the premises are curious; here is one but a little over 4 ft. in height. Bending the back, we enter the yard, where there is the usual bad condition of pavement. In a corner of one of these yards there is a low dilapidated wooden shed, which has much the appearance of a pigsty; indeed, it may formerly have been used for this purpose; but on opening the door, to our astonishment we found that the place was arranged for sleeping in, and were told that a woman had lodged here for some time past; "and faith," said an Irish woman, "she is there rid of the fleas, and the cracks let in the nice fresh air." This, however, was a fallacy, a deadly fallacy, for the closet and untrapped sink were close by, and near to these stood the water-barrel, as is the case in other instances.

At the bottom of Red Cross-court, close by, there are other houses in a fever-producing condition; and we could go to many other places in the parish, and show the same evils existing. Surely, however, we have done what we undertook to do. We have shown sufficient reason for the prevalence of fever in May Pole-court and other parts of St. George's, Southwark. The parish authorities have grievously neglected their duty. We call upon them earnestly, as we do upon other authorities in a similar position, to change this dreadful state of things.

AN ARCHITECT'S NOTES IN AMERICA.

HEATING AND VENTILATING SCHOOLS AND PUBLIC BUILDINGS: INTERNAL ARRANGEMENTS AND FITTINGS OF PRIVATE HOUSES.

The public buildings of America, more particularly of the Northern States, are all warmed by various heating apparatus, of which the hot-air furnace previously spoken of is the one most commonly in use. The evils that have been pointed out as apt to attend employment of this mode of warming in private houses, have less force when the distributing pipes have not to be of unequal heights. This latter difficulty is a serious one, and unless due judgment has been exercised in planning the laying, and determining the proper sizes of the tin pipes, the heat will be given off very capriciously, and much annoyance will be caused. But in large buildings, all of one floor more especially, the hot-air pipes may be of large diameter, and when their provision has been thought of in the original plan, there is much to be learned from American examples. With us our own expensive failures have made persons timid of heating or ventilating on a large scale, so that a few facts, with brief descriptions of some particular cases, will be valuable.

The public schools of New York and Boston are in their way as nearly models as well may be. The school furniture, the contrivances for the comfort of the scholars, and the clever planning of the buildings, have often received notice and commendation here.

The system of education employed, or the admirable opportunities afforded *gratuitously* to all, to give their children an education, under the direction of the best teachers and professors that high salaries can procure (it may not be out of place to state, by way of parenthesis in elucidation of this, that during his successful tour in America, some six or seven years ago, Thalberg was engaged in more than one public school, to give a short course of musical instruction and illustration), might well deserve fuller description, but of the modes adopted for warming and ventilating it is more to the present purpose to speak.

The principle upon which the system in all cases is made to act, depends upon two very simple desiderata: easy introduction of warmed pure air, and equally easy unobstructed mode of exit for the foul.

The former is obtained by the large supply of air artificially warmed (by furnace, hot-water, or occasionally steam) passing through apertures in the floor or skirting of the rooms, through tin pipes of large diameter. The latter is secured generally by gathering very large flues (made of boards smoothly planed and fitted) from the upper portions of the rooms into a spacious air box in the roof, from whence the foul air is passed out into the external air by a simple ventiduct, that, although so well known in

America, does not seem to have been employed with us. The apparatus is called "Emerson's Ventilator," and consists of two sorts, the injector and the ejector. Both of these have been used to good service on board ship, the Collins steamers, the *Niagara*, and many others having been supplied therewith. The two are generally used together, though sometimes the one only is sufficient. The ejector consists, first, of a large box above the roof serving as a base, and communicating with the foul-air chamber immediately below. Above this base rises a cylinder of three or four diameters in height, at top of which is a truncated cone, widely extending at the base, and cut off at the top so as to be of the same diameter as the cylinder. Above this is supported a thin disc of metal, sufficiently large to keep out the rain, and this completes the contrivance. There are some rules insisted upon, as to the exact size and proportion of the several parts, the simple deduction however being, the larger the better. The whole is made of galvanized iron, and is afforded at cheap rate. Its action is certain, and although some scientific controversy has been excited as to its precise principle, the result is, in general, most satisfactory. The theory seems to be, that with the smallest breeze flowing over the surface of the roof, a vacuum is created upon the reverse side of the cone, and consequently a portion of the column of air within the cylinder is continually displaced. The form of the ventiduct and the provision of the protecting disc prevent downward draught. To correspond with this, only at a much lower elevation, is an *injector*, consisting of the same mechanism reversed, being, in fact, a series of truncated cones, or funnels, one within the other, and from these a shaft conducts into apertures near the floors of the school-rooms; thus continually a stream of cold external air from above is sent to mingle with the warm air from the registers communicating with the furnace below; and as fast as this fresh supply is given off, it is passed through the building, and, having done its duty, escapes out at the exhausting apertures leading to the ventilators on the roofs.

Literally, hundreds of examples of buildings successfully warmed and ventilated on this principle may be cited; and although sometimes the air is allowed to stagnate and become over-heated, these are faults rather of management than of the system employed. The cost, in all the cases where the outlay could be ascertained, was surprisingly small for the benefit obtained.

A large church fell under the writer's observation, in which the mode of warming, &c., was so simple and inexpensive, and the result so satisfactory, that a few words may well be bestowed.

The building was of brick, well and substantially built, seating between 700 and 800 persons, without galleries. The style was Romanesque, the dressings of stone, and the interior in American oak and pine.

Across the entire front was a spacious vestibule, with a large tower flanking one end, and a smaller turret the other. At the other end of the building was a deep apse, forming what might be termed the chancel; although, as the building was for Presbyterian use, that term would scarcely express the meaning. Underneath the vestibule was the heating apparatus, having its smoke-pipe carried in iron up the centre of the tower, and opening into a chamber especially contrived just above the roof. Round this iron fue was built a wide shaft of half-brick thickness, also opening into the same receptacle. The warm air from the air-chamber attached to the furnace was admitted into the building in the floor of the central and side passages, through large apertures near the entrance; and at the other end, the floor of the apse being considerably elevated, the risers of the steps were perforated, and back of these was an inclosed box from which, under the floors, spacious air-drains were made leading into an exhaust-chamber below the tower floor. This opened into the shaft surrounding the smoke-flue, and thus the supply and exhaust were at the same end of the building. The action of the apparatus, when in full operation, was most simple and satisfactory. The warm air circulated across the building, its natural tendency being towards the opposite end (as all external doors opened only from the entrance end), and thence, passing through the openings under the apse, was drawn by the rapid upward draught of the column of air within the shaft surrounding the smoke-flue through the air-drains, and allowed to escape

into the ventilator at the top of the tower. This ventilator was an Emerson's ejector of large size, its somewhat matter-of-fact appearance being partially concealed by a light canopy with trellised sides, forming a finish to the roof of the tower.

The situation of the building was exposed, and the winter extremely cold, the town in which the church in question had been erected being in the western part of the state of New York; and the cost of the whole building, including heating apparatus, was stated at something under 2,000.

It should be stated, that in summer time the same apparatus is usually made effective for ventilation (as was the case in the church just mentioned), only in lieu of warm air from the furnace-chamber, cold air from without is admitted through the same apertures, whilst the upward current of air is set in motion by a ring of gas-pipe perforated with small jets, circling the inner surface of the exhaust shaft, a few feet above the floor, which, when ignited, suffices to effect the purpose. In nearly all cases, both public and private buildings possessed contrivances for rendering the warming apparatus of winter available for cooling currents of air during hot weather.

There is yet another mode of heating in frequent use in America, which, in large buildings, factories, hotels, &c., has been employed with advantage. Steam from a boiler placed where most conveniently accessible, is admitted into thin cases of corrugated metal—copper they should be, but cheapness generally causes iron to be substituted. These cases are put together upright in metal stands of open work, more or less ornamental, each case a few inches from the other, and in size and number, according to the amount of heating surface required. Underneath these (or when placed in a recess, at the side) cold air is brought in copiously from without, and passing over the corrugations of the cases, becomes sufficiently heated to circulate warmth through the apartment. It will be seen, however, that unless the ventilation is thorough the heat would be dry and easily overcome from these steam-supplied cases, but the system has its advocates, and may frequently be seen in New York and elsewhere. Dr. Reid, of ventilating celebrity, made a professional visit to America, but left no recognized proofs of his proficiency other than in availing himself of this appliance to warm a banking-house in New York, by placing the steam cases against window openings, so that the sash being opened at pleasure, the cold air would be warmed in its passage through the cases into the room. The result, however, was nothing deserving much notice, and some significant hints were made of the costly experiments indulged in, before the matter was arranged to the late doctor's satisfaction.

Gas is used occasionally for heating purposes. The ordinary gas stove, and the ornamental grate for the inflammation of Asbestos, are the same as in use here. For cooking purposes a simple contrivance is in common use, which is admirably adapted to a nursery. A cylinder is fitted over the ordinary gas-burner, supported by some simple metal bracket, having the upper end covered with wire gauze, and the lower perforated. A tripod is placed above this to receive the vessel to be heated, and the gas lighted above the gauze. The effect is, that atmospheric air, mixing in the cylinder with the gas, the flame is soft and broken, like that from ignited spirit, and the bottom of the saucepan or kettle is unblackened. The same apparatus is used in hotel bars to heat the water, and is much better than the dirty process that may be seen in the coffee-rooms of our railroad stations and other places.

One more item connected with heating should be noticed. The Americans are well-known lovers of hot cakes for breakfast, tea, and supper, different preparations of flour, buckwheat, and Indian corn, forming dishes of great delicacy and variety. In a celebrated lunatic asylum, near Boston (and very probably in many hotels and other establishments), there is a huge griddle of soap stone, heated underneath, and upon this the batter is poured, and the cakes are cooked to perfection, without butter or grease of any description. The nature of the stone prevents articles from sticking, and makes a more wholesome dish of these celebrated Yankee delicacies. Fish is also cooked in the same way. The whole building in question (the Somerville Asylum), deserves more extended notice, for its heating and ventilating arrange-

ments were, when visited six or seven years ago, the best to be seen in the United States. They were, however, similar in principle to the methods before detailed, excepting that the fresh warm air was admitted from apertures in the upper part of the rooms and passages, and drawn off from the floors. The habits of the unfortunate patients were stated to render this necessary, as any one acquainted with their management can readily understand.

Note should be made of a weather-strip, in almost universal use, which excludes cold air from the bottom of outside doors. This is simply a strip of hard wood, the width of the door, hinged on the outside a little above the bottom, and provided on the underside with spiral springs, fitting into recesses cut on the face of the door. When opened, the springs force the strip outwards, and thus lift it over the threshold; but, when the door is closed, the ends of the strip catch against stops fitted to the jambs, and press it tightly down below the bottom of the door. This very simple and efficacious article is in such common demand that many shrewd Yankees go about from house to house fitting the strips to the doors, and charging so many cents per foot for the contrivance, which is patented, and forms, doubtless, a source of considerable profit to all parties concerned. As far as memory serves, it was called "Wetherspoon's patent weather-strip, for making doors and windows tight," and might be introduced here with advantage.

The uniform size of the building lots in New York, and all other American towns, has given rise to many peculiarities of plan, some of which are well worth noting. A "street lot" means 25 ft. front, by 100 ft. in depth; an "avenue lot," the same frontage, by about 125 ft. In New York, all the streets in the upper or new part of the city run east and west, all the avenues north and south. The avenues are of great width, the streets less, but are amply wide; and every tenth street is of the same width, or nearly so, as the avenues.

Land being so valuable, every man tries to make as much as he can out of his lot; and hence it is no uncommon thing to find two houses of costly magnificence of outside appearance and inside decoration upon one lot; being, in fact, but 12½ ft. each in width. Many others are placed three upon two lots, or four upon three, and so on; but the New York house proper is 25 ft. front upon a lot 100 ft. in depth. Grand houses are, of course, built upon several lots, and frontages of great size may be seen; but when this is the case, the mansions differ in no essential particulars from houses of similar dimensions in London or Paris. The genuine 25 ft. front house is, however, almost *sui generis*.

In the first place it is of enormous depth, 60 ft., 70 ft., even 90 ft. of the lot being given up to the house; for the Americans love grand parlours; and, as the rooms are seen in their best magnificence by gas-light, the small court-yard thus left is of no great consequence.

It is in admitting daylight into these disproportionately long rooms that Yankee contrivance is well displayed. Of course, windows, though of great size back and front, would barely suffice, and therefore various modes of "inter-lighting" have been introduced. It should first be remarked that these houses are of two kinds, "English basement," as they are called, and the "high stoop." In the former (which is more modern than the other) the house is entered upon nearly a level, the dining-room being in front, and the kitchens and offices behind, with the cellars underneath. From the hall-door the principal staircase leads to the parlours on the story above, the bedrooms being on upper floors in the usual manner. The hall-door usually opens into a vestibule, from which the staircase opens direct; the passage to the dining or living room and domestic offices being shut off by a door. The other house resembles this, excepting that a high flight of broad stone steps leads up to the hall-door, and the reception-rooms are upon the entrance-floor. The outer landing on top of these steps is called a stoop.

In the narrow houses the hall is dispensed with, a vestibule opening directly into the front room, and the staircase is usually midway in the hall, to allow rooms the full width of the building in the rear.

The arrangement of the parlours almost always consists of two rooms of equal size, divided only by columns (generally of scagliola)—the tin pipes conveying hot air to the upper rooms often occupying the hollow of the pillar, with a third room at back (called in New York parlance a

"tea-room") the entire width of the house, and opening from the middle room by wide and lofty sliding double doors filled with ornamental glass. Above these rooms the great depth of the house gives a large space between the bedrooms for closets, dressing-rooms, &c., which are lighted by a well opening from the roof, and round which windows are inserted in the several closets, &c., requiring light. The top of this shaft or well projects considerably above the roof, with glass sides, and with the top opening into a ventilator; so that when properly constructed, the same arrangement serves for ventilation as well as light. The bottom is frequently made to assist in giving light to the central parlour by having a panel in the ceiling, of ground and tinted glass, immediately below the opening, the height of the rooms allowing many ornamental features to carry out this effect, such as false ceilings with recessed panels, flat domes, &c. But this shaft would be insufficient to convey much direct light, on account of the great height of the building, unless assisted by some mechanical contrivance. In most houses this is secured by having reflecting surfaces set at angles on the unbroken side of the shaft, which serve to increase the amount of light to a remarkable extent. They are made of tinued corrugated metal, highly polished, and covered with plate glass, set in metal frames, and made so as to occupy the whole width of the shaft, and extending a third to a half of the depth. When set at a proper angle, the light from above is refracted in such a direction as is required, and in great heights they are made to refract one to the other, and so transmit the rays to any particular spot. Similar reflectors are extensively used to increase the amount of light in back rooms, counting-houses, &c., and in the clear, cloudless atmosphere of America, where no floating smuts dim the surface of such appliances, they are of great utility; how far the smoke of our large towns would militate against their general introduction here, is a question experiment only can satisfy.

This great depth of houses in American towns affords an opportunity for exceedingly comfortable arrangements of the chamber-floors. The bedrooms are always large and lofty, and in a very large house each bedroom is of still more ample size and proportion, the number being but little increased by the enlarged area of the building. American houses are so replete with conveniences in this respect, that householders find the furnishing of all their rooms but their parlours a comparatively inexpensive affair. The principal bedrooms always have large closets, with hanging wardrobes, drawers, &c., between the front and back, with also a vestibule opening between each, and greatly assisting to air the apartments. Each room also always has a large dressing-closet, with marble slab, washing-basin, hot and cold water, and if not a full-sized bath, almost always a foot or sponge bath. The bedroom itself needs only the bed and a few chairs, and a couch, by way of furniture, for all toilet requisites are in the dressing-closets attached.

In summer time the floors are covered with Indian matting; and as there are no obstructive pieces of large furniture to remove, this can be taken up, and the floors washed and swept, as often as is wished.

In all these houses the grates and fenders are fixtures, as well as the gas and heating arrangements, so that a tenant has only actual furniture to bring in. As the Americans are great lovers of change, and usually move at least every two or three years, this is a desideratum. All leases date from the 1st of May, and it is amusing to see nearly the whole population migrating from one house to another, to the great profit of the carmen who remove the goods, and of furniture dealers, whose ware, it may be imagined, does not last any longer for such frequent changing about.

The great depth of such houses gives not only ample space upon the bed-room floors, but allows also the domestic offices to be roomy and convenient. Back of the kitchen is always a large wash-room, usually an extension of the kitchen itself, without any division between. This is furnished with a wooden trough, wide and deep, and 12 ft. or 14 ft. in length, divided into three or four divisions, with hot and cold water laid on to each, and a plug to let the contents run off. Nearly all families do their laundry work at home; hence every convenience that ingenuity can contrive may be found in this department of the domestic offices. The spacious cellar below, in some houses, or more frequently

MAY-POLE ALLEY, HIGH STREET, SOUTHWARK.



Entrance to the Alley from High Street.



Interior of a Fever Den: Central Feature.



The Alley, and what grows there.



A. marks a Wall without any Ventilation or Opening.
 B. The Water-closet.
 C. Staircase.
 D. Fever Beds.
 E. Water-tap, supplied from a small Tank not far off.
 F. Untrapped Sink.
 G. Broken Pavement, mixed here and there with Boards; and
 HH. Dwelling-rooms on the Ground-floor.

Ground Plan of the Den.



One of the Back Yards.



The Pavement of the Den.



Section showing what is under the Floor.

the upper floor in others, afford a large drying-room in wet weather; and when this is at the top of the house, a lift is always contrived to carry up the things. The American washing-machines are well known here; but ladies say it is just as well that the American wash-board in universal use has not been introduced, for though it saves the time and the hands of the wash-women, it quickly wears out the clothes.

Most of the best houses in New York have a billiard-room. This is often on the upper story, and is always large, lofty, and well lighted. One indispensable feature is a "lift" leading from the butler's pantry, so that "sherry cobbler," ice-water, cigars, and other luxuries usually appreciated by gentlemen may be quickly sent up without requiring a servant to run up and down stairs. A room of this character in a private house well known to the writer was replete with

such conveniences. Speaking-tubes led to the rooms below, and a little box of blank cards and a pencil were handy to the door of the lift, so that, the signal being given to the servant below, the card with the want written thereon dropped into its receptacle, and down went the tray, presently to re-ascend freighted as per order.

All hotels, and many large private houses, are fitted with the "Annunciator" in lieu of bells. This differs from the machinery employed in our large new-erected hotels, and consists of a frame situated in the office, on the face of which small half-circular discs are suspended, each one covering the number of the room painted on the surface of the dial behind. When a bell-pull is drawn down in any apartment, a bell is struck by the machine, and the half-circular disc turns over, revealing the number of the room, and this

remains exposed until a handle is turned by the attendant in the office, which is not done until the bell has been answered and the order attended to. Jackson's annunciator used to be considered the best, and the charge for the machine was at the rate of about 1l. for each room with which connexion was made.

The universal use of sliding, instead of folding doors, should be remarked. Their advantages are numerous over our manner of closing large internal openings. The doors run into double partitions on either side upon metal ways at bottom, usually handsomely plated, the weight of the doors being carried by suspension overhead by means of large flanged wheels traversing upon a metal bar, and extending the whole width of opening and door. The lock fittings are of course adapted to this mode of closing, the lock-bolt consisting of a hook which drops

into a socket within the plate upon the other side. Americans go to great expense with their locks, knobs, and other fittings for doors and windows; the night latch entrusted to discreet young men is not there a formidable weapon of defence, but a neat little instrument of steel not much larger than a watch-key, and usually worn as such.

Staircases are uniformly handsome, with heavily moulded polished rails, newel posts, and balusters. Black walnut is rather the favourite material. An effective arrangement may often be seen, by which the great length of side wall in the large, long sitting-rooms, is made less bare and tame. Recesses between the fireplace and end walls are left, corresponding in width with the windows, and are filled with plate-glass mirrors, and hung with upholstery to match the window curtains. A sitting-room of a well-known American author is recalled to memory as possessing this feature, and very pleasant and liveable the apartment looked.

Instead of Venetian shades, nearly all the windows are fitted with folding blinds, light, and of French polished hard wood, shutting into boxes in the reveals of the windows, like our ordinary shutters.

It will be admitted that in all these addenda to a house, American landlords leave much less than ours do for a tenant to introduce; and although the rents are exorbitantly high, there are (or were, alas!) no taxes for an occupant not being an owner to pay, and therefore upon the whole you get the worth for your money.

In New York, before the present unsettled times, a good house in the upper part of the city, 25 ft. frontage, and four stories high, could readily command two hundred to two hundred and fifty guineas a year, and in some favoured localities even as high as three hundred. The larger houses were seldom to be had excepting by purchase, and the prices would vary from four thousand guineas upwards.

THE FRENCH ENGRAVINGS IN THE FREE LIBRARY, LIVERPOOL.

THAT good deeds are like good seeds, and bear abundant fruit, we have new proof in the number of presentations and loans made to the public by means of the Free Library, Liverpool. Several fine paintings by modern artists are of especial interest. These have been presented by various individuals. But it is the loan of French engravings, by Mr. Percy M. Dove, that we are about to describe particularly. A selection from the school of the Low Countries preceded the present exhibition; and the German and Italian schools will be doubtless illustrated after the present collection is removed. By these means, students and other inquirers will be instructed not only in the various mannerisms of the different masters, but in the more considerable points of departure of the schools. The managers of the present loan have compiled a sufficiently satisfactory catalogue, and prefaced it with an explanatory description of the different modes of engraving,—etching, line engraving, etching and line engraving combined, mezzotint, and aqua-tinta. And seeing that the examples of each manner are representations of celebrated pictures, and portraits of the most eminent men and women in French history, they are justified in the belief that the collection will afford rational pleasure to the public.

As the room in which the selection was exhibited is only capable of holding about 180 frames, it was necessary to confine the examples to those of the best artists. In Huber's "Ecole de France," there are 375 engravers mentioned; and there have been besides these about sixty painters who engraved. It being, therefore, impossible to represent the entire school, it was resolved to illustrate the greatest period of French engraving, that of the brilliant reign of Louis XIV., and to add a few specimens of the condition of the art before and after that period, to indicate its progression.

Looking at the exhibition collectively, it is apparent that there have been successive fashions in the mode of finishing off engravings by borders. We see at one period they were finished with a little border of oval beading, having a square tablet for an inscription attached to it. At another, the border still represented beading, but was octagonal in form. Again, we see circular borders and square ones inclosing smaller squares. Another kind consists of parallellogramical borders of little roses, and of orna-

ment and flowers mixed; and a further variety consists of three sides of a square with a semi-circular head. Many of the ovals are finished with the coats of arms of the persons represented, the name and title of the individuals being given in Latin below. Altogether, the variety of modes of bordering engravings is not the least interesting part of the instruction conveyed. The back-grounds, too, are a study in themselves. We may see that the now inevitable curtain and the column crept in two hundred years ago. A rich heavy curtain, fastened in festoons, with tassels tossed high in air by the action of a very high wind, which appears to have curiously prevailed in the chambers of most princes, is another favourite back-ground. Many, however, are quite plain.

The earliest engraver represented is Philip Thomassin, born 1536, of whom Evelyn wrote,—"His labours are worthy of eternity, so excellent was his choice, so accurate his graver." But one example is given of this artist, "The Discussion on the Holy Sacrament," after Raffaele. There are, however, ten specimens of the power of his pupil, the next master, James Callot (1593).

This artist executed 1,480 etchings, notwithstanding that his death took place when he was only forty-three years old, from which we may learn how much industry bears upon success. No engraver has reached a greater popularity than this artist, and many collectors reject all works previous to his. The specimens chosen comprise his celebrated set of four pieces representing the gipsy life with which he made himself acquainted by joining a company of Bohemians when he left his father's house at twelve years of age to study in Italy, "The Parterre of the Garden of Nancy," "The Great Miseries of War," in a set of eighteen pieces; "The Martyrdom of St. Sebastian," "View of the Louvre," "The Hunt," "The Massacre of the Innocents," and "The Miracle of St. Mansuy." They, perhaps, show as well as any other selection could have done his great versatility and facility of expression of feeling. The last-mentioned example has given rise to much discussion and criticism, and the compilers of the catalogue point out that Meaume, in his "*Recherches sur la Vie et les Ouvrages de Jacques Callot*," describes it in six pages of closely printed matter.

A couple of illustrations of Karl Audran, and one of Michael Lasse, bring us to the works of another luminary in art, Claude Lorrain. One of the examples exhibited, "L'Enlèvement d'Europe," was formerly in the possession of Queen Charlotte,—a circumstance we record to mark the esteem in which the etchings of this artist are held, every plate being eagerly bought up and held as the choicest ornament of the best collections. An impression of "The Overture" is given, that was made before a small bird seated on a branch of a tree was covered by a light cloud in subsequent copies, this distinction marking the extra rarity of the plate. In the same way "The Setting Sun" has additional interest because it is "an impression before the corners were rounded." Claude Mellan, of whom it was said that "his men have character and his women grace," is the next master whose life-work is indicated. His style differs from that of his predecessors and contemporaries, from his adoption of a new mode of working, using no cross-strokes, and relying only on a single line for all his effects. His celebrated "Face of Christ," called the "Sudarium," is among the selected examples. The curiosity of this work consists in the fact that it is executed by a single spiral line, begun at the extremity of the nose and continued until the whole face was finished. Cried Evelyn, in his rapturous way, "Who has not beheld with admiration the incomparable burin of Claudius Mellan? The 'Sudarium' is a prodigy of his rare art and invention, because it is wholly new and performed with admirable dexterity." With a single example from Pierre Daret (1610) we are introduced to the works of John Morin. This master used dots and strokes in his plates, and finished his subjects off in a beading-like outline of an octagonal form. The portraits exhibited do not give the hands of his sitters. There are seven specimens, six of which are portraits, of which that of John Peter Canus, "*Episcopo de Belley*," is particularly vigorous. The works of the next master on the walls, Pierre Lombart, are quite different in their treatment. In his portraits, he shows much more of his subject, following the examples of Vandyck, perhaps, many of whose paintings he engraved, and finishes them off with oblong borders of flowers and ornament

in different designs. Seven examples are given of his manner, all being portraits of English celebrities, after Vandyck. It is in some of these that the column and curtain first find footing.

Giles Rousselet, in due chronological order, is next represented by three engravings, the "Dead Christ in the Lap of the Virgin," after Annibal Carracci, "Sibille Hellespontique," and "Sibille Cymeriene," and is followed by the "Works of Mercy," of the friend and pupil of Claude, Sebastian Bourdon. Francis Poilly, whom Strutt pronounced one of the most skilful artists in the management of the graver that France ever produced, is laid under contribution for three subjects,—"The Flight into Egypt," with an angel strewing flowers, after Guido Reni, a feathery, flowery work, we should pronounce more thoroughly French than any yet mentioned; a "Holy Family," after Sebastian Bourdon; and the "Marriage of St. Catharine." Twelve specimens mark the popular appreciation of the next master, Gerard Edelinck (1627). He is believed never to have used the point, the graver being his only implement of manipulation. We must point out two of his portraits. First, that of "Jules Hardouin Mansart," after Rigaud, the superintendent of the king's edifices, and architect of Versailles, who is seated before a background composed of rich drapery, tied up with enormous tasselled cords, and a large column. His flowing wig and velvet clothing, his point lace cravat, and riband and star dangling from his neck, are an expression of sumptuousness that it must be mortification for modern architects to inspect. The second example is that of the wife of M. Claude Helyot, *décédée à Paris, 1662*. She is looking up to heaven, and holding a crucifix close below her chin, as though she had but just removed it from her lips. The expression of this face will haunt any one who looks upon it: such intensity of loving worship must move the coldest soul.

We pass over the next engraver, John Edelinck, whose one work exhibited has been deemed worthy of the supposition of material assistance from his brother, and come to the twenty-four examples selected from the burin of Robert Nantein (1630). This artist was patronised by Louis XIV., whose portrait he had painted and engraved, and it was through his influence that the monarch issued the decree that gave engraving the same rank as other fine arts. Like Callot, he died early; but he has left proof of his industry in eighteen historical subjects and 216 portraits. Louis created him keeper of the engravings of the royal cabinet, to which newly-made office he added a pension of 1,000 livres. Most of his portraits are finished as ovals, to which is attached a tablet for inscriptions. Stephen Picart (1631), Claudine Bousmeat Stella (1634), William Valet (1636), are represented by one work each. It might have been some encouragement to female artists to have seen a greater appreciation of Mlle. Stella manifested in a larger selection from her works, especially as M. Watelet places her at the head of female engravers. A "Holy Family," after N. Poussin, many of whose works she engraved, is the subject exhibited. A much larger value is placed upon the work of Anthony Masson, who is represented by fourteen plates. There is one of the portraits by this artist that will return again and again to the mind's eye, like that of Madame Helyot. It is that of William de Brisacier, known by the name of the Grey-headed Man. The armour, the point-lace, the hair, and indeed every detail by this artist are marvelous; but in this instance the beautiful scanty luminous white hair is nothing less than a miracle of art. Dumesnil, the French art-critic, writing of this print, says, "One can tell the complexion of this man; we feel, as it were, the lightness of his beautiful grey hair, while his collar appears to be indubitably real lace." And Strutt, dwelling upon its beauties, says, "No one who has not seen and examined it can form an idea adequate to its singular merit." Those unable to realize the preciousness of this work will best rise to an appreciation of it by trying to do likewise. Those better skilled will best esteem it. Masson is believed to have worked in a manner the reverse of that commonly practised. Instead of moving his graver, he held it fast and still, and moved, instead, the plate with his left hand. His portraits are principally large ovals, with branches and laurels proceeding from the base in both directions. But a more prolific artist than any yet mentioned was ushered on to the

stage, 1637. Sebastian Le Clerc is said to have executed 3,000 plates. He was, besides, an architect and mathematician, and professor of perspective in the Academy Royal de Paris. Of this large amount of industry and learning, one example only is given by Mr. Dove, or those whom he entrusted with the selection, "The Apotheosis of Isis." But one example, too, is given of Charles Simonneau the Elder (1639), notwithstanding he has the reputation, like the Admirable Crichton, of having excelled in everything he did. Gerard Audran (1640) is more popular. It was of this artist that Le Brun said, in his case engraving embellished painting. Watteau also observed that he seemed to have painted with the point and the graver, so much did his works present the ease and facility of the brush; and Strutt places him, without any reservation, at the head of historical engravers. Two martyrdoms, those of St. Agnes and St. Lawrence, "The Death of St. Francis," "The Judgment of Solomon," and "The Preservation of the Young Pyrrhus," are the *chefs-d'œuvre* selected as specimens of the powers of one whom Basan calls, to give one further eulogium, the Raffaele and Rubens of engraving in France.

"The Three Maries at the Tomb," after Carracci, place Jean Louis Rouillet before the bar of posterity. Sir Nicholas Doriguy (1657), who came to England in 1771, to engrave the cartoons of Raffaele, at Hampton Court, and whose prints are considered the best copies we have of some of them, is represented by a "Cupola in Rome," after Domenichino. The catalogue states that he studied the great masters of Italy for twenty-eight years. Such a length of probationary study should have insured him more distinctive recognition, if time be a good teacher. However, there are other artists who have been obliged to be dismissed in the same summary fashion, for want of space. Gaspar Duchange, Pierre Drevet, Antoine Trouvain, John Audran, Nicolas Henri Tardieu, Nicolas Edelmeck, are but recognised with a similar short measure, notwithstanding that the latter engraved Philip, Duke of Orleans, on horseback, with considerable spirit. A portrait of Margaret Becaille, widow of Maximilian Tison (foundress, with her husband of the Convent des Dames Hospitalières de l'Ordre de St. Augustin à St. Mandé), is the more noticeable of two examples of Louis Desplaces (1682). Michael Dossier (1684), Charles Dupuis (1685), and Louis Surugue (1695), are cited just to make one bow and depart, to make the links in the chain perfect; and then Pierre Drevet, jun. (1697), is cordially recognised. Ten specimens of his portraits are given. They are especially admired for the fidelity with which hair, point-lace, and ermine are rendered. Huber says it is impossible to examine his portrait of Bossuet, Bishop of Meaux, without astonishment. That of Cardinal Dubois, in a sitting posture, with an envelope in his hand addressed "Au Roy," before a background of drapery drawn up like velvet sails, with cordage of gold, is truly a superb performance; and those of Samuel Bernard, counsellor of state; Robert de Cotte, architect to the king; Antonin Portal, Nicolas Boileau, Ludovicus Augustus Dombarm Princeps, Charles Gaspard, Louis Henri de Bourbon and Louis Alexandre de Bourbon, Comte de Toulouse, can scarcely be considered less so. Louis Gerard Scotin (1690), who worked for a long time in this country, is represented by his "Birth of Adonis." Bernard Lepicie (1699), who was likewise employed for years here; John Haussart (1700), and Laurent Cars (1702) usher in a new century. A portrait of the celebrated Madame de Clairon, in the character of "Medea," represents the last-named artist.

Fine examples are given of John Daullé (1703), portraits of Catharine Mignard, Mlle. Pelissier; D. Mounette, painter, with a towel cap on his head and his hand up and finger pointed, as though listening to something he can hear through his open chamber-window; M. de Nesuer; and a "Bacchanalian Fête." After Rembrandt, Jacques Philippe le Bas (1708) was the first artist who made copious use of the dry point: a proof, after Teuliers, of "Flemish Rejoicings," and "Le Chasseur Fortuné," have been selected from his numerous works as examples of his striking touch, and life and grace. One piece only of the work of J. Moyreau (1712) is shown; and only two specimens are given of the very astonishing powers of J. J. Balcheou (1715). His portrait of Charles Rollin, the eminent historian, seated in a black silk habit, with pen in one hand, and the other extended towards some books on a writing-table before him, over

which and the arm of his chair the rich folds of some heavy drapery have fallen is especially noticeable for freedom and vigour. The eminence attained by a contemporary, John George Wille (1717) is exhibited in thirteen selections. His satins are considered matchless in their execution; and his "Death of Cleopatra," exemplifies his facility in this respect very admirably. Some of this artist's pieces are in the form of three sides of a square, with a semi-circular head. His "School-mistress," and other small portraits, are in square, broad heading-like borders. Three single pieces, "Maria, Princess of Poland," "Diana and Acteon," and "La Fousie au Village," represent as many artists.—J. M. Tardieu, D. Sornique, and P. F. Basan; the latter is known to have executed 450 prints. Six fine examples are given of the etchings of Antoine Marcenay de Ghuy (1723), one of the most successful of the imitators of Rembrandt, and three of J. J. Boisseau, another follower of the same great painter. The "Coopers in a Wine Cellar," by the last engraver, is an admirable specimen of an artist whose prints are allowed to form an epoch in the history of engraving with the dry point.

The mannerism of P. F. Charpentier (1730), the originator of a new method of aqua-tinta, is shown in his "Industrious Fishers." The remaining selections are single and dual examples of the workmanship of Halbon, Cathelin, Pelletier, Tellard, Denon, the *manière grignotee* of Viehl, Bervic, Desnoyers, and Dupont. The fine engraving of the full-length portrait of the first Napoleon, in his imperial robes and crown of laurel-leaves, after Gerard, has made the name of Augustin Louis Boucher Desnoyers familiar to many besides collectors.

We have thus faintly indicated the nature of the feast to which Mr. Dove has liberally invited the public. The workmanship and industry of fifty-nine artists in one particular branch, extending over a period of two centuries of time, is laid out in one view. We may mark the gradual phases through which the art of engraving has passed from the days of Thomassin to those of Dupont, the mannerisms and fashions that came in and went out again, and the main distinctions that separate this French school from others, with an ease which is seldom within reach. The hanging deserves a word of acknowledgment, none of the prints being out of sight, over head, or on the ground. We cordially echo the sentiment of the committee, "These works are lent for public enjoyment. It is hoped they will meet with public protection," as well as that of the Abbé Maroles, quoted nearly two centuries ago by Evelyn, and now prefixed to the catalogue, which we have before mentioned—"This curiosity [collecting of prints] I affected from my youth, preferring it even before paintings, for which yet I have infinite esteem; not only for that they are more proportionate to my purse, but because they better become our libraries."

RAILWAYS AND IMPROVEMENTS IN LONDON.

The frequent publication of maps of London and the suburbs, showing the railways, is now a necessity to those who have to move much about the metropolis. The lines of railway are becoming so numerous, and their arrangement presents itself with so much intricacy, that it is impossible, without a map, to disentangle the lines, and arrive at the position of judging what are the advantages that they offer. Mr. Stanford's periodic issue, after each session of Parliament, of his map showing lines in operation, lines sanctioned previous to the last session, and those sanctioned in that session, therefore constitutes an essential service rendered.* The map is given to a scale of one inch to a mile; and a portion of the metropolis extending from the River Lea and Greenwich, eastward, to King's Cross and the Palace of Westminster westward, is shown on the scale of two inches; so that such a knot as is planned to occupy the ground between Deptford, New Cross, and Rotherhithe, may be, by possibility, unravelled, and the threads there connected with their continuations.

* "A New Map of Railways and Miscellaneous Improvements sanctioned in 1865, also the Railways in Operation, and those sanctioned before 1865; London and Ten Miles Around; accompanied by a List of the Plans numbered to correspond with this Map, and with the Private Bill Office List." London: E. Stanford; Vacher & Sons; Letts & Co. August 10th, 1865.

Amongst the lines recently opened, may be mentioned the two branches from Twickenham on the Windsor line of the South-Western Railway,—the one, the Thames Valley Railway, serving Hampton, Sunbury, and Haliiford,—and the other the Twickenham and Kingston line, serving Teddington, Hampton Wick and Norbiton near Kingston; the Mid-Kent line to Croydon; the Crystal Palace High-level line; and the line from Sutton to Epsom Downs. Amongst the more important lines in progress, of those sanctioned before 1865, is the more direct route to Sutton and Epsom Downs, from London Bridge. This line, for which, together with that for South London, a large extension of the London Railway Station is being made, runs parallel with the Greenwich line for some distance, and then passes by Peckham, Denmark-hill, Dulwich, Streatham, Mitcham, and Carshalton, to Sutton. It has junctions with the lines that it intersects; which, as existing, are the London, Chatham, and Dover main line, the Crystal Palace line, the Balham and Croydon, the Wimbledon and Croydon, and the Croydon and Epsom. From Peckham, or Denmark-hill, the South London branch extends past Brixton to the London, Chatham, and Dover line, which starts from the Victoria Station; and between the Battersea Park and Wandsworth-road stations, and westward to Clapham Junction, sundry lengths of viaduct are in progress, having some relation with the widening of the railway bridge, and with the buildings that have just risen up on the Middlesex side; but which lines cannot here be allotted, unless guessingly, to either company. The traffic of the Crystal Palace High-level line at present converges from the Ludgate-hill and Victoria Stations to Brixton; but the Ludgate-hill traffic will shortly branch off from a point south of Walworth, and join the other traffic at Peckham Rye. From Peckham Rye there will be a direct route to Greenwich; and this last will have a junction with the North Kent line, which is intersected. From the Tunbridge line there will be a branch to Dartford,—a great loop, in fact, to the North Kent. From Streatham, in the direction of the Merton and Wimbledon Station on the South-Western line, there will be a line which after a short distance will be divided into two branches, one taking a northward and the other a southward route to the same station.

North of the Thames, the chief lines in hand are the Midland Railway, which starts from King's Cross, near the Crystal Palace, and has a junction, *enâ* Wilton, with the Great Western and the North and South Western Junction, at East Acton; the Edgware, Highgate, and London line; the Watford Junction, and the short branch to Muswell Hill and Alexandra Park; the Tottenham and Hampstead Junction; and the Great Eastern line from the main line at Bethnal-green to Edmonton, and a line from Stratford to High Beech, the two latter lines joined by one from Dalston passing by Walthamstow. Besides these there are, better known, the extension of the Metropolitan Railway, the line connecting the Charing Cross with the London and North-Western Railway, and the City Branch of the North London. We have omitted to mention a line from Hammersmith to Turnham-green; and one, joined by the other, from Acton-green on the North and South-Western Junction Railway, to Richmond.

The lines sanctioned last session, if we except the Hornsey and Hertford branch of the Great Northern, and the Surrey and Sussex Junction, which last starts from a little beyond Croydon, are to be regarded chiefly as filling up short breaks in the system. The lines include the Acton and Brentford, the East London (Thames Tunnel line); the Edgware, Highgate, and London Junction with Tottenham and Hampstead Junction; the Hammersmith and Fulham; the Tottenham to Wincemore-hill, and the Edmonton to Enfield Armory, branches of the Great Eastern; the Millwall branch of the Blackwall line, to serve the Isle of Dogs; a line from Northon to Malden on the South-Western; various short connexions of the London, Chatham, and Dover, and of the London and Brighton lines; the Metropolitan and St. John's Wood Extension to Hampstead; the North London, Highgate, and Alexandra Park; and the Waterloo and Whitehall line.

Miscellaneous Improvements sanctioned by Parliament in 1865, have their localities marked on the map. They include works in connexion with the Courts of Justice Concentration, the General Post Office, Hyde Park Gate Estate; India Office Site and Approaches, and Public Offices Site and Approaches; the Metropolis

Sewage and Essex Reclamation, Regent's Canal (Limehouse Basin), Saint Clement Danes Improvement, West London Wharves and Warehouses, Westminster Improvements, and White-chapel and Holborn Improvements.

If Mr. Stanford were able to keep his large Map of London posted up from year to year, both as to buildings and routes, on the same principle as he adopts in the publication that we have noticed, he will be a public benefactor,—albeit the duty would not inappropriately be undertaken by the Metropolitan Board of Works. A perfect map of London, added to and corrected each year, and stamped with the highest authority, should be generally procurable. Mr. Stanford certainly has done much to supply the want.

THE SCOTTISH NATIONAL MEMORIAL OF THE PRINCE CONSORT.

The memorial committee have appointed an executive committee with authority to have the memorial erected according to the design approved of by her Majesty, and under the arrangements made by the acting committee. A design for an equestrian statue of the Prince, surrounded by groups of figures, by Mr. John Steel, R.S.A., her Majesty's sculptor for Scotland, has met with the royal approval, and is now being carried out. In making his design, Mr. Steel had in view several sites, but he gave preference to one in the park, immediately adjoining Holyrood; and this site was approved of by her Majesty. It is situated on the slightly rising ground to the east of Holyrood Palace, and is about 100 ft. north from the roadway. The monument, which will be 35 ft. in height, will be a conspicuous object in the view of Holyrood Palace from several points. On the north and north-west, it will be visible from the Calton Hill; Regent-road, and from the railroad at Abbots Hill; on the west from Dumbiedykes; and on the south from the slopes of Arthur's Seat and adjacent eminences.

The memorial will consist of several stages rising from an oblong square platform measuring 24 ft. to 20 ft., and surrounded by an ornamental railing. On the substructure thus formed the equestrian statue will be placed. Mr. David Bryce, R.S.A., has been commissioned to carry out the architectural portion of the work. The Prince will be represented in the uniform of a field-marshal. All the sculpture will be in bronze, and the pedestal and platform in Binny stone. The panels of the upper stage of the pedestal are to be filled with illustrations in alto-relief of incidents in the life of the Prince. On the centre of each side of the stage below that just described rests a group of Classic emblems, indicative of the tastes and pursuits of the Prince. Two of these groups will be executed by Mr. W. Brodie, and two by Mr. Handyside Ritchie. The groups on the angles of the base have been assigned respectively to Mr. Steel, Mr. Brodie, Mr. Clark Stanton, and Mr. George Maccallum. It is intended to submit these groups for her Majesty's approval.

CONDITION OF GALASHIELS.

A MEETING of the commissioners of police for the burgh has been held, to receive reports regarding the sanitary condition of the town from a committee appointed by the Board to make inquiry. The town having been divided into four districts, a report from each was read. The reports from the whole four divisions were very similar in character,—pig-styes abounding to a great extent, many of them in close proximity to dwelling-houses in crowded localities; while dung-heaps and accumulations of all sorts of filth, bad and broken drains, were more or less prevalent in all the districts. After a long discussion, in which it was regretted the Police Act was so vague and loose on what constituted a nuisance, and the powers to remove the same, it was ultimately resolved to issue a proclamation ordering the removal of all pig-styes when situated within 20 yards of any dwelling-house or street, and that within six days after the issuing of such proclamation; and in the event of any owner of such pig-stye neglecting or refusing to remove the same, that steps at once be taken to prosecute the offenders.

OUT AND ABOUT: IN DERBYSHIRE.

An enthusiastic reader says, why do you not show us the little panels you mentioned as in the dining-room at Haddon; you hold a graver in your hand as well as a pen and a press, and can surely do so if you like? Well, good reader, as you manifest so much interest in our ramblings and jottings, here they are, as well as we can draw them from two slight and hasty rubbings made with a little scraped lead from a pencil, for want of better materials. And this may lead to the remark, that it is desirable when rambling about the country that the visitor should always have with him a piece of heel-ball and some sheets of soft paper. To the student, one careful sketch is more beneficial than a dozen rubbings; but time will not always permit this, and, moreover, the object may be collection rather than study or practice with the pencil. The size of the Haddon knots is about 7 inches over: their ingenuity and elegance are obvious. But we must get on. To pleasant Rowsley and its quiet ancient inn, whence Haddon and Chatsworth have been visited, we must bid adieu, first mentioning, as a thing to be seen before taking to the rail (to go a little backwards), to Matlock, the Druidical circle, about seven miles off. This is on a hill known as Arbor Low, whence a good view may be obtained, unless it should happen to rain, as it did when we were there. Ye powers! how it did rain, and how it did blow! To stand on the edge of the vallum was scarcely possible,—to examine the ancient monument, quite so. The vallum and ditch are tolerably perfect; the stones, about thirty in number originally, are all flat, and much worn, some of them almost to a point. Two that we measured in the storm were about 11 ft. long. The diameter of the circle is perhaps 150 ft. Who shall rightly tell its antiquity? At any rate, here Jupiter and Apollo, under other names, were worshipped long and long before the Romans came to help to make Britain what it now is. A barrow may be noticed hard by; and in the neighbourhood are various mines. The richness of Derbyshire in coals, lead, barytes, iron, limestone, marbles, china stone, potter's clay, slate, spar, zinc, and so on, is very great; about 7,000 hands are employed in getting them. The stone walls loosely put together without mortar, used to divide the fields: the stones often gathered from the face of the land, form a striking feature of part of the county, and at times give a dry and uninteresting aspect. For protection's sake and warmth in respect of the cattle, these division-walls occur very closely together, in the odder lines, and following the dip and rise of the land in parts so acutely as to take the shape of inverted arches.

Of Matlock and Matlock Bath we shall stop to say little beyond advising the landowners and those concerned to exercise some control over the houses that are being built there. The river should also have attention. Its condition at certain states of the weather is very unsatisfactory. The place, beautiful exceedingly as it is by nature, is vulgarised by its common, tasteless structures and the constant pouring of excursionists. As to the latter, however, the desire all must feel that our mill-hands and others should have opportunities put within their reach of healthful, invigorating, intelligence-giving recreation, will prevent complaint or regret. A large building with four towers is being erected on the summit of one of the hills here, for an additional hydropathic establishment. Seen from all sides, its purpose is asked by every one approaching the place, and it thus serves as an immense advertisement. This would be equally the case if its outline were less abominably vulgar. The natural scenery of Matlock is charming,—hills, trees, and rocks, with a river at the foot,—High Tor, Masson Low, and the Black Rocks. But of this and of the remarkable caverns these hills contain, and of the bubbling streams and ruin-bearing waters that have their origin in them, every one has heard:—

"Where, as proud Masson rises rude and bleak,
And with mishapen turrets crests the Peak,
Old Matlock gapes, with marble jaws beneath,
And o'er scar'd Derwent bends his flinty teeth;
Deep in wide caves below the dangerous soil,
Blue sulphurs flame, imprison'd waters boil."

The rail, with a loop, carries us to Chesterfield, to serve as a point of departure for Hardwick Hall and Bolsover Castle, which may be visited in one excursion, the distances being less than Black's very poor "Guide to Derbyshire" states them to be. From Chesterfield to Hard-

wick is eight miles, from Hardwick to Bolsover three or four miles, and thence back to Chesterfield may be called six miles. The church at Chesterfield is known by a great distortion. It used to be said of a somewhat celebrated Sussex town,—

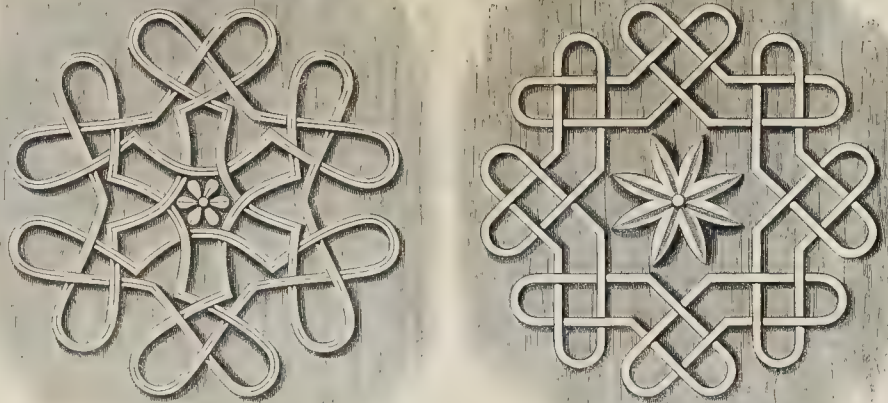
"Proud Petworth; poor people;
High church; crooked steeple."

But the crookedness there, now removed, was nothing to the crookedness of Chesterfield spire, which is an ugly abomination, and ought to be set right: the contemplation of it must have an effect on the taste and moral character of the town, giving, as it must do, a twist to the mind, and blunting the perception for the true. Some have been found to maintain that the spire was purposely thus formed (it is of timber covered with lead); but we may be sure this idea is erroneous: the old builders were much too wise to construct such an ugly and damaging object. The sun and the wind are doubtless the culprits. We shall hope to hear before long that the defect, long-standing as it may be, has been remedied. The interior of the church is very handsome; the tower-arches and the lofty arcade on each side of the chancel giving a fine effect to that end of the building; saying nothing of the carved wood screen canopied on both sides, and some sixteenth century monuments interesting in respect of costume.

The appearance of Hardwick on approaching it is very singular, and shows the literal truth of an old local saying: "Hardwick Hall, more window than wall." The front, in fact, is little more than mullions filled in with glass: the windows on the first floor lighting the picture-gallery, for example, are 20 feet high. We are speaking now of the "new" house, if the term may be used, the house built by our Countess of Shrewsbury before named, the noted Bess. The estate was part of her dower when she married Sir William Cavendish. The existing house was not handed so enough for her, so a new one was built close by, and there they both stand pretty nearly as she left them; the new one an Elizabethan residence unmeddled with. The open work of the parapets of the towers takes the form in all parts of her initials, E.S. (Elizabeth, Countess of Shrewsbury), under a coronet. The great entrance-hall is lofty and light, but shows little architectural taste. The various rooms contain the furniture of their time, large quantities of tapestry, some of it particularly good, and many interesting portraits. The dining-room has on the mantelpiece the date 1697, with the initials E.S.

There are reminiscences in the house of Mary Queen of Scots, of whom the Earl of Shrewsbury, between 1568 and 1584, had charge, though it seems doubtful if Mary ever occupied rooms in the present building. The furniture that belonged to her, now there, may have been brought either from the old house or from Chatsworth. In what is called the State Room, a noble apartment with a fine bay, the upper part of the walls all round is adorned with groups in relief, including Diana and a Stag-hunt, some of them being painted. The great feature, however, of this baronial residence internally is the picture gallery before alluded to, about 170 ft. in length, 22 ft. wide, and 26 ft. in height, and containing some 170 portraits of men and women, mostly of the Elizabethan period or connected with the house of Cavendish. On the portrait of one of the latter appears the touching exclamation, "*Hæu prisca fides!*" Walking through this remarkable apartment, Queen Elizabeth in her power, Mary Stuart in her captivity, Lady Jane Grey in her simplicity, the first Duke of Devonshire in his elevation, the clever and Jesuitical Hobbes, fit past the mental vision in their habits as they lived. The world seems but a meeting-place for shadows that come and go.

At Hardwick, as at Chatsworth, the young person who showed us through the rooms knew nothing whatever as to the subjects of the pictures or the painters of them. There was a private catalogue, it was said, but that was locked up. We fully appreciate the public service rendered by the Duke of Devonshire, in allowing this and his other noble houses and collections to be seen at all; but we would put it to his Grace, with the greatest respect and consideration, whether it would not be wise to enable visitors to see them effectively, and so to a better end. A few printed lists in the rooms, or, better still, a small tablet under each picture, stating the subject and the painter's name, would make want of intelligence on the part of the guides of less consequence. Again,



PANELS IN THE PRIVATE DINING ROOM, HADDON HALL. A.D. 1545.

why should these guides be instructed to say to any visitor who may take out a pencil, "No sketching is allowed?" Surely the Duke can scarcely be aware that this is the case?

And now, driver, on to Bolsover Castle. As part of this pile has become the residence of a private individual, the Rev. John Hamilton Gray, admittance to the whole is not usually obtainable without introduction, a regrettable circumstance, the place being very curious. Its history, to be didactic for a few minutes, is this. Soon after the Conquest, a castle was built here, where it seems just possible that an earlier stronghold had previously stood. The manor had been granted by the king to the William Peveril of whom we have already heard, and by him or his successor the castle was erected. In the reign of Henry II., one of the Peverils committed a crime, and the castle came into the hands of the Crown, and so remained for a long time. It underwent sieges, and had troubles. In the reign of King John the castle was fortified against the Barons. Many vicissitudes followed; the castle was granted to various persons, and, reverting to the Crown, was made over by King Edward VI. to that Lord Talbot who was afterwards sixth Earl of Shrewsbury. And now comes in our Bess of Hardwick again; for, marrying the earl, she set to work to rebuild Bolsover, and it was during the suspension of the works here, in 1607, through frost, that she died. Her second son, Sir Charles Cavendish, finished in 1616 what she had begun, and this is the now inhabited building, a curious Elizabethan and Jacobean restoration of a Norman castle. It is a square castellated structure, four stories in height, with a turret at each corner, and a high tower. In addition Sir Charles commenced, and his son William, who became Marquis of Newcastle, finished, some magnificent apartments adjoining and a remarkable riding-school, and in 1633 and 1634 entertained King Charles I. at enormous cost. Ben Jonson's masque, "Love's Welcome," was written for the occasion. Then came civil war and neglect: and about the year 1740, the second range of buildings of which we have spoken was unroofed, and has so remained ever since,—a picturesque ruin, maintained by the Duke of Portland, who represents, in the female line, the Dukes of Newcastle, of the race of Cavendish. The picture-gallery or banquetting-hall, in the unroofed part, is 222 feet long and about 21 feet wide, a remarkable apartment; the character or style of design, too, is very curious, and worth studying. Externally, a debased

kind of Tudor column projects at intervals from the wall, and is carried on a corbel!

The castellated building, now a dwelling, as we have said, has a "star chamber," with blue roof sprinkled with gold stars in imitation of the well-known Star Chamber of Westminster. One of the apartments is called "Heaven," from the paintings that decorate it; and another, "Hell." The former, like some other rooms in the building, has a hooded chimney-piece, carved in plan, inlaid, and very handsome. Drawings of these would be useful. The building is fitted up by its present occupants in a fitting and appropriate manner. Mrs. Gray is known as the authoress of "A Tour to the Sepulchres of Etruria," and several other works; and one of the rooms contains a fine collection of antique vases referred to in her books.

The view from the rampart which surrounds the old garden, whence are seen the ancient fortifications of the town, and that from the top of the tower, are remarkably fine. The latter includes the tower of Lincoln Cathedral, one of those elevated spots used, even as late as the seventeenth century, to rouse the surrounding country by means of beacons. Some of the hills and towers so employed in connexion one with another have been bound together in rhyme:—

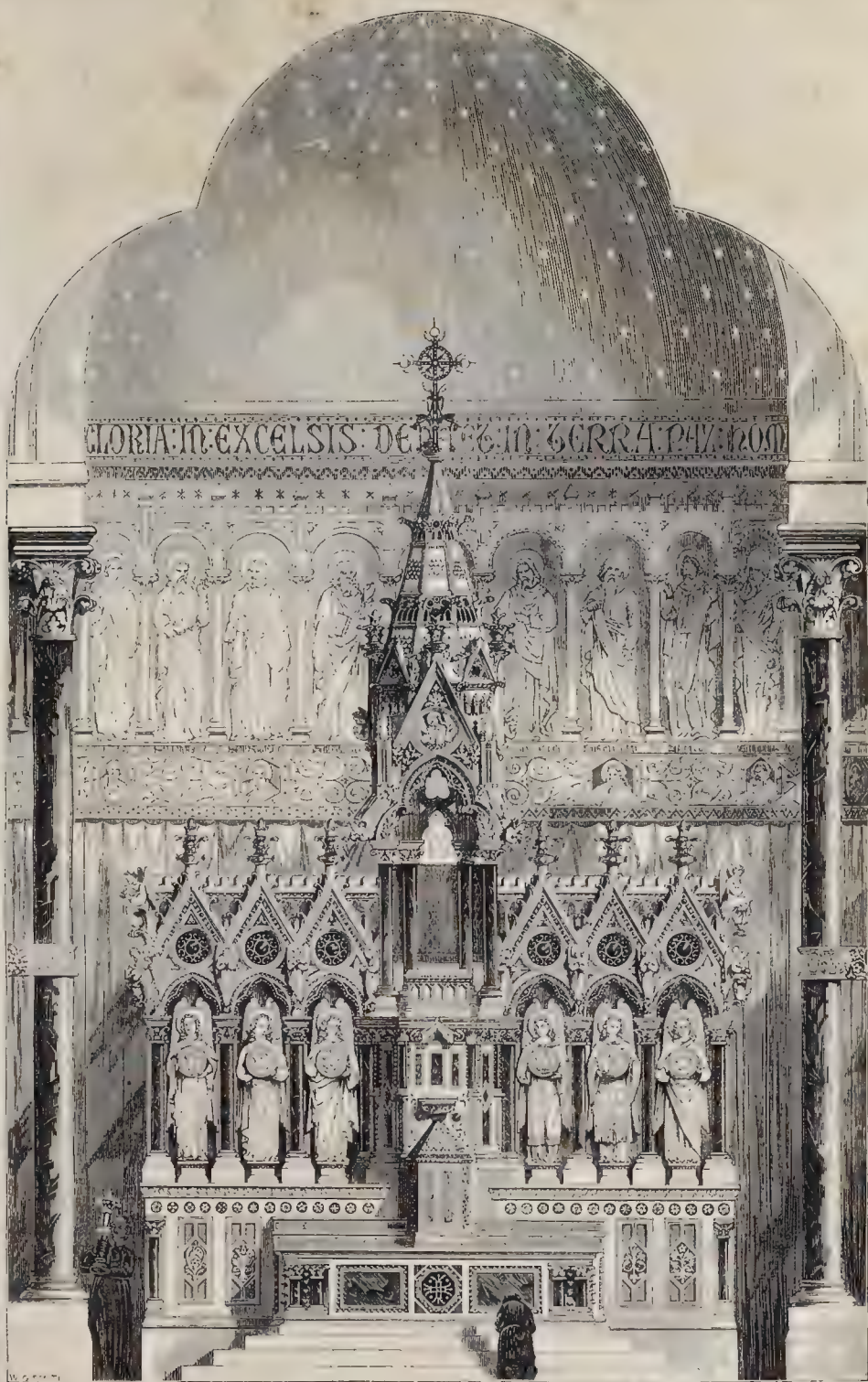
"So on and on, without a pause, untired they bounded still,
All sight from tower to tower they sprang; they sprang from hill to hill:
Till the proud peak unfurled the flag o'er Darwin's rocky dale,
Till like volcanoes flared to Heaven the stormy hills of Wales,
Till twelve fair counties saw the blaze on Malvern's lonely height,
Till stream'd in crimson on the wind the Wrekin's crest of light,
Till broad and fierce the star came forth on Ely's stately fane,
And tower and hamlet rose in arms o'er all the boundless plain;
Till Belvoir's lordly terraces the sign to Lincoln sent,
And Lincoln sped the message on o'er the wide vale of Trent;
Till Skidaw saw the fire that burn'd on Gaunt's embattled pile,
And the red glare on Skidaw roused the burghers of Carlisle."

In Bolsover Church, part of which is Norman, there is a costly monument to Sir Charles Cavendish and his family; and one larger and more elaborate, including columns, pediment, and figures, to Henry Cavendish, Duke of Newcastle. If the inscription is to be believed, Charles Cavendish (he was the son of our "Bess") had all the virtues known or guessed at. On the

north side of the chancel there is an interesting piece of sculpture, about 5 feet long and 3 feet in height, representing the Nativity. It includes Mary with the Infant Christ, Elizabeth and Joseph. The heads of two bulls are seen over the manger. This is pointed to on the spot as early Norman work, and is so described in the most recent Guide. In truth, however, it is a work of the early part of the fourteenth century. Those who require proof of this beyond the general character of the sculpture, may look to the tracery on the censer the boy is swinging. A small carving of the Crucifixion, outside, over the priest's door in the chancel, is probably Norman. The stone of Bolsover Moor, it will be remembered, was that which the commissioners who went out to find the best stone for the new Houses of Parliament recommended for that purpose; though, after all, it was not used. We will now cross the country to the neighbourhood of the Peak proper.

HIGH ALTAR, ST. ALPHONSUS' (R.C.) CHURCH, LIMERICK.

This sumptuous piece of ecclesiastical work is now in course of erection in the abovenamed church. The materials are Caen stone and Irish marbles, with a new feature, in the shape of panels of gilt and enamelled copper and brass work, and bosses of crystal in metal settings. The six angels are fine works from the workshop of Mr. Boulton, the well-known sculptor, of Worcester: they bear the emblematical types of the Passion of our Lord, and are life-size. The general execution of the work has been entrusted to Mr. Earp, who is fully sustaining his reputation. The central canopy rises to a height of 37 ft., which will give some idea of the scale of the whole design. Messrs. Peard & Jackson have skillfully realised the architect's designs, as regards the metallic enrichments just now mentioned. Mr. Scannell, of Cork, supplied the marble shafts. The cost of the work fixed in 1861. This is the gift of one generous individual, who, not content with such a work of personal devotion and liberality, has also presented a communion-rail of marble, metal, and carved stone work, also in course of execution, and, we believe, proposes to carry out other works. The whole undertaking is in the hands of Mr. Goldie, as the architect.



HIGH ALTAR, ST. ALPHONSUS' (R.C.) CHURCH, LIMERICK, IRELAND.—MR. G. GOLDIE, ARCHITECT.

MANUFACTURE OF CAST STEEL.

In the Mechanical Section of the British Association meeting at Birmingham, Mr. H. Bessemer read a paper "On the Manufacture of Cast Steel: its Progress and Employment as a substitute for Wrought Iron."

The paper opened with a review of the inventions which had finally resulted in the establishment of "Bessemer" ironworks throughout the country. It pointed out at some length how the disadvantage of the old fixed converting vessel was remedied, and other improvements introduced. Up to this period the manufacture of cast steel by the old as well as the new process was still so far imperfect that steel of the highest quality could not be made from inferior iron. In 1839, the trade of Sheffield received an enormous impulse from the invention of Josiah Heath, who patented in this country the employment of metallic manganese, or, as he called it, "carburet of manganese." The addition of a small quantity of this metal, say from $\frac{1}{4}$ to 1 per cent., rendered the inferior coke-made iron of this country available for making cast steel. It removed from these inferior qualities of iron their red shortness, and conferred on the cast steel so made the property of welding and working soundly under the hammer. The reading of Mr. Bessemer's paper on the subject, at Cheltenham, in 1856, led to great expectations as to the value of his process, and licenses to manufacture malleable iron, under the patent, were purchased by ironmasters, to the extent of 25,000*l.*, in less than twenty-five days from the reading of the Cheltenham paper. Great excitement existed at the moment in the iron trade, and many persons seemed to covet a share in an invention that promised so much. There was consequently a general rush to the Patent Office. Some of the gentlemen who applied even repented some of the author's own patents, while others patented things in daily use, in order that they might be considered new, when added to the products of the new process. The paper described the features of the numerous patents applied for within six weeks of the reading of the paper at Cheltenham, and remarked that if that long series of patents could have been sustained in law, it would have been utterly impossible for the author to have employed manganese with steel made by his process, although it was considered by the trade to be impossible to make steel from coke-made iron without it.

Soon after the reading of the Cheltenham paper, several rough trials of the Bessemer process were made privately, by persons in the iron trade, and defects discovered which were supposed by practical men to be perfectly fatal to the invention. The press then spoke of the utter impracticability of the process, and of regret that the high expectations originally formed were so fallacious. [Speaking for ourselves, the *Builder* must here be accepted, since we never for a moment lost confidence in the final success of the Bessemer process;] but the storm gradually subsided, and the process and its author were soon nearly forgotten. Imperfections in the process there certainly were, but the author had had the most irrefragable proof of the correctness of the theory on which his invention was based, and also that the reasoning on which it was so utterly condemned by the trade was in itself wholly fallacious. He therefore decided not to argue the question against a hundred pens, but to energetically prosecute his experiments, and to remain silent until he could bring the process to a commercial success. When, at the expiration of three years of incessant labour on the part of himself and his partner, Mr. Longdon, and an expenditure of more than 10,000*l.*, the process was again brought before the public, not the slightest interest was manifested by the trade. This was discouraging, and one of two things became imperative; either the invention must be abandoned, or the writer must become a steel manufacturer. The latter alternative was unhesitatingly accepted, and Messrs. Henry Bessemer & Co. determined to erect steel works at Sheffield, in the very heart of the stronghold of steel-making. At these works the process had ever since been successfully carried on: it had become a school where dozens of practical steel-makers received their first lessons in the new art, and was the germ from which the process had spread into every state in Europe, as well as to India and America.

By the time the new works at Sheffield had got into practical operation the invention had sunk so low in the public estimation, that it was not thought worth paying the 50*l.* due at the

expiration of three years on Mr. Mushet's large batch of manganese patents. They were consequently allowed to lapse, and become public property. The author had therefore used without scruple any of the numerous patents for manganese without feeling an overwhelming sense of obligation to the patentees.

At the suggestion of the author, works for the production of manganese and alloys were erected by Mr. Henderson, at Glasgow, who now made a very pure alloy of iron and manganese, containing from 25 to 30 per cent. of the latter metal, and possessing many advantages over Spiegel Eisen, which it would doubtless replace.

Specimens of iron manufactured by this process and afterwards bent and tested in every way, were exhibited on a table in the room.

The paper proceeded to notice some of the more important applications of steel as a substitute for wrought-iron. In no case, it was pointed out, was this change of material more important than in the construction of ships, for in no instance were strength and lightness more essential. Bessemer cast-steel ship plates were then described, and their advantages illustrated by facts and statistics. The application of steel to projectiles was next considered. Next its uses for railway purposes, such as the manufacture of engine-cranks, axles, tires of wheels, and even rails. The paper described successful experiments which had been made in the use of cast-steel for these purposes. It concluded by stating that cast-steel was now being used as a substitute for iron to a great and rapidly-increasing extent.

There were now seventeen extensive Bessemer steel works in Great Britain. There were at present erected, and in course of erection, in England, no less than sixty converting vessels, each capable of producing from three to ten tons at a single charge. When in regular operation, these vessels were capable of producing fully 6,000 tons of steel weekly, or equal to fifteen times the entire production of cast-steel in Great Britain before the introduction of the Bessemer process.

The average selling price of this steel is at least 20*l.* per ton below the average price at which cast-steel was sold at the period mentioned. With the present means of production, therefore, a saving of no less than 6,240,000*l.* per annum might be effected in Great Britain alone, even in the present infant state of the steel manufacture.

At the conclusion of the paper a discussion took place, in which Mr. Wm. Fairbairn, Sir Wm. Armstrong, Mr. Bramwell, and other gentlemen took part; and it was resolved that Mr. Bessemer's paper should be printed.

Although there have been much more brilliant meetings of the British Association, the Birmingham meeting has been an interesting and successful one.

COALBROOKDALE.

DURING the recent meeting of the British Association for Science, a party of excursionists proceeded to Coalbrookdale, and were received at the station by Mr. G. Maw. Here, by the aid of diagrams, he briefly explained the geology of the district, and then conducted the party to Buildwas Abbey, which was described by the Rev. Mr. Wain, rector of Wenlock. After viewing the abbey, the geologists next inspected the drift beds adjacent. The old monks of Wenlock had here made their burial-ground, and recently vast numbers of skeletons had been exhumed from the drift; and Mr. Maw observed that, if the local geologists had not been extremely conscientious, they might have attempted to impose upon the scientific world, and have produced a large collection of Abbeviller jaws. The party then divided into two sections, one of which, under the direction of Mr. Randle, went to inspect the fossiliferous beds at the base of the Wenlock shale, and the other went direct to Benthall Hall, where they were afterwards joined by the other section. Mr. Maw hospitably provided luncheon, to which ample justice was speedily done. The encaustic tile works of Messrs. Maw & Co. were next visited, and the various processes shown and explained. A piece of tessellated mosaic work, designed for the frieze of the India Office in London, was in course of formation. Mr. Maw explained that such work in ancient examples, as in Granada, was never used except for walls, yet at the Crystal Palace it was to be seen laid as flooring. This mosaic work for the India Office is the first piece of that kind of decoration which has

been used in this country. 50,000 pieces are contained in a single square yard, and in some parts there are four or five times that number. The works of the Coalbrookdale Iron Company, at a short distance, were then inspected; and, under the guidance of Mr. Crook, the visitors were made to comprehend the various processes of moulding, pouring the iron, and fitting up the various kinds of castings. A table-top was cast in their presence.

By invitation of the Severn Valley Field Club, not only the visitors to Coalbrookdale, but also those who, in the early part of the day, had been to Wroxeter to visit the remains of the ancient Roman city of Uriconium, assembled at dinner in the Literary and Scientific Institute. The dinner was presided over by Mr. Dickenson, of the Coalbrookdale Company. Professor Phillips, Lord Stanley, Mr. G. More, M.P.; Dr. Kirk, the coadjutor of Livingstone; Mr. Frank Buckland, Mr. Hepworth Dixon, and others, were present, and spoke in an appropriate manner to the several toasts to which they responded.

THE ACTION OF SULPHIDE OF LEAD, WITH REFERENCE TO PICTURES.

IN the chemical section of the British Association for Science, Dr. D. S. Price read a paper "On the Action of Sulphide of Lead, and its bearing upon the Preservation of Paintings in Picture Galleries." The author had been led to an investigation of this subject by observing that in the glass cases at the Crystal Palace, which are painted with white lead, substances which emitted sulphurous vapours did not cause a darkening of the surface of the case, excepting where it was protected from the direct influence of the light. A number of experiments were subsequently tried on the action of light on sulphide of lead produced by the action of sulphuretted hydrogen on lead paint. A board painted with white lead was exposed for several hours to the action of sulphuretted hydrogen gas, until the surface had acquired a deep brown or chocolate colour. Glasses of different colours were then placed upon it. It was then exposed—one portion being at the same time covered with an opaque medium, and another left wholly exposed. The board which had been thus painted was exposed to the action of the light, and several impressions were photographed by the light acting through the glass. The glasses employed were red, blue, yellow (silver), smoke, and violet. The results were that the portions, as before observed, exposed to the light were bleached, those protected remaining unaltered, while intermediate effects were produced with glasses of different colours; drying oils, when exposed to the action of light, rapidly bleached; and when boiled oil was used, still further action was produced.

Professor Hofmann, confirmatory of the lecturer's remarks, also observed that blue, which had become faded, when exposed to light assumed its almost original brightness. This accorded with the evidence of Mr. Farren, who had exposed a picture to the light, when the blue portion which had greatly faded became restored.

Mr. George Wallis, of the South Kensington Museum, also made several observations, and instanced the fact that some old picture dealers, not very careful of truth, were accustomed to make new pictures look like old ones by the method described. He did not know whether he ought to say so, as it would probably go forth to the public; but it was a fact that the air of South Kensington was purer and better for the preservation of pictures than that of the National Gallery. A landscape exhibited by the lecturer had a very amusing appearance—the parts covered by an opaque medium retaining their original colours; those portions exposed to the light looking as if mellowed down by age, or rather as if it had undergone an extraordinary whitening process.

LONDON COW-SHEDS AND THE CATTLE PLAGUE.

WE are told that the observations we have made respecting the metropolitan cow-sheds and the corporate and parish management, have caused anger on the part of those who have an interest in keeping up abuses, and continuing in an old-fashioned course. Some City functionaries connected with Newgate market have spoken of

the *Builder* as having written "sensational articles." In reality, however, we have simply, but earnestly, told the truth. Years since, and from time to time, we have given notes of warning on this special point. It would have been better for all if they had been listened to. We hear that the paper referred to has been the means of causing damage to the cow-keeper of St. Bartholomew's-cloze. We are sorry for the woman, if it be true that her means of living have for the present been taken away; but if, as we are informed, the cows have been in this instance removed, while in a state of good health, so that, if needful, they might be disposed of at their true value, the owner may regard the circumstance as fortunate. In all directions the murrain is doing its deadly work. In a cow-shed, one of the best construction, near King's-cross, which we have had an opportunity of inspecting, when we saw the place there were 201 cows lying in long perspectives, and great care seemed to be taken respecting the beasts, which but a short time ago were in good condition. Nevertheless, Dr. Hillier, the medical officer of health of St. Pancras, reports that within the last fortnight eighty of these cows have been taken away seized by the disease, and who can say what a few more days may effect? If we consider the 210 cows at 20s. each, a low valuation, there is here a loss of 4,200l. We maintain now, as we always have done, that the keeping of cows in unnatural conditions is a sure cause of disease. Here the state may be better than in other places, but still it is not right; and in more than one article which has appeared in the *Builder*, there has been mention made of the offensive smells which have been passed from here over the neighbourhood. Much has been done; for instance, the London graveyards have been closed; no longer are the burial-places of large cities filled, month after month, with the bodies of the dead. A main system of drainage has been enforced in the capital; the common lodging-houses, both in town and country, have been placed under surveillance, and rendered wholesome; in several ways measures have been regulated for the improvement of health, and other good measures have been carried; the outworks have thus been stormed, but strongholds against sanitary improvements still require to be won.

Look at the sketches and notes in another part of our present issue, respecting Maypole-alley. Here the houses belong to a wealthy man, who owns much property of the same description. This is a matter which shows the need of police inspection of houses largely sublet, for the parish authorities do not and will not do their duty. For the assault of even this one of the walls of the stronghold of unsanitary defence, we are gaining strength every day; why should large house proprietors in towns be permitted to neglect their duty?

VOLUNTARY EFFORTS NEEDED TO OBTAIN SANITARY IMPROVEMENTS.

ELEVEN years have elapsed since I addressed you upon the subject of the preventive measures required to be recognised and adopted against the spread of cholera and kindred diseases.

I then submitted a report of the labours of the Local Board of Health for the parochial district of Regent-square Church, St. Pancras, during the year 1854.

Whether or not the suggestions contained in that report, and noticed several times in your *Journal*, have been acted upon elsewhere, I cannot say, but my experience has since confirmed me in the opinion I then held previous to the passing of the bills presented to Parliament by Sir Benjamin Hall, viz.—that no Acts of Parliament are ever likely to render individual exertion unnecessary.

Local self-government has many advantages; but it has also its disadvantages, and one of the chief is the difficulty of finding a vestry willing to augment the taxes of its own parish by adopting active sanitary measures of a preventive character.

The most that is commonly done, is the reception of the complaints of the ratepayers, and requiring the abatement of the nuisance complained of; though sometimes, unless the matter is followed up by the complainant, the Sanitary Committee ceases to interest itself in the matter, and the guilty parties effect a compromise,—at least as much consideration being shown for the pocket of the owner as the health of the occupier and the public generally.

Fevers still exist, generating and fostering disease; sometimes through the ignorance of the people themselves, and sometimes from the apathy of the authorities and the indisposition of intelligent individuals to act as informers.

Consequently, notwithstanding successive sanitary Acts of Parliament, there seems to be still the same want which was felt by the Incumbent and Committee of Regent-square Church during the cholera of 1854, viz., a want of some well-informed person or persons, backed by an independent and public-spirited committee, whose business it should be to discover and report the nuisances existing in the district, that they may be referred to the action of the constituted local authorities in the event of their continuance after a proper notice to remove them.

In the experience of the Regent-square Board it was found to be unnecessary to do more than to serve a notice upon offending parties, pointing out the nuisance, and requiring its removal in accordance with the provisions of the sanitary Acts of Parliament; while many were glad to engage the services of the inspector to superintend the works required to be done, and thanked the Board for its valuable suggestions.

Just as there are district visitors among the poor, attached to every church; so there might be a sanitary committee, and a paid inspector, who should be under the direction of an honorary consulting architect or surveyor, upon the plan adopted at Regent-square Church.

EDWARD C. ROBINS.

CHURCH OF ST. HELEN, BISHOPSGATE.

It may perhaps be interesting to some of our readers to learn, that in the repairs and restorations now being carried out under our superintendence by Mr. Westacott, we have, after removing sundry coats of whitewash, discovered at the east end of the church, over the altar, some very spiritedly executed cherubs' heads, with effulgent rays, and Jehovah's name in Hebrew: they were (at some time not very long distant, and still in the recollection of some of the older parishioners) covered over to save expense of restoration; and having passed out of sight were virtually forgotten.

It appears by the parish books that Sir Christopher Wren was consulted as to the repairs of the church in 1696, and a rate of 6d. in the pound was afterwards made. It is probable, judging both from the character of the work and the fact of Sir James Thornhill having been employed by Sir Christopher on several of his other works, that the painting is Sir James Thornhill's; whether it be so or not, it is certainly of masterly execution.

An extra parochial committee has been formed to aid and assist the parish and churchwardens, including Alderman Copeland, Mr. William Tite, M.P., Mr. Foster White, Mr. William Williams, and Deputy Jones, treasurer. And it is proposed to restore the roof, over the nuns' choir, replace that over the chantry, and restore such other portions as the funds contributed will enable them to do. The work now in progress is at the expense of the parish, who have passed a rate for this purpose.

No alteration is proposed to be made in the seating of the church, but the accumulated whitewash of centuries will be removed; and, as far as the funds in the hands of the churchwardens will permit and the assistance of friends will allow, the various objects of historical interest, such as the monumental and archaeological antiquities, will be restored and preserved.

WADMORE & BAKER.

P.S. We may mention that some further portions of the hagiocope have been found, together with one of the original triplet windows of the chantry. The other two have been destroyed by the introduction of one of later date.

THE THREATENED EPIDEMIC.

The special committee appointed at the conference called by the Association for the Promotion of Social Science, held a meeting on the 12th inst., when a number of important resolutions for a course of action, in compliance with the resolutions of the conference, were discussed and partly settled. Mr. Edwin Chadwick, C.B., was in the chair, and Dr. Aldis, Dr. Lankester, Dr. Hardwicke, Mr. C. Hawkins, Mr. Rendle, Mr. Godwin, Dr. Dobell, Mr. Beggs, Mr. J. N. Radcliffe, Dr. Milroy, and others, took part in the discussion.

UNDERGROUND ROOMS: CRYPTS.

SIR,—Permit me, in common fairness, to state my defence to "G. W."

I have built much, and invariably employed an architect; and in this special case have employed one of no mean abilities; at least, your paper has illustrated his designs. Abernethy's wise saw of "Take advice," I have followed, but find the modern instance of "doctors differ" illustrated. I pay all deference to architects' elevations and plans, but I must question their talents in details. They may succeed with churches or chapels, but with houses they are far behind the march of intellect. I have seen errors in many mansions that would shame a common bricklayer or a country joiner. Did not one of their own profession, Professor Kerr, see fit to give to any one with "siller" in his pocket the means of overcoming at least some of the difficulties that beset the builders of houses? How necessary such a work was a reference to the publishers will quickly tell by its sale. I remember a Yorkshire squire once naively saying to a horse-dealer, "My good fellow, you buy your horses to sell; — [naughty word] nice horse; but I buy to ride, and his forelegs would tumble me down in twenty yards." So with houses: architects build for taste, but clients have to live therein.

To my original inquiry, my architect tells me I can only have these crypts (or call them as you will) as alcoves similar to those in the Sydenham and Kensington Gardens. Now, these crypts are really dungeons, or soldiers' rooms or dormitories of one of the oldest castles in the North of England. I am anxious to engraff this old bit into the new hall, most especially by making them habitable. My architect has suggested almost what "G. W." did, a thorough current of fresh air below. But where he demurs, and I receive so many conflicting opinions, is in regard to a perfectly dry covering, which is a gravelled terrace walk. I am anxious it should be habitable, and at the same time perfectly healthy. So far, I have been unsuccessful. I have great objections that this part of the castle (and almost the only part), of one of the oldest castles, inhabited once by a French ambassador mentioned by Shakespeare, and a younger branch of the extinct premier earl of England, should degenerate into a garden summer-house. Such, and such only, are my reasons for appealing to your columns; not, assuredly, to save myself an architect's fees of 5 per cent., which, pure and simple, would on such a matter be trifling indeed.

AN AMATEUR.

DRY-ROT IN DWELLINGS.

SPRING in the *Builder*, p. 630, some observations relative to dry-rot and its effects, it brought to my recollection cases in action not dissimilar and equally destructive. At different times while engaged in the superintendence and execution of work in this and the sister kingdom, I was astonished at the wholesale havoc made by dry-rot beneath floors, under roofs, wainscoting, staircases, window trimmings, &c. In one stone-built house on the seaside particularly, where the joists were raised on dwarf walls, and where ventilation, it was to be supposed, had full play, the fungus generated, and revelled in the havoc that it made. The joists in most places had lost their bearings, and the flooring when I had it lifted was eaten almost through. In the under side of the boards you might pick a hole in any part with your nail, and displace any quantity with the least effort. Those parts of the window trimmings technically called in carpentry, backs, elbows, and boxings, on their inner side were coated over with a complete sheet of fungi, and when disturbed by their removal gave forth a heavy, sickening, and charnel smell. The wall immediately behind the window shutters and box lining was also coated over with the woolly spawn, and here and there between the joints of stone, where no necessity existed for a coat of plastering, on account of those portions being bid by the woodwork, I could observe the matter oozing forth in its incipient state. The timber used appeared to be the best and deal originally, but it was so completely eaten through that nothing kept it from open embrasure to the room but the several coats of paint which it had from time to time received. Several of the most expensive and richest description of paper-hangings, which were put up, from time to time, were in a short time as often completely de-

stroyed from the emanations through the plastering.

The walls had at last, in the principal rooms, to be studded from ceiling to floor, and sheeted with thin boards, over which a covering of oil-cloth was put before receiving the paper.

The owner was anxious to know from me the occasion of the rot. I soon informed him, in this instance, of the cause.

The particular house in question was one of a series designed of a unique and elaborate Gothic character, of which three were finished, which were similarly affected by the "rot." An unprincipled contractor, to whom they were entrusted, and who had got his price, not wishing to act honestly, and being determined to leave the country indebted before they were finished, used the worst material of stone and mortar in their erection.

Being in close proximity to the sea-side, he indiscriminately used the sea-sand for outside and inside purposes. The saline property of the sea-sand, which was used for inside building purposes, told its own tale, and exhibited its effect as I have stated.

I may remark, I have also, from time to time, come in contact with cases of dry rot showing no appearance of fungi; quite dry and crisp, and giving but little of the characteristic smell.

Two of the best precautions I wot of to provide against the occurrence of this timber plague, is the adoption of thorough ventilation underneath floors and other places similarly circumstanced, and complete avoidance of sea-sand for inside purposes, and in all other places where the preservation of timber in house-building is indispensable. C. H. C.

SOCIAL SCIENCE ASSOCIATION.

THE ninth annual meeting of this Association will be held in Sheffield, from Wednesday, the 14th, to Wednesday, the 11th of October, under the presidency of Lord Brougham.

The following are the special questions for discussion in the Health Department:—

1. In what way can the unnecessary Exposure of Workmen to Dangers of Life or Health be best avoided, especially in Collieries, Mines, and Manufactories?

2. What are the best means of preventing the Spread of Contagious Diseases?

3. To what extent can the Contamination of Air in Towns be diminished? And by what means?

4. In that of Economy and Trade the following questions will be discussed:—

1. What are the best means of establishing a system of Authoritative Arbitration between Employers and Employed in cases of Strikes and Lock-outs?

2. Can the Principles of Co-operation be Profitably applied to Production? And, if so, under what conditions?

3. Is it desirable to Consolidate the existing Railways of the United Kingdom into one System under Government control?

4. In the department of Education, a section of art has been added for the consideration of the following and other questions:—

1. "What Improvements can be made in the Schools, Museums, and Exhibitions of Art, with a view to the Development of the Public Taste, and the Prosperity of our Manufactures?"

WORKS IN LOUTH, LINCOLNSHIRE.

THE corporation of Louth met on Tuesday last, to receive tenders for the erection of a Market-house in the Market-place. For many years the accommodation for the country people has been which only as the open streets afforded; and in this respect Louth presents a marked contrast to the surrounding country towns, which are for the most part provided with comfortable market-houses, well frequented, and particularly on a market-day. The corporation, however, having at last taken the matter in hand, the whole of the provision-market is to be transferred to the new Market-house. The proposed building is about 100 feet long by 60 feet wide, and is roofed with a single span semicircular iron trussed roof, supported partly on brick pillars and partly on foliated stone corbels. On one side of the hall are three butchers' shops, and an office for the market-keeper. At the south end, and facing the Market-place, is a

handsome and lofty clock-tower of ornamental brickwork, with dials on each side; above which, and resting on a moulded brick cornice, is a square hipped roof, with dormers on each side; the whole being surmounted by an octagonal spire, with gables crocketed and finialled.

The scheme also includes the rebuilding of four new shops, with dwelling-houses attached, in front of the Market-house, replacing a number of buildings exceedingly dilapidated and disreputable in appearance, and extending from the Market-place to the Town-hall in Eastgate.

The architects, Messrs. Rogers & Marsden, of Louth, have in their design adopted a purely constructional character, the ornamentation being in brickwork, stone, and terra-cotta. In treatment and detail generally, the design is Italian Gothic. Four builders resident at Louth were invited to tender for the works; of these, Mr. William H. Coulman's offer, being the lowest (£5,967.1), was accepted by the council, and the work will be commenced immediately.

CERAMIC ART.

IN the park of St. Cloud, the new (Sèvres) porcelain factory in progress of erection is expected to be finished next year, and is so far advanced that one can form an idea of the general arrangement of the buildings. The principal one consists in an underground story lighted by loopholes, a ground-floor, a first-floor, and an upper story with a mansard roof. Three pavilions, united together by galleries, compose the frontage. The underground story is to contain the immense and valuable collection of moulds of important artistic interest. On the ground-floor are the sale-rooms; and on the first-floor the library and ceramic museum, terra-cotta works of art, glass and crystal articles, paintings and enamels on glass. The workshops, drying-galleries, and ovens, are in the rear of the buildings.

Every diligent art-student who has travelled on the Continent has visited the magnificent Ceramic Museum at Rouen, belonging to the municipality, and collected by M. Fottier, conservator of the departmental library and antiquarian collection. This *savant* has just added to the *salon* a glass case containing a collection of all the original tools and instruments which have been employed in the manufacture of Rouen pottery. They are the gift of an ancient manufacturer of porcelain, who has now retired into private life.

COLOUR FOR CEMENT.

SIR,—I should feel much obliged by being informed what kind of colouring to use for my house, which is situated upon an elevation, and is exposed to the action of the south-west wind and rain. The colouring I have hitherto used is constantly blistering off, and consequently puts me to considerable expense, as the house is large, and requires repainting in proportion. The walls are faced with Portland cement.

SOUTH WALES.
* * We have asked a similar question before without effect. Masters profess that good Portland cement needs no colouring at all; or, at any rate, only a wash made with the same material. It may be that the cement of our correspondent's house is itself bad, and thence the blistering. Much of what is called Portland cement is merely rubbish.—Ed.

CUSTOMS OF THE BUILDING TRADE.

AT the Sheriff's Court on Tuesday, before Mr. H. F. Gibbons, deputy judge, points were decided in reference to the rules governing masters and workmen in the building trade. In the first case, Potts v. Westcott, the plaintiff, a labourer, sought to recover arrears of wages, and alleged that he had been employed by the defendant upon some scaffolding work, for which he was entitled to claim 4d. per hour. He was only paid 4d. per hour, and hence the present proceedings. Defendant stated that plaintiff had been employed upon scaffolding work for five weeks, during which time he had been regularly paid 4d. per hour; but the work giving rise to the present proceedings was ordinary labourer's work, and, according to the rules of the trade, plaintiff was only entitled to 4d., which was duly paid to him. Plaintiff replied that the great question was whether he was to be paid 4d. or 4 1/2d. per hour; and he might inform the court that, in some places, the men were agitating for 5d. per hour. It was for this sum that Messrs. Cubitt's workmen had struck, and no doubt the matter was not yet settled. The Judge said he had nothing to do with any strike; the only question before the Court was, whether the plaintiff had really been employed upon scaffolding work during the time for which he claimed the extra farthing. Plaintiff could swear that he had been engaged by the defendant to do some scaffolding work, and he was regularly timed at 4 1/2d. per hour for five weeks, at the expiration of which time he was put on the short money. The alteration took place just about the time of the strike by Messrs. Cubitt's workmen. Defendant was prepared to prove that he had adhered to a rule well known in the trade. This, of course, was

quite a matter of principle with him, and he wished to point out to the Court that he did not rest his defence upon any question of strike or agitation, but upon a fact that plaintiff had been actually paid in accordance with a scale of which he himself was well aware. The Judge was of opinion that plaintiff had not made out his case, and was inclined to believe that defendant had paid him the fair and proper amount of wages. It was quite true that the plaintiff had been in the employment of the defendant at higher wages than those paid him for the job giving rise to this action; but it was not denied that when plaintiff was paid under the higher scale, he was employed upon scaffolding work, which was sworn by defendant to have been finished at the time the reduction of the wages was made. Plaintiff would be nonsuited.

The second case was James v. Wagstaff, and the plaintiff, a journeyman builder, sought to recover a sum of 7s. which had been stopped as his share of some damage done to a sheet of plate-glass. Plaintiff stated that he was at work for defendant, and an accident occurred to a sheet of plate-glass. Defendant assessed the damage at 21s., and as there were three men on the job, stopped 7s. each. The other men submitted, but plaintiff refused. Defendant stated that he employed over one hundred men, and the rule of the shop was that when any gang of men did any damage, it was paid for amongst them. Now, on the day of the accident plaintiff, with two other men, was very busy with some sashes, one of which they allowed to drop upon the glass. The damage was 21s., and it was stopped in the usual manner. Plaintiff denied that he was engaged with the other men. He was passing along, and one of the men, flinging a sash too heavy for him, called plaintiff to assist him. This plaintiff did, and the sash-line slipped, letting the sash fall upon a sheet of glass. As to the rule plaintiff knew nothing, nor had he been told anything about it.

Defendant called his foreman, who said that the rule was well known in the shop; and when the accident occurred he was called in and the matter settled. Each man laid it out on the other. Plaintiff had always denied that he caused the accident, and thought he could not be bound by the rule.

The Judge considered that the rule was a very reasonable one. Plaintiff did not, and left the shop rather than submit. The Judge said there was a very reasonable rule to which the other workmen had been parties, and to which they had submitted. If plaintiff worked at a shop, it was his duty to make himself acquainted with its rules.

Plaintiff thought they should be stuck up in the shop. The Judge did not agree with this, and considered that plaintiff had been very ill-advised in bringing this action. He would now be nonsuited.

STRIKES AND OTHER TRADES QUESTIONS.

THE saw-mill labourers lately in the employ of Messrs. Barram & Co., Belvidere-road, Lambeth, went on strike for the advance of 4d. per hour, were recently joined by those of Mr. Alcock. The labourers employed at the building-yards and saw-mills in Lambeth have nearly all received an advance, in some cases of 4d. and in others of 1d. per hour. They have all been contributing to the men on strike.

Louth.—Most of the operative joiners in the town have struck for an advance of wages.

Yarmouth.—The carpenters and joiners of this town are seeking an increase of wages, from 3s. 6d. to 4s. per day.

Huddersfield.—At the Huddersfield Police-court lately, a Mr. A. Graham, stonemason, was summoned by an operative for 3 1/2 days' wages, at 27s. a week. Defendant pleaded that the man was only worth 24s. a week; but the master masons of Huddersfield have recently issued placards offering 27s. a week wages, and the complainant had been induced to come to Huddersfield in consequence of the representations made in the placard, and had made no agreement whatever as to wages. The defendant contended that no agreement having been made, he was at liberty to pay the complainant what he thought he was worth; but the bench considered he ought to pay 27s. a week, as stated in the placard, and they made an order for the amount claimed.

Low Moor.—The Low Moor Company, says the Bradford Observer, employ an omnibus to go round the out district every morning for the purpose of collecting their workmen and bringing them direct to their work. By this means the men are prevented dropping into public-houses on the way, and so losing much time. The plan has succeeded so well that it is intended to carry it out on a wider scale by employing more busses.

Suicidal Results of Strikes and Outlooks.—The London agents (Messrs. W. Bird & Co.) for a foreign house (Messrs. Schneider & Co., Le Creusot, France), in a business circular, offering foreign manufactured iron and machinery to English firms at less than English prices, say:—The employment of foreign manufactured iron in English engineering establishments is no longer unusual. We have delivered special descriptions even into the very centre of our iron districts, and have also profitably supplied from foreign sources many castings that would derange and interfere with the appliances of an English ironfounder, and are made here only at greatly increased prices. Without under-

rating the great capacity and power of the various branches of the English iron trade, with whom we continue, as heretofore (unfettered), our long-existing relations, it is obvious to every one that, by the operation of 'strikes' and 'lock-outs' alone, the great natural advantages of the English ironmasters have been considerably curtailed, and the carrying out of important undertakings sometimes jeopardised, and even altogether prevented. Other sources of supply, even though foreign, have therefore become a necessity of the times."

CHURCH-BUILDING NEWS.

Heytesbury (Wilts).—The ancient collegiate church of this parish is about to be restored, under the direction of Mr. Butterfield, and the cost will be principally borne by Lord Heytesbury, aided by the ratepayers and the public.

Stoke Courcy (Somerset).—The old Norman church of St. Andrew has been re-opened after closure for two years, during which it has been restored, at a cost of about 6,000l. At the east end of the church is a triplet window, with zigzag mouldings. The window represents the birth, crucifixion, and resurrection of our Saviour, and was given by Sir Peregrine Acland and Lady Hood, as a memorial window, in remembrance of the late Lady Acland. The superaltar is composed of a massive slab of black marble, the diaper on which is illuminated and gilt. The platform upon which the altar is raised is ornamented with encaustic tiles, which bear upon their front the following text,—"Do this in remembrance of me." On the south side of the chancel is a Norman window, of stained glass, representing St. Andrew, the patron saint of the church; and near it are three sedilia, the canopies of which are supported on marble columns. On the north side is a Norman credence table, and a doorway of the same period leading to the vestry. The roof of the chancel is also of Norman design. In the north aisle is the organ, with illuminated pipes. The seats are open, with carved oak ends, and are chiefly the old ones restored. The stalls in the chancel are also of oak, facing north and south. The tower contains six bells, the last of which, by Mr. Warner, of London, was presented by Sir Peregrine Acland, who also gave a clock, by Mr. Dent, to the church. All the bell-cages and timber connected with the various stages of the tower have been replaced, by Sir P. Acland, with oak beams. The parapet was removed and restored, and the spire was almost entirely reconstructed at the same time. The west gable of the church is adorned with a St. Andrew's cross. The whole exterior of the church has undergone a restoration; and whilst examining some perpendicular windows in the tower, the old rude Norman windows were discovered, which were afterwards restored, and inserted in the place of those of the later period. The church is paved with encaustic tiles, and during the time the work of restoration was being carried on, it was discovered that the level of the church had been raised nearly 2 ft. The old level was then restored, and in doing this some of the ancient encaustic tiles were found, which have now been inserted in the pavement near John de Verna's tomb, in the south aisle. Near the entrance of the church there is an ancient Norman font, which had long been thrown aside, and was actually being used for the purpose of making mortar. Its value becoming known, it was restored, and replaced in the church. The tower is far wider from north to south than from east to west, and thus allows the arches spanning the nave considerable width. The restorations were executed under the direction of Mr. J. Norton, of London, architect. Mr. Brock, of Bristol, was the builder. The illuminations in the church were executed by Mr. Stanell, of Taunton; and the organ was reconstructed by Mr. Ling, of Taunton. The brook which flows before the church has been arched over, and a public road carried round the church. The cost of the whole was defrayed conjointly by the Society of Merchant Venturers of Bristol, Sir P. Acland, and the parish.

West Monkton (Somerset).—St. Edmund's District Church, parish of Dunmanway, has been consecrated. The edifice has been erected in the midst of the romantic scenery lying a few miles north of the town of Dunmanway, in the centre of the property of Captain Shildham, through whose means and exertions it has been completed. The church is a Gothic building,

with a spire. The eastern window (erected by Messrs. Forrest & Bromby) is a memorial. The western window is the gift of the bishop; and the font was presented by the rector.

Sealand.—The foundation-stone of a new church, in course of erection at Sealand, has been laid. The want of such an edifice a little beyond midway from Chester to Queen's Ferry has long been felt, and the River Dee Company have not only given the ground, but reared the structure at their own expense. Mr. Douglas, of Chester, is the architect, and Mr. Bellis, also of Chester, is the builder. The church will be in the parish of Hawarden, and will take the name of St. Bartholomew. The edifice is designed in the Early Gothic style, and in plan consists of a chancel with stalls and sedilia; nave seated with open benches to accommodate 200 adults and 100 children; font under the west window; small transept on the north side of the nave to receive the organ; and vestry on the south side of the chancel, under the tower, which will be 60 ft. high. The church will be entered through a porch on the south side. A small doorway in the west side of the tower leads to the vestry and chancel. The building will be constructed of stone from the Helsby quarries, the interior being entirely finished in chiselled masonry. The timbers of the roof will be visible from the church.

DISSENTING CHURCH-BUILDING NEWS.

Halsted.—The memorial stone of a new Congregational chapel has been laid here. The new building is intended to take the place of the old barn-like structure, known as the "old Independent meeting-house," Parsonage-street, on the site of which it is now being rapidly reared. The exterior of the new building is faced with Kentish rag-stone, and Caen-stone dressings, in the decorated style of English Gothic. The north front consists of a centre gable, surmounted with a five-light crocketed finial, 60 ft. high, and filled with a five-light tracery window. Below this are two two-light windows under the end gallery, separated by a canopied buttress. On the east and west sides are two two-light windows, divided by transoms into two heights, and having buttresses between them, the buildings containing the front staircases forming one wing and the other wing being the transept gables, filled with three-light tracery windows, 20 ft. high. Attached to the transept on the west side is a tower, containing one of the staircases, surmounted by a stone spire 110 ft. high. The plan is a parallelogram with an apsidal end, the extreme length from north to south being 70 ft. and 42 ft. wide from east to west, with transepts 60 ft. wide. Accommodation is provided for 800 persons. Internally the main roof is divided transversely into three spans with arched principals in the centre 45 ft. high; and trussed hammer-beams on each side, supported on cast-iron columns with ornamental capitals. The timbers will be wrought and stained, and the ceilings formed of varnished boarding. Galleries will extend round the four sides of the chapel, approached by two staircases in the front, and two others attached to the transepts, which will have direct communication with the schools below, with the ground floor, and the galleries. The schoolroom below is capable of accommodating 360 children; there are also four classrooms. Messrs. Sudbury & Son, builders, Halsted, have taken the contract for 3,000l. from designs by Mr. Frederick Barnes, of Ipswich, architect. About 600l. or 700l. additional will be necessary for other expenses, making the total cost about 3,700l.

Brighton.—The members of the Wesleyan body in this town have, for some time past, been engaged in raising funds for the erection of a new chapel at the west end. A site has been purchased in Norfolk-road. The design for the building, we understand, is by Mr. Ellison, of Liverpool, architect, and the edifice is intended to seat 1,000 persons. The entire cost, including ground, &c., is estimated at about 5,500l. About 2,000l. are still required.

Church Stretton.—The foundation-stone of a new Congregational chapel has been laid here. The site is nearly in the centre of the town. The chapel will be 50 ft. by 24 ft., and will afford sitting-room for 300 people. The front will be of freestone. Mr. Bratton, of Birkenhead, is the architect, and Mr. Richards, of Palley, the contractor. The estimated cost is about 700l., and nearly 400l. have been already subscribed.

STAINED GLASS.

Boyn-hill Church, Maidenhead.—Two stained windows, by Messrs. O'Connor, have lately been placed in this church at the expense of the Misses La Motte. They are placed at the west end of the church, one on either side of the large west end window. The subject on the one on the north side is "The Ascension." The subject of that on the south side is "The Nativity." The whole of the windows in this church are now filled with stained glass, numbering twenty-seven, including the two large east and west windows. A tower to this church is now just completed. Mr. Street is the architect, and Messrs. Silver & Son are the contractors, who are completing the spire.

Walberton Church, Sussex.—The chancel of this church has been adorned by the addition of three stained-glass memorial windows, designed and executed by Mr. Clutterbuck. The subjects, nine in number, embrace some of the principal events in the life, death, and resurrection of the Saviour.

Basford Church, near Nottingham.—The subject illustrated in the memorial of the late Duke of Newcastle, is the Worship of the Magi, as emblematic of the duke's attachment to the church. There are two upright lights, in the one of which Mary is seated, with the infant Saviour on her knee, while Joseph holds up a lily, the emblem of the Virgin. The three eastern monarchs are seen in the other compartment worshipping, and presenting their offerings; while their Asiatic attendant, with a camel, appears behind. Underneath are the emblems of our Lord, the Lamb and Banner, and the Pelican feeding her Young. Messrs. Ballantine & Son, Edinburgh, are the artists. The east triplet window has also been filled with memorial glass of a similar character, executed by the same artists. The subjects are,—"Christ blessing Little Children," "The Lord's Supper," and "The Crucifixion." These lights are erected in memory of Adolphus Marx, of Nottingham; John Rogers Pittman, incumbent of St. Barnabas, Kensington; and Ichabod Wright, of Mappley Hall.

Melbourne Church.—This church has lately had placed in it a stained glass window, to the memory of the late Judge Cantrell, who aided in the restoration of the edifice. The window, which is by Mr. Harding, of London, is placed in the north transept, near the family vault of the deceased judge. The design represents Moses, as the lawgiver, with the commandments written on two tables of stone.

All Saints' Church, Emscote.—A new subject has been introduced into the chancel window of this church. It is a figure of St. Alban, proto-martyr of England, as a Roman soldier, bearing a sword; and in another compartment underneath, the saint is represented about to suffer martyrdom. A soldier by his side stands prepared to behead him; and another, who refused, is being led away to undergo a like punishment. It is the work of Mr. T. Dury, of Warwick.

Chaddeley Corbett Church, Worcestershire.—Mr. Perrins (father of the Mayor of Worcester) has presented to the church of his native parish, Chaddeley Corbett, a stained-glass window, which is now in hand in the atelier of Mr. George Rogers, of Worcester. The design presents the leading events in the life of our Lord, and includes a multitude of figures.

Presbyterian Church, Swansea.—The large window of this church has been filled with stained glass, executed by Messrs. Ballantine & Son, Edinburgh. In the centre light the Burning Bush, and the motto, "Nec Tamen Consumebatur," are introduced, and the other pictures of the window are filled with foliated and geometric glass of the Decorated period, in accordance with the style of the church.

Clonsilla Church, Omagh, (Ireland).—A memorial window, having three upright lancet lights, with three large circular shapes in the top tracery, has been erected in this church. The groundwork and bordering consist of early foliated mosaic glass, deep in colour. The Galbraith shield, crest, and motto, are introduced into the dexter and sinister compartments, and an escutcheon in the centre light. The window was executed by Messrs. Ballantine & Son, Edinburgh.

Presbyterian Church, Leghorn.—Two memorial windows have recently been sent to the church, executed by Messrs. Ballantine & Son. They are large lancets, and are filled with foliated grounds, borderings, and geometric figures. One window contains the Henderson arms.

Books Received.

"PENNY READINGS, in Prose and Verse: selected and edited by J. E. Carpenter. F. Warne & Co., Bedford-street, Covent Garden."—The Government of the Country: How we are Governed; or the Crown, the Senate, and the Bench. By Albany Fonblanque, Junr. Revised to the present Date, by W. A. Holdsworth. F. Warne & Co., London."—Mr. Warne, late of the Routledge firm, opens the publishing business of a new company with these two popular works, each of them very useful in its way. Of the origin of the penny-reading movement Mr. Carpenter says: "We learn from an admirably written pamphlet by Mr. Charles Scully, editor of the Ipswich Express, that the 'penny readings' now adopted at so many literary, scientific, and other kindred institutions, were established by himself, associated with Mr. Gowing, in the same town, as far back as 1859. In some sense, however, the idea was but the revival of an old one, doubtless quite unknown to these gentlemen; for, as many as five-and-thirty years ago, a series of 'readings blended with music' was given, at the Crown and Anchor Tavern, in the Strand, London (now the 'Whittington Club') for which the veteran author, Mr. J. R. Planche, wrote and spoke an address, which we have great pleasure in presenting to our readers, and which may be very appropriately read on the 'opening nights' of the ensuing season. Since their establishment in Ipswich the idea has spread far and wide."—Engineering Facts and Figures for 1864. Edited by A. Betts Brown, Mechanical Engineer, London, and Edinburgh: A. Fullerton & Co. 1865. This "annual register of progress in mechanical engineering and construction" is mainly a compilation from current sources, but contains a varied and useful collection of facts and figures in mechanical engineering, in a handy form.

Miscellaneous.

THE PENRITH SURVEYORSHIP.—A notice of resignation has been sent to the local Board of Health, by Mr. John Ross, their surveyor, who has been appointed engineer and surveyor to the St. Helen's Board of Commissioners.

THE BACUP SURVEYORSHIP.—At a recent meeting of the local Board the appointment of a surveyor was considered. There were four candidates selected from thirty-nine applicants, and the appointment fell upon Mr. Thomas Lee Burne, of Leek.

CODDEN MEMORIAL.—At a meeting of the Codden Memorial Committee, held at Manchester, it was resolved to entrust the commission for the statue to Mr. Marshall Wood. The total subscription was announced at 4,377l., of which more than 3,000l. have been paid into the bank.

NEW GASWORKS FOR SEVENOAKS.—Owing to the rapid increase of building in the Sevenoaks neighbourhood, and the certainty of a new town springing up in the immediate vicinity of the new South-Eastern Railway Station, the present gasworks have been found inadequate to the supply, and the directors determined upon erecting new works; and a piece of ground near Epsom, London, Chatham, and Dover station has been secured.

THE CHINESE COLLECTION.—Passing by the costly jewels, jewel-stands, enamels, and other relics of splendour, what may be called the curiosities of Captain Negroni's collection, now at Piccadilly, have more attraction for us. Here, one case, is a mantle made of the skins of unborn antelope, and near it a carved cameo with a very suggestive intimation on the back of it that the person in whose hands it is found will be forthwith decapitated. One of the vases at which you may look seems to be of plain white porcelain; but, pour some coloured water into it, and the dragons with which it is adorned become visible. There is a bottle containing the essence of crocodile hard by; but, should you feel faint, do not attempt to sniff it, for it is said to be so strong a stimulant that, instead of bringing you to life, it will take you to death. And, it is a very remarkable collection, and is said to be worth half a million sterling. We wonder what it cost the gallant captain of the 2nd regiment of the French line?

THE NEWARK PLASTER WORKS.—A joint-stock company has been formed, to carry on and extend the plaster works of Mr. W. Jacobs, of Newark, who supplied the plaster of Paris used for the Great Exhibition building of 1852, from his large manufactory at the Trent works, Newark. When the business is fully developed, it is said, it will be the largest plaster of Paris works in Europe. Mr. Jacobs is the manager.

COMPENSATION: IN LONDON.—The Weigh House Chapel, says the City Press, being required by the Metropolitan District Railway Company, it was agreed to submit the case for arbitration to Mr. J. R. Clutton, who has just made the following award:—For the chapel, schools, &c., 10,000l.; for the freehold site, 25,000l.; besides a life annuity of 500l. as compensation to the Rev. Thomas Dinwedy.

MEMORIAL STONE TABLET.—The Birmingham Shakespeare Club, by the permission of Mr. Scholefield, M.P., who owns the residence, have placed a memorial tablet on the house in the old square formerly occupied by Dr. Hector, and visited by Dr. Johnson. The inscription states:—"Here in this house Samuel Johnson was the Guest, Edmund Hector was the Host. Of this Host this Guest has written, 'Hector was likewise an old friend, and the only companion of my childhood who passed through the school with me. We have always loved one another.'"

INDUSTRIAL EXHIBITION IN SALFORD.—An Industrial Exhibition has been opened at St. Matthias's Working Men's Club, Silk-street, Salford. The mayor of Salford presided, and was supported by the Bishop of Manchester, the clergymen of the parish, and a number of ladies and gentlemen. The exhibition is a small one of its kind, but contains many objects of interest, contributed principally by working men of the parish in which it is held, many of whom are members of the club. The proceedings having been opened by singing and prayer, the Rev. E. B. Chalmer gave a history of the Salford Working Men's Club, which he said was the first established in this country, and had been the means of effecting a mighty change in the behaviour of the people at the Adelphi.

SANITARY CONDITION OF CHORLTON.—A report from the temporary relieving officer, as to the sanitary condition of No. 2 district, states that the block of buildings bounded by Wilmott-street, George-street, Medlock-street, and River-street, best known by the name of "Pop Gardens," are in an extremely bad condition, chiefly arising from the bad sewerage and neglected state of the ashpits and water-closets, several of the latter being without doors, and so filled with night soil as to render them quite useless, and a great nuisance to the neighbourhood. In Irving-street and Agnes-street are a number of other closets and ashpits in a similar condition, whilst the sewerage in George-street is sadly defective. There are many cellar dwellings in the neighbourhood, the interiors of which are very dirty, owing chiefly to the slothful habits of the occupants. There are at present twenty-one cases of fever in the workhouse, chiefly from the district reported on.

BOLTON TOWN-HALL.—The Bolton Chronicle says,—The town-hall project has at length assumed practical form. The general plan of the building was already determined in the selection of Mr. Hill's design: we have now settled upon the size, and are enabled to arrive at an approximate estimate of the cost. Instead of covering 4,800 square yards, as originally planned, it is proposed to cover about 2,700 square yards only. The large hall, though we have always looked upon it as an essential feature, has been very properly reduced. As first proposed, it would have been 145 ft. by 75 ft.; and in Mr. Hill's plan, 130 ft. by 65 ft.; it is now proposed to be 110 ft. by 65 ft. One session court is to be excluded. Nor is the Free Library and Museum to find a home within the precincts of the town-hall. The result of their various modifications is, that instead of embarking on a scheme which would probably have ended in an outlay of 130,000l. or 140,000l., we have now the prospect of realising a handsome and commodious town-hall at a cost of about half that sum, Mr. Ald. Wolfenden estimating it at not more than from 70,000l. to 75,000l., and inclining rather to the lesser amount. Recognising the advantages of having a local architect along with Mr. Hill in carrying out an erection of this magnitude, the council have associated Mr. G. Woodhouse, of Bolton, with him.

LINCOLN CATHEDRAL.—Workmen have been engaged in placing lightning conductors on each corner of the three towers of the cathedral and along the body of the nave. The man who fixes the wire is fastened to a seat, which, by means of a pulley, is drawn up and down at pleasure. New vases are also to be placed at the top of the roof tower. The cost of the work will be about 300l.

THE HUDDERSFIELD WATER SUPPLY.—At the last monthly meeting of the Huddersfield Improvement Commissioners, it was stated by Mr. Hobson that the Waterworks Commissioners were going to apply to Parliament for power to increase the present water supply. They had to furnish 500,000 gallons daily, to supply the town adequately; but, for the last five months, the gauges showed that all their sources of supply furnished less than 250,000 gallons; and the result was great inconvenience to the inhabitants.

DERRY.—The Lords of the Treasury have given the corporation power to sell to Mr. Bass, for 3,000l., about six acres of Holmes pastures, to be used as a public recreation ground. The widening of a portion of Babington-lane and St. Peter's-street is on the eve of commencement, as is also the erection of a pile of buildings by Mr. Gascoyne, from designs furnished by Messrs. Giles & Brookhouse. Derby, with its narrow and circuitous thoroughfares, built as they were in early times, has yet need of many such improvements to render it equal to the requirements of the present day. The alteration referred to includes the widening of Babington-lane up to Gower-street to a width of 36 ft. Some years ago, the same proprietor, in conjunction with the late Mr. Forman, not only formed Gower-street, at a great personal cost, but also widened Babington-lane from that point to the top. The design also includes the setting back and straightening of a considerable portion of St. Peter-street, in order to coincide with the line of frontage in the lower part of that thoroughfare.

HEALTH OF NATIONS.—On the 30th ult. a lecture was delivered in the large hall of the Mechanics' Institution, Longsight, Manchester, by Mr. Bradley, surgeon, on the subject of "The Health of Nations." The lecture lasted an hour and a half in delivery, and was illustrated by many charts, diagrams, skulls, and other specimens. The lecturer, having travelled considerably in the East (Turkey, Egypt, &c.), and in the United States and Canada, was enabled to speak from his own experience of the sanitary state of foreign countries, as well as of home affairs. In addition to general sanitary matters, the subject of hospitals, infirmaries, and other kindred institutions was treated, especially as respects arrangements connected with ventilation and sanitary state. Allusions and comparisons were made to the customs and plans in foreign countries and in Great Britain. Dr. Roberts, physician to the Manchester Infirmary, was president on the occasion, and at the termination of the lecture a vote of thanks to the lecturer was carried by acclamation. The proceeds were devoted to the increase of the library of the Mechanics' Institution.

DISCHARGING MUD INTO THE THAMES.—At the police-court, Wandsworth, recently, the West Middlesex Water Works Company were summoned by the Thames Board of Conservancy for discharging a large quantity of mud from a reservoir at Barnes into the river. It appeared from the evidence of George Rough, the river keeper, that on Sunday night, the 13th ult., he heard a gang of men working in the reservoir drawing the mud down to the pipe leading to the river, and that shortly after three o'clock on the following morning, when the tide was low, the sluice-flap was raised, and he then saw large quantities of mud rushing into the Thames. He added that the shore was covered with mud for a distance of forty yards. The Board's superintendent of works said that he spoke to the foreman, and cautioned him not to allow the mud to be discharged into the river. The river keeper also proved that he served a notice a month before the occurrence. The company's engineer said the works were let to a contractor, who received orders not to discharge the mud into the river. The magistrate went into figures, and said that 3,000 loads or tons of mud had not been accounted for, and that he had no doubt they had been put into the Thames. As it occurred after notice, the penalty would be 20l.

DRAINAGE OF CHATHAM.—The movement for carrying out an extensive drainage of Chatham, although supported by many of the largest rate-payers in the town, has met with considerable opposition, and already steps have been taken to induce the Board of Health to reconsider the matter before that body decides on adopting a general system of drainage. Some of the rate-payers have appointed a committee to draw up a counter memorial to the Board of Health against the carrying out of the proposed system, which is said to involve an outlay of 120,000l.

LIABILITY TO REPAIR FENCES.—In the case of *Barber v. Whiteley*, the Court of Queen's Bench decided that, as between the owner of an ancient inclosure, and the commoners of the adjoining waste, or persons to whom the waste is subsequently allotted on a general inclosure, there is a presumption in favour of an obligation on the former to repair the dividing fences; and where, in addition to this, there was, as in this case, evidence of the fences having been in fact immemorably repaired by such inclosing owner, the court (drawing inferences of fact) held that he was bound so to repair.

BRISTOL SCHOOL OF ART.—Last week the annual meeting and distribution of prizes in connexion with the Bristol School of Art took place at the Academy, Clifton. The chair was taken by the president of the society, Mr. P. W. S. Miles. Mr. Atkinson, one of the hon. secs., read the report. It stated that Mr. J. N. Smith, a master formerly in the Dundee School of Art, had been appointed head master. The results of the examination in May last were on the whole encouraging. It referred to the new "Art Minutes," which the committee feared would press heavily upon the future of the school—by reducing the income of the masters and the stipend to pupil-teachers, and by rendering the instruction of public and private schools unremunerative. From the treasurer's accounts, it appeared the receipts for the year were 302l. 12s. 11d., and the expenditure left a balance in hand of 7l. 3s. 2d.

IMPROVED DWELLING-HOUSES.—A public meeting was held last week, at 193, Pentonville-road, for promoting the formation of a company to carry out improved dwellings, when the following resolutions were unanimously carried:—"That the great destruction of houses inhabited by the working classes for railway and other improvements, and the consequent overcrowding and increase of rent for apartments and small houses, render it exceedingly desirable that effectual measures should be at once taken to supply the great want of properly-constructed tenemented houses;" and "That, in the opinion of this meeting, the most effectual measure would be the formation of a limited company, constituted in such manner that all classes should be enabled to contribute to its shares, while the occupiers of tenements in the company's houses might diminish their rent by becoming shareholders in the company." A provisional committee was elected.

THE GREAT FIRE AT CONSTANTINOPLE.—No fewer than 2,800 houses, public buildings, and places dedicated to divine service, have been for the most part levelled with the ground, and the principal mosques are now nowhere to be seen. Over 22,500 persons had to rush out of their habitations, almost naked, to escape from the ravages of the fire. The conflagration commenced in a building two stories high. From that part the flames spread with rapidity, igniting in succession whole rows of houses and stores on the north-west side. The scene amongst the poor people was pitiable in the extreme. There is strong ground for supposing that a great loss of life has taken place. The burnt-out people and their children had to sleep in fields and gardens near. The principal portions of the houses were composed in a great measure of timber. No conflagration of such magnitude has taken place since the burning of the city of Hamburg. The fire is now considered to have been fairly stopped at each point. Whole streets, squares, mosques, and government buildings were blazing away at the same time. Measures have at once been taken to get up a subscription for the housing of the poor burnt-out creatures, which it is to be hoped will be liberally responded to. The idea of a connexion between pestilence and fire is strengthened by this occurrence. The ulterior result, however, may be a great good to Constantinople.

FALL OF A RAILWAY BRIDGE IN BIRMINGHAM. The Great Western Company have sustained a loss by the partial destruction of one of their bridges, in Birmingham, the accident, however, being attended with serious injuries to one man only. The occurrence took place at Livery-street Bridge, the line of the Great Western Railway passing on a diagonal line beneath Livery-street at this point. The roof of the bridge is formed of large iron girders, supported on strong brick arches, and between it and the street pavement are courses of brick and a mass of soil. At present there seems nothing to account for the accident, a great portion of one end of the bridge having given way with no warning whatever.

TENDERS

For corn warehouse, Dover, for Messrs. Bradley, Brothers, Mr. Rowland Kerr, jun., architect. Quantities supplied:—

Slit & Co. £3,139 2 0
For the erection of public-house, Edgware-road, for Mr. F. Squire. Mr. D. Gylby, architect:—
Williams £1,075 0 0
Rogers 1,835 0 0
Gillett & Wisby 1,735 0 0
Selleck 1,693 0 0
Palmer 1,669 0 0
Gales 1,689 0 0
Stevenson 1,656 0 0

For sundry alterations to premises 79, Gracechurch-street, for Messrs. Innes, Brothers, & Co.:—
Cander £3,440 0 0
Hack & Sons 3,381 0 0
Ashby & Horner 3,359 0 0
King & Sons 3,680 0 0
Coleman 2,999 0 0
Lawrence 2,979 0 0
Jackson & Shaw 2,850 0 0

For the erection of premises St. Paul's Churchyard, for Messrs. Alex. Allan & Co. Mr. T. H. Church, architect:—
Cander £6,879 0 0
Sewell & Son 6,837 0 0
Macey 6,549 0 0
Hendaw 6,540 0 0
King & Sons (accepted) 6,390 0 0
Coleman 5,997 0 0

For the erection of a public-house situated in Paulton-street and Church-street, Chelsea, for Mr. W. H. Johnson. Mr. Thomas Muncey, architect. Quantities supplied:—
Chamberlain £2,019 0 0
Moultrie 1,888 0 0
Stimpson 1,980 0 0
Adamson & Sons 1,843 0 0
Cowland 1,787 0 0
Eborall 1,769 0 0

For rebuilding stabling, &c., at rear of 23, Lowndes-street, for the Right Hon. the Earl Cadogan. Mr. George C. Handford, architect:—
Smith £2,240 0 0
Brass 2,199 0 0
Eborall 2,048 0 0
Adamson & Sons 2,035 0 0
Carter & Sons (accepted) 1,945 0 0

For alterations and additions to north-east wing of Chelsea Workhouse. Mr. George C. Handford, architect:—
Giles £850 0 0
Simms & Marten 845 0 0
Humphries, Brothers 731 0 0
George 730 0 0
Eborall (accepted) 720 0 0

For house, lodge, stable, and coach-house, at Gloucester, for Mr. D. Walker. Mr. J. Giles, architect. Quantities supplied by Mr. D. W. Young:—
Sharpington & Cole £11,187 0 0
Clutterbuck 11,032 0 0
Wingate & Sons 10,932 0 0
Avis & Son 10,590 0 0

For erecting a Free Methodist Chapel at Walham-grove. Mr. F. Boreham, architect. The quantities supplied by Messrs. Parker & Elger:—
Marland & Sons £2,560 0 0
Richards 2,270 0 0
Parsons 2,269 0 0
Stimpson 2,198 0 0
Scrivener & White 2,092 0 0
Adamson & Sons 2,035 0 0
Aldred & Doneton 1,880 0 0
Fitts 1,795 0 0

For new Baptist chapel, at Red-hill, Reigate. Mr. J. F. Mathews, architect. Quantities supplied:—
Wesley £1,585 0 0
Wesley 1,460 0 0
Room 1,257 0 0
Sheppard (accepted) 1,230 0 0

For model lodging-houses, Commercial-road, Fimlico. Mr. T. Cundy, jun., architect. Quantities by Messrs. Parker & Elger:—

	South and Founder.	Water Supply.	Fire-proof Floors.	Brickwork Walls.	Allowance for Wharf.
Wilson	£2.	£2.	£2.	£2.	£2.
Higgs	836	742	3,470	97	250
Bird	1,156	900	2,955	84	101
Brown & Robinson	1,135	850	2,915	84	101
Smith & Taylor	1,180	918	2,930	86	100
Rigby	820	720	3,000	80	275

For the erection of malhous, &c., Hook Norton, Oxon, for Mr. John Harris. Mr. Edward Holmes, architect. Quantities supplied by Mr. Mansell:—
Jones & Son £1,896 15 0
Mathews 1,680 0 0
Hardwick 1,578 0 0
Barratt (accepted) 1,370 0 0

For Barking-road Schools. Mr. H. Hansom, architect:—
Clark £1,050 0 0
Fox & Roepened 885 0 0
Nagle 754 0 0
Fisher 700 0 0
Watson 700 0 0
Nutt & Co. 633 0 0
Coidera 594 0 0
Faice & Co. 689 0 0

For new shop front, New-street, Birmingham, for Messrs. Lilley & Addinsell. Mr. Edward Holmes, architect. Quantities supplied by Mr. Mansell:—
Brasswork.
Branson & Murray £253 0 0 ... 285 10 0
Partridge 620 0 0 ... 85 10 0
Briggs & Son (accepted) 768 0 0 ... 75 10 0

For additions to farm-house, Goldhanger, for the Rev. C. B. Leigh. Mr. Horace Darken, architect:—
Bade (accepted) £240 0 0

For three houses in Colchester, for Mr. J. H. Jardine. Mr. Horace Darken, architect:—
Eady £255 0 0
Bade 671 0 0
Dobson 575 0 0
Lee & Baker (accepted) 466 10 0

For the Fountain Liquor Shop, St. Botolph's, Colchester. Mr. Horace Darken, architect:—
Dobson £245 0 0
Everitt (accepted) 337 0 0

For Parochial Schools, Wesley, Essex. Mr. Horace Darken, architect:—
Canham £350 0 0

For first section of main drainage and iron outfall works for the Borough of Portsmouth. Mr. Lewis Angell, engineer:—
Simms & Marten £68,888 0 0
Nowell & Doerwa 62,000 0 0
Thurst 59,221 0 0
Coker 57,047 0 0
Bennett 51,977 0 0
Moxon 51,600 0 0
Ridley 49,900 0 0
Furness (accepted) 46,500 0 0

For resident engineer's house at Thornes, for the Sheffield Water Company. Messrs. Flockton & Abbott, architects:—
Craven, Brothers £1,300 0 0
Robertson 1,008 0 0
Longden (accepted) 1,016 10 0

For residence at Ranby, for Mr. F. Otter. Messrs. Flockton & Abbott, architects:—
Neill £4,573 0 0
Bellamy 4,164 16 0
Huddleston (accepted) 3,834 10 0

For addition to corn store on the Canal-road, Streoud, for Mr. W. Homman. Mr. J. H. Andrews, architect:—
Couchman £2399 0 0
Sollett 333 0 0
Gates (accepted) 375 10 0

For the erection of conservatory, &c., for Mr. Walter William West Bromwich. Mr. Edward Holmes, architect. Quantities supplied by Mr. Mansell:—
Matthews (accepted) £255 0 0

For erecting new offices, &c., at Old Jewry, City, for Mr. J. K. Farlow. Mr. John Whitehead, architect:—
Lawrence & Son £23,573 0 0
Myers & Son 23,355 0 0
Holland & Hauben 23,330 0 0
Ashby & Horner 23,210 0 0
Brass 23,087 0 0
Hill & Sons 23,000 0 0
Hart 22,460 0 0
Bland 22,382 0 0
Piper & Wheeler 22,152 0 0
Macey 21,245 0 0
Brown & Robinson 21,790 0 0

TO CORRESPONDENTS.

I. A.—H. B. & R.—W. G.—N. B. E.—W. H.—C. H.—C. A. R.—H. E. T. K.—S. M. D.—R. L. G.—C. H.—D. K.—D. R. & S.—P. M.—W. H. R.—T. D.—A. & Son.—D. M.—G. & S.—J. C. (thanks). W. H. (we are obliged to decline)—F. & C. (ditto)—W. C. (apply to a Patent agent)—R. T. (if the particulars are correctly stated, and the work were properly done, 21 guineas would be a very moderate charge)—G. W. (letter was sent to daily paper as requested)—C. T. (it does not appear to have been successful)—P. & R.—R. & K.

We are compelled to decline pointing out looks and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the names and address of the sender; not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **FIVE o'clock, p.m.,** on Thursday.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent Garden. All other Communications should be addressed to the "Editor," and NOT to the "Publisher."

The Builder.

VOL. XXIII.—No. 1181.

Out and About: in Derbyshire.

BUXTON has not an ancient sound: one associates it rather with modern watering-place times: with well-dressed loungers seeing and being seen: and yet certain it is that the Romans knew and used the place; left a bath there, "beautified" out of creation in the last century; made roads in the neighbourhood, and set up milestones, of which we can still see the shape and appearance. It is not at all unlikely, indeed, that even the old Druids knew the value of the waters when worshipping in a damp grove brought rheumatism, for their circles and barrows were numerous in the neighbourhood. John Jones, "Pisition," wrote "The Benefit of the Ancient Baths of Buckstones" in 1572, and four years afterwards Mary Queen of Scots, whom we have seen a prisoner in this county in charge of the Earl of Shrewsbury, went to Buxton in his custody for the benefit of the waters, and returned again and again during the following half-dozen years. We will not think so meanly of that dangerously charming lady's abilities as to believe, as asserted, that she wrote on the glass window of her room in the Old Hall, where now stands the hotel of that name,—

"Buxton, whose fame thy milk-warm waters tell,
Whom I, perhaps, no more shall see,—farewell!"

The waters still have fame, though how they effect good is not very clear. The supposition is but a month old, and it comes from France, that their electric state has more to do with it than their chemical composition. We are ready for our own part to believe anything of electricity; so we listen and wait with no desire to contradict.

At Buxton, as elsewhere in Derbyshire, the Duke of Devonshire is the man of power,—the owner of the soil. Houses pass away, and people pass away; but the land remains; and, what is more, it does not increase in quantity. A new California may treble the amount of gold in use, and so lessen its value; but any material addition to the number of square miles of land forming this little island of ours, is not within the limits of human expectation. The wise men of the earth, therefore, get hold of the ground. The Duke is a wise owner; he helps materially to keep up the very charming Park and Serpentine Walks provided for the visitors; subscribes for the band that will play agreeably under our hotel window at six o'clock this afternoon; and, in fact, he will do anything in reason likely to increase the attractions of the place and benefit his tenants. A company are building a large hotel near the railway station. This will have the advantage of not being in a hole, as the present mostly-frequented hotels, with all their attractions and advantages, are. The continual presence of a lofty green bank, that shuts out all things beyond, however it may be diversified with paths, arranged now by Wyntville and then by Paxton, and at certain hours spotted with people, is not conducive to expansion of thought or a feeling of freedom.

Still fine views are close at hand; no occasion to go far for them: and the beauty of the place is, that you have within reach two entirely different sorts of country: on one side hill and dale, trees and water, in marvellous combination of form and smiling colour, forcing the exclamation,—

"How much of ornament, of varied tint,
Is brought together by God's lavish hand
In one rich landscape!"—

and on the other, extensive moorlands, rough and wild; peat-beds, thick black streams, and lofty mountains, with nothing to disturb the silence but the occasional heavy whirr of the grouse the tread has startled. On this side is Axe-edge, the loftiest mountain in the neighbourhood, topped by an ordnance cairn; a little nearer to Buxton a lime company is desolating the cliffs. Axe-edge, we may further note, is the nursing mother of four rivers,—the Dane, the Dove, the Goyte, and the Wye; not the better known Wye that runs from Plinlimmon to Chepstow, but the Wye that is swallowed by the Derwent at Rowsley, before talked about. So—

"The many mountain streamlets
Glide on in harmless play,
Still following, as God guides them,
In an appointed way,
And ever singing pleasant songs
In darkness as in day."

Some swell into mighty rivers, connecting cities and bearing the fleets of nations; others but take fertility and beauty to a circumscribed spot, refresh but a solitary traveller here and there, and then are lost in a "swallow;" but all have their work to do; all contribute to the wonderful goodness of the wonderful whole.

The scenes of another kind, to which we have referred, lie along the line of the railway to Rowsley. Their praises have been sung far and wide, and yet with scant justice. Words cannot paint such a view, for example, as that seen from the head of Mossal Dale. To mention as prominent features hills clothed with verdure and pierced by rocks, the steep carriage-road running along the side of them, the lofty viaduct for the railway, and the Wye running at the foot,—even if we add, with Isa Craig,—

"It glimmers
Through the stems of the beeches;
Through the screen of the willows it shimmers
In long winding reaches,"—

will give no notion whatever of the view unless the imagination add the wonderful play of light and shade deep down in the valley and amongst the trees at the side, the variety of tints displayed, and a hundred other indescribable charms.

Miller's Dale is even further beyond words. The enormous extent of the view, the mighty cliffs and craggy precipices, add sublimity to beauty, awe to delight. But for a little movement that is going on far down in the vale, we should have a too limited notion of the height at which we stand above the river. Are they rabbits that stir there; and is the hole, just beyond, their burrow? I faith, no! they are positively men at work on the new railway,—live men with souls in them,—and yon's the tunnel. With such little taps and little spadefuls have our many lines been made. How small must most of the works on this earth appear when looked at from a higher sphere!

Clee Tor, a rock of limestone, is one of the wonders of the neighbourhood; to be ascended by those who can walk well. If we were going into points of detail, we should find one subject for comment in the dead trees observable in the plantations here as in various other parts of the county,—not single examples, not scores, but hundreds. They seemed to be chiefly larch. The only person from whom we could hear anything of the disaster, ascribed to it a bad winter two years ago.

Tideswell, not far from Miller's Dale, was once thought the mining capital of the Peak. It is now of little note, but has a fine church, mostly of the Decorated period. The tower,

Perpendicular, has a lofty turret at each angle, with between the turrets a pinnace in the centre of each side, producing a curious effect at a distance. The chancel, with fine square-headed windows, is particularly remarkable. A vestry was formed late in the Perpendicular period, by the erection of a wall across the chancel at the east end, in front of which the communion-table stands. A monument here to Sampson Meverill, 1462, is known as an instance of two classes of monuments in one. Below, a sculptured recumbent emaciated figure is throwing off a shroud; and above, on a handsome slab of Parbeck marble, are brasses, including the emblems of the Trinity and the Evangelists, with an inscription. Another monument there includes a fine Parbeck slab; and the inquiry arises, how these came to be transported so long a distance. One brass, dated 1458, is in memory of Robert Lytton, of Lytton, said to be an ancestor of our great novelist. There are sedilia, handsome, with straight heads like the chancel windows. The gallery in the nave should be removed, and the tower arch opened. When it is found that there is an intermittent well in the town, the origin of the name it bears is evident.

A more important well of that kind, however, will be found at a short distance from Tideswell, on the road to Castleton. It takes the shape of a pool for cattle. The side next the hill has a stone wall, forming the segment of a circle, at the foot of which is a stone trough, so to speak, a little higher than the level of the pool, with divisions in it; and into this trough, and over the front of it, the water flows for about five minutes in wet weather, and then ceases for a time, when the flow occurs again; and so on. A receptacle in the hill wherein the water collects, and a syphon-shaped channel leading from the lower part of the receptacle to the well, would sufficiently explain the action. It is of no use waiting at the well to-day,—the weather is against us: it is all ebb and no flow. We get on a little further, and reach the mine where our friend Blue John is specially worked,—the Blue John mine *par excellence*, whence the finest piece ever worked was obtained. Derbyshire is full of holes, wonderful holes; some bottomless, some topless, or apparently so. After visiting two or three, further work into "the bowels of the earth" is unnecessary. The Blue John mine, however, is special, and down we go. A little damp here and there, and a little rugged, but, on the whole, quite as easy as it should be to keep up the right idea. We go forward to an extent of 1,500 ft., and by that time are 500 ft. down, a good deal more than the ball of St. Paul's is up: and then we reach what is called the Variegated Cavern and, a blue light being fired, we see at our feet a black and yawning chasm, and we do not see the roof above our head. Here and there, in other parts of the mine, are stalactites and stalagmites, and though the visitor cannot sing with literal truth,—

"And o'er his head the dazzling spars
Gleam like a firmament of stars;"—

there is enough of the spar visible to swear by, and the whole effect is interesting and striking. The spar is hard to work: a very small tazza occupies a man a week,—the man says.

Getting on towards Castleton, there are several fine pieces of nature that may be viewed; such, for example, as the remarkable ravine called Winnats, in which name some may not at first see the fact that the opening was earlier called the Wind-gates, though a visit to the place in a gusty winter's day would sufficiently explain why it was so named. And then comes Mam Tor, or as it is locally termed the Shivering Mountain, which, easy of ascent on one side, grassy, smiling, and tempting, ends on the other as a steep brown precipice, frowning over the adjoining country at its foot. It suggests the path some men take in life: all smooth, easy,

and pleasant up to a certain point, and then, caution being asleep,—a tumble over, and so an end. It is called the "shivering" mountain, not because it quakes or shudders, but apparently because it falls to pieces. Bacon speaks of "the breaking and shivering of a great state;" here we see the breaking and shivering of a great hill. It consists of friable shale, which, by the way, amongst miners is called "shiver," separated by coarser layers. These disintegrating, the face is constantly falling away.

Approaching the village the origin of its name is at once seen; for there stands, prominently crowning it, the ancient castle of which every one has heard, because every one, it may be supposed, has read "Peveril of the Peak." It is named in Domesday Book as belonging to that Peveril of whom we heard of Bolsover, and who, when his descendant behaved badly, went, like Bolsover, to the king; got into the hands of the barons in John's reign; and then was again taken for the king. We should tell no stories of the building if we exclaimed,—

"Behold you towers,—mark well those crumbling walls,
The silent chroniclers of bygone years;
Think what dark tales lurk in those gloomy halls,
Of war and terror, tyranny and tears."

However, these we still have. While men remain what they are, and women too, there will still be "tyranny and tears" quite independently of castle walls. If the Castleton folk were wise they would make the way to their castle walls a little less difficult and tiresome than it is. The domain now forms part of the Duchy of Lancaster, descending from John of Gault.

Use by is the Peak Cavern, in the limestone, and very interesting. It is such a marvellous formation, indeed, that it has come to be called the Devil's Cavern. The approach to it is particularly fine. The neighbourhood, in truth, is full of wonders of this kind. Odin's Mine, worked by the Saxons, the fearful gulf called Eldon Hole, and so forth; but it has nothing more beautiful than the dale in which Castleton lies. The foliage is rich, the fields are divided by hedges instead of the more usual grim stone walls: a noble amphitheatre of hills surrounds one side of it, and on the other we have the town, its quaint little church, the castle on the hill above, and the entrance to the Devil's Mine. We could scarcely find a more charming and appropriate spot in which to take leave for the present of delightful Derbyshire and its three over-riding names, Peveril of the Peak, Bess of Hardwick, and the Duke of Devonshire.

THE LONDON (CITY) BATHS, LAUNDRIES, AND DWELLINGS.

THERE have been recently erected in Golden-lane, Barbican, in one of the districts in London the most over-populated and abounding in poverty and wretchedness of the inhabitants, certain buildings appropriated to dwellings, and to public baths and laundries; and a company is in course of formation for purchasing and maintaining them. The buildings consist of a front and a rear block,—a narrow street separating, to get light and ventilation,—the two buildings together occupying an area of about 11,000 ft. and having five principal stories, and a basement, the whole running to a height of about 70 ft. to 80 ft. In the front building, a large dining-hall, or common room, and about ninety private baths occupy the principal floor; and below these are two swimming-baths. In the rear-building the lower floor is appropriated to a wash-house with eighty-four compartments, and a laundry; and above, there is a galleried room serving as a school-room and chapel. The upper floors in each of the buildings are given to the residences, of which there are 80: or there are 171 rooms. The buildings, which have cost upwards of 37,000*l.*, were erected at the expense of one individual, Mr. A. J. Vieweg, a Wood-street warehouseman, and native of Switzerland; who has achieved, out of his own resources, other good works in the same locality. One of the latter is the "City Gospel Hall," in Brackley-street, where there are religious services, and Sunday, day, and evening schools; and where the poor women of the neighbourhood are invited to come "for change of air and scene," to do their needle-work. Another is the "Albert Protestant Sunday Rest Temperance Home," containing residences and a day-school. A building devoted

to similar objects, which was commenced in 1862, is in Bell-alley, Goswell-street, and bears the inscription,—"This house is built as a pattern to other landlords who have the industrious working classes as their tenants." In Whitecross-street there is another establishment of a like character. In all, we believe, there are five schools, to which six teachers and a missionary are attached.

It would be difficult to express in efficient terms our admiration of the large-hearted philanthropy of the gentleman who thus, and without thought of pecuniary return, has devoted out of his gains,—understood to have been not of extraordinary amount, (although obviously they would have procured him many luxuries,)—sums of money such as, on the most moderate estimate, have been required for these several undertakings. We need not say how much we approve of the selection of such objects as the establishment of baths and wash-houses, and the construction of improved dwellings, as channels for benevolence. A better locality, moreover, could not have been selected, than that which Mr. Vieweg has chosen for his labours. Dilapidation, dirt, and discomfort are the striking features in Golden-lane; and a resident in any of the better quarters of London, visiting the district for the first time, might well wonder if there were any locality stamped with a greater amount and variety of the phases of misery, than this one in the heart of the metropolis.

Expressing our approval of the objects to which the exertions referred to have been directed, we are, however, under some responsibility in directing attention to details of the building. In short, our observation of the manner in which, in certain details, the objects have been sought to be attained, has led us to hesitate about the notice that we should take of the work; one that has been spoken of by our contemporaries in laudatory terms,—indeed in words which, as will be seen, we are by no means inclined to think undeserved in the main. The deductions from the measure of approval, however, that we have to make, relate to points so much associated with principles of the design and provision of buildings of the class of that just erected, that we feel called upon to say what they are, to prevent errors that repeated would go to reduce in an important degree good effects, and indeed to perpetuate evils that are sought to be corrected by the erection of such buildings.

In order that both sides of the question may be fairly weighed, we shall do right to state, what may seem to be against our views, that as many as 27,565 persons used the private baths in two months of the present year. Indeed at the beginning of August, when portions of the buildings were not quite finished, more than 70,000 persons had used the swimming-baths and private baths since the commencement, and chiefly since April. The washhouse is much appreciated; the school is well attended; and the residences let readily. Lastly, a valuation of the buildings by Mr. Whitehead, makes them worth 38,000*l.*, finished, fitted, and in working order.

The defects of the building are structural. Throughout, portions of the work, and of the fittings, that would be subject to extra-wear,—as from the purpose of the building, and from habits of the class occupying the tenements or frequenting the baths,—are, instead of being provided of extra-strength, quite of an opposite kind, is used where a different description of work should have been preferred. Thus, the divisions of the private bath-rooms are not of slate, as in the model-establishment in Goulton-square, followed in the other places in the metropolis, and as originally decided upon after much consideration; but they are of thin square-framed partitioning, of wood, only stained in some cases. Some of the baths are formed with glazed brick. The jambs of internal doors which are the entrances to the tenements, and lead out of very narrow passages, are finished defectively in joiner's work from which the wall-plastering is already breaking away. The roof, which is flat, and seems designed to be a place of resort for the inmates, (since there is a fine view from it,) is covered with zinc, insufficiently protected by boarding to walk upon; and the iron railing is too slight to be safe after some years have passed by. On looking down the principal smoke-flue, we found that it was pargetted only for a few feet down. The brickwork generally is not well executed; and the wide joints in the work at the top of the building will soon need pointing. One of the worst defects, however, is

manifested in the tenements themselves. The rooms, at least in the upper stories, are two together, forming one tenement; and the fireplace is in the division between the two. The arrangement requires a flue to be arched over to the external wall. In each tenement that we entered, there had been so much settlement that the arch and flue had become cracked sufficiently to let smoke escape into the room. One of the occupants said that the cracks had been stopped up once, but had opened again.

The sort of design and construction that admits of such defects, is quite at variance with the conclusions of those who have paid much attention to the subject of buildings appropriated to the wants of the humbler classes. In connection with places of residence, Mr. Henry Roberts, on more than one occasion, has dwelt upon the necessity for the extra-strength to which we have adverted, in fittings. It may be admitted that large returns, such as have accrued sometimes, as in the case of the Lambeth baths,—which have paid for three or four years 8 per cent., and are expected this year to pay 10 per cent.,—are not to be realised without economy; but it is not economy to have fittings such as will require to be reinstated before the returns, large though they may be, have provided means for the renewal. But, further, there is a distinct evil, besides bad economy in finance, connected with inferior construction in buildings of the class we are referring to. The residences which are presented as improved,—as models, indeed,—becoming dilapidated, are in one important respect defective no less than the acknowledged badly planned dwellings. The crumbling of plaster, and decay and splitting of woodwork, the opening of joints by shrinkage and settlement, and the breakage of "ironmongery," help to cause dirt or that discomfort which reacts in a home, and which it is the object to remove from the humbler classes. We should add, that whilst ventilation has received attention in the Golden-lane buildings, what has been provided in the chapel is not adequate, and that the gallery-stairs are not sufficiently safe for young children.

On the occasion of an inspection when these notes were made, the drawings of the building were not procurable; therefore description of plan and general construction is made under disadvantages.

There are two entrances in Golden-lane to the front building. The main entrance leads, by steps, to the chief pay-office; and doors right and left, from the landing, give access to the end of the common room. The office is inclosed with glass, so that the clerk or manager can command a view both of the entrance and of the room. This room measures 70 ft. by 30 ft. Near to it are the kitchens. Doors from the further end of the room lead to the stairs to the first-class swimming-bath, and the private baths. The arrangement has advantages as regards control, but must interfere with the comfort of persons using the common room. Trussed girders carrying the floors above, and necessarily required to be of considerable strength, are prominent in the effect of this room. The height of the room is less than might have been desired. Busts of the Queen, the late Prince Consort, the Prince of Wales, Shakespeare, Milton, Mozart, Sir Walter Scott, Sir Robert Peel, Lord Palmerston, Garibaldi, and others, are placed on brackets on the walls. On the casing of the girders are painted, in large letters, Scripture texts. In every part of the building, unless some of the residences be excepted, similar texts abound, only in the greater number of cases painted in smaller letters than the texts on the girders. No Mahometan even, could display texts from the Koran more profusely in his building, than Mr. Vieweg displays texts from the Bible. In Golden-lane, however, no attempt is made to combine decorative effect with the texts; unless we except the rooms of some of the residences, which have been papered, and where the paper is diapered with the texts. Attention has often been called to the value of a similar method of decoration, so to speak of it, as for the walls of nurseries; but we are not aware that much attention is yet given to the matter, by the manufacturers of paperhangings. The patterns used by Mr. Vieweg were made to his order, such texts as he required being chosen. The patterns might have been varied, as well as improved; but these specimens help to suggest that addition could have been made to parts of the building at present needing decorative effect; and that the commendable object

with which the texts were placed, could have been advanced, even by making them somewhat less prominent. Actually, they meet the eye in every direction,—in the common-room, in the swimming-baths, in the private baths, in the wash-house, and, as we have said, in some of the residences. Each person using a private bath sees at least two of them; and in each compartment of the wash-house there is at least one of these texts.

The first-class swimming-bath measures 69 ft. by 33 ft.; and the charge for its use is 4d.; the second-class bath is 75 ft. by 32 ft.; and the charge is 2d. The private baths are divided into first and second class, the charge being 6d. and 3d.; but seven tickets taken at one time are charged as six. There are private baths for women. In connexion with the wash-house is a centrifugal wringing-machine; and there are fifty-seven drying-closets. There are also two patent washing-machines. An engine works the machines and the mangles; and it is proposed to turn any spare power to account for lathes in workshops at the top of the building. Ironing stores and tables are also to be found.

The water has been supplied by the New River Company; but an artesian well is being sunk. A considerable depth has already been reached, the chalk being penetrated. The diameter of the well for the first 100 ft. down, is 6 ft.; the depth of boring below this 100 ft. is at least equal; and the water, which rises perhaps not more than 50 ft., is raised by pumping.

The residences let for 5s. 6d. and 6s. 6d. a week. The smaller tenements are simply two rooms, each about 15 ft. or 16 ft. square, with a door of communication. The principal room has small cupboards, and a good grate. Closets and sinks are common to several rooms, and are placed on the staircases. These last are of stone. The chapel is said to be capable of containing 400 people; but this must be under disadvantages, some of which we have referred to. Looking up from below to the gallery, the latter appears like a floor with a mere well-hole opening, so much are usual proportions reversed.

One of the points in which most judgment has been shown, has been in the leaving around the buildings, a certain portion of ground unbuilt on. The building was designed by Mr. Charles Martin, C.E.

When the building was commenced, Mr. Vieweg contemplated laying out about 20,000l. The actual cost having been at least 17,000l. more than the estimate, it is desired that a portion of the 37,000l., or larger amount, should be returned to Mr. Vieweg. The company to which we have referred has been projected with this aim. The capital is set down at 50,000l.; the shares being 5,000 in number, of 10l. each; and it is proposed to raise (in accordance with the articles of association) 10,000l. in debentures, payable in five years, at 5 per cent. per annum interest. Amongst the inducements offered are the necessities of the labouring classes in London, and the wants of the locality; and the probability that the dwellings, baths, and laundries will be extensively used, through their short distance from the large City warehouses, and the Post-office, in which many persons are employed, and through their position in one of the main routes between the City and the northern part of London. The actual returns from the baths alone, nearly 1,000l. in four months, may be accepted as evidence that these views have some foundation. It must be mentioned that there is a mortgage debt of 18,000l., bearing interest at 5 per cent., and having of course a first claim. Mr. Vieweg is to take 10,000l. of the purchase-money, in shares, or will take more if needed; and his dividend is to be deferred "for three years, every other shareholder receiving 5l. per cent. before he receives any." Deducting the 18,000l. standing on mortgage, and the 10,000l. taken up in shares by the vendor, an amount of 14,000l. only is required to be raised in shares and debentures to complete the purchase; and there seems little reason to doubt that this sum will be got.

As the buildings are, they are calculated to effect, for some time, so much good, that we cannot resist expressing the hope that the company will be formed; and that the gentleman who projected them, and provided the money, will be reimbursed to the limited extent that he desires. But, even should experience show a sufficiency of returns to provide for frequent renewal of the fittings, and should it favour the ordinary economic view of large comparative returns from that small outlay per head of accommodation which permits numbers to be

provided for and to tell in the account, we apprehend that what are some of the main objects of philanthropic promoters of works of the character of this one in Golden-lane, may not be attained. We have hope that there will arise one day, a greater demand than now exists for better and more comfortable dwellings, amongst the class of people that Mr. Vieweg had in view. Now, it is impossible not to see, and not to deplore, the paucity of means, and even as it would seem in many cases the entire want of power, in the humbler classes to help themselves; and equally it is impossible not to recognise that, in the same class, there is even a preference for existing discomfort, that has become a habit, and that affects chiefly those who are left at home, to the sacrifice of indulgences, costly in their nature, and injurious. But whenever the comparison between requisites and luxuries shall be more correctly drawn, there will be the demand, which will not be exactly satisfied by the sort of accommodation and building-construction that Mr. Vieweg has been led to provide; and then, a company owning a building of the character referred to, would be called upon to make at least improvements in it, at heavy cost.

ARCHÆOLOGIC ITEMS FROM ROME.

THE summer sultriness gives the signal of suspense to labours of excavation, and almost all such as are carried on underground in or near Rome. We may, therefore, in the present interval, find space for some general observations as to what has been accomplished during the past season by activities in this sphere. On the Palatine Hill, where works ordered by the Papal Government and by the Emperor of France have been progressing simultaneously, there is little to notice in addition to particulars now well known, save that the area of substructions and foundation-walls is gradually extending, more and more serving to throw light on the general plan, though not yet presenting to view any imposing elevation of the imperial buildings. The most important result of the works ordered by the Emperor since the beginning of the last winter has been the discovery of the very vaguely-marked but massive ruins of the Temple of Jupiter Victor, nearly central to the theatre over which these labours extend; but no art-remains of much value have been brought to light since the torso of a Faun (distinguished by characteristics of the highest order) was exhumed in the winter. The most interesting range of the Palatine antiquities, those ruins beneath the Church of St. Anastasia at the hill's north-western angle, consists of numerous vaulted chambers and corridors, besides stupendous fortification-walls of considerable extent, that may class with the most ancient of Rome's monuments, and be referred to the earlier kingly period. These discoveries, we are sorry to report, have been for almost a year left in *statu quo*, without the prosecution of any labours on the site partially worked by Government order; great, indeed, being the contrast between the energy manifest in the now metamorphosed Farnese Gardens, where French enterprise is concerned, and the languid efforts of the Roman authorities on the western and northern slopes of the same hill. The Signor Righetti, who has purchased the Palazzo Pio, below which his discovery of the bronze Hercules proved such a treasure-trove, has undertaken the complete re-building of that residence; and other remains of Pompey's theatre and temple to Venus, over a portion of which it stands, are being gradually uncovered in those works. We have just visited the spot, and been obligingly conducted by a gentleman of that family over the subterranean long indeed known and accessible beneath this mansion, though now opened to a somewhat greater extent. It is not what recent research has yet obtained, but rather what the hitherto-discovered conveys promise of, that in fact renders a visit to the dark recesses under the Pio palace more interesting now than in years past; and in the massive style, as well as compact condition of the great structures, arcades of the theatre partly in square-hewn peperino, partly in reticulated masonry and rubble-work, we may see the earnest of the existence of much more, long buried in darkness and oblivion, which probably escaped the despoilers of the Middle Ages, owing to the accumulating of soil and alteration of the city-level around, though we may infer that

much of the antique was remorselessly swept away to give place to the Pio palace itself. In a magazine on these premises we saw the various and rich fragments, architectonic ornaments, Corinthian capitals and cornices in white marble, pavement in *porta santa*, besides one very valuable piece of sculpture, a finely-draped female statue wanting the head and arms, and measuring two metres in this mutilated state—all objects found in or near the same compartment with that magnificent bronze of Hercules, and supposed to pertain to the decorations of the Venus Temple.

The Palazzo Pio on one side joins on to a crescent of paltry houses, in whose general plan is recognizable the form of the ancient theatre. And here we may enter three large smoke-begrimed stables, formed out of the arched recesses of the arcades, with their massive vaults and walls, partly of *opus reticulatum*, now in many places blocked off or altered to suit modern purposes; the appearance of these interiors reminding one of caverns scooped out of living rocks,—a strange scene to come upon in the midst of crowded streets. At a short distance hence, on the southern side of the Pompeian theatre, was lately found, under a shop, in the Via Giubbonari, an enormous shaft (diameter 4½ metres) of red Egyptian granite, laid prostrate; and near this, an immense fragment of white marble cornice with fine mouldings; these relics lying in a dark subterranean, at a depth, we might conjecture, of about 13 ft. below the modern level—brought to light nearly by accident in laying the foundations of a house.—it seems that no effort is to be made either for rescuing them or continuing to explore on a site so promising. The bronze Hercules remains still in an out-house of the Vatican, to receive the few restorations requisite from the hand of Tenerani; and with permission from that gentleman this wonderful statue may at times be seen. We leave to learned judges the anatomic power it displays; but what struck us most as a first view was the high conception of heroic beauty, the finely-marked characteristics of intellect that distinguish this above all other antiques of the same subject.

More important than all other recent undertakings on the part of this Government, are the excavations at Ostia, suspended till November next. At the last session (5th of July) of the Roman Archæologic Academy, we heard a long and learned report from Signor Visconti, jan., on the general results of these works, a single drawing (why not more, we might ask?) being shown to illustrate this lecture, from an indeed admirably designed fresco in a tomb (now at the Vatican Library) of Orpheus's descent to the shades, and his meeting with Eurydice. It was by Pius VI. that systematic labours were first ordered at Ostia; recommenced, after long interruption, caused by political tempests, under Pius VII., they were again resumed in 1859, with direction of Signor Visconti, whose intelligent method has aimed at the disencumbering of the city's entire area, instead of excavation limited to certain sites. At this session of the Academy it was announced, amidst much applause, that the Pope had ordered the creation of a museum of Ostian antiquities *in situ*; the edifice chosen being a large one hitherto used as a dépôt for the produce of the saltworks on this seacoast, where in future the valuable art-objects hitherto, in every instance, transferred from Ostia to Rome, will be exhibited; but, it may be asked, to what superior advantage for the student or tourist, seeing that the unwholesome and desolate situation, sixteen miles distant from Rome, and the poverty of accommodation at the modern village, must continue to render Ostia one of the least frequented (though now, indeed, highly attractive) among historic spots near this city.

The preparations for erecting Tenerani's nobly-conceived monument to Pius VIII., at St. St. Peter's, are now nearly complete; and the colossal group,—the Saviour, the two chief Apostles, with the Pope kneeling in front,—will soon appear above the door leading from an aisle to the sacristy, where that egress will enter into the design of the architectonic basement. Another sculpture lately erected at St. Peter's is the colossal statue of St. Angela Merici, foundress of the Ursuline nuns, by Galli,—not, indeed, favourably seen in the high-placed niche assigned to it,—but a pleasing and dignified matron-figure, the monastic costume ably treated, and the venerable character of the nun contrasted with the youthful naïveté of a girl standing at her knee, introduced in

allusion to the special vocation of the Urn-lines, the worthy females enrolled in which order dedicate their existence to the instruction of their own sex. The project for the restoration of the Marston Aqueduct, to discharge its waters first on the Quirinal, is not to be carried out by means, in any part, of the antique construction (now extant only in a few scattered ruins), but entirely by underground channels laid through the embankment of the railway, to be at the same time commenced between Rome and Tivoli. Our consul, Mr. Severn, has energetically promoted this project, now sanctioned by authorities. At present, the most conspicuous public works here are those in churches; and in the re-opening of catacombs has of late been displayed great activity. On the other hand, many things, most obviously desirable and of most general interest, are neglected; classic sites left untouched; illustrious monuments abandoned to disgraceful uncleanness and profanation. Such inconsistencies form, indeed, one of the manifest peculiarities of Rome. We are often astonished to see how much is done by a Government whose revenues have been reduced, through late political shocks, by more than two-thirds; whilst our surprise at what is left undone may well be modified by the consideration that this Government absolutely and on system prevents all utterances of opinion, reducing the Press to an echo of its own wishes, or *usque ad nauseam* praises—under which state of things, can one wonder at any imaginable amount of abuses or short-comings?

WELSH WALES.

MANY tourists are under the impression they have seen North Wales when they have journeyed from Chester to Carnarvon, or penetrated from Shrewsbury to Machynlleth and Aberystwyth; but, in reality, real Welsh Wales is bounded by those districts. It is only where the railway ceases its generalizing effects, that national characteristics are found to linger in their original intensity. For any peculiarities we may see in the buildings along the line of railways, Wales, as seen from the line between Chester and Carnarvon, might be some picturesque district in England, especially if we except a tendency, here and there, somewhat pretentiously expressed, as in the rambling edifice at Abergele, to maintain the traditional associations of the district with castellated architecture. The greater number of new buildings skirting the various stations are but repetitions of the new villas and terraces to be seen in every district in similar situations. They are, however, at some places so numerous as to warrant the common assertion that new towns are springing up. At Rhyl, Llanfairfechan, Abergele, Griffith-crossing, and Port Dinorwig, there is much evident vitality in building matters; indeed, scores of smart villas are to be counted in the neighbourhood of most of the stations. The old grey nucleus of each place is lost in the overpowering number of new houses, and with all distinctions of mannerisms in building. Arrived, however, at the length of the iron tether, Carnarvon, marked differences between England and Wales are perceptible; and an additional day's drive into Merionethshire brings the traveller into an "old, old, very old" country, full of uneffaced foot-marks of the ancient Cambrians. As we write, however, men are laying the magic sleepers and rails along the coast and through the hills, that will change all this. The shrill scream of the engine-whistle will break the charm that now appears to be thrown over the people and mountains, enchaining them both in a calm, grand serenity, and rendering haste and bustle as impossible to the one as to the other. The retentive descendants of the ancient Celts will be brought into constant and chafing communication with new customs; and Welsh Wales will gradually fade from the chart.

Carnarvon is retentive, too, to a certain extent, for there are Medieval streets in it with which time has dealt tenderly. Their overhanging gables nestle, in Vandycked lines, under the protection of the kingly castle to-day, as they must have done, with but little change of shadows, for these three hundred years and more. Much of it, however, is semi-modern—a synonym for the absence of all but the most miserable taste. The square immediately surrounding the castle outer works, for instance, has not a fine old house in it, nor a fine new one either, but is enclosed by shops and houses,

and hotels, built before the revival of artistic considerations. But it is easy to turn out of this into the most picturesque byways, or into the right regal castle, when there is no room left in the mind's eye for any feeling but that of entire satisfaction. The decorated tracery windows, the square-headed windows, the square-headed doorways, the staircases and corridors in the thickness of the tower walls, the views from the topmost turrets, the eagle tower in which the first Prince of Wales, Edward II., is believed to have been born, are all architectural facts that must delight every one. We are glad to note here that several judicious repairs have been made to keep the edifice from further decay. To defray the cost of such necessary repairs, an entrance-fee of 4d. is demanded, which arrangement has the further happy result of causing the constant presence of an attendant with a consequent refrain from destruction on the part of idlers. The basement of the proud eagle tower is suitably utilized as a volunteer drill-room.

A further proof of the presence of presiding intelligence in Carnarvon met our eye, in the ample distribution of handbills relating to the prevention of cholera. Notice is impressively given that all persons keeping pigs or other animals in confined places, or having upon their premises accumulations of offensive animal or vegetable matter, filthy privies, drains, or middens, are required to abate such nuisances under pain of punishment according to the statute. And, perhaps, nothing can give a better realization of the mixture of English and Welsh in Carnarvon than a statement that all such public announcements are printed twice over, first in English and then in Welsh. This particular bill goes on to say that a number of breaches will be kept at the police-offices, in High-street and Castle-ditch, and at the office of the relieving-officer, for the use of persons willing to lime-wash their premises, but too poor to purchase the necessary articles. We give this passage in Welsh, to show how many English words are gradually getting incorporated into that language:—"Rhoddir rhybudd hefyd yn mhellach y bydd i nifer o ffrwshes gael eu cadw yn awyddfeydd y police, yn High-street a Castle-ditch, ac yn swyddia Mr. Thomas, y relieving officer, Rhif 10, Henwallia, at wasaneth personau ag sydd yn rhy clawd a'w prynn, a rhoddir orders gan y police a'r relieving officer am y chydig o galch i'r cyfryw bersonau. Pob person ag sydd yn gwybod am unrhyw gas-hethian, a dymunai i hybysan yr unrhyw i'r inspector of nuisances, yn ei swyddia, Local Board, Guildhall.—LLEWELYN TURNER, MAE."

It is when the traveller attempts to leave Carnarvon for Merionethshire that he first realises his position. Two conveyances per diem,—the one a coach, the other an omnibus,—are the only public vehicles at his disposal. Should he arrive too late for the first, he must await the latter. Being now in a region where time is not reckoned as money, punctuality is not counted among the social virtues; and a delay of an hour and a half's duration is of the commonest occurrence. Packed at last with a great many more passengers than it can comfortably hold, the vehicle commences its twenty miles' drive to Portmadoc, with three horses. A man who has the charge of these horses accompanies them on the road till a change takes place, when he drops off the step, and a new order accompanies the fresh ones. But the journey is not disposed of in this rapid manner. At every little village a stoppage is made, and the inside passengers, too tightly packed to get out, call for refreshments, which are demurely handed in at the windows. The outside passengers can alight more conveniently, and frequently avail themselves of the facility. Small parcels, too, have to be delivered at some places on the route, and as the roads are very hilly, compelling the most tardy pace in numerous places and as frequent stoppages for the conductor to put the brake upon a hindmost wheel at all steep declivities, the delays are vexatious. Admiring friends seem to accompany the conductor for some little distance out of each village, hanging on behind till their desultory conversation being concluded, they drop off and go their ways. The passengers talk Welsh among themselves till they wish to remonstrate or bargain, when they express themselves in bad English and Welsh, one after the other. We dwell on these details with the more minuteness, because they are things of to-day that will not be things of to-morrow.

There are few new houses, after leaving Carnarvon, on the line of coach road, till you come

through Penmorfa and Tremadoc, to Portmadoc; and then you step into a little newly-made marine place such as Herne Bay or Gravesend was thirty years ago, with the addition of the scenery of the Welsh mountains for immediate background and distant foreground. We mention those places advisedly, because we see in Portmadoc the same signs of rapid extension, the same germs of commercial prosperity as they presented at that period. Slates are the staple produce and principal export; and, it would almost appear, the principal article of consumption, for wherever it is possible to use a slate instead of anything else, it is used most unreservedly. First, the pavements are of slate, the condit-heads on the gutters are slates, and the names of the streets are incised into slates affixed upon the houses at the corners. Then slates are used for the basement floors of houses, for the roofs and ridges, for enclosures round gardens, and for many technical purposes which we will describe at greater length elsewhere. And behind Portmadoc towers one of a range of huge slate-coloured crags of great altitude. The little port at the water's edge, with its quiet craft filling with slates, is clearly the small beginning of a great, almost inexhaustible, mart. It has a small market-house, to which resort some few of the old ladies in the tall black hats we conventionally suppose to be the only Welsh costume, but far more customers in ordinary garb. Between Portmadoc and Merionethshire there is an arm of the sea that, at low tide, is left dry, with the exception of a wide stream in the centre of it; which is, however, fordable by horses and navigable by boat. A similar stretch of bare sea sands once lay twice a day before Portmadoc; but an embankment now confines the sea within bounds, thanks to the enterprise of Mr. Madoc. All traffic between Portmadoc and the opposite country is thus confined to the periods of low tide, or carried on by means of the coach road, by a circuitous route through the interior of the country. Once across into Merionethshire, and we seem to be picking our way, veritably, into ancient Britain. Nearly every house dotting the distant landscape on the Carnarvonshire side of the water is either whitewashed or coloured cream-colour, looking from afar off as so many sheets and blankets laid out to dry upon the hills; but in Merionethshire the grey stone of the district is left untouched, with the happiest result. The sky seems entranced with the rich greens and deep grey of the mountains and valleys, and the clouds to linger idly on the hill-tops, as though loth to leave so much loveliness and peace. Doves of small black cattle appear to be almost the only things upon the move, except in the archaic villages, where a few of the inhabitants are leisurely going hither and thither. If the cottages were only circular, instead of parallelogramical, we might deem them the original celtic huts, reared by the tribes who first penetrated to those recesses. They are built of the stone of the district, in huge blocks, six or eight times larger than any stone used by modern masons. As the district is so highly mountainous, many of these primitive houses are built upon such steep slopes, that the eaves of the backs of them are touched by the soil. The fronts face the road or a tiny foregarden, and the swiftly-rising ground behind them slopes up the walls, touches the eaves of the back, and rises sometimes to the clouds behind, with the damp result that may be anticipated. The large blocks of stone not being very manageable for dainty features, everything presents a massive character, like the mountains around. The chimneys especially are stalwart and substantial, not to be blown over by Boreas in his most wilful mood. The lintels, too, the sills, and the corbels, mark the same phase in the character of the people as plainly as though they said, "Once done and done well." The farmhouses are exceedingly interesting; the most considerable of them in this district were built much in the same manner. The entrance seems to have given admittance into a large hall extending along the whole front of the house. The size of these halls may be realised when we add that modern necessities have agreed to divide them into three apartments, an entrance-hall, with a drawing-room on one side and a dining-room on the other. Inigo Jones is accredited with one of the designs of the most considerable of these manor-house residences, Glyn, and its sunny fascinating façade of mullioned lattices and dormers, certainly do him no discredit. Taltreddyn, a neighbouring house, is quite as picturesque, though not quite so considerable, its grey front being likewise

pierced with mullioned window-openings and dormers. Both of these houses once possessed the large hall, stretching from gable to gable, just described; and both have modernized that arrangement by the division mentioned. Taltreuddyn has that special mellowness in its amber-grey masonry that only three centuries can give. We must not, however, convey an impression that everything is stationary in this charming part of the world.

At Penrall, a mansion is in course of erection composed of a centre with two tiers of mullioned windows, with dormers above, and two advancing wings containing similar features. This, like its ancient neighbours, is to be of the impervious hard grey stone of the district, of which, indeed, the huge crags around are composed,—a material, in skilful hands, that should endure for all time, and which every century will beautify with new tints. This, however, is not available for mullions or ornamented work, which have to be wrought of less everlasting stone brought from a distance. And, by the road-side between this and Harlech Castle, within sight of a ruined chapel on the sea-shore, and of Llanfair-isaf, a more modern farm-house, a little village church has been tastefully restored, its belfry for one bell rebuilt, stained glass put into some of its window-openings, and an oak rood-screen repaired. Where much is so neat, we were disappointed to find the space below the communion-table used as a lumber-deposit, although probably this was but a temporary arrangement. A chapel, though of no architectural appearance, is in course of erection on the same line of road; and, returning towards Portmadoc on the Carnarvonshire side of the estuary, a very creditable church, newly finished, stands near a group of small new houses.

Harlech Castle is the architectural gem of Merionethshire. To many minds, especially to those taking pride in Welsh antiquities, Harlech would have more interest than Carnarvon. For, unlike that structure, it incorporates a real Welsh castle once inhabited and defended by a race of Welsh princes. As it stands, it consists of a barbacan and a parallel grammical keep just within it, with a strongly-fortified wall starting from either side of the barbacan and inclosing a large space of ground before the keep. This wall is strengthened by corner towers, and to add to the inaccessibility of its commanding site, by a broad and well-defined moat. This is not, however, all the work of one period. Besides workmanship of the Decorated period and much Edwardian masonry, there are portions of the work of the blessed Bran, a Welsh prince of pious memory.

This patriarch among castles is too near the sea, though in a grand grey and green amphitheatre of mountains, to have acquired the rich warm tints of the manorhouse masonry suggesting its long neighbourhood to sunny flower-gardens and orchards. It presents that bleached grey tone that is the inscrutable gift of the sea-winds. Scanning the wind-whitened masonry of the outer walls minutely, you will see amongst its interstices arrow-slits that are unmistakably earlier than the Conquest. There are plenty of Edwardian loopholes, too; but these cannot be confused with them. One, we perceived, is nearly the same length as ordinary Edwardian arrow-slits, but not more than an inch wide; and some three or four others are not more than 9 in. or 10 in. in length, and perhaps three-quarters of an inch in width. They are formed of the same stone as the rest of the masonry, by the simple expedient of leaving each interstice as the walls were built up. They, with the stonework in which they occur, are excessively interesting as affording the only known link between early Celtic works, such as hats, camps, and cromlechs, and our rare Saxon remains. Much of this ancient Welsh work has been encrusted by Edward with more masonry, to make it thicker and higher. His additions are easily distinguishable. This superb relic is little visited, owing to its thirty or forty miles' distance from railway communication; but it is of surpassing interest. There are some very peculiar features in it, worthy of the consideration of the archaeologist; one of these being an Edwardian chapel, in the upper story of the barbacan, and another a larger chapel in the enclosed space in front of the keep, which, at first sight, appears to have had two floors.

One of the rarest of the curiosities of antiquity is to be seen near this place. About eight years ago the attention of Dr. Griffith, of Taltreuddyn, a resident antiquary, was called to a stone that had just been brought down from the

mountains, close to the primitive—we had almost said the pre-Adamite village of Llanbedr, on which was an incised sculpture of the kind now recognised as Celtic. Being then unacquainted with the Northumbrian markings of the same period, no particular value was assigned to it, but the proprietor of the building, for which it had been carried down, ordered it to be preserved and placed at the foot of a Maen-hir, or stone pillar, of which there are also two fine examples close by. Here it still reposes, and in its new grouping will, doubtless, give rise to startling theories in the minds of those antiquaries who are unaware of its removal from its original site. Curiously, as in the case of many of the Northumbrian stones, it was found in the neighbourhood of the remains of numerous hut-circles, in a most picturesque region—a very paradise for antiquaries. Dr. Griffith purposes to explore the original site, carefully, in the course of the present month, in the hope of finding further of these mysterious writings. The present inscription is of especial interest, because it is not so much like those found in Northumberland as those observed in Malta and Ireland. The stone is about 3 ft. long by 2 ft. broad and 1 ft. thick, tapering towards the end on which the sculpture occurs. This is a spiral set of curves, fourfold.

All the boundaries in this part of the world are made of low loose stone walls, of which the top rows are placed with their jagged edges upwards to form a coping. The Welsh sheep being remarkably agile, extra precautions against stray fleecy visitors are taken in the shape of extra height and jaggedness of these primitive finishes, giving a still greater distinctiveness to the landscape. The fact of the stones being laid without mortar results in frequent gaps along the highways, whilst the facility of replacing them does not ensure that desirable end. The flocks of goats for which Wales was once famous are scarcer than formerly; but, perhaps, to make amends for this, their owners are cultivating their capacities. Near Tremadoc we saw an ingenious machine, perhaps not less humane than similar contrivances for horses in farmyards, by which a goat, with the assistance of a dog, churned all the butter.

Of Beddgelert, in whose memory the Welsh still have a proverb, "as sorry as the man who killed his dog,"—of Tan-y-Bwlch, Dolwyddelan, Betts-y-Coed, — beloved of artists, — Bala, with its beautiful lake that would bring so much healing could its waters be distributed in Bethnal-green and other parched places, Festiniog, Snowdon, and of other parts and things in Welsh Wales, we may tell hereafter if the opportunity occur.

HINTS ON THE EXHIBITIONS OF PORTRAITS.

"*Segnius irritant animos demissa per aures,
Quam que sunt oculis subjecta fidelibus; et que
Ipse sibi tradit spectator.*"

HORAT., de Arte Poetica, 180.

THE design to call up the memory of our famous people by bringing them visibly home to us in their portraits, in storied urn and animated bust, preserved for many an age throughout the land, gives universal satisfaction.

It is a design full of promise, historical and social,—difficult, indeed, in respect of its execution on some points, which its promoters will find ways to settle with discretion. It is homage due to the mighty dead; and so vast an array of the worthies of past ages cannot fail to stimulate us and our children to rival the best of our fathers. The display itself will administer to a taste grown into a popular passion through the invention of photography; but this same taste for portraiture has prevailed in England time out of mind, as shown in many forms,—by good paintings of all materials, and by engravings; by wood-cuts, and stone images and statues; by curious illuminated manuscripts of ancient date, brasses, and bronzes; by enamels, porcelain, pottery, and mosaic; by pen-drawings, medals, and tapestry, real and gravely allegorical; and even by grotesque masks and caricatures. Public and private stores of such various works are carefully preserved among us in unrivalled abundance; and when a few of these stores happen to be dispersed, they are eagerly bought up. We prize highly faithful portraits of our men and women worthily distinguished in all ranks, from the humblest to the proudest,—from Shakespeare's "mean-born gentleman" to her that wears the crown,—as representatives

of the better genius of our people. We are even disposed, perhaps, too readily to yield in this way to the mischievous vanity of great criminals by holding up their likenesses to a morbid curiosity in glittering Tussaud galleries.

A high authority claims for us English a superiority in good portraiture, tracing it to some marvellous superiority in our national features. The curious passage alluded to is in No. 555 of the *Spectator*, to be cited in no absurd spirit of national vanity, seeing that the writer, when making this particular pretension, gives to our neighbours—Italians, French, Dutch, and others—their greater merits in the historical and imaginative departments of art. It is, moreover, agreed that the "true-born Briton" of Daniel De Foe is properly made up of many elements. We are, as he says, "Brito-Romo-Saxo-Dano-Norman-English!" The superiority, if we have any, must be traced to our love of liberty, and to our better culture; but the *Spectator* starts a theory calling for much more elaborate research than there is here space for.

How old the love for good portraits is among us is a point set in a strong, original light by Queen Elizabeth's proclamation in her youth, strictly prohibiting the drawing of indifferent likenesses of herself!

What may be termed the origin of the present pictorial movement has a special interest, positive and comparative. The great schools of modern art—in Italy, in Germany, in Holland, and among the Flemings—were largely creations of the wealth and fine taste of their merchant-princes—heads of popular states; and among the stores of art in these popular states characteristic portraits were numerous. So early in England, manufacturing Manchester early founded its "Institution of Art, Science, and Literature"; whilst the same Manchester lately took the lead—and a distinguished lead—in portrait exhibition. Some forty years ago also liberal encouragement was afforded there to the publication of a valuable record of artistic intelligence, especially in portraiture; so that the work was properly dedicated to the author's patrons, "the Governors of that Manchester Institution." This was Thomas Dodd's "Repertorium of Painters, &c., from the Twelfth Century." Six volumes of it were printed; the two first in Manchester in 1824.

Earl Stanhope's "National Portrait Gallery," and the collection of miniatures at Kensington, have done much in the same way; but what is preparing may be traced to a wider influence. Lately we have been roused from a deep sleep in regard to historical studies; and we begin to feel that portraiture and sculpture have powerful bearings on these studies. A result of success in the contemplated crowded exhibition will assuredly tend to make historians more and more teachers of true greatness, by associating it more and more with goodness.

When the Earl of Chatham rebuked Lord Suffolk's rash defence of savage warfare by appealing to the frowning tapestry of the defeated Armada, below which our peers so long sat, the venerable statesman gave an excellent example of the use of portraiture, which has been perhaps carried into many other scenes of social and political life. Indeed, the task now undertaken to collect the portraits of our people from all times, is a weighty one; and a few hints upon some of its branches, will not, it is thought, be unwelcome.

Our forefathers took an earnest part in what was held to be the revival of letters and art in Europe, after their decline upon the fall of the Roman empire; but the utter extinction of both has certainly been assumed incorrectly. The very ruins of the ancient civilized world offered many a model to the wondering eyes of the victorious barbarians, who were not long in profiting by what they could not but admire.

The story of Anglo-Saxon art has still to be told, whether in its relation to those ruins, or as it was influenced by Oriental relations. But passing on from the genuine Norman tapestry at Bayeux, to numerous paintings at home and abroad of the assassination of St. Thomas à Beckett at the altar, long a popular subject of church art, we find multitudinous illuminated miniatures to the fifteenth century, certainly the portraits of known individuals, kings and subjects. A Biblical specimen of that lore, of which one folio volume is preserved in the Bodleian, and the other volume in the Public Library at Arvas, has not fewer than 1,500 miniatures distinctly various, and their personality is shown by the fact of the work having been produced by a long succession of monks,—the writers in the Scriptorium, whose

names are duly set at the beginning of their respective parts with their differing likenesses.

Illuminated MS., and monumental brasses, have not yet been enough searched for individual portraits. They are rich in those aids to heroic biography and to family study. Chaucer is well known to us from his grave features, preserved in the contemporary MS. poem by Occleve in the British Museum. The verses thus illustrated are not more striking as an eulogy of the time of the great poet, than the likenesses so carefully presented to the reader, from the enologist's affection for the deceased man, whom, when living, he certainly knew in his own early youth. An equally famous group in a MS. in the library of the Lambeth Palace, deserves to be more skillfully reproduced by modern art than was done by Mr. Strutt's pencil of the last century for Lord Orford's "Royal and Noble Authors." The original must have a conspicuous place along with the Chaucer and some others of that class, in the coming exhibition, and so invite profound criticism. It is interesting in the highest degree, if at present correctly interpreted, to the history of our earliest printing; but it is beyond price as a domestic display of the court in the reign of Edward IV., not often thought to have been intellectually occupied. It is Caxton's zealous patron, Earl Rivers, the queen's brother, himself a diligent writer and a poet, as well as a pre-eminently brave knight and ambitious statesman, presenting a bound volume to the king in person; and introducing also a shaven monk to Edward, but it is said to be doubtful if the printer is there. The queen and her eldest son, afterwards the hapless victim of that troubled time, Edward V., are standing by, with the Duke of Clarence, himself the chief actor in a former sad tragedy at Tewkesbury, and soon to be sacrificed in the Tower to the ambition of Richard III. This pretty picture is a gleam of sunshine in a dark day of political crime. It is the frontispiece to a manuscript of a valuable work, "The Sayings of Antient Philosophers," stated in the text, by Caxton himself to have been translated from a French original by Earl Rivers, who read it on pilgrimage by sea to a shrine in Spain. Caxton makes a very curious addition to his patron's work; and this volume seems to have been written from a printed copy, the new art not having yet superseded the old practice. Book-making was at this time, 1477, in laborious transition to its actual comparative perfection.

The scene is the more pleasing to look upon in reference to its collateral circumstances than even in regard to typographical interest. The learned earl was governor to the young prince, his nephew. King Edward's articles upon the training of his son are extant, doing his majesty great honour for their wise and feeling character. But if the common notion be correct, that this picture tells a real event, testifying the importance attached by the court to the production of Caxton's early printed volume, it much raises our opinion of the royal intelligence, and deepens our grief at the wreck so soon to come. This portrait of young Edward is the original of all the engravings of him in our histories.

In the fifteenth century, a fine recumbent figure in bronze is a fair remembrance of king-making Warwick, with family portraits about his tomb in the chapel of his castle, a memorial of Medieval art as well as of baronial greatness.

In the next century (the sixteenth), in the reign of the Tudors, our native artists began to be surpassed by the Holbeins and Antonio Moros of Holland. Our own skilful illuminators were gone, and not yet replaced from our own stock. An ill-founded prejudice against the "vanities" of art,—pictorial and architectural,—prevailed in the minds of our good Reformers, who held it to be a duty to become wild iconoclasts. John Knox's maxim, that to get rid of the rocks their nests must be destroyed, had a practical sense in it,—but it led to sacrilegious abuse another way.

The age of Shakespeare and Spenser could not, however, refuse absolutely to be influenced by the divine inspirations of their art, or reject all the genuine works of genius. Our glorious cathedrals were spared; and that golden age of the past is redeemed to our credit in art by one man of a great lineage,—Sir Nathaniel Bacon,—whose fair fame as a painter is only thrown into the shade by the brighter greatness of his relatives, of whom his half-brother, Lord Bacon, is the chief.

Sir Nathaniel Bacon's eminence is attested

by Camden; and the best evidence of his powers is still to be seen at Calford, where he lived; at Goshambury, the family seat; and elsewhere. The most attractive specimens of his works are two portraits, that of his mother and his own. Perhaps he produced the marble monument of his sister, the Lady Periam, now in the church of Henley-on-Thames.

In the first few years of the next century, there fell out an event in the premature death of Prince Henry Stuart, elder brother of Charles I., that was no less fatal to our progress in the fine arts and in all the humanities, than to the spread of civil and religious liberty abroad as well as at home. The evil influence of this event has never been duly weighed by historians. The capital parts, indeed, of the case have been, and are to this day misrepresented with extraordinary perversity of judgment and failure in research.

In regard to the fine arts, painting, sculpture, and architecture, it is enough here to state that the royal collection usually attributed to King Charles, the younger brother, was founded and richly endowed by the incomparable Prince Henry. Young as he was, at his decease, not nineteen, his household at St. James's had in it already eminent artists. Inigo Jones was a member of that household, architect to the Prince of Wales, whose wise economy even surpassed his great liberality and his good taste. He himself corresponded with agents employed to buy pictures for him, and to engage painters to come from Holland into his service. His admiring friends were the accomplished patrons of art, Thomas Earl of Arundel and the Earl of Pembroke. His portraits are many and characteristic, and they associate him with every branch of art, of literature, and of science. The exhibition offers a fit occasion for setting this glorious young Prince of Wales in the light that belongs to his genius and character.

With the exception of the Scottish Vandyck, Jameson, and his descendants, the Alexanders, foreigners, in the persons of Lely and Kneller, kept the lead in portrait painting among us, until Hogarth and Sir Joshua Reynolds broke the spell. The recent collection of miniatures has indeed given good proof of the ability of our own artists in this field; and our fathers' judicious liberality to the Holbeins, Vandycks, and Knellers, sufficiently testified our good national taste in portraiture. But for the last hundred years, our Reynoldses and our Lawrences have set us in the place which the *Spectator* of Queen Anne's reign claims for us at the head of portrait painting.

RATZEBURG, AND HOW PRUSSIA TOOK POSSESSION.

STRANGE circumstances, according to the proverb, make us acquainted with strange bed-fellows; and a Londoner, out for his autumn holiday, often manages to get into queer out-of-the-way places. Two hours by rail brought us from Hamburg to Lubeck, an interesting old place, with curious churches and wonderful spires, none of which are upright, and funny gabled houses, with quaint woodwork and glazed tiles. Thence to Ratzeburg, the capital of the oft-mentioned duchy of Lauenburg, a part of that golden pipkin for which the three beauties, Austria, Prussia, and Mecklenburg have lately put in their respective claims. Prussia, thanks to the charms of her Bismarck policy, ultimately received the prize, and by accident we arrived here on the eve of the 15th of September, the day from which will date the formal possession (or seizure) of the duchy by his Majesty of Prussia. A pretty little town is Ratzeburg, lying on an island in the middle of a lake, some 5 miles long by 1 mile broad, and connected with the main land by two long dykes. Seen from neighbouring heights, the place, with its red-tiled roofs, looks for all the world like a dish of lobsters, on a blue plate, garnished with green-stuff. The town-hall and guard-house occupy one side of the square; opposite are the two principal hotels, one of which has a Prussian sentry pacing up and down, for the house is full of officers, with their coats covered with all manner of crosses and stars; and the poor little fellow with the big musket has no easy time of it, for his superiors are swarming in and out, and each time he has to present arms. The eve of this day was celebrated by a serenade to the minister, Count Arnim Boitzenburg, staying at the house of Count Kielmannsegg, and come from Berlin in order to take possession of

the Duchy in the King's name. This morning was ushered in by three individuals in plain clothes, but armed with drums, drumming all over the place, and calling out the various guilds. Then, at eleven, some 400 men of the 43rd regiment came on to the square, and drew up on one side; after which the guilds marched up, some 150 strong, and took up the opposite side.

Count Arnim then appeared on the steps of the town-hall, and, in a short speech, informed the world generally, and the Ratzeburgers in particular, that his Majesty had been pleased, by patent of the 13th instant, to convert the Lauenburgers into Prussians. He finished by calling for three cheers for the King, which was responded to by the soldiers at a given signal; but the guilds and the handful of lookers-on remained perfectly passive. A ladder was now set up against the building, and the royal escutcheon fixed over the door, at the which another cheer from the soldiers, and all was over. Thus Lauenburg became Prussian.

THE SCOTTISH ASTRONOMER ROYAL IN THE GREAT PYRAMID.

PROFESSOR C. PIAZZI SMYTH has reported to the British Association on the results of his exploration of the Royal Oratory, or Central Chamber, and its mysterious chest, sarcophagus, or coffer, in the Great Pyramid. The paper was read by Mr. White, who exhibited the photographs which Professor Smyth has taken by help of the magnesium light; which light, however, has been to some extent a failure, in consequence, mainly, of the ventilators of the chamber having been choked up with stones and sand, thus greatly limiting the access of oxygen and the removal of foul air. The clearing of the ventilators, if that be practicable, at available cost, should have been first effected, and would still be desirable, even were well-borers required. As it was, the chamber rapidly got filled with the oxide of magnesium, which required twenty-four hours to settle down; so that but one photograph could be obtained in the course of a whole day. And, besides, carbonic acid gas so abounds in the chamber, that the only wonder is magnesium burnt at all; and its light must have been very deficient compared to what it would be were the ventilators cleared.

On a previous occasion it was said that measuring-rods in the interior of the chamber had been photographed; and, had these measuring-rods been sculptured on the walls, a very startling corroboration of Professor Smyth's idea of the Great Pyramid having been a standard measure office would have thus been obtained. It now turns out, however, that the measuring-rods which were photographed were the Professor's own rods, which he applied to the sarcophagus, stone coffin, or coffer, which he believes to be an aboriginal chaldron measure; and these rods were photographed, while so applied, in order to show the actual dimensions of the kist or coffer. This was a very odd way of demonstrating the exact size of the kist. If the Professor's own measurements are to be at all doubted, why are his measuring-rods to be implicitly credited? The one may be wrong as well as the other. A committee of three competent persons, or more, including the Professor, would have been a much more satisfactory mode of settling this singularly doubtful question.

On the subject of the kist, or coffer, and its dimensions, the author of the paper said,—

"According to the theory of the late Mr. Taylor, that coffer was a primal measure of capacity, from whence is derived the hereditary Anglo-Saxon wheat-measure called the quarter, which it is the fourth part. Whilst, however, we know by Act of Parliament how many cubic inches are contained in four quarters English, there has been much doubt as to the cubical contents of the granite chest of the pyramid. The measure of the French Academy in 1790 made it nearly 8,300 cubic inches greater than several English travellers have declared it to be, though they again by no means agreed with each other in subsidiary details. Now, however, by means of the magnesium light, we have a series of photographs of this coffer, with a system of measuring-rods fastened about it, showing the rods inside and the size outside; and, finally, the cubical contents being summed up, prove, that the remarkable granite vessel is a measure of capacity equal, with almost mathematical accuracy, to four quarters English."

Now, considering that this supposed standard measure was never open to reference by any nation of antiquity,—not even by the Egyptians themselves, who knew nothing of its existence, nor even of the existence of the chamber which contained it, nor of the passage leading to that chamber,—this extreme mathematical accuracy, so far from confirming the idea of the kist

having been "a primeval measure of capacity," only sheds an additional suspicion of its own upon such an idea. We know that without access to, and corrections by means of, standard measures, extreme mathematical accuracy in measures is impracticable for any prolonged series of years, far less for thousands of years without any such access or correction. If the pyramid kist be so nearly equal to four quarter measures, therefore, the coincidence is probably accidental, or to some extent dependent on other circumstances, like those relating to the common use of measuring-rods themselves, such as the cubit or the measure of a man's forearm, and their derivation from nation to nation; as well as those relating to the average length and breadth of the human body itself, or "the measure of a man," with reference to kists or coffins capable of containing it, whether dead or alive. As regards the kist of the Great Pyramid, the impenetrable mystery in which for ages it was purposely hidden, corroborates our idea that it was used in the mysteries of initiation, as so many kists or coffins have in all ages been,—Druidical and Freemasonic inclusive; and the same mystery expressly contradicts the idea that it was ever intended for a primeval standard or reference measure of capacity at all.

TELEGRAPHIC.

The provisional prospectus of another new Atlantic Telegraph Company has been issued. The company is to be known as Allan's Ocean Telegraph Company (Limited), from the circumstance that the cable which it is proposed to lay is to be constructed on the principle advocated by Mr. Allan, the well-known electrician and engineer. The capital to be raised is stated at 150,000*l.*; and it is proposed, in order practically to test the superiority of Allan's cable, to lay it in the first instance from Falmouth to Oporto; and should this section work satisfactorily, to carry it across the Atlantic to Halifax. One of the advantages of Allan's cable is said to be that it can be laid without much expense; and it is calculated that, not being saddled with any loss through previous failures, the undertaking should pay as well at 4*l.* a message of twenty words as its rival at 20*l.* As soon as the business increases, it is intended to lay another cable between Falmouth and Halifax direct.

The Atlantic Telegraph Company have had an extraordinary meeting, at which a proposal was sanctioned for raising between a quarter and a half a million of additional capital to sustain the company and its operations. The high terms of 12 per cent. and a share of profits, after the existing share capital gets 8 and the original capital 4 per cent., are to be offered to induce subscribers to come forward.

Mr. N. J. Holmes read a paper on "District Private Telegraphs," at the Birmingham meeting of the British Association. He pointed out that the popular use of the telegraph depended upon the adoption of a more easy system of signs than was used by the ordinary telegraph companies. This desideratum was secured by Professor Wheatstone's invention of the alphabetical telegraph in 1838. Upwards of 2,000 miles of private wires had been erected by the district company, employing upwards of 863 sets of instruments. The principle upon which the wires and instruments are supplied is that of rental. Comparatively few lines supplied were purchased by the parties using them, and those were chiefly over private properties.

PROPOSED FRENCH TELEGRAPH TO AMERICA.

An arrangement has been entered into between the French Government and the proposers of a Franco-American telegraphic line as regards the terms of the concession, and the subject is to be brought before the Legislative Assembly in the next session. The route proposed is as follows:—Paris to Lisbon and Cape St. Vincent by land; thence by Hibernian submerged cable, through the Canary Islands, with stations along the Morocco shore, with stations at Fort St. Louis and Cape Gore; here the cable will be immersed across the Atlantic Ocean to Cape St. Roque in the Brazil, and thence to Cayenne and New Orleans either by a shore-line or by one uniting the prin-

cipal islands of the Antilles. The length of immersed cable between Cape Verde and Cape St. Roque will be less than half that lately undertaken to be laid by the *Great Eastern*; and, as it passes between 15° north and 5° south latitude, it may justly be termed the "tropical cable." It will cross the equator somewhere about 25° west longitude.

THE REPORTS OF THE MEDICAL OFFICERS OF HEALTH.

The reports of the medical officers of health of the metropolitan parishes have a far greater value than is generally supposed. They are written by gentlemen who take great interest in their important work, and are fitted, both by their education and their rank in life, to take an independent position, and hold their own against the obstructive prejudices of boards of guardians. Their testimony is held in respect in the police and other courts, when matters of health are taken into consideration; but, as we have said, there is a want of management in the publication of their reports, and there are no means of getting a complete set of these reports, which, in a collected form, would give an immense amount of useful knowledge in connexion with the health of the metropolis. To remedy this, only needs a little arrangement. May we venture to recommend this to the consideration of the united body of medical officers of health. What would chiefly be required would be the adoption of a uniform size, and the co-operation of a publisher who, feeling an interest in the subject, would be likely to take a little trouble, at perhaps a small amount of profit.

In the hope that what we have suggested may not be without good results, we will now glance at a few of the later reports.

St. Pancras.—Dr. Hillier, the medical officer of health for St. Pancras, directs the attention of the vestry to the prevalence of typhus fever, which he says is much aggravated by overcrowding, and he is of opinion that it is impossible to prevent this evil, and that the law relating to the matter cannot be enforced without encumbering the workhouses to a great extent, for house-rent is higher than ever in London; and the dwellings of the poor are constantly being removed by railway extension and in other ways. In St. Pancras, a great part of Agar Town has been pulled down, and much of Somers Town is condemned to the same fate. Rooms to accommodate a family with six or eight children, so adapted as to afford a fair amount of ventilation, cannot be obtained for less than from 5*l.* to 8*l.* a week.* It is only a few of the working men, who have families to support, that can manage to pay so much. The consequence, Dr. Hillier remarks, is that men having large families and earning less than 1*l.* a week, must live in rooms too small for them; and, as a consequence, disease is generated, and infectious disorders are propagated to a lamentable extent. Consumption and the so-called tubercular diseases, are developed by want of air more than by any other cause. These diseases accounted for 866 deaths last year. About one-sixth of the whole deaths arise from preventable causes.

St. Giles's.—Dr. Buchanan, in his report for 1864, says:—

"The registered deaths amount to 5974 per thousand of our population, and if the deaths of our parishioners in hospitals be included, the corrected death-rate is 3110 per thousand. There has been no such mortality as this since these reports. It exceeds by two per thousand the death-rate of 1862, the year of highest previous mortality. It appears, therefore, that our district has to lament, equally with the rest of London, the remarkable fatality of the past year; and we cannot fail to be struck by the circumstance that in front of an advance in other parts of the town, St. Giles's keeps still advancing in its mortality. But it is right to point out that our own rise in mortality, great as it is, is this year scarcely beyond what has occurred in London as a whole, and that it is a satisfactory exception to former experience that the rise should not be particularly great in St. Giles's. Further, that of the districts among which St. Giles's is situated, St. Pancras, Holborn, and the Strand, but especially the Strand, have all exhibited a more serious rise (though not reaching the same actual amount of mortality) in their death-rate than St. Giles's, when the rate of 1864 is compared with the mean of 1862 and 1863. And, as has already been mentioned, some other districts have had a more formidable increase even than those now mentioned."

A valuable improvement has been made in 1864 in the method of procedure with owners of

* In the model lodging-house for families, near old St. Pancras Church, three rooms which, at the time of the opening of the building were let for 4*l.* 6*d.* a week, now bring 7*l.*

houses that are habitually kept dirty. Much of the poor house property in the district is owned by some few landlords who wanted incessant looking after, and had come to regard the lenient measures or warning adopted by the Board as a cheap way of keeping them informed about the state of their premises. The Board has now resolved that in the case of persons habitually offending against the sanitary laws, proceedings before a magistrate shall be taken immediately if a simple notice be neglected.

The reporter states that—

"In the presence of the epidemic of typhus has been continued through 1864, continued attention has been given to the ventilation of houses and to preventing overcrowding of rooms. Handbills (in the form now long adopted by the Board) have been circulated with every notice that has been issued, warning landlords against permitting the practice of overcrowding. The decision of the magistrates that was obtained by the Board has been taken as a precedent, when proceedings for overcrowding have been taken in other parts of England."

It is much to be desired that Local Boards should have power of dealing effectually with many sorts of sanitary defect against which the law does not at present properly provide. Collectively the medical officers of health have experience of many such shortcomings in the law, and they have recently drawn up a memorandum on the subject for the use of Government in framing future legislation."

Whitechapel.—Dr. Liddle, in his report for the quarter ending 1st July, 1865, says, as to overcrowding,—

"Such is the demand for houses among the working classes that rents are rapidly rising; and, as it is almost impossible for the labouring poor to pay a higher rent than they paid for their rooms that they formerly occupied, each house soon becomes overcrowded. This overcrowding, for the sake of the public health, must be prevented. It is very probable that the districts adjoining the city of London suffer more from overcrowding than remoter districts, in consequence of the local authorities there being empowered to institute a regular and systematic inspection. I am informed that the Sewers Act for the city of London (14th & 15th Vict., c. 91) is of immense service in that district in preventing overcrowding; but what must be the effects of such a systematic visitation upon the neighbouring districts, where the authorities have not the same powers to prevent overcrowding?"

In self-defence, therefore, similar powers to regulate the number of persons who should be allowed to occupy a single room should be granted to all vestries and district boards, so that the same kind of inspection of the rooms in all such houses (as defined by the Sewers Act) might be adopted in all the metropolitan districts. Unless effectual means be taken to prevent overcrowding, disease will extend, and the rate of mortality increase, and consequently, the burdens of the ratepayers will become augmented.

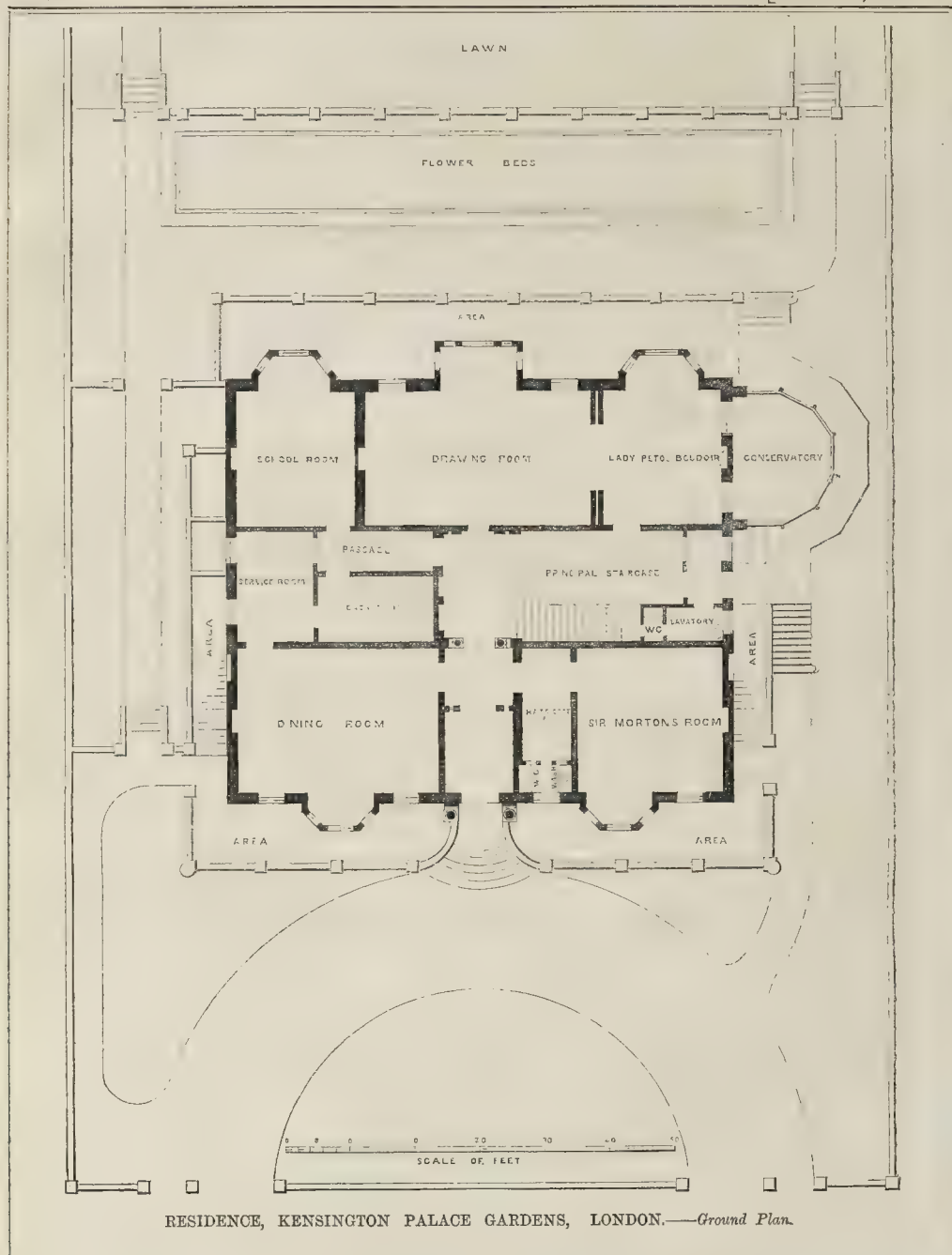
If such a system of supervision were to be carried out as in my opinion would be desirable, about 17,600 rooms would require a periodical inspection; for, unless a regular inspection at very short intervals be adopted, overcrowding will exist, and wherever overcrowding is found, nuisances will be of continual recurrence.

The overcrowding in this district is of two kinds, viz., that of the houses, and of the people occupying the houses. Many of the houses are built back to back, and, consequently, cannot have a current of air through them; and the spaces at the rear of others are so small that they are inadequately ventilated. The former can only be prevented by proper provisions being introduced into a new Building Act; and the latter by the frequent inspection and putting rigidly in force the powers entrusted to local boards. There can be but little doubt that density of population exercises a powerful influence in increasing the rate of mortality. Cases of fever have been caused by overcrowding, and by the emanations from cesspools; but it cannot be said that overcrowding is either the cause of an increased rate of mortality or of fever. The poverty of the people, their occupations, their ages, the want of cleanliness at their command, the state of the drainage, the ventilation, and the existence or otherwise of efficient sanitary conditions, will produce a difference in the rate of mortality in any district."

A MARKET FOR NANTWICH.

A COVERED market is about to be erected in Nantwich, from the designs of Mr. Thomas Bower, jun., architect, of that town. The site is given by Mr. Tollemache, M.P., and the Marquis of Cholmondeley has given up the tolls to the town. The building is in the Elizabethan style of architecture. The hall will be covered with a light iron roof in three spans, carried on cast-iron columns, of an ornamental character; the centre roof will have a continuous lantern running the whole length of the building, fitted with glass louvres. Ventilation will also be obtained from the windows on each side of the hall, the upper half of which will also be fitted with glass louvres. The principal front will face the church, and will have two gables and a central block tower. The gables will contain the arms of the donors of the site and the market tolls, and the tympanum of the principal doorway the town arms. The building is 165 ft. long by 65 ft. wide, and will contain shambles, fish, poultry, butter, vegetables, fruit, and also a potato market. The building will cost between 3,000*l.* and 4,000*l.*, and will be carried out under the direction of the architect.

* Vide *Builder* of 24th September, 1864.



TOWN RESIDENCE, KENSINGTON PALACE GARDENS.

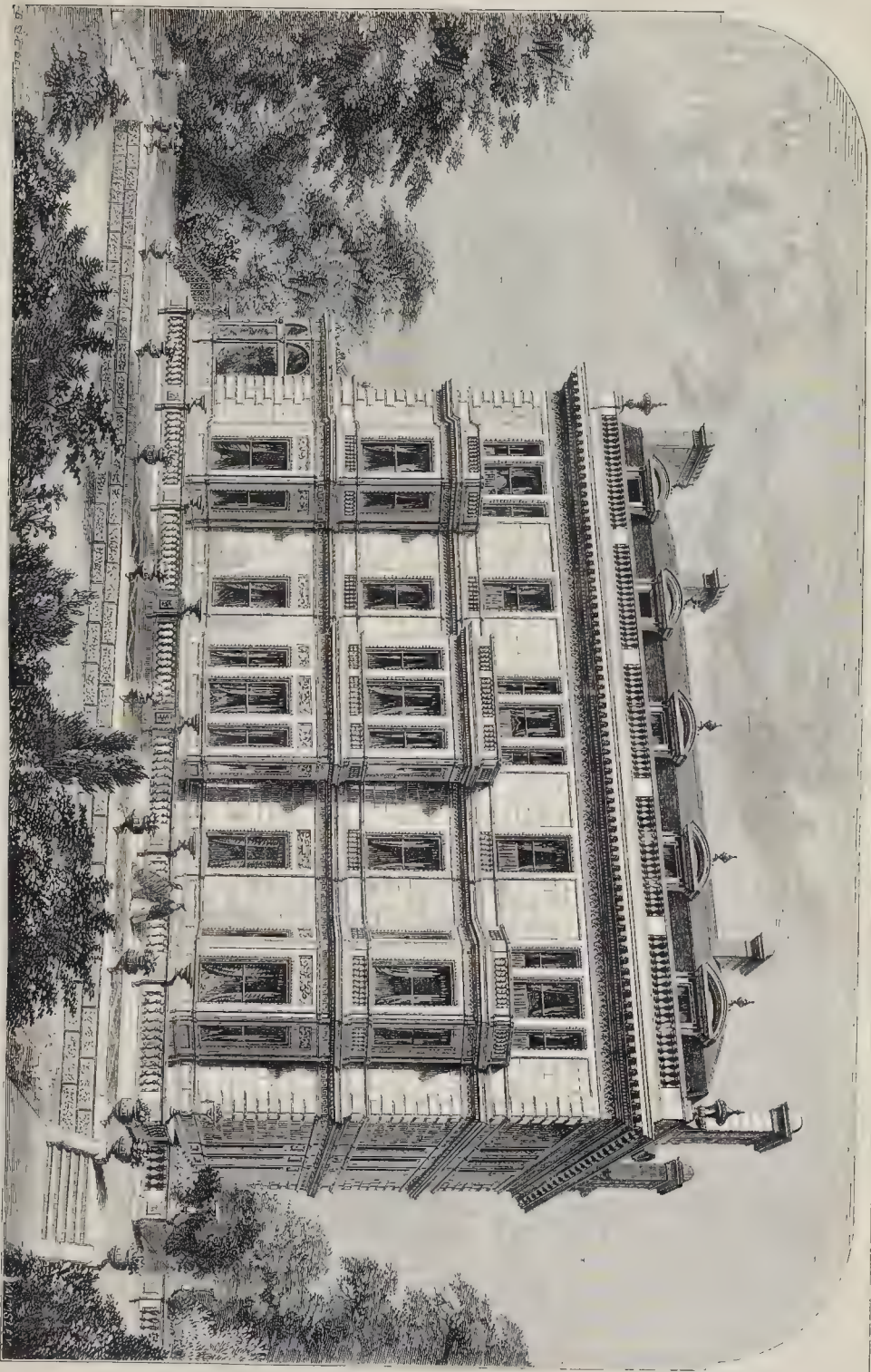
A NEW town mansion, in Kensington Palace Gardens, for Sir S. Morton Peto, bart., M.P., which has been for some time in course of erection, is now rapidly approaching completion, and will shortly be ready for occupation. We give a view of the garden front and the ground-plan.

The building is of Portland stone, in the Italian style, with carved enrichments to the window-dressings and cornices, and alto-relievo panels with emblematical subjects above the

ground-floor windows. An enriched porch of slight projection gives access to a vestibule and then to a central hall with a wide easy staircase. On the right-hand side of the vestibule is Sir Morton Peto's business-room, 22 ft. by 22 ft. with hat and cloak-room, gentlemen's lavatory, &c., attached, and on the other side a dining-room, 31 ft. by 22 ft., with a large serving-room, fitted with hot-plates, &c., and communicating with the kitchen by means of a dinner-lift. Adjoining, is the servants' staircase, with a coal-lift running from the bottom to the top of the house, and communicating with every floor. The garden front is occupied by three rooms:

on one side a morning-room, 23 ft. by 18 ft.; in the centre the drawing-room, 35 ft. by 23 ft.; and opening from that, by means of large sliding doors, Lady Peto's boudoir, 23 ft. by 18 ft. This latter room leads on to the conservatory, which communicates by a broad flight of steps with the garden terrace. The conservatory is paved with encaustic tiles, and surrounded with flower-boxes of majolica tiles set in Sicilian marble. The tiles are by Messrs. Minton, who have also laid down in the vestibules and central hall an elaborate pavement of Roman mosaic. In the entrance-hall are large columns of Griotte marble, each in one piece, finished with enriched

RESIDENCE FOR SIR S. MORTON PELL, BART., M.P., KENSINGTON PALACE GARDENS. MR. JAS. MURRAY ARCHT.



Ionic caps and bases in bronze, by Messrs. Elkington. The decorations of the rooms are from the designs of Mr. Owen Jones. Messrs. Jackson & Graham are the decorators, to which firm has also been entrusted the furnishing. The woodwork of the rooms throughout is of wainscot.

On the basement, the servants' arrangements are elaborate; all the kitchen arrangements and the hot-water fittings generally throughout the house have been executed by Messrs. Feetham, of Clifford-street. The staircases and corridors on every floor are warmed by means of hot water, which is laid on to every one of the principal bed-rooms and dressing-rooms, and also warms the conservatory.

The principal bed-room consists of Lady Petre's bed-room, 24 ft. by 21 ft., with Sir Morton Petre's dressing-room, 19 ft. by 25 ft., opening from it, and fitted up with bath, &c. Adjoining these rooms are a spare bed-room, 25 ft. by 19 ft., with a dressing-room opening from it, 20 ft. by 12 ft. On the other side of the principal staircase are a spare bed-room, 23 ft. by 22 ft., with a dressing-room, 17 ft. by 9 ft.; a night nursery, 20 ft. by 16 ft.; a day nursery, 23 ft. by 22 ft.; and two bath-rooms, fitted up with every requirement.

On the second-floor are two ranges of bed-rooms, consisting of ten spacious rooms, with bath-room and water-closets; and on the floor over this are six servants' large bed-rooms; a linen-room, lined with cedar, and heated with hot water; and housemaid's bath-room, closet, with W.C., &c. On this floor is situated the billiard-room, 29 ft. by 18 ft., having a curved ceiling worked into the Mansard roof, and entirely lined with polished wainscot relieved with a little ornamental bronze work. A jib door from this room opens into a lavatory and W.C. for gentlemen, lined with camphire wood, as are all the water-closets throughout the house, the peculiar and lasting fragrance of this wood having led to the choice of it for this purpose. The structure of the house is fireproof throughout; the floors being constructed of tile arches, carried by wrought-iron girders.

The stables, which are extensive and somewhat novel, are not adjoining the house, but are situated at some little distance, in the Mall, Kensington. They consist of a central alley or nave, two stories high, with an arched ceiling, and iron columns down each side, between which are arranged a row of twelve stalls and two loose boxes. There is a large coach-house (nine carriages) and several harness-rooms, &c., with residences for the coachmen and grooms. The fittings and arrangements have received studied care, the ventilation and supervision having been carefully attended to, and the appointments of the stalls, which are lined with Sicilian marble, being very perfect. Hot and cold water is laid on throughout, and the temperature of the harness-rooms can by these means be regulated to a nicety. The stable-fittings are by Mr. Burton, of Oxford-street. The mansion and stables have been erected at a cost of from 45,000*l.* to 50,000*l.*, by Messrs. Lucas, Brothers, the contractors. Mr. Turpin is clerk of the works.

Mr. James Murray, of Portman-street, is the architect.

THE AUSTRO-ITALIAN RAILWAYS.

The group of Austro-Italian railways is as follows:—

1. The great Vienna and Trieste line, in length 360 miles, uniting the Adriatic and consequently the Mediterranean ports with the east of Germany, giving receipts of 60,000 francs per kilometre, or 1,370*l.* per mile.
 2. The line from Trieste to Vienna, by Venice, Verona, and Milan,—388 miles.
 3. The Verona and Kuffstein Railway, putting Italy and the Mediterranean in communication with Central Germany,—214 miles.
 4. Florence into France, by Bologna, Modena, Parma, Alexandria, Turin, and the Mont Cenis,—314 miles.
 5. Florence to Venice, embracing upon No. 4, at Bologna, and upon No. 2, at Venice,—68 miles.
 6. Pech to Trieste, embracing upon line No. 1, at Pragerhof,—224 miles.
 7. Milan to Turin, completing the great line from Trieste into France,—87 miles.
- Total, 1,645 miles of lines of the first order, out of a total length of 2,310 miles.

THE LATEST PHASE OF THE CATTLE PLAGUE.

For a considerable time the Privy Council fulminated orders which were of no use, and, as we have said before, the cattle were dying, and no practical means were used for their preservation (see *Builder*, August 26th and September 2nd). Since then the authorities have proceeded in a more intelligible manner; and as each day passes on we find that the remarks made in our pages at the beginning of this trouble are gaining ground in the public opinion, and that the suggestions made by us as means of cure are actually in a way of being carried out. Sanitariums are to be formed; we regret, however, that those places are not appointed at some more distant locality. Who would think of planting an institution of this kind at Stoke Newington and some of the other situations which are mentioned? What a pity it is that in all these matters of trouble men will not take a broad view of affairs, and seizing the bull by the horns, muzzle and prevent mischief. If new evils come upon us, let us endeavour to provide efficient means to prevent them. We recommended that sanitariums should be placed at a distance, where there might be means of cure available, and also opportunities of either utilizing or burying the dead beasts safely and with advantage; but even as it is, if the sanitariums be rightly managed, if they be not overcrowded, if ventilation and food be properly attended to, and cleanliness, together with early medical treatment, and other things which are needful, be strictly enforced, there can be no doubt that these will be amongst the chief means of checking the disease.

We have also suggested the absolute necessity which there is for statistics in connexion with this disease. This also is now to be attended to; and we look anxiously to gain knowledge of the present state of this complaint; the number of cattle within the metropolitan district; the number in perfect health; the number diseased; and each week a correct statement should be given of the progress or decline of the disorder.

There is also need of better provision for the slaughtering of diseased animals. A few days since we made careful examination of several cow-sheds in the North London district, and also looked in at one of the slaughter-houses at the New Cattle Market. At the time of our visit there were either five or six carcasses of beasts there. These were all dressed in the usual way, and hung up to the beam by pulleys; but the appearance of them was most forbidding. The general colour of the flesh was of a dark red, something between brickdust and mahogany; the fat looked yellow, and mixed with coloured fibres. The whole seemed to be tainted by inflammation. It appears that these unsightly matters were kept here waiting for the examination of the inspectors. Certainly we should think that it did not require any great exertion of skill to show that these were unfit for human food: why, then, take the trouble to dress these bodies? The smell which pervaded the place was most abominable. Oppressed with this, and the effect of some other bad atmospheres, we sat down to rest on a seat while we asked two men who were in attendance some questions. The scent here was worse than in other parts; and, on looking under the seat, we saw there stowed away a hideous collection of the offal of the slaughtered beasts. At once, with speed, we made a retreat. It was sickening in the extreme. There can be no doubt that, if moved by the wind, the gases from this place will be carried to a considerable distance; and close by are long ranges of sheds and layers for the reception of cattle, and the market is not many yards off. Therefore, if the complaint be so infectious as it is reported, there must be excessive danger from slaughtering diseased animals in such a situation as this; but, if the practice be continued, the health officers should see that the most powerful means of disinfection are used.

It is also of very great importance that we should sift the evidence which there is of the importation of this disease into the metropolis. Up to the present time there is no sufficient evidence to show that it has been brought from abroad; and during the weeks the pestilence has been raging, after inquiring with great care and reading all that has been written on the subject, we see nothing to alter the opinion which we expressed at the time of the outbreak, that it is far more likely peculiar conditions of the

atmosphere and the state of the cowsheds have been the joint means of generating this disorder; but this could be easily settled by inquiry managed rightly; especially we should note the passage of the disease from place to place: many of the London cowsheds are at a considerable distance from others; nevertheless the beasts die: can it be shown that in these instances there have been no diseased cows introduced?

In a report made, about a fortnight since, by Dr. Hillier, the medical officer of health for St. Pancras, it is stated that some of the places attacked were Argyle-street North, Crescent-mews, William-mews, William-street, Drummond-street, Guildford-street, Rochester-mews, College-street, Kentish Town, Highgate-road, &c. A reference to a map will show that there is so much space between most of these places, that unless it can be shown that the disease has been in some way communicated, this is strong evidence that the derangement and contagion are in the air.

At present the Home Office—chiefly advised by Professor Symonds—are opposed to the establishment of sanitariums; but other high medical and veterinarian authorities are of an entirely different opinion. Besides, common sense says, that, as it is acknowledged that the present disorder is exceedingly infectious, it would be well to remove the beasts from the cowsheds the very moment there are indications of disease. The sanitariums are not intended for healthy cattle: how, then, can there be any risk thus of spreading the infection? The removal of sick animals from the sheds would be a means of diminishing the overcrowding; for surely no one in his senses would think of bringing in fresh cows after the plague had shown itself until a sufficient time had been allowed to show that the animals left were safe.

Professor Dick, of the Edinburgh Veterinary College, reports that the sanitarium established there has not, so far, been attended with success; but he allows that in a great measure this has been owing to the delay and loss of time in getting the animals to the sanitarium; but that in the hyres cures have been effected by administering at the first appearance of the disease a quart bottle of linseed-oil with half a bottle of whiskey, or from a half to a pound of salts, repeating this dose the next day if it has not operated rightly, and afterwards giving half an ounce of sulphate of iron night and morning; but, so far, all the medical treatment appears to be a matter of uncertainty.

Some of the cow-sheds which we had but little more than a week before visited and found overcrowded, but where all was reported to be well, are now empty; and the people who had been so confident, and who had thrown doubts on the need of sanitary precautions, pointed to the places with dismay. At Mr. Camp's, at King's Cross, where we had seen 210 cows, there were only a few, which presented a miserable appearance in one corner.

As regards the sanitariums, it would be well not to let their construction and arrangements for ventilation depend altogether on the superintendence of either the medical or veterinary authorities: practical men, like Mr. Mechi, and some one of experience in drainage and ventilation, should also be consulted.

THE UTILISATION OF SEWAGE.

A PAPER was contributed at the British Association meeting, by Mr. H. Bird, entitled "Observations on the Utilization of Sewage as conducted at the Sewage Works in Stroud; and the Growth of the Sewage Plant." The population of Stroud using the newly-constructed sewers amounts to about 4,000; and the sewage is conveyed into the tanks with about 600,000 gallons of water a day, and during rainy weather the washing of the streets. The sewage, although so greatly diluted with water, does not lose its property as manure. For the collected matters, after being prepared for manure, and applied to grass land, greatly increased the crop, afterwards making it a deep green colour, and increasing the quantity of clover. Animals showed a preference for feeding upon such spots. The quantity experimented with has been from five cwt. to half a ton per acre. The quantity of water of course diminishes the value of the manurial property of the tail water of the tanks, which is now allowed to flow into the river Frome, after passing through a long culvert,

filled with mud, without affording the slightest nuisance or injury. But it ought in all cases to be used for irrigating land upon the plan of open carriers where the system can be adopted. Sandy and loamy lands resting upon gravel well drained, or even double-drained lands, are best adapted for such irrigation. The floating substances are daily removed from the surface of the tanks, and the subsided sewage or sludge is removed often, at least once a week. It is injured by remaining in the tanks; and these should be constructed so as to favour the removal of the sludge by dredging or otherwise. The sludge is placed in heaps to dry. These heaps, when sprinkled with prepared clay, give off no stench, and this is prevented in dredging by the same means.

In experimenting with deodorants upon sewage and putrid matter in the year 1859, the author's attention was called to the appearance of flocculent and globular forms of fungi appearing in water containing sulphuric acid, or alum, or sulphate of iron and alum. The size of the fungus varies considerably in length and circumference, from that of a small seed to several inches, and its colour passes from a light drab to a complete black. It disappears in the summer months, when water contains its minimum quantity of sulphuretted hydrogen and other offensive gases, but it increases and flourishes most during the cold months, when the sewage is most loaded with putrid gas, and does not smell offensively. This is the plant that fills up filters and sewers, and creates the chief difficulty in filtering sewage. It seems to have the property of purifying sewage-waters, by absorbing the offensive gases. It is only present in water containing animal organic matter, but it is absent from pure spring and distilled water.

SANITARY MATTERS.

The occurrence of epidemic cholera abroad, and the fear of its reaching England, have led to some little stir in various towns; and although it is to be hoped the *Times* was right in its suggestion that the Mediterranean might be the sole centre round which the present epidemic would circulate, still any sanitary movement which it may have excited in this country cannot but do good, unless it amounts to a literal panic, which would be much to be regretted.

Swansea.—Considerable alarm and anxiety have been felt by the arrival of the ship *Hecla*, from Cuba, having one of its crew afflicted with yellow fever. The ship was placed in charge of the police, disinfectants were freely used, and other precautionary measures adopted.

Wolverhampton.—The chairman of the Sanitary and Streets Committee announced, at a recent meeting of the town council, that the committee had made an inspection of the town, and had found the courts and alleys on the north side to be in a very fair condition. Poundney's Fold, in the centre of the town, was defective most of all, in the absence of sufficient ventilation in the houses, a subject over which the committee had, unhappily, no control; for the buildings were put up before the existence of the local board. The town clerk read a letter which he had written to the Home Secretary, reviewing the defective state of the law upon sanitary matters. The communication showed that local boards had no power over buildings erected before the date of the constitution of the district, which were usually those that most required supervision; and next, that no system of sewerage, however excellent, could be carried out, if the owners of land through which it might pass put forth the obstacles that they were in a position to offer. Because of this difficulty the system of sewerage, which had obtained the sanction of the Home Secretary himself, for Wolverhampton, could not be commenced, notwithstanding the great urgency of improved sewerage in the town. It was resolved that the letter be forwarded to the Home Secretary, and to all the local boards of the kingdom.

Lincoln.—At a late meeting of the local Lighting and Paving Commissioners, attention was directed to the fact that diseases of a contagious nature were very prevalent in Lincoln. The mortality had increased 50 per cent. during the last year, and for three years past fevers, small-pox, and other contagious diseases, had carried off many victims in Lincoln. A great deal of the sickness was believed to be owing to the imperfect drainage from single houses. One

cause of the fever, however, was considered to have been the late oppressive heat. It was resolved to call the attention of the corporation to the subject.

Leeds.—The reports concerning the sanitary condition of the town which have been laid before the Leeds Board of Guardians by their medical officers, says the local *Intelligencer*, though containing matter enough for serious consideration, do not constitute a ground for anything like panic. Mr. Beardslaw, indeed, speaks of one locality in which typhus, diarrhoea, and dysentery prevail to an alarming extent; but, from the description which he gives of the locality, the prevalence of disease within it can hardly create surprise. The council are taking measures for promoting whitewashing and cleansing, scavenging, &c.

Carlisle.—The sanitary inspection committee for Rickergate Ward have presented their report. The document describes the state of the ward in minute detail. Many of the nuisances were such as might easily and readily be removed, whilst there are others of older standing which will require more time to effect their removal. The report has been referred to the surveyor and inspector to carry out its recommendations.

Wick.—The *John O'Grady's Journal* has a leading article on the sanitary state of this town, which is considered to be about as bad as can well be imagined. Remedial measures are suggested.

SANITARY WANTS IN MARGATE.

We are glad to find that the few words of advice we thought it necessary to offer to the authorities have caused considerable stir, and may, it is hoped, lead to some endeavours to remedy the crying evils complained of. Several persons of position there offer to forward to us evidence of the existence of a much worse state of things than we have indicated; but we have no wish to raise a feeling abroad against the town if the much-needed improvements can be obtained by quiet representation.

SANITARY PROGRESS AT MARKET LAVINGTON.

Progress, in a sanitary sense, seems to be rather slow at Market Lavington. The law countenances the fine theory that the public have only to apply to the properly constituted authorities to have all sanitary grievances at once redressed; but theory and practice are scarcely in accordance. A correspondent, Mr. W. H. Espenet, who writes us from Market Lavington, near Devizes, appears to have been lately enlightened on this subject by attempts repeatedly made, during the last four months, to induce the local surveyor of highways and board of guardians to put the Market Lavington street drain-traps in good working order, and insert traps where (as in most cases) there are none; and also to get them to put down a proper covered drain where an open stagnant parish ditch now exists, causing illness in our correspondent's family, and in those of others also located near to the obnoxious ditch. The surveyor did not like to put the parish authorities to expense in the matter. The guardians consulted about it. A magistrate advised with our correspondent as to it. The result was this:—

"On Tuesday, 15th August, the Devizes Board of Guardians decided that the expenses should be shared one-third by the parish, one-third by the owner of my garden ground, and one-third by the owner of the field below; and that the management of this business and of the street-traps and drains should be placed in the hands of one who is not noted for any remarkable energy in the execution of sanitary matters,—so that it is supposed that, 'placing the business in his hands' is the same as saying, 'the bill may be read again this day six months.'

9th September, 1865. Four of the hottest months of the year have now passed away since the date on which I first made application for the removal of these nuisances, and nothing is yet done.

I think, Mr. Editor, it is time I called your attention to this state of things, which shows how easily country boards of guardians can evade and trifle with the law when it does not happen to suit their views to carry it out as intended: in fact, the laws are only waste paper in their hands."

THE CONDITION OF TOWNS.

SIR,—I have been reading the remarks in the *Builder* on Southwark. I tender you my sincere thanks, as a member of the human family, and say, "persevere," even to the hundredth time.

How many times have you and I heard things stated, or read them, without any effect; when at some moment we are startled with the truthfulness and importance of the same subject. We must sow the seed, and give it time to grow, and, depend upon it, sooner or later, it will produce fruit.

May you be induced to proceed, and protected and strengthened in your labour, is my earnest prayer.

BRISTOL.

PROPOSED IMPROVEMENT OF BRISTOL.

At a meeting of the town council on Monday last, the committee reported,—

"That having carefully and minutely considered the several plans which have been from time to time proposed for street improvements within your jurisdiction, your committee have selected the following schemes, which they now submit for the determination of the town council, acting as the local Board of Health. 1st.—For the improvement of Park-street, as set forth and described in the report of Mr. R. S. Pope, herewith appended (31,000*l.*). 2nd.—For the improvement of Temple-street, and the formation of a new street leading from Bristol Bridge to the Great Western Railway Terminus, as set forth and described in the report of Mr. S. C. Frupp, which is appended to this report (about 53,000*l.*). 3rd.—For improving the roadways leading from Redcross-street and Old Market-street. 4th.—For providing a carriage communication between Old Market-street and Stoke Newington, through St. Paul's parish, which last two plans are set forth and described in the report of Mr. Josiah Thomas, herewith also appended (5,700*l.*). And 5th.—For a new street from Park-row to Maudlin-lane, set forth in the report of Mr. R. S. Pope, herewith appended (2,400*l.*)."

Mr. J. Poole moved that the reports read be received, printed, and circulated among the members of the town council; that the plans be lodged in a public place for the inspection of the citizens; and that the house reconsider them both at an adjourned meeting which should be named.

Mr. Alderman Proctor urged with much force the objection there was to adopting the plan of one person and giving it to another to carry out, who would, therefore, have no responsibility; further, that the three recommendations had no reference one to another, and that in his opinion one competent architect ought to be employed to consider the whole question, and on him the responsibility should rest. He was, therefore, in favour of a little delay.

Some other speakers took the same view, but ultimately the motion was carried without a division.

Although delay is not to be advised in Bristol, where improvements long needed have been already too long postponed, it is impossible to deny the wisdom of Alderman Proctor's advice. The council should lay down a complete and well-considered plan, and carry it out, even if bit by bit.

SELF-ACTING APPARATUS FOR LIGHTING BUOYS.

MR. ALFRED VERLAQUES has proposed a self-acting apparatus for lighting buoys, by gas, in maritime and river channels. In both applications a successful contrivance would render great service to navigation by diminishing the enormous loss of life and property annually occurring. This plan consists in adapting to the buoy a contrivance exactly similar to that of the philosophical lamps so well known to every student. A vessel containing diluted sulphuric acid is enclosed in the buoy; in this is suspended, from a bell receiver, a mass of zinc placed at such a level that when the water in the bell has been driven out by the hydrogen produced by the decomposition of the water, the zinc shall be dry. At this stage a cock is opened at the summit, and a jet of gas is projected upon spongy platinum, ignition being the immediate result. The receptacle for the platinum can be made to revolve by the impact of the gas so as to present different coloured lights. As fast as the gas escapes, the acid-water rises in the bell until it is full and the light is extinguished. Meanwhile, the zinc has become again immersed, and more hydrogen is being produced, so that after a certain time the gas will escape again and be ignited. Thus a self-acting intermittent light will be established. There is much to be done

before this idea, however ingenious, can, if at all, become of practical use.

The originator says himself, that the chief problem lies in the opening and shutting of the exit of the gas, as regulator of the whole system. As to the feeble quantity of light developed by pure hydrogen gas, it can be rendered more intense by hydrocarbon essences; also, the saturated solution of sulphate of zinc can be emptied by a very simple contrivance into the sea, and fresh solution forced in. A little study will serve to perfect all these details of working.

INDUSTRIAL EXHIBITIONS.

Nottingham.—The Nottingham and Midland Counties' Working Classes' Art and Industrial Exhibition has been opened. This may well be called a first-class exhibition of its kind. The day of inauguration was held by almost general consent of the townspeople as a public holiday. A procession took place, starting from the Exchange. Lord Belper, the Lord Lieutenant of the county, inaugurated the exhibition, and at the close of his speech had occasion to remark that he regretted that "there were not some working men present,"—certainly a curious state of affairs in the opening of a "working classes' art and industrial exhibition." The building is Gothic in style, and in form an elongated octagon: it is 200 ft. long, 57 ft. wide, in outside dimensions, and 42 ft. high in the centre within the nave. It has a continuous gallery 12 ft. wide, supported at intervals of 12 ft. by wooden columns, continuing from the ground-floor to the roof of the nave—which is constructed of open diagonal timbering, the points describing a semicircle. The nave and also the gallery portion are lighted from the lower slope of the roof, which, without, is of the Mansard character. The roof over the gallery is separate—forming a lean-to; and its principals are continuous with those of the nave, each forming a sort of flying buttress. The galleries have four octagonal staircases concentrating upon the inner angles of the octagon ends, and forming bastion flag towers without, with steep roofs and cresting. The space underneath the gallery all round the building is apportioned principally to machinery, and is lighted by thirty double-pointed windows between the several buttresses. The galleries have a barrier of trelliswork 2½ ft. high. The building runs parallel with Shakespeare-street, and occupies nearly the top of the field. It is entered at the end facing Sherwood-street by a recessed arch, forming an open porch 19 ft. high and 11 ft. wide, having in its inner rim the inscription, "Industrial Exhibition." At the end of the building next Bilbie-street, the gallery contains an elevated orchestra, which affords space for 150 performers, exclusive of the space required for the large organ, erected by Messrs. Lloyd & Dudgeon. The roof is covered with felt painted with tar oil. The building, though erected in a temporary manner, has all the appearance of a permanent edifice. The walls are of brick, and this material is introduced to a great extent in the buttresses and other portions of the building, as well for ornamentation as for purposes of strength.

Reading.—The Exhibition here was opened in the Town-hall by the Bishop of Oxford. The industrial department includes many creditable productions, but they are considerably eclipsed by the loan collection, which includes some of the choicest objects of interest from Windsor Castle, and from the seats of the Earl of Abingdon, Lord Overstone, Mr. Benyon, M.P., and others of the nobility and gentry of Berkshire and the neighbouring counties. There are 1,700 articles exhibited.

Hastings and St. Leonard's.—This Exhibition has been opened in the Music Hall. The mayor was the inaugurator.

Whitby.—The third annual jet exhibition has been opened in St. Hilda's Hall, Whitby, by the Marchioness of Northampton. These exhibitions, it may be remembered, were commenced with the view of improving the artistic skill of the workmen, and at the suggestion of Mr. H. S. Thompson, the late member for the borough. At these displays prizes are awarded for the most skillful designs and best execution of brooches, bracelets, necklets, &c., and the idea has been so successful that the number of competitors increases year by year, and there is a striking improvement in the articles exhibited.

Gateshead.—It is proposed to hold an industrial exhibition in Gateshead. According to the prospectus, the exhibition will be held in the Mechanics' Institute, in March, next year. It will consist of amateur works of art, such as mechanical appliances, scientific instruments and preparations, models, designs, drawings, paintings, photographs, electro-metallurgy, engravings, sculpture, ladies' work, including ornamental needle-work, wax flowers, &c. It is not intended to limit the district from which articles will be received.

ANNIVERSARY SONG FOR THE SOUTH KENSINGTON SCHOOL OF ART.

Thus day, old school-fellows, unite in joyful gratulation,
For four-and-twenty years, to-night, have passed since
our foundation;
And oft return our Festival day, to after-comers glorious,
When, 'neath our Queen Victoria's sway, we also were
victorious.
They welcome, students, old and young! a happy life
attend you;
Fame blow her trump with sounding tongue, and fortune
still befriending you.
We, classmates once, are classmates yet, right cordial be
our greeting,
Nor let us e'en through life forget, our school-days and
this meeting.

Hurrah for all the schools of art! with all their genial
teachers,
Where all the learned their lore impart, the practised are
the preachers:
Our pioneers the men of old, our prototype Creation,
And ever by our art be told the progress of our nation.
Perennial be the reign of art: long live our institution,
A brilliant glory to impart to England's constitution!
Be every master's name revered: may all, as we do, love
them;
Be emulation never fear'd, and time but still improve
them.

"Health to the schools!" perpetual health, old school-
fellow attending;
Be Talent lord of power and wealth, be Genius self-
depending.
"Health to the schools!" increasing health, to all who
since have left us;
Success be theirs devoid of stealth, long have they not
herefelt us.
"Health to all schools!" where'er they be, a kindred
ardour fire them;
May every State their progress see, no adverse trial tire
them.
"Health to the schools!" may every year bring still more
friends surrounding!
"Health to the schools!" in one long cheer, "with every
good abounding."

Working Men's College.

W. R. COOPER.

COLOUR FOR CEMENT.

IN reply to your correspondent, "South Wales," and also to your own remarks, permit me to say that I think the following mixture will produce a paint that will neither blister nor peel off, and will stand exposure to wind and rain:—

Take a spadeful of lime and slack it with one quart of warm blood, fresh from the slaughter-house. Add to this a sufficient quantity of beer grounds, or stale beer and skim milk, in equal parts, boiled together, to fill with the lime and blood an ordinary pail. Use no water, but add colouring at discretion. I used this extensively some years ago in exposed situations, in North America, as also the following, but prefer the above, as I find it has also been successfully tried here. The other plan is,—lime, one gallon, slacked with one gallon of skim milk. Add ¼ lb. of powdered alum and one gallon of wood ashes, mixing all to the consistence of thick cream, with soft-water, and adding colouring matter as required. On some occasions borax was substituted for the alum. I can favourably recommend this for new work, and have found the tint that results from the mixture very pearl-like and pleasant.

G. W.

UNDERGROUND ROOMS: CRYPTS.

Your correspondent "Amateur" has taken so very good-naturally my not unnatural supposition, that professional advice had not been consulted in his case, that I shall be glad to endeavour to briefly point out how I think his end may be attained. It is difficult, however, to make general remarks apply to special instances, particularly in the absence of plans and other details, with which, in default of a personal inspection, an architect usually has to assist him.

In my former reply, I said that a free supply of fresh air from below was needed; but I added

also that the damp air must as freely be drawn off from above: and it is upon the perfect working of a system that shall do this, that the habitability of underground rooms depends. An adaptation of the American system of injecting and ejecting, alluded to in "An Architect's Notes in America," in the *Builder* of 16th inst., would probably be found thoroughly effectual. As a preventive to damp from above, a gravel terrace-walk upon the arched roof of the crypt, with a well-made drain on either side, properly current and freely working, would suffice; and instead of caring for an asphaltic covering, I would certainly prefer a false ceiling, with an air space of, say 1½ in. between it and the underside of the roof. I have used cork slabs as an interlining for underground rooms with excellent effect.

I must leave to some one else to defend the profession from attack upon the question of knowledge of such details, for I am afraid I must agree with him in the main.

I should add that I presuppose that the drainage is effectual; and I would like to ask whether in this case there is any flue that could be made to connect with these crypts by which ventilation could be aided?

G. W.

BELLS.

At Hereford cathedral, Messrs. White & Son, with a staff of labourers, have been engaged in the arduous task of taking down the bells, a work rendered more difficult from the height of the lantern, which is 80 ft. The arrangements were under the personal supervision of Mr. G. Barter and Mr. Chick, the surveyor of the fabric. Wolsey's great bell, at Sherborne, which has been cracked for some years, has been taken down to be re-cast. The removal was quite ceremonial. In the balance it was found wanting. The weighbridge returned the weight at 2 tons 8½ cwt., instead of 3 tons. The bell was, according to the local *Journal*, taken to the foundry of Messrs. Warner, in Cripplegate, by whom it was unhung. A great curiosity has lately been added to Berkeley Castle, namely, a "monster" Chinese bell. It has been raised upon a very ornamental iron frame in the outer court. It was brought from the ruins of a Buddhist temple at Tsekee, in China, which had been burnt by the Taepings in December, 1861. The bell bears the following inscription, which has been translated by Dr. Lockhart, medical missionary, from Peking:—"Date, third year of the Emperor Kien-lung (A.D. 1725). Put up in the autumn month on a lucky day. The following faithful officers, gentry, and believing literati subscribed for the casting of the bell." The names are all given in the large lower compartments. Names of men, 250; of women, 80 in all. The latter are distinguished by a peculiar letter or character. The large upper compartments contain Buddhist hymns and prayers.

FROM IRELAND.

Belfast.—The foundation-stone of a Wesleyan college has been laid in this town, by Mr. Wm. McArthur, of London. The institution is intended to comprise a first-class boarding and day school, and also a collegiate department, to give accommodation to a considerable number of resident students, who will be able to avail themselves of the advantages of the Queen's College. The design comprises a longitudinal range of buildings, with two transverse wings projecting both to front and rear; also a central rear building. The left side of the building is devoted to the collegiate department, the right to the school, the departments common to both occupying the centre. The principal entrance and president's house occupy the centre of the front, with the theological tutor's and head master's house at either side. The school-room and lecture-hall occupy the front, projecting wings, and are each 55 ft. by 27 ft. in the clear. The roof of the lecture-room is partially open, with semicircular ribs under the principals. The school-room, over which there is a large dormitory, is 22 ft. in height. The rear projecting wings at each side contain the class-rooms and the library of each department, with the sleeping-rooms above. The students' bedrooms also occupy a portion of the second floor of the front, a separate room being given to each. Large dormitories are provided for the boys, in some of which the system of division into cubicles is adopted. Stone stair-

ases in the side towers give access to the upper floors at each side. The rear central building contains, nearest the front hall, a central staircase, with two side passages to the dining-hall, which is 50 ft. by 23 ft. in the clear, with an open roof. The building is intended to be of red brick, with dressings of freestone. The total number of students to be accommodated is 30, boarders 80, and of day pupils, 100. Mr. William Fogarty, of Dublin, is the architect, and Mr. James Henry, of Belfast, is the builder. The contract has been entered into for 12,685l.

—The *Dublin Builder*, in a review of the sanitary state of Belfast and its water-supply, which is anything but encouraging, says:—While Belfast has been widening its chief thoroughfares and laying out spacious markets, it has been systematically neglecting some of its most disgraceful and gigantic nuisances; neglecting, also, its water-supply; and failing, in a great measure, to keep pace in the matters of living and sewerage with the rapid strides of building. To begin with, it enjoys the privilege of a winding stream, known as the Blackstaff river, which threads some of the most populous and poorest districts, and finally casts its sluggish, inkly stream upon the muddy bosom of the river Lagan. The outpouring of half a hundred factories, and the sewage of a vast quarter of the town, have made it a filthy, stinking, open sewer, offensive both to sight and smell, spreading its noxious vapours over the northern portion of the town, and dealing out disease and death among the unhappy factory workers who have the misfortune to live in its neighbourhood. In this discreditable state it has existed—year by year growing worse—for fifty years and more; and still the corporation taken no steps to have it covered in, nor, far as we can learn from inquiry, are they about to do so. So sure as cholera visits the town, will this pestilential sewer be one of the causes of an excessive mortality.

—The *Blackrock surveyor*, in reply to a commissioner, states that the original estimate for the Town-hall and premises was 18,610l., and he expected to complete the building about 200l. less than that amount, and that it would be finished by New Year's Day.

—The *local Chronicle*, in a leader on the Health of the Town, says:—"Though we were happily free from disease in an epidemic, it is too true that fever is somewhat rife, extraordinary heat of the weather tending to develop that malady in badly-drained and unventilated houses." The *Chronicle* urges draining, whitewashing, and the free use of lime.

PROVINCIAL NEWS.

—The *foundation-stone* of the new town-hall and corn-exchange has been laid, at Newcastle, by Earl Pomfret. The new building is situated in the High-street, and is being designed from the designs and under the superintendence of Mr. T. H. Vernon, architect, London; the builders being Messrs. Wheeler & Son, of Newcastle.

—A contemporary states, that in the High-street, houses in the once open park springing up like mushrooms, new streets on the Elmstead-road, three lines of very interesting the town, nine licensed houses, and a tenth, magnificent and capacious, licensed for the reception of families and making provision for their creature comforts, some of the improvements of this old

—The only drawback hitherto experienced by visitors to the enjoyment of this spot-place (which lies between the Great Little Ormes Head) has been the want of a pier for landing and embarking passengers for promenade. This want is now about to be supplied. A public meeting has been held at Llandudno, at which, after the particular plans of a proposed scheme had been presented, resolutions of approval and intended to be unanimously passed.

—The directors of the Cumberland Banking Company are about to erect a banking-house at Workington. The designs were prepared some time ago for Mr. Head, by Mr. Birkett, architect, of Carlisle. The promenade, which is to be located in Powel, will have some architectural features. The style may be described as Italian freely. The frontage is 48 ft., and the building

will extend backwards about 66 ft., the Presbyterian church being opposite to one of its corners. The building will be of the white stone of the district, the flanks being of rusticated masonry. There is a projecting doorway of coupled columns, and the windows on the upper story are similarly supported by coupled columns and arched, the whole terminating with a cornice and balustrade. Besides affording extensive accommodation for banking purposes, apartments are shown for the residence of the manager. The estimated cost is about 3,000l.

—The Blackburn Town Council have decided on the erection of public baths, and a plot of land near St. Peter's Church has been purchased for the purpose, from Mr. Joseph Feilden, M.P. It has also been decided to erect a new fire-engine depot, on a piece of land in Clayton-street, and a new fish-market adjoining the Clarence Hotel, Lord-street.

CHURCH-BUILDING NEWS.

—Alford (Lincolnshire).—A movement is on foot for the restoration of the parish church of Alford. It is a specimen of the architecture of the time of Edward III., and has been for a long time in a very dilapidated state. It is proposed to thoroughly restore the existing edifice, and also to erect an additional north aisle, to accommodate the great increase in the population. In the re-arrangement of the sittings, a very considerable portion of them will be left unappropriated. The cost of the proposed works is estimated at about 4,000l. The works will be carried out under the professional guidance of Mr. Scott, and under the direction of a committee. The subscriptions promised amount to 3,900l.

—Yarmouth. —The corner stone of the new church at Hopton, by Lowestoft, has been laid. The old church, in January last, was totally destroyed by fire, and it was determined to erect the new edifice in a more central position. With this object, a site given by Mr. Gurney for the purpose was fixed upon, contiguous to the turnpike-gate at Hopton, and in close proximity to the schools erected in 1861. Mr. S. S. Teulon, architect, of London, supplied plans for the new church, which will be Early English in style. It will consist of nave, chancel, and central tower. The last will be somewhat dwarfed, 60 ft. in height, to the battlements. The nave will be 45 ft. in length; chancel, 21 ft.; between the tower arch, 17 ft.; transepts, 9 ft. 7 in. The church is to accommodate 250 persons. It will be built of flint, with Bath stone dressings. The tender of Messrs. Browns & Bailey, builders, Norwich, for the erection of the church, has been accepted, the total cost of which, with various additions, will be 2,850l., thus leaving about 700l. more to be raised.

—Burton-upon-Trent. —The parish church, after being closed for a few weeks for the restoration of the windows and other necessary repairs, has been re-opened. The restoration of the windows has been executed by Messrs. Ward & Hughes, of London, and under the supervision of the Ven. Archdeacon Moore. The three chancel windows are the gifts of the Marquis of Anglesey, Mr. Henry Allsopp, and Mr. M. T. Bass. In addition to the above, a fabric of interest to the parishioners has been placed in the church at a cost of about 200l.: it is a mural tablet to the memory of Mr. Thomas Fosbrooke Salt, of Stapenhill. The tablet has been erected by Mr. Ross, of London, sculptor, from the designs of Mr. G. Goldie, of London.

—Barnbury. —An improvement has been effected in the parish church by decorating the interior in gold and colours, at the sole expense of a lady well known in the town for her liberality in church matters. The work has been executed under the direction of Mr. Blomfield, by Messrs. Heaton, Butler, & Bayne. The complete plan proposed by Mr. Blomfield comprises, besides the work lately done, further decorations on the east wall and in the chancel, including several figure subjects, a remodelling of the chair stalls and chancel, with a tessellated pavement, and a better arrangement of the organ. The decorations which have now been carried out include the whole of the ceiling of the nave and aisles, the columns and gallery fronts, and all the walls except the east wall, which cannot well be touched until the organ is moved. The ceilings and columns, and the walls to the height of 4 ft. 6 in. from the floor, are painted in oil and flattened, the rest of the walls being coloured in

distemper. Symbols are introduced in various places, and the different colours and bands of stencilled ornaments are intended to bring out the architectural features and mouldings of the building. In the hollow of the great cornice of the dome is inscribed, in black Roman letters, on a gold ground, "The Lord is in his Holy Temple, let all the earth keep silence before Him." A good deal of gilding has been used in the capitals of the columns and other important places. As part of the plan of decoration, a scheme has also been prepared for filling the windows with stained glass, each window forming one of a series representing scenes in the life of our Saviour, and the parables. Of these, seven have already been presented and fixed. The glass is also by Messrs. Heaton, Butler, & Bayne. Besides these works, most of the old pews, which were originally 4 ft. high, have been cut down. The lighting has also been re-arranged, with new brackets by Messrs. Peard & Jackson.

—Dover. —Holy Trinity Church has been re-opened for divine service, after a renovation of the interior. The church had been closed for about three months. The principal improvement is the decoration of the reredos; this has been done by the firm of Crooks, Wigmore, & Co., London. Many years having elapsed since anything was done to make good the ravages of time, it was necessary to colour the whole of the interior walls, to restore the mullions, &c. This has been done, together with other work, which has put the church in thorough repair. Other improvements have been effected, including the insertion of an instalment of a new stained window, by Messrs. Heaton, Butler, & Bayne, given by the Misses Paine as a memorial of their late father; alterations to the pulpit and reading-desk, and the removal of the organ from the gallery to the chancel.

—Shaftesbury (Dorset). —The Marquis of Westminster has subscribed 2,000l. towards the building of a new church for the parish of St. James, Shaftesbury.

—Tenbury (Worcestershire). —The parish church has been re-opened for Divine worship, after undergoing extensive and much-needed restorations and additions. In the course of the work the fabric of the chancel has been for the most part rebuilt, the ancient vestry, however, and portions of the south wall and windows, being preserved. The roofs throughout are new; so also are the arcades of the nave, the south porch, and all the windows of the south aisle and the east and west windows of the north aisle. The architect's original plan contemplated a north aisle to the chancel, which would have provided increased accommodation, as well as room for the organ, so that the present gallery might have been removed. Unfortunately this is retained, and the aisle omitted, by which the church is very much injured in architectural effect. Funds being needed to complete the reseating of the church, the old pews have been adapted and refitted. The east window and reredos, the pulpit font, and stained glass, are special gifts. The chancel is paved with Godwin's encaustic tiles. The architect employed was Mr. Woodyer, of Grafham, Guildford. The entire cost of the restoration was about 3,000l. Messrs. Smith, of Tenbury, were the contractors.

—Doynton (Gloucestershire). —The chief stone of an aisle about to be added on the north side of the church here, has been laid. The edifice is being enlarged and restored under the superintendence of Mr. J. E. Gill, of Bath, architect. The plans comprise the rebuilding of the eastern part of the chancel as well as the erection of an aisle.

—Cheltenham. —Preparations are being made for the erection of a new church in the London-road. The site has been given by Mr. C. C. Higgs, of Charlton Kings, who contributes also a large sum of money towards the cost of the building. The architect is Mr. J. Middleton. The church will be in the Early Decorated style. It will stand about 200 ft. from the junction of two roads, in order to obtain sufficient width for its erection. The west end will face Cheltenham, and the east point towards Dovedown-hill. The church will consist of two parts—the body and the tower, the latter of which will abut from the building on the south-western corner; and, being only connected with the body by a short corridor, will allow of the completion and use of the main portion of the edifice while the tower is still in progress. The body of the church will comprise a nave, north and south aisles, chancel and chancel aisles. The chancel will be apsidal, and will be lighted by five two-light windows. It will be divided into two parts by a sanctuary

arch over the altar-rails, and the chancel arches will be enriched with coloured stones. To the east of the sanctuary arch the ceiling will be groined in wood, and to the west, over the remaining portion of the building; the roof will also be of wood, the ceilings being divided into panels between the different principals. A feature of the interior will be a total absence of plaster, as the inner walls will be faced throughout with stone. The church is intended to accommodate 850 persons. The whole of the floor will not be paved, a considerable space being left at the eastern end, as at Malvern Abbey and other churches, for moveable seats. The extreme height of the body of the building will be 60 ft. The nave will be 82 ft. long by 24 ft. 6 in. wide, and the aisles each 11 ft. 9 in. in width. The chancel will be about 40 ft. by 21 ft. The tower and spire will be 176 ft. in height, the tower itself being 76 ft. The total will be as nearly as possible that of St. Mary's. The spire will be broached, rising from the full width of the tower, without pinnacles. Through the tower will be the southern entrance to the church; and on the northern side, facing Battle-down, a porch will be erected corresponding with the abutment of the tower. The contract for the erection of the body of the church has been taken by Messrs. Jones, of Gloucester, at about 4,300l. The estimate for the tower and spire will be about 1,700l. more.

STAINED GLASS.

St. Mary's Roman Catholic Church, Warwick.—A memorial window, representing the repose in Egypt, has been placed in the west end of this building. It is the work of Mr. Dury, of Warwick.

Gloucester Cathedral.—Five stained windows have been placed in this cathedral. Three of them, says our authority, the local *Chronicle*, are entirely new, and are placed in the cathedral as memorials to relatives of the Rev. Sir W. Lionel Darell, and the late Mr. John Elliott and Mrs. Price, of this city. The window to Mrs. Price is the westernmost in the north aisle. The artists were Messrs. Ward & Hughes, and the subjects are Faith, Hope, and Charity, the figure symbolical of Charity being placed in the centre light to preserve unity in the design. The memorial to the relatives of the Rev. Sir L. Darell is placed over the door to the east walk of the cloisters, or abbot's entrance. The window consists of three lights. In the centre is represented the risen Saviour, with the Virgin on one hand and St. John on the other. The borders and canopies are composed of foliage and fruit of the vine. In the tracery lights are the figures of two angels bearing scrolls. The artist is Mr. Preedy, and this is the first of his works which has been placed in this cathedral. The memorial to Mr. Elliott is placed in the westernmost window of the south aisle, next to the memorial to Dr. Jenner, to which it is a companion and rival work. It is by Mr. Hardman, while the artists of the Jenner memorial are Messrs. Clayton & Bell. The windows have each five lights. Six subjects in two tiers are pictured in the memorial to Mr. Elliott. In the upper part of the central light is a representation of the delivering of the two tables with the ten commandments to Moses. On the right is a representation of Paul before Agrippa, and on the left Solomon's Judgment. The other additional windows have been placed in the north aisle. Prior to the restoration a quantity of ancient glass was scattered in fragments about the windows. These were collected, and by the aid of inscriptions found on the glass, Mr. Hardman restored the windows. In one of these are figures of St. Patrick, St. Oswald, and St. James the Great, in the chief lights, and with St. John and a representation of another saint in the tracery; in the other are the figures of St. Dorothy, St. George, and St. Thomas, with St. Catherine and the figure of a bishop in the tracery. In each case all the figures in the tracery and the canopies over the chief figures are ancient glass; the remainder has been principally supplied by Mr. Hardman. With the exception of one window in the north aisle, stained glass for which is now being prepared by Messrs. Clayton & Bell, by direction of Mr. T. Marling, and the easternmost window of the south aisle, which will probably be taken in a day or two, all the windows in the nave have been filled. The memorial to Bishop Monk was completed just before the Festival of 1859. This

was followed by the window, illustrative of the martyrdom and funeral of Edward II.; and in six years, not only the windows in the nave, but also several of those in the cloisters, have been published; the following brief enumeration of them is given by the *Chronicle*:—

West End.—Great west window, memorial to Bishop Monk; artist, Wailes, Newcastle; subject, types of the ordinance of Baptism. South-west window, memorial to Dr. Jenner; artists, Clayton & Bell; subject, miracles of resurrection and healing performed by our Lord. North-west window, artist, Hardman; subject, coronation, arrival in Gloucester, baptism, and funeral of the British King Lucius, who, according to tradition, died and was buried at Gloucester.

South Aisle (commencing at the transept).—Memorial to Mr. J. N. Balme; the Crucifixion; by Warrington. Memorial to Mrs. Ellis; the death and funeral of Edward II.; Clayton & Bell. Memorial to Mrs. Evans; subject, the True Vine; Bell, Bristol. Memorial to Sir Berkeley Guise; coronation of Henry III. in Gloucester Cathedral; artists, Clayton & Bell. Memorial to Sir Henry Davey; events in the life of the Saviour; by Warrington. Memorial to Miss Evans; subjects, incidents in Christian life; Bell, Bristol. Memorial to Mr. Elliott; Hardman.

North Aisle (commencing at the transept).—The Darell memorial; artist, Preedy. Turner memorial; subject, miracles of raising the dead performed by our Lord; Clayton & Bell. Hooper memorial, the gift of Mrs. Claxson; Clayton & Bell. The two next are the restorations by Hardman. Mrs. Price's memorial; artists, Ward & Hughes.

Books Received.

Photographs from Sketches by A. Welby Pugin. Photographed and published by Mr. STEPHEN AYLING, Oxford-street, London.

Our readers have been informed that it was proposed to publish photographs of 600 of the sketches left by the late A. W. Pugin, in ten parts. The first of these parts is before us (the whole we believe, is ready for publication), and consists of twenty-nine sketches from Nuremberg, and twenty-one from Flanders.

The other parts will include sketches of objects of interest and beauty in the chief cities of France, Belgium, Italy, and Southern Germany. In these he has regarded not only the picturesque effect of churches, sepulchral monuments, castles, buildings, towers, bridges, and ruins, but, in many instances, has added plans, sections, and details of their several parts; and as many of the photographs contain several of these, the total number of illustrations will consequently be found to exceed 1,700. The costliness of the complete work (ten guineas) will be the chief bar to its circulation.

The publisher meets an objection that may be raised as to the faintness or indistinctness of some of the pictures, by statement of the fact that one of the most difficult operations the photographer has to contend with is in copying faint pencil outlines on a white ground; and, as many of the originals reproduced in this book are very slightly sketched on yellowish toned paper, the difficulty was increased. The majority, however, being drawn with pen and ink, the reproduction is nearly equal to the original. They serve to show Pugin's wonderful skill as a sketcher, and his command over perspective delineation.

The Iron Shipbuilders', Engineers', and Iron Merchants' Guide and Assistant. By HARRISON BURLINSON & WM. HENRY SIMPSON. McCordnodel & Co., Euston-square, London.

This is a laborious series, of 219 large tables, containing the calculated weight of upwards of 150,000 different sizes of iron plates. The first table is for plates 1 ft. in length, and the last for plates 10 ft. in length, and from these the authors remark the weight of a plate of any size whatever, provided the sides be without curve, may be ascertained. Of course everything depends upon the strict accuracy of all these tables, and the authors state that they have all been carefully compiled and thoroughly revised.

Miscellaneous.

THE EXTENSION OF YARMOUTH HARBOUR.—Mr. Cubitt, C.E., is of opinion that the present state of the harbour at and near the entrance indicates that the north-pier requires to be extended; also that the deposit at the Knuckle ought to be removed and the Knuckle itself taken away. The pier should be extended 150 ft. further to seaward. The total expense would be about 14,000l.

SOCIAL SCIENCE ASSOCIATION.—The corporation of Bristol have resolved on inviting this Social Science Association to hold its 1866 meeting in their ancient and interesting city.

THE SHEFFIELD BOROUGH SURVEYORSHIP.—It has been resolved by the town council to raise the salary of Mr. S. F. Holmes from 300l. to 400l. a year, and appoint two assistant-surveyors, with salaries of 160l. and 110l. a year.

THE LATE MR. WINKWORTH.—We record with sincere regret the death, on the 15th inst., at Canonbury-place, Islington, of Mr. Thomas Winkworth, aged 75 years. Mr. Winkworth's benevolent countenance will be missed at the meetings of the Society of Arts and other places connected with the progress of science and literature. He took an early part in the movement that led to International Exhibitions, and contributed in other ways to the advantage of the public.

ACCIDENT AT THE RIVER DOCK, SHADWELL.—The tide has broken in through the temporary dam at the works in progress for increasing the extent and capacity of the dock between Shadwell and Limehouse, carrying away hundreds of tons of earth, and undermining houses and roadways. The dam was not materially injured, and active measures were at once taken to prevent further mischief. In place of the loose earth, a breastwork of timber of great strength has been formed, and filled in with clay.

THE SOUTHERN EMBANKMENT OF THE THAMES. The plan for the use of the southern embankment of the Thames is being landed at the wharf adjoining Westminster Bridge, from the Crossness Works, which are now completed. Extensive premises are also being erected on the ground, for the convenience of the works, which will be commenced forthwith. It is intended to widen the narrow parts of the Thames near Vauxhall, which is known as the Gorge, by the removal of the whole of Upper Fore-street, to which it runs parallel.

SOUTH CROYDON.—The new station at Croydon has been opened. It is distinguished as "South Croydon," and is a station with all the most modern improvements. South Croydon is not a main line station, but affords communication with London by a junction with the line from Leatherhead and Epsom to London Bridge and Victoria. The spire of the church which fell down here some little time ago is now restored. It stands close to the station, amidst groups of fine trees.

LONDON ASSOCIATION OF FOREMEN ENGINEERS. At the ordinary monthly meeting, on September 2nd (Mr. Joseph Newton, of the Royal Mint, in the chair), Mr. William Dalziel read a paper on "Gas-lighting in Railway and other Carriages," the object being to describe his invention, which is at present being tested on the South-Eastern Railway. Each carriage would have its own independent reservoir of compressed gas, sufficient, if needed, to supply two burners for six hours, and the whole occupying comparatively little space. The apparatus would be invisible to the passengers, and so simple that it could scarcely be deranged, unless by some severe accident.

THE HERBERT MEMORIAL HOME FOR CONVALESCENTS.—The laying of the first stone of the Herbert Convalescent Hospital has just taken place at Bournemouth, Hants. Immediately after the decease of the late Lord Herbert his friends and neighbours in his native county of Wilts met to decide on the most appropriate mode of commemorating his good services to ameliorating the condition of the British soldier when it was decided that a statue of himself should be erected at Salisbury, and that a home for convalescents should be founded. On the 29th of June, 1863, the statue, executed by Baron Marochetti, was uncovered at Salisbury by Earl de Grey and Ripon, in the unavoidable absence of Lord Palmerston. Since that time several circumstances have intervened which have delayed the establishment of the convalescent home. A few months ago, however, it was decided that the home should be built on the West Cliff, at Bournemouth. According to the anniversary of the birth of Lord Herbert the first stone of the building was laid by his son, the youthful Earl of Pembroke, in the presence of Lady Herbert and many hundreds of the gentry of the counties of Wilts, Hants, and Dorset. The exact details of the building to be constructed there are not yet decided upon.

The Corporation have accepted the tender of Mr. Wm. Tomlinson, for the whole of the works, for 8,462*l*.

The Builder.

VOL. XXIII.—No. 1182.

From Jaffa to Jerusalem.



HE port of Jaffa is, without doubt, the worst in the Mediterranean, and one of the worst in the world. It consists of a natural break-water of jagged rocks forming a semi-circle of about three-quarters of a mile in

diameter, with two narrow openings for the entrance and exit of small vessels—the water here being so shallow that vessels of the tonnage of passenger steamers are obliged to anchor at the distance of a mile or more from shore. As the whole coast of Syria is exposed to western gales, which pass over the full length of the Mediterranean, the anchorage is very insecure; and, when there is anything like a breeze, passengers are exposed to great perils in landing and embarking, as we ourselves can testify. Stout boats, each manned by at least six Arabs, convey travellers and merchandise to and from the shore, and their unearthly yells, as they rise to the stroke of the oar, are anything but re-assuring to the timid and inexperienced. We fortunately landed in calm weather, and, with the exception of having to be hauled on to a landing-stage some 5 ft. above the water, suffered no very great inconvenience; but our embarkation was a very different affair. The wind was blowing great guns from the west, and the huge waves coming direct from the Pillars of Hercules, spent their fury upon the rocky barrier, sending up vast clouds of spray as they dashed against it. The steamer that was to receive us lay pitching and tossing, a mile at least from shore, and was invisible to us when we glided into the trough of the sea. However, we reached her in safety, not, however, without a strong impression upon our mind that the projected railway from Jaffa to Jerusalem had better be deferred until some mode of landing the live cargo which is to make it pay can be devised. As thousands of pilgrims disembark here annually, there must be many lives lost; but in this land of no newspapers it is impossible to arrive at the percentage of accidents. We were not on this occasion solitary in our fears: another boatload of travellers,—two Americans and an Irishman,—was seen toiling towards the steamer. As it neared us, we heard one of the former, a stout doctor, attempting to excite our captain's interest in getting him safely on board, by shouting at the top of his voice, "M. le capitain, je suis first-class passenger!" his fear getting the better of his French; the second, in great terror, shut his eyes and sang psalms, all the way from shore, as the doctor informed us. The Irishman, however, had fortified himself against the strong waters by a dose in no sense homeopathic, and, insensible to danger, employed the time of his transit in speculating upon the situation of the exact spot where the whale swallowed Jonah, and was dragged on board expatiating and expostulating. When a substantial pier has been erected upon the rocky foundation, and steam-tugs are employed in the place of Arab boats, a trip to Jerusalem will lose half its danger and discomfort.

The town of Jaffa is built upon a conical hill rising out of a level shore; behind it is a wide plain, beyond which are seen the mountains of Judæa. The white flat-topped houses rise one above another to the summit of the hill, and look picturesque from the sea; but the interior of the town is disenchanted, as its steep streets abound with filth, which remains there until the rains wash it away. No wonder that the cholera has visited the place, and is now killing its sixty or seventy a day out of a population of 7,000. Great are the inconsistencies observable in the East, but one of the most glaring is that this dirty town is noted for its manufacture of that article which is most necessary to cleanliness—soap. Beyond the walls encircling the town, which were built by the Crusaders, there is no trace of antiquity within the town: even the so-called house of Simon the Tanner may be of almost any age, so far as appearances go, and is probably of the Mahometan period.

There was nothing to induce us to remain in this uninviting town, so we started for Jerusalem at three o'clock in the afternoon of the day after that of our arrival, intending to sleep in the Convent of Ramleh, according to the custom of most travellers on this road.

For two hours our road lay through one of the most thoroughly-cultivated districts in Palestine. On each side of the way there were gardens filled with luscious grapes, purple figs, and stately date-palms, whose clusters of ripe fruit and graceful branches were seen here and there above the fence of prickly-pear, which grows to the height of some 10 ft. or 12 ft., forming an impenetrable barrier to every animal whose hide is not like vulcanized india-rubber. Now the verdant scene is turned into one of utter desolation. Swarms of locusts have devoured every green thing: notwithstanding the utmost efforts of the inhabitants of Jaffa to check it by means of lines of fire or deep trenches, this vast army marched on devastating all before it, till it reached the sea-shore and perished there. Well may the poor Jews of Jerusalem, afflicted first by drought, then by a plague of locusts and consequent famine, and lastly by cholera, appealing to their European brethren, lift up their voices, and exclaim, "Then there came locusts which laid waste the land, so that the harvest of the field perished. And the famine was sore in the land; and we said, 'How shall we have strength to bear this grievous scourge? And now, we unto us, there is death. The corpses of the dead lie in the street unburied, and the living die on every side.'"

At the end of the garden district we halted at a well adjoining a small but picturesque mosque, for a grateful draught of water offered to us by an Arab woman, for the consideration of a baksheesh. All the principal roads in Eastern countries are dotted with wells or tombs erected by pious Mussulmans. The parching rays of the sun make water here the chief necessary of life, and therefore the prime object of desire. Hence Mohammed, knowing the force of association, not only enjoined the use of it in every act of religious worship, but represented it as one of the principal sources of delight in his sensual paradise. The righteous were to be refreshed before entering by drinking at the Prophet's pond, which was "an exact square of a month's journey in compass," and the Jannat Aden, or Garden of Eden, was to abound with rivers and fountains whose pebbles were rubies and emeralds. So we owed our refreshing draught, and probably many others, to some "hadj's" recollection of the well Zem-Zem at Mecca, or to his aspiration after the waters of Paradise.

Our road for the next two hours lay through a cultivated plain, bordered on the right by rising ground, upon which stood at intervals guard-houses for the protection of travellers. The sun set before we reached that much-

frequented abode of hospitality, the Latin Convent at Ramleh.

After a hearty supper, we were shown into the room, or rather cell, where we were to take up our quarters for the night. It was a square chamber, arched, and lighted by a single window, and into it were crammed four antediluvian four-posters, so close to one another as almost to touch. As the serving brother who accompanied us shut us in, our thoughts, excited no doubt by the antiquity of the beds, reverted to the thousands upon thousands of pilgrims, clean and unclean, who had fed in the refectory and had been fed upon here. The contemporaries of our great grandfathers certainly had occupied these beds. Had the learned Dr. Clarke? Had the observant Le Brun? Had the venerable Pococke? Had the enterprising Maundrell? Had the Lion-hearted Richard himself sought repose in this very cell, beneath these venerable hangings? Any sort of bed offers an attraction to a weary traveller, and a four-poster is especially inviting to him. But when there are four such in a small room, one is apt, before closing one's eyes in slumber, to wish for a larger room, more air, and fewer companions. We should not wish to be thought ungrateful to our entertainers if we suggest that, in these days of the hotel building mania, the erection here at Jaffa and at Jerusalem of very plain hotels, with about twenty bedrooms, with arched ceilings and cement floors, entered from an open corridor, would prove a profitable investment. The furniture should be of the simplest kind,—an iron bedstead, deal table and chairs, a good English wash-stand, and one or two strips of carpet would be all that the passing traveller would require. The expenditure of 1,000l. or 2,000l. would be sufficient to build, furnish, and start each of these establishments in a country where labour is cheap; and at certain seasons of the year the houses would be full every night. Nor would the worthy monks be injured, for a little opposition in this country, where things have been in *statu quo* for centuries, is a wholesome thing, and it would tend to make them furnish more comfortable quarters for those travellers who would still visit them.

We saw Ramleh only by the light of the waning moon, a little before dawn, while our baggage was being packed on mule-back. We saw a straggling village, built on sandy soil, amongst patches of foliage, with sundry remains of its former greatness in its towers and mosques. One of these was a church built by the Crusaders. In the dim morning light it appeared to be good twelfth-century work; but the early Arab style has so many features resembling First Pointed, that sometimes it is difficult to distinguish the difference between them from a distance. In proof of this we may mention that a large tower here, built by the Mahometans in A.D. 1310, until lately was supposed by many to be a structure of Christian times, and went by the name of the Tower of the Forty Martyrs. One of the minarets of the Mosque of Damascus, parts of the mosque El Akse, the pulpit of the Haram, and many parts, especially the windows, of some of the mosques of Cairo, bear this resemblance to good thirteenth-century work, or more frequently to the bastard Gothic so fashionable in the present day, which is supposed by most people to be a revival of thirteenth-century architecture. On the other hand, many Christian edifices have been attributed to Mahomedan builders; as, for instance, the octagonal Mosque of the Ascension, on the summit of the Mount of Olives.

From Ramleh the country is flat for two hours' journey. The road then enters a ravine, and passes up the bed of a winter torrent, full of boulders, which it is no one's business to remove. It then ascends the first range of the hill country, and, after sundry steep ascents and descents, brings

us in sight of the village of Abou Gosh, an Arab sheik who until lately levied black mail on all pilgrims not strong enough to resist him. We look upon the Bedaween as robbers, and consider their tax upon travellers a theft. But they are not much worse than those knights of Mediaeval times who extorted a toll from all who passed through their territory. Like them the Arabs consider themselves aggrieved by those who travel through their district without first paying for the privilege. Abou Gosh's people are now peaceable enough; and seeing that we were desirous of inspecting a building which bore marks of Christian origin, but was used as a stable, invited us to enter. We found it to be a perfect twelfth-century church, divided into nave and aisles by four pointed arches on each side, springing from plain square piers, with mouldings in the place of capitals; both nave and aisles were groined without ribs. There was a plain lancet window in each bay and in the clerestory, and at the east end the nave and aisles terminated in shallow apses, which were not visible on the exterior, the wall being flush. The door was in the second bay on the north side. The walls of the aisles and the apses had many traces of frescoes. Should the projected railway to Jerusalem ever be accomplished, and should there be a station at Abou Gosh, it is to be hoped that some liberally-disposed Christian will restore this church. There will not be much work for an architect, as all necessary to make the building fit for worship is to glaze the windows, repair the roof, and restore the doorway. The shallow apse here seen is peculiar to the churches of Palestine; it is found in the neighbouring church of Lydda, at Djebail, and in other places. It might be well used in town churches where there is little available space, though it would probably shock those Mediaevalists who think there should be no church built without a deep chancel.

From the village, which lies in a hollow, we passed through many vineyards, and ascended a second mountain, from which we gained a momentary but glorious view of the plain through which we had lately passed, of Joppa, white and glistening in the distance, with a background of deep-blue sea. Then another valley full of foliage, showing what can be done when there is water and earth enough; then another range of stony mountains, more barren than those which we had previously traversed; but as yet no view of Jerusalem. At last, upon gaining the highest point, we have before us the sight which gladdened the eyes of the Crusaders of old. We are puzzled and perplexed: there are, apparently, two cities; the one represented by a line of grey walls and nothing more, no towers, no minarets visible, nor showing any signs of being inhabited,—not below us, but almost on our level; and in front of it the other, also enclosed by a wall, containing a church and numerous smaller buildings swarming with carpenters, masons, and other workmen. We turn to our guide, the son of an hotel-keeper who had joined us on the way, and ask the meaning of it. "This is the new Jerusalem," he replies, "building by the Emperor of Russia, a fifth the size of the old city; it has a large church, an immense convent, and houses for the reception of the thousands of Greek pilgrims who resort here every Easter." So our first view of the Holy City was disquieting, and on the whole disappointing, for the view from the Jaffa road is perhaps the least interesting of any that can be obtained of Jerusalem. We see nothing but the outer wall and a few poor cafés that stand outside the gate.

Passing through the arched gateway, we emerge upon an open space, and the first thing that attracts us is a clean-looking Perpendicular church and bishop's house adjoining, which remind us of England as it was twenty years ago; the style being that of that period: we should do better now. Next we notice the citadel and Tower of David on our right; and on our left some ironmongers' and stationers' shops, which might belong to a provincial town in Germany as far as the character of the architecture goes. Slipping at every step over the uneven pavement, our horses carry us down a street leading to the bazars; then, turning to the right, deposit their loads at the foot of the steps leading to an hotel in the street of the Holy Sepulchre. This hotel, which is kept by a converted Jew, is perhaps the best in the city. One side of it looks upon the pool of Hekzekiah, an oblong reservoir, surrounded by houses, the inhabitants of which obtain their supply of water from it by means of buckets let

down by a rope. At the time of our visit the water was low, dark green in colour, and altogether very uninviting. Jerusalem might be kept well supplied by water if common care were used in its preservation, for under most of the larger houses there is a cistern. And, again, there are the immense reservoirs of former times, which might be restored to their former purposes. The Pool of Bethesda might be cleared out and rebuilt; and the walls of the conduit of the upper and lower pools just outside the walls, in the valley near the Jaffa Gate, might be repaired and lined with cement. Indeed, the whole city might be made to overflow with water. When we were there, there had been no rain for months: the supply of water had been neglected: it became low and impure, consequently fever, which commonly rises from the use of bad water, was rife, and there were complaints in every month. The Pool of Siloam alone continued to afford the inhabitants a good supply from its gushing source, the fountain of the Virgin; and in its neighbourhood (the King's Garden) alone was visible that verdant freshness which is a sign of the proximity of water. In a future number we hope to describe our walks about the Holy City.

ON ARCHITECTURAL PAINTING.*

Art owes a greater debt to whitewash than it might like at first to avow. Whitewash preserved the portrait of Dante to Italy, and the records of much ancient art to England. The Puritan's whitewash was as good as a museum for the works it protected. But those works are now rapidly disappearing under the improving influences of restoration committees. It is difficult to detect the actual culprit of this ruthless destruction, because the builder employed in repairs shields himself behind the stupid ignorance of his men; the architect shelters himself behind the stupidity of the builder; and the ladies and gentlemen of the subscription list smile safely under the ægis of limited liability. There has been a variation of public taste. It has now gone from one bad thing to another, and from whitewash to bare walls. Public taste began to wake to a sense of its own impurity, and then rushed into immoderate use of soap and water. The indiscriminate destruction of early works of English art has been grievous. Much was bad, no doubt; but the good has gone with it, and, what is worse, the record of their composition, the incidents of their history, and the expression of their poetry are gone also. There are, however, scraps enough left to form for us the alphabet of restoration. No geological catastrophe denuded a continent more completely than the flood of modern Purism, under the lying name of Restoration, has laid bare the architecture of our ancestors. They have buried its very bones. No martyr was ever more effectually flayed. The finer taste of other days had covered the hideous mortar joints and rough masonry of the interior of buildings, with a film of fine cement or gesso. But this has all been scraped away under the ignorant supposition that that too was merely whitewash. The exteriors had been left rough by the builders, all fit and right enough, to meet the action of rough times and rough climate; but the interiors were to meet only the gentler action of men's thoughts and men's prayers. Roughness and refinement are both elements of sublimity in art, but they can never change places. What would give masculine grandeur to an exterior would mar all good effect within: the last touch given to the interior was to soften down the asperities of the rough materials. Coarse lines and broken joints of mortar confounded the finer forms of architecture. A thin film of fine cement resolved those discords and prepared the way for the colourist. But now-a-days, colour, whitewash, gesso, and all are gone. Architecture, first washed of its dirt, then deprived of its complexion, and last of all denuded of its very skin, is presented to us in a state of nudity, which we are then called on to admire! This ruthless process, besides its effect on countless minor buildings, has reduced the interior of Lichfield and a great part of Worcester cathedrals, to a condition of bare masonry, and vaulting like that of a common beer-cellar; and has given the two magnificent columns which rise from the floor to the roof of the choir of Ely, the appear-

ance of two huge piles of double Gloucester cheese. These are but illustrations. This ruinous process has been the rule of modern restoration.

The employment of colour in architecture, in the times of its greatest perfection, is now too generally admitted to need proof or argument. The beauty of a nude colourless architecture may be, and often is, very great; but it needs to be of the highest art to bear the trial of such nude exposure. Such beauty, the nude beauty of uncoloured architecture, is of the most abstract kind. The forms of architecture, and consequently the beauty of their composition, have nothing in common with nature. Of course its structure has; but I am not speaking of the higher ideal of its art, not the lower one of its mechanism. That higher ideal is a most abstract one. There is an element of beauty in architecture which surpasses the original conception of the architect. A painter preconceives his work; a sculptor does so, and works it gradually into shape in plastic clay; but an architect does not and cannot pre-conceive all the varying effects of perspective and of light. They affect him as though he were a stranger to it.

Architecture is an intellectual creation. It may delight, attract, and awe the multitude, and no doubt it does; but I doubt the power of the multitude to penetrate the depth of its poetry. It is too exclusively artificial, too abstract, too exclusive of all that is common to external nature to command all hearts. There is a note wanting in its scale. One touch might bring all the refinement of its calculated symmetry into harmony with nature. One touch might bring the abstractions of human mind into harmony with the feelings of human nature—one touch alone; and that is the touch of colour.

A cold white, snow-white rose, flushed with the glow of an autumn sun,—a glacier iridescent in the level rays of evening, as though it were changed into one great opal—how such beauty charms, and draws out an affection warmer than that of mere intellectual admiration!

A thing of colour is a thing of life. A colourless thing in nature, if there be one, savours more of death than life. In art, a colourless thing is but a passionless abstraction. It may be, in both, pure and lovely, even though the idea of life have no part with it. But as life is better than death, so are things which suggest it, and so it results that as nature without colour is inconceivable, so art without colour is incomplete.

How then shall we apply this deduction to architecture? If its forms have no precedent in nature, whence are the principles of its colour to be drawn? I grant the difficulty, particularly at this time when people's eyes are so habituated to the poetry of Puritan whitewash or to Purist nudity, that colour comes upon them as a separate idea, clashing with that of architecture. I am not surprised at it. It is often less their fault than the artists'. Incompetent persons are intrusted with an art, of the delicacy and difficulty of which they have no more idea than their employers. There are few more difficult problems in art than the combination of painting with sculpture and architecture. The result is often most unsatisfactory, and neither artist nor employer knows why. And until the province, not merely of each art, but of each branch of it be clearly recognised both by artists and their patrons, there can be no hope of rescue from that confusion of ideas which now make any harmonious combination of those arts impossible.

In so short a paper as this I can only offer you a few notes on two branches of this large subject:—

1. The methods of art employed in former times.

2. The principles which, in the most perfect styles of art, have guided, and ever must guide, the combination of painting and architecture.

There were three methods of painting,—fresco, encaustic, and tempera; and there were many modifications of each. Fresco, or the painting on fresh plaster, does not appear to have been in use with the ancients for purposes of fine art. The proof of this is that the plaster, preparing for the painter in fresco, only covers so much of the wall as the artist can finish in a day, or before the plaster sets. So a real fresco painting is at once recognised by the multitude of small patches of plaster joined together. The remains of classical art are on large surfaces. The mere colouring of walls, like a house-painter, was done in real fresco on fresh plaster; but, when the Greek or Roman works of fine art were done on walls, the plaster was kept artificially wet from day to day, and

* Read by Mr. Gambier Parry at the recent meeting of the Wiltshire Archaeological Society.

painted with colours mixed with lime and water. Pliny describes painting on wet plaster, and gives a list of colours which will not bear the burning effect of lime. But the effect of this method (which is now called *fresco secco*) was dull and heavy. Their other methods were the *encaustic*, i. e., by colours mixed with wax, and secured to the surface by heat; and the *tempera*, i. e., by colours mixed up or tempered with any flowing vehicles: hence our word distemper painting. The Greek and Roman artists used oil; but there is no evidence of their actually mixing colours with it. It was certainly used with wax as a protective varnish, and polished by rubbing it to a hard surface. The Egyptians and Greeks certainly used wax with their colours. There is a picture at Pompeii of a painter mixing his colours in a vehicle of this kind by heat, upon a stone with a fire under it.

Oil appears to have been of very ancient use. A Greek writer of the age of the Emperor Augustus describes the making and using of drying oils as a matter of no novelty. Ælian, a medical writer of the fifth century, also says that walnut oil is much used by painters, because it dries and preserves paintings for a long time. Oil is also mentioned as an ingredient of tempers by Cennini, a painter and author in the fourteenth century; and, what more interests ourselves, there are numerous rolls and records of English works in which both oil and wax are mentioned as supplied to the painters in the thirteenth and fourteenth centuries.

The methods commonly used in England in those times were of various kinds of tempera. Real fresco was not practised in England. Indeed, there is no evidence of its use anywhere before the time of Cennini. It appears first to have been used at Pisa at the end of the fourteenth century. But for architectural painting in particular it is remarkable that a German writer, Eraciulus, of the twelfth century, and a Frenchman, S. Audemar, of the same date, both describe the colours used for walls as mixed with wax and oil. What was used by the German and the Frenchman, was used by the Englishman also. Eraciulus writes about architectural painting thus:—"If you wish to paint a column or a stone, take white lead and grind it very fine with oil." Here is actual oil-painting in the twelfth century. With this he describes their film of white cement, which I have before referred to as coating all finished architecture. He then goes on to say, "You may then paint upon it in colours mixed in oil." The Frenchman, S. Audemar, is also very explicit to the same effect; and, as he was so near a neighbour, we may suppose him to describe what was done at that time in England, viz., in the twelfth and thirteenth centuries. He describes the great precaution taken at that time to secure permanence, such as that blue should be used on walls with water and egg, on wood with oil; that red lead should be mixed with gum for walls; and white and other colours, some with oil, some with egg and wine. Wax, also mixed with white lead, was prescribed as a ground for painting on wood; and a varnish of wax was given to vermilion to preserve it from the damp and air, which blacken it. The green used for wall-painting was verdigris, and he directs that it should be tempered with wine, or, if you prefer it, with oil.

It is to the excessive care and discrimination used in their methods of architectural painting in the Middle Ages that we must attribute their admirable durability. Particular reasons of the year were assigned to the preparation of particular materials, and their distempers were chosen with the utmost care, according to the material and colour used, varying between gum, egg, wax, fig juice, oil, size, and wine.

At Ely and Westminster, numerous records to this effect have been preserved.

Painting with lime and lime-water was in common use, as being the least costly for ordinary decorative work. On stone work common ornament was usually done in England by coating the masonry with a smooth wash of size and gypsum, and painting on that, with colours mixed in glue. Cautions against damp were reiterated by writers of those times, and artists often took the precaution of using trefoil, and linen saturated with wax or parchment size at the back of their paintings. If, in addition to these various methods, we recall the use of stencilling and of embossing the surface of walls for golden diapers, and for the imitation of jewelry, we have a tolerably broad sketch of all the processes employed by the English wall painters of the Middle Ages.

But enough of technicality: let us come at once to the second part of the subject, more generally interesting,—the principles and practice of this art.

That colour had its place in architectural effect, and that it was necessary to its perfection, has been a principle recognised in all times and countries. I by no means insist that this should bind us to its adoption. The intelligence of one generation need never be in bondage to that of another; but the fact of art having been unanimous in its greatest and purest age, whether of Pagan or of Christian times, on this subject, is a sufficient reason for our inquiry whether our preference for uncoloured objects is a purer taste, as some people are apt to arrogate to themselves, or whether it be not, as I believe it to be, a simple deficiency of perceptive powers, and the evidence of an elementary, incognate, and limited taste.

In the palmiest days of Classic art, sculpture as well as architecture was coloured. Statues were treated in various ways. The best appears to have been by reducing the harsh whiteness of the marble in the nude parts, by a wash of softly-tinted wax. The effect was to mellow the tone without impairing the texture of the marble. The draperies were often coloured very powerfully, and gold and even jewelry were used.

The art of the statue painter was recognised as one of the greatest difficulty. It was an art as distinct as that of the landscape painter, or miniature, or figure painter is now. Unpainted statues are mentioned by classical authors as exceptions. The greatest sculptors preferred their own works when they had passed through the hands of the colourist.

As the buildings were universally coloured, the fine and cultivated taste of the Greek could not bear the bald blots of dead white, with which uncoloured statues would have marred the unity of his architectural effects. The buildings also were coloured without regard to the materials. Every moulding of the Parthenon, of the purest marble, was covered with colour or with gold; there was no cowardice, no quakerism of quiet colouring in those grand days. The interior walls of the Parthenon were painted with many patterns, and both within and without, the carved enrichments of capital and cornice were made richer still with paint. The sculpture was relieved by coloured backgrounds, and the statues were richly painted. The film of fine cement with which the marble was coated to receive the colours still remains in the hollows of foliage and draperies. That upon the statues of Phidias and his scholars can be seen in the British Museum, with the remnants of colour still upon them. It was the same everywhere. The Doric temples of Corinth and Ægina were coated all over and coloured in their way. The unpainted temple was as exceptional as the unfinished statue. Herodotus mentions the unfinished state of certain buildings, with a kind of apology for their want of colour, because, as marble still glared with whiteness, because, as he says, there had not yet been time to paint them. The primary colours were generally used on the architecture of the Greeks, and often in great intensity. Vermilion, ultramarine, and yellow earth were common; and a bright green—probably the same as that of which our Medieval painters were fond, the *Vert de Grèce*, whence our word verdigris—the French name *Vert de Grèce* originating in its importation to England from Montpellier, the greatest emporium for colours in Europe of the Middle Age. Works of Classic art, at the greatest distance apart, witness to the same principle in colouring, that what the carver had brought out in strongest relief should be still more strongly relieved by bold use of the primary colours and of gold; and that what the architect had left broad and flat should be maintained so by the painter, by diaper, flat, and conventional patterns, and bold simple bands of colour. This only applies to decorative art. Of higher art, figure and subject painting, we have only the direct evidence of books.

The paintings on ancient vases and the remains at Pompeii, are valuable indirect evidences of what the course of Classic art had been. Those vases represent to us the perfect ideal of Greek wall painting. The composition of the subjects on those vases is commonly much too fine to have originated with artists employed in a business comparatively low. The inference is a fair one that those compositions are repeated from the works of the greatest artists on the temple walls.

The system of flat composition in wall painting

was then universal. There is a description by Pausanias, of a work painted about 450 B.C., in which the figures of a great subject were in distinct groups one over the other. On the Greek and Etruscan vases this system of wall-painting is perfectly illustrated. The most beautiful and expressive groups are there made subservient to the architectural purpose. If those inferior works on more pottery were so fine, the great originals must have been admirable. The system of painting was one of sufficient relief to satisfy the eye, but not enough to disturb the dignity of the architecture. And let it be remembered that this date was the date also of Phidias and of Ictinus, the age of the zenith of Greek art.

An artist is not to be measured by the high finish of his works. The age of high finish and high relief in painting (just 100 years after this) was the turning-point of classic art to its decline. Painting then asserted its individuality. It was still admirable, but only for itself and by itself. Its reign was then in pictures—hangable, moveable pictures, with which the leeche and porticos of public buildings were covered as the walls of a modern exhibition. But by that very assertion of individuality it disavowed itself from architecture. True architectural ornamentation, whether by decorative design or by high art figure-painting, was at an end; and, like a wounded bird which towers higher and higher before it falls dead, the abuse of art culminated in a certain Roman, Lucius, who painted market-scenes, stables, cobbler's stalls, and vulgar groups on walls, ignoring all principle and defying all taste. With him that chapter of the arts was closed.

I trust that you will have seen my purpose in this brief sketch of classic art. I can suppose that the story of Christian art might have been more interesting to you, but that classic art was a perfect prototype of what followed in Christian times. They both illustrate the triumphs of art gained by the principle of mutual subordination. Subordination, I mean, not reducing one art to the slave of another, but a mutual act, rather of espousal than of vassalage. When painting asserted its own individual powers, all combination with its great sister was at an end. In Christian art the case has been the same, and now-a-day all true principle of wall-painting seems to be ignored. The modern artist will not succumb to the requirements of his new position. He has been a picture-painter; he is now a wall-painter; but he continues a picture-painter still. All art is subject to conditions. Its excellence depends on their fulfilment. It is this fact of subjection to conditions which makes all art necessarily conventional. Painting is an art of exceedingly wide range—wide in respect to itself, from the bold symbolic outlines of an Egyptian hieroglyph to the niggling mimicry of a Dutch picture, and wide in respect to the purposes it can fulfil, such as for pottery, for walls, for moveable pictures, enamels, sculpture, architecture, glass, tapestry, &c.

This versatility of powers must be thoroughly realised before any just judgment can be formed. People err in taste because they ignore the proper base of criticism. They are confounded by the flood of heterogeneous forms which disgrace the character of modern art—and no wonder; but once seize the guiding star of all judgment,—once realise the conditions in which a work is placed—conditions as to itself, conditions as to its place, purpose, and materials—and then all is clear. No matter how much consecrated by long use or common associations, it must be at once condemned if its conditions be unfulfilled. Apply this to the subject before us.

Monumental art is of all others the highest in its aim. It must compel the resources which all arts can afford into union. The success of former ages is attributable to that union in which the whole chorus of the arts joined.

It is the modern self-assertion of each individual art that renders success in monumental art well nigh impossible.

By monumental art I mean the combination of the whole sisterhood of arts clustering round and working under the master spirit of architecture. Let each art be free as air, and revel in its own powers alone and uncontrolled. But here it is not alone. I can conceive no taste more reprobate than that of vain self-assertion, where self-restraint would be the most graceful virtue.

Take, for instance, such a case as this—An artist paints a scene for a theatre. It would be

impossible for him to imitate too closely the natural effects of both linear and atmospheric perspective. But apply this scene so painted, with its sunny foreground in strong relief, its receding forms of wood or mountains, or of distant water mingling its horizon with the sky—apply this elsewhere. It was a triumph of art in its own sphere—it had fulfilled all its conditions. But now how ridiculous would all these be associated with the condition of architectural design. The artist has made all light and flimsy which the architect had left purposely and necessarily massive, bold and broad. Both mind and eye are offended at the result. He has placed the two arts in direct antagonism. He has stultified the architecture, and reversed every condition of equilibrium—opening that which should be closed, lightening that which should be heavy, leaving weighty masses of masonry without apparent support. He has turned heavy walls into thin air, and has left massive arches to carry the clouds.

But the great works of other times have given us the precedents and principles to attain the same success.

Surely it will not be denied that if ever taste culminated to its highest act, it was in the creation of beautiful works. If ever there was authority in taste—where we are bound to reverence—it was when art had attained its greatest triumphs.

Individual taste may now-a-days rebel, in vanity and self-assertion, but the greatest artists of the greatest days did otherwise.

I am confident that in conjunction with architecture all arts are raised at once to their highest sphere.

Architecture is the most conventional of all arts, the creature of thought, most abstract and refined, and with it the others can find companionship complete and sympathetic only in their purest and noblest forms, where all power is concentrated to symbolise and suggest rather than to realise, to address imagination rather than to satisfy curiosity. Naturalism and imitation are another, a distinct and most inferior phase both of sculpture and painting,—a phase, indeed, to which a good pupil must attain—to which the master must have himself attained to reach his higher standing ground. They are steps, mere steps, which all must mount who care to feel the pure air above, and to see the broad horizon of Arts' poetry in all its beauty.

I conclude, then, with this, that if those various arts of which my subject has treated could be attained, and their spirit guided by the genius of one master-mind,—if their full powers could be compelled and their resources welded together with unity of purpose and unity of result,—such a conclave of the arts could only meet for one great triumph—in our architecture completely beautiful—the mother and the mistress of them all.

ARCHITECTURE MADE EASY.*

THERE is a growing and spreading branch of architectural literature, presumably meant for informing chiefly the general public as to modes of proceeding in building, which we are under difficulties in reviewing. This literature scarcely receives any attention from the practising architect: but it comes under the notice of students, in the form of gift-books. The profession should regard, however, what is their interest in the progress towards a general public appreciation of good building, and in the better estimation that would be consequent thereon, of the architect's part or mission in the production of the thing wanted. The work of educating for the calling of an architect has now been accepted as a duty by the profession; but the duty will not be well performed unless attention be given to the character of the books which may now, or should, according to the case, be in the hands of the student. Office-practice, oral teaching, and observation of buildings, will do very much; but reading and the examination of drawings and prints are too important in the short time that there is for an architect's education, to be left out of consideration. That there is a demand for illustrated books of a class wherein

the intimate union between the art decorative and the art structural and practical, is recognised as fact, is evident. It is a new demand: at least it was not much catered for during the period commencing with the appearance of "Stuart's Athens" ending in our own day with the multitudinous illustration of Mediæval buildings, and including in its course the publication of many volumes of designs; although it had been recognised in Palladio's books, and in many folios of his successors. And such a demand is precisely one that every individual interested in the regeneration of true architecture, should be glad to find existing.

These observations are suggested by the first glance at a work before us, of which we have given the full title in a note; and which bears a certain likeness to less ponderous volumes that have come to us from one or two publishers. In its pages, excepting the ugly bill-poster that stands for title, there is something attractive to one anxious for information; and there really is a large amount of information given, and certainly much of it what might be very useful to architects in practice. The volume, however, is a specimen of "book-making," the greater portion of it is previously published matter, re-cooked, or so extracted as to leave the particular branch of the subject insufficiently expounded; there are many errors of the press; some of the cuts are so far inaccurate in details that they might mislead a student; and the defects for purposes of reference, of the paging, which does not run consecutively throughout the volume, are not remedied by the Index. Some use has been made of matter that has appeared in our volumes. Generally the sources are acknowledged. But the compilation has been so performed, that what is given sometimes tends to bewilder the reader,—as for instance where structural design and decoration are treated of: opinions of others are there "pitchforked" together. In Mr. Ruskin's celebrated passage about architects living in cities, and the bricking "up to death men's imaginations," the words "for-sworn nun" get changed to "for-sworn men." Quantity of matter rather than quality is characteristic of the book. The defects of the volume would prevent our recommending it to the general public, or indeed to any one not possessing already much information, and who might not be trusted to supply the omissions, making use of what he found only as suggestion. A reader possessing information, however, might help himself, with the book, to the getting much more.

The text of the volume is comprised of thirteen essays and a supplement. The essays treat of "The Planning and Construction of Working Men's Cottages, and Dwelling-houses," "Structural Design and Decoration," "The Principles Involved in the Arrangement and Construction of Timber and Iron Framing," "Building Materials: Stone, Artificial Stones, Cements, Bricks, Timber; Strength, Decay, and Preservation of," "Warming, Ventilation, and Artificial Lighting," "The Drainage of Town and Rural Districts and Building Sites: Street, Road, and House Sewers and Drains;" "Garden Structures: Greenhouses, Conservatories, Vineries, Pineries, and Peach-houses;" "The Arrangement and Construction of Schools;" "Breweries, Gas-works, Mills, &c.;" "Agricultural Architecture," "Architectural and Building Contrivances in the International Exhibition of 1862," "The Application of Isometrical Projection to the Delineation of Architectural Subjects," and "Specifications and Estimates;" whilst the supplement gives an "Explanation of the Principal Terms used in Architectural Design and Building Construction," and practical notes and memoranda collected from different sources. The manner in which details are brought together in one sheet, in the case of some of the plates, makes these latter of a certain value. Original sources of some of the figures will be easily recognised. Illustration of subjects related to building, however, has not advanced since the publication of "Rees's Cyclopædia," for which Farey drew and Lowry engraved. Publishers who aim at being really explanatory, as by the woodcuts they give, should compare the indecision and positive inaccuracy of the book-illustration of this time, with the precision and truth of that. Of the decorative character of some of the designs that are shown in the plates before us, the less said the better.

The first essay starts with an inculcation of principle that we must consider aptly chosen as the point of departure in a popular work on practical architecture. The writer says,—“As

our houses are made to live in, not to look at merely, it is essential that this their primary purpose should have the fullest consideration, while laying down the plans of their arrangement.” At the close of the essay, he refers to “The Grammar of House-Planning” (a work which we have reviewed) as intended, at the time of his writing, to comprise the treatment of points not fully gone into in the Essay. He makes a distinction, however, that we are not prepared to adopt, between *design* and *planning*, looking upon the former only as being connected with beauty of form and ornamentation; which last, both, he seems disposed to treat as things to be added,—forgetting that architectural or decorative effect in a building follows as much from good planning, as from anything superficial. To arrive at knowledge of what is really wanted in a house to be designed, and to succeed in planning the house, it is advised that female counsel be taken. We do not object to the recommendation.

In the first division of the general subject of the essay, cottages for working men are considered. Much of the information has appeared in Mr. Strickland's work reviewed by us along with the other of which the title has been given, and in the reports of various societies. Both divisions of the essay are illustrated with a considerable number of plans. The plans of the larger dwelling-houses and villas are, however, chiefly in outline, or without sufficient indication of details. The “flat” system is advocated for town-residences, but with the addition of the porter's *logs* as in Paris. The gain of space by this system, which in effect saves ground that in the English arrangement would be occupied by one or more staircases additional, is referred to, but not the despotism of the porters, in Paris. The liability to the sort of tyranny really comes into the question, although we believe not so much as to outweigh arguments in favour of a “Scoto-Parisian system of Town Architecture.” In the principal plan given in the work before us, the porter's quarters are placed so that they would not sufficiently command the entrance. Whereas in the plan of a Parisian “Maison à loyer,” which follows the other, every person going to the general staircase would have to pass the door, which would be glazed, of the porter's room. The latter part of the essay is devoted to the subjects of fire-proof construction; prevention of damp in walls, and use of hollow brick; and supply of water; and to some points connected with conveniences and fittings. One of the plates shows different systems of flooring, including some of those in use on the Continent.

In the essay that treats of Timber and Iron Framing, we find it stated that if from a rectangular form of section of cast-iron beam, parts at the sides were cut away so as to substitute Tregold's I section, (or leaving depth the same as that of the rectangular form, and breadth of top and bottom flanges the same as the breadth of the rectangle,) the withdrawal of material would not weaken the beam, and that similarly there would not be any weakening from a like operation to get Fairbairn's or Hodgkinson's form of section. This is an error, manifest to the practical architect, but dangerous as here promulgated to the student. Neither form obtained after the simple cutting away, would bear the same weight as the original beam with the perfect rectangle of section. The writer ought to have stated, in effect, that the metal cut out, or obtained, and the metal left,—the two added and re-melted together,—might be disposed in a form of section that would bear a greater weight than the beam of rectangular section would bear; or, conversely, that by adopting a form of section different from the rectangle, and dimensions of depth and breadth of the beam, and of thickness of metal, also different, the given weight might be supported, whilst some of the metal that went to form the rectangle could be saved. Of course there is a certain element of gain by reduction of weight of the girder itself; but there must be a loss of strength in the case referred to, unless some of the metal be used to add to depth of the girder. Generally, however, in the volume, the deficiency of which we have evidence, is not want of information with the writers on the subjects treated of.

Illustrative of the essay on schools, are drawings of school-houses in America, and Belgium. In parts of the volume, much information is given which many persons not within reach of London libraries will be glad to have at hand: we may instance what can be found on heating, drainage, and breweries and

* “Working Drawings and Designs in Architecture and Building: with Essays on various Subjects, richly illustrated with Woodcuts. By Edward S. Ryland, Esq., Architect; Francis Lighboddy, Esq., Civil Engineer and Architect; and Robert Scott Burn, Agricultural Architect (General Editor). A. Fullarton & Co., Edinburgh and London.” Folio, pp. viii., & 31, 8, 20, 7, 25, 12, 17, 11, 8, 23, 5, 7, 14, & 24. Plates 48 & 7; and cuts.

factories. The notice of contrivances in the Exhibition of 1862 is utterly inadequate.

The model specification in the 13th Essay requires revision, to be of the intended use to the student. Thus where Buxton lime is mentioned in the bricklayer's work, there should have been a blank, since the sort of lime will depend somewhat on the locality of building. The direction that flashings are to be of "14 lb. lead," is of course one of the printer's blunders; but is one of the kind which, left standing, make part of the difference between a book of no value, and one put forward as works are in general advertised. Under "Plastering and Painting," the marginal heading which should be "Painting" is printed "Pointing;" and immediately opposite it, and following, having read "To bed and point all the doors and windows with strong hair-mortar," we find "To point the whole of the interior and exterior wood and iron work, usually painted four good coats," &c.; which is simple nonsense. We pity the student who falls foul of such defective parts of this book. The general editor was competent to correct blunders of this and every kind we have referred to. Do publishers under-estimate the item of outlay to be allowed for such revision? One specification given is for farm-buildings in Scotland. Some of the terms will not be intelligible to architects south of the Twee.

In the Supplement giving explanation of technical terms, there are several defects. Thus a general assertion is made as to the base of the Corinthian order in Choric monuments, although the monument of Lycistrates is the only one of the Choric monuments that can be in point; and the statements about the lightness there, of "the

mischievous done by a book meant for students and the general public, which mixes up with its information blunders such as we have given an idea of, is not slight. Let a student take a wrong notion from a sentence or diagram, and he may not have corrected it ere he is called to practice. The *Dictionary of the "Architectural Publication Society,"* to which we perceive that one of the writers in the work before us, is a contributor, is generally remarkable for the excellence of its articles and illustrations, and the clearness of its definitions. There must have been some extraordinary reason for the diminished value here. We will not follow a common course of reviewers, namely advise correction in a second edition,—though much might this way be done for the production of a work that would become one of value: first editions should be, what often they are not, something more than proofs for correction. Some publishers act in a manner not only to spoil their own market, but to make publication the medium of disseminating not merely the knowledge that is power, but the half-knowledge that decidedly is not, and the positive error that is actively mischievous.

AN ODD NOOK OF LONDON. RED LION-YARD, GREAT WARNER-STREET, CLERKENWELL.

HERE and there in various parts of the metropolis, the wanderer comes upon odd nooks which are not only remarkable for their peculiarities, but also for the opportunity which has

other side the projection of the roof is not so great. An open gallery passes along the second story; and here let us remark that the plan of galleried houses is but a return to the system of the old London inns, with their tiers of rooms reached by galleries. The building here is a late example of the adoption of this principle, which, after long disuse, has been revived in our days on a more extended plan;—another instance of the truth of the proverb that "there is nothing new under the sun." It is pleasant to remark that the flower movement has extended boldly this way; in front of some of the rooms along the gallery there are healthy-looking plants, which form little gardens, and several of the pillars are completely festooned with creeping plants.

A little apart from the wooden structure, in order that no ground may be lost, shunted into a corner, there is a little two-roomed cottage, one of those unwholesome dens in which families are forced to seek shelter. The room on the ground is not more than 5 ft. by 8 ft. and 6 ft. high. The rent for this 240 ft. of cubic space is 4s. a week, and it is expected that an increase will be made.

Some years since we excited the indignation of the public, by showing that the Coldstream Guards, in the Portman-street barracks, had no more than an allowance of from 250 to 280 cubic feet of air each; but here a family of six people are driven to live in a room which only contains 240 ft. of cubic space, and without any ventilation, for there is no opening at the back. Here the allowance of space is 40 ft. for each person. A dust-heap, filled with rubbish, is close to the door; and



An Odd Nook in Clerkenwell.

structure supported," and about the base rising from "a circular platform," might be made in ignorance that the superstructure was solid and filled in between the columns, and that the substructure was square on plan. What is the "scape" of a column? If a north-country term for *apophysis*, it should have been explained. The word *apophysis* signifies escape or retreat. In many parts of the "Explanation" of Terms, we have certainly evidence of that lamentable want of precision which prevails with writers on architecture; which it is not easy to correct, but which every new glossary should do something to correct. Thus we read that *arris* is "the angle edge" "formed by the meeting of two posts placed at an angle to each other," &c. Now there may be an *arris* without the presence of two posts, or even one, in the construction. Surely, also "beam" and "bressummer" do not so commonly mean the same thing, as to be rightly explained by a single diagram of the former. The defects in the cuts, to which we have been obliged to refer, are particularly remarkable in this Supplement. For instance, in the "section of the lower part of a sash-frame;" were the bottom rail of the sash made as shown, the sash could not be raised. It is no use expecting a reader to supply the omissions of explanation: the reader, or a glossary at least, is presumed to be ignorant; or explanation would not have been to be given.

It is unpleasant thus to have to point out defects in a work which contains so much valuable matter, that we do not hesitate to say good use might be made of it by an architect; but the

been taken of them for the accommodation of large numbers of people. Often, these alums are almost unknown regions to those who dwell in the surrounding parts: besides the dwellers, too, there are frequently extensive and varied operations carried on in them. One of the most remarkable of these spots that has recently fallen under our notice is the locality above mentioned, which is inclosed by other buildings. We annex a sketch of it.

On two sides of a very large area there are ranges of wooden shed-like structures two stories high. The ground-floor was originally intended for stables and coach-houses; and above these are apartments which were formerly occupied by those who had charge of the animals. At present a considerable number of horses and carriages are kept here; but the stables, as are most of the apartments above, are in an unhealthy and ill-ventilated condition; and the inspectors should see that scavengers do their duty better here, for at the time of our visit there were dangerous accumulations; especially as now many of the upper rooms have been taken possession of by families, and others are used as workshops of different kinds. Scattered here and there were heaps of litter, the wheels, bodies, and other parts of cabs, omnibuses, and carts. In some parts there seemed to be hospitals for carriages which have fallen into decay and trouble.

On one side the pent roof projects to a great extent (throwing broad shadows), and in the summer heat and stormy weather serves to protect the grooms and carriage-washers. On the

we suspect that the water-closet is without a drain.

The wooden buildings here present a very picturesque appearance, but, as we have already said, they require strict sanitary attention.

THE FAMILISTÈRE OF GUISE, FOUNDED BY M. GODIN-LEMAIRE.

WHILE the papers are teeming with descriptions of streets whose bad drainage, want of light and ventilation, and the dirty habits of the people who live in them, make permanent fevers, it is refreshing to the heart to know that in one spot in Europe a practical and thoroughly successful plan has been carried out to remedy this evil, and has been in active operation for more than four years.

M. Godin-Lemaire, a large manufacturer at Guise, near St. Quentin, France, having realised a considerable fortune by his kitchen-ranges, enamelled drawing-room stoves, &c., determined to employ his wealth in ameliorating the condition of his 700 or 800 workmen and their families.

It being out of the question to enrich them by increasing their wages, he sought how he could give them, in the necessities and comforts of life, the real equivalents of riches, viz., a healthy and cheerful home, every facility for domestic and personal cleanliness, and the education of their children from their cradle till the

age when it would be necessary for them to gain their livelihood.

To effect this, he began by erecting near his foundry, on the opposite bank of the river Oise, two handsome and spacious buildings, which are to be at a future period completed by a third. These edifices, each of which forms a parallelogram enclosing a vast court, are connected at their angles by annexes, and form the three sides of a square. Along the fourth side runs a wide road, on the opposite side of which the square will be regularised by other buildings already in course of construction, and necessary to complete the organisation of the *Familistère* (or dwelling for families), as M. Godin very aptly terms his new edifice. The whole of the buildings, together with lawns, woods, and gardens, cover six hectares (the hectare = 2 acres 2,260-3325 square yards). Nothing has been neglected to render the outward aspect of the buildings noble and attractive. All the decorations that taste can obtain from bricks have been lavished on the façade, such as frontals in the centre and at the angles, pilasters rising to the roof, panels in relief half-way up the building, a cornice with dentils under the roof, horizontal lines running along the façade under the first and third stories, dressings to all the doors and windows, the whole edged with violet bricks on a red ground: nothing is overloaded; all is graceful and harmonious.

M. Godin's intention in thus decorating the workman's house *externally* was to rehabilitate labour. The workman's dignity must be raised, even in outward form. He must feel no humiliation on approaching his house. It must be neither a den, nor a union, nor an almshouse. But the internal combinations have been no less carefully attended to than the external decorations.

We will give a short sketch of the principal building, which lies at the back of the square, the other two being constructed nearly on the same plan.

A court of 45 mètres* by 20 mètres, offering, therefore, a surface of 900 square mètres, is inclosed by a building four stories high, where 380 openings give access to air, light, and circulation. The fronts are 65 mètres by 40 mètres. The buildings are, therefore, 10 mètres deep. At the distance of every 10 mètres a thick partition-wall runs from the basement to the roof—a necessary precaution against fire. Each division thus forms 200 square mètres. These 100 mètres are generally divided into two apartments, similarly distributed, which can be separated or taken together, according to the requirements of the family.

In the ten mètres of the inside façade are three openings,—a door between two windows. This door opens into a small hall, formed by two partitions extending to half the depth of the building. These partitions would form a corridor, were the space between them not divided into three compartments. The first constitutes the hall; the other two form good-sized store-rooms, the one opening into the apartment on the right hand, the other into that on the left hand of the hall. These closets are well furnished with shelves and drawers for crockery, glass, stores, &c. Underneath are places for brooms, brushes, dusters, and all that would otherwise lumber the room.

Two side doors opposite each other, lead from the hall into the separate apartments, each of which consists of two rooms and the above-named closet. The first room into which this closet opens, is lighted by the window looking into the court: it may be used as a sitting-room, a bedroom, or a workshop. This leads into the front room which looks into the square. This second room is of course larger than the first, as in a London house, because the landing and closets do not extend so far. In each room there is a fireplace, the good ventilation of which is secured by vent-holes from without, and a cupboard opens on each side of the fireplace: the whole is neatly floored, coated, and whitewashed. The mere partitions are 11 centimètres thick (the width of a brick), while the division walls are 22 centimètres (the width of two bricks). No one is therefore either overheard or disturbed by his neighbour.

Here, then, are two lodgings, each consisting of two good-sized rooms and a closet, well lighted, well ventilated, cheerful, and healthy. They can easily, as the family increases, be thrown into one.

These lodgings, which are in point of fact,

* The metre is by the Act of 1864 declared to be equivalent to 3 ft. 3.3708 in.

distinct small houses, without their inconveniences, are reached by a wide balcony, running on each story along the inside façade of the edifice, and round the court. These balconies are constructed by the simplest of all means. The joists which support the flooring of each story are made to extend about 5 ft. beyond the walls. These beams, neatly boarded, and protected by a light but strong iron railing, constitute the street which passes before every man's door. The balconies are reached by spacious staircases, placed at the angles of the edifice. The staircases and court are lighted, all night, by gas. On each landing is a fountain, the excellent water of which is raised by a steam-engine. The daily consumption per head is 20 litres (about 18 quarts). This shows how great a share cleanliness has in the use of this essential element.

On the same landing, but perfectly closed and concealed by double doors, are, first, the W.C., on the best English plan, and thoroughly ventilated; secondly, the dust-hole, which is connected by a shaft with a room in the basement, where all the dust and refuse, such as vegetable peelings, bones, &c., are collected, and regularly removed in carts once a day, before they have had time to ferment.

To preserve these balcony-streets, and allow the children to enjoy air and exercise in all weathers, the court is covered in by a vast skylight, rising above the roofs. It would require several pages to describe the ingenious means by which the thorough ventilation of this court, though so well protected against rain and snow, is maintained; suffice it to say, that under the buildings, which, together with the court, cover 2,600 square mètres, are placed the arches which contain the cellars; for every workman has his cellar and his loft. Under the court is a vault, supported by long rows of square pillars, which give it somewhat the appearance of a crypt. Two large bays, or openings, in the basement walls give free access to light and air. It is here that all the ventilation-tubes of the chimneys have their lower orifices. The vault is pierced at regular distances along the building with air-holes, which open into the court, where they are closed by iron gratings, well levelled with the polished cement which forms the pavement. These, together with the openings under the skylight, and the wide gates, keep up a constant circulation of fresh air. In summer there is every facility for watering the court; and though the weather was particularly sultry when we visited it a few days ago, we found this court and the balconies, at all hours of the day, comparatively cool and pleasant.

This court is the favourite resort of the children, when not at school. There they can sport and give vent to their youthful spirits, under the very eyes of their mothers at work at their windows. Here they run no danger; for no carriage, no laden carts, no cattle, no drunken men pass this way. Protected from the mud and dirt and corruptible influences inseparable from the street, here children of all ages enjoy exercise and pure air to their hearts' content; but air, light, and freedom from damp and noxious emanations, necessary as they are to health, would yet be of little avail without cleanliness.

Accordingly cleanliness seems to be a ruling passion in the *familistère*. It is divided into general cleanliness and private cleanliness. The former is intrusted to the charge of a certain number of women. It is their business to sweep and wash the court, staircases, balconies, water-closets (which are cleaned three times a day); it is they who daily make the beds, and sweep and put in order the rooms of the single men who inhabit furnished lodgings on the third floor, and wash their house-linen; in short, all the general work is done by them, and paid for by the management. The mothers, wives, daughters, and sisters of the workmen find in these duties a remunerative employment for a portion of their spare time.

The care of the private dwellings is, of course, left to the inhabitants; but it is rendered so easy, and the example of external cleanliness exercises such a wholesome influence, that all the lodgers seem to take a pride in keeping their own private home to the general mark.

Bodily cleanliness is promoted by all the facilities which abundance of water within every one's reach,—hot and cold baths at 2½d. for adults, and free for children and invalids; wash-houses and drying-rooms at the disposal of all the inhabitants, &c.,—can afford.

The washing for those families who prefer

giving it out also affords a source of profit to any of the female inhabitants who like to undertake it. The business requires no outlay but that of soap.

On the ground-floor are established retail-shops at wholesale prices, plus a small percentage to pay the expense of management. One for butcher's meat; another for pork, rabbits, &c.; another for fruit and vegetables; a grocery; a dairy; a wine, beer, and cider shop; a linen-draper's, and a ready-made clothes shop; all, in short, that can be required for the use and comfort of a respectable workman's family. Add to this a cook-shop, where, at the hours allowed to workmen for their meals, simple, wholesome, and well-prepared food can be procured, and carried home for the family, or eaten in the public dining-room; and it will be seen that M. Godin has amply provided for all the legitimate wants of those who become tenants of this workmen's mansion. The unmarried workmen generally take their meals at the restaurant, the average cost of which is between 8d. and 1s. a day.

The sales and cooking department being entrusted to women, afford other lucrative occupations to the workmen's wives and daughters.

Not only are their first wants provided for, but even their honest enjoyments are not forgotten. A reading-room, well lighted and warmed, furnished with books and newspapers; a billiard-room, with chess, draughts, and dominoes, and a refreshment-room, complete the domestic arrangement of the *Familistère*.

But while their material comforts are attended to, and so managed as to insure both physical and moral health, M. Godin has established one single but inflexible rule, which he hopes will help to moralize still further that class whose interest he has so much at heart: NO CREDIT IS GIVEN. None are asked to purchase at the stores, or provide their meals at the restaurants; all are free to come or leave as caprice dictates, and to provide for their daily wants wherever they please; but if they seek the stores of the establishment or the dining-rooms, they must pay in ready money. Experience has shown that few new-comers avail themselves of these latter advantages: the force of habit, or the heavy chains of a debt incurred, very frequently force the housekeeper to return to her old haunts; but as the debts are cleared off, or the greater benefits to be derived, in price and quality, from the home-stores, strike her mind, she gradually acquires the habit of laying out her money at these stores. By this rule, M. Godin hopes to free his workmen from the slavery and demoralizing influence of indebtedness.

The rent for unfurnished apartments of from one to five rooms, with closets, &c., is at the rate of 4s. 9d. a room per calendar month. A furnished room for a single workman, containing an iron bedstead, two mattresses, two or four chairs, one or two tables, a washhand-stand complete, a slop-pail, a looking-glass, two clean towels a week, and the bed-linen changed twice a month, the bed made, and room properly done every day, costs 8 fr., or 6s. 8d. a month. Or a separate bed in a dormitory placed in the annexes can be obtained at 1d. a day.

A medical man calls every morning at the office to inquire after the general health, and is bound to visit any who may require him at their own home. The medical service is paid by a mutual-aid society established among and managed by the workmen. This society allows 2 francs a day to any member whom illness keeps from work. But in so cheerful and healthy a residence, we need scarcely add that epidemics are as yet unknown, and that ordinary ailments are neither severe nor of long duration.

A musical society, composed of eighty workmen, exists; and, under the direction of a professional leader, paid by the establishment, adds very much to the enjoyment of the inhabitants. M. Godin's son is himself a member of the society; and we were very much pleased with a rehearsal we heard.

We will close this inadequate sketch by adding, that a nursery, well provided with neat cradles and with every contrivance for the maintenance of cleanliness, is at the disposal of all mothers. Here they can deposit their infants while at work; here they can come and suckle them; or can, if convenient, leave them all night. They bring them, take them away, dress and undress them, feed them, or leave them to the care of the nurses (generally mothers of one or two of the infants), who watch day and night,—just as their occupations or caprice may suggest. They are sure that they will be well cared for.

In one of the annexes forming the fourth side of the square are the school-rooms. In one a sort of *kindergarten* is established, where children of both sexes, between the ages of two and five or six, by means of games, rounds, choruses, and pictures, are gradually prepared for the good sound elementary and industrial education they receive in the other, or upper school, which they attend between the ages of five or six and twelve.

The educational portion of M. Godin's system is under the general supervision of a highly educated young lady of great intellectual powers, known in the establishment as "Mademoiselle Marie," and of a professor of great merit.

Healthier, neater, and happier children than those we saw in the *Pouponnat* (nursery), the *Bambinat* (infant school), and upper school, are nowhere to be found. As to the acquirements of both boys and girls in the upper school, they were perfectly surprising. Though none were yet twelve years old, they could all read and write perfectly. The beauty of their handwriting and perfect neatness of their ordinary exercise books was such as is never met with in boys' schools, and not often in girls' schools.

Being accustomed to school examinations, we looked at all things with a hypercritical eye, and found boys and girls well acquainted with the elementary rules of arithmetic, the rule-of-three, interest, alligation, and book-keeping. Their spelling was unexceptionable, and their knowledge of grammar excellent. The boys, moreover, had learned the extraction of the square and cube roots, mensuration, &c.; while the girls had been practised in the use of the needle, the art of cooking, and other domestic arts, which will make them good and useful daughters, and, later in life, desirable wives.

The *pouponnat*, *bambinat*, and school are gratuitous. We mistake—the attendance of the children is gratuitous. Their absence, except through illness, subjects the parent to a fine of 1d. a day. We have said perfect freedom, unshackled by any single regulation, except that of getting no credit at the stores, reigns in the Familistère. We omitted this one single exception. The parent is, by the terms of his lease, deprived of the liberty of allowing his children to vegetate in idleness and ignorance.

The Familistère is no charitable institution, and M. Godin has impressed this deeply upon his workmen. The schools, care of the court, balconies, &c., and many other advantages, are directly gratuitous; but they are paid out of the rents received from the workmen, and yet leave a profit of about 6 per cent. on the capital expended. Hence, every inhabitant feels that, indirectly, he has paid for all the comforts he enjoys; he is quits with the management; he is indebted to no one; he can walk with his head erect; he is a free man.

Such is the very rapid sketch of an establishment worthy of all praise, and which ought to be visited and studied by all who take an interest in sanitary questions and social progress. The erection of numerous Familistères in town and country, on the plan of the enlightened and benevolent founder, M. Godin-Lemaire, would soon lessen those moral and physical plague-spots which cast devastation abroad far beyond their own precincts.

TITO PAGLIARDINI.

PURE WATER FOR ROME.

We mentioned some short time since the probability of the *Acqua Marcia*, celebrated in ancient times, being brought to Rome. We can now state that the concession was granted by the Roman Government on the 30th of August last, to Mr. Shepherd, the *gérant* of the Roman Gas Company, in conjunction with Mr. Henry Fawcett, of the Temple, London. We understand that the enthusiasm in Rome on the subject will leave little to be done in London in establishing a company. Rome will be highly benefited by the introduction of a large supply of water purer than any now obtainable there.

HULL AND EAST RIDING COLLEGE COMPETITION.

The first premium was awarded to Mr. R. G. Smith, of Hull, and the second to Mr. John M. Hooker, of Arundel-street, Strand (late of Messrs. Hooker & Wheeler, of Brunchley). There were fifteen competitors.

THE SAXON ARCHWAY IN ST. BENEDICT'S CHURCH, CAMBRIDGE.

The tower-archway, or belfry archway, of this church has long been known to antiquaries as one of the most perfect of the few remaining specimens of Saxon work. Till recently, however, it was so far concealed by a modern gallery, that neither its fine proportions nor its curious details could be sufficiently seen or appreciated.

It has now been thrown entirely open; the whitewash and plaster have been removed, the masonry cleaned down and pointed, and such portions of stonework as had evidently been chiselled away (fortunately only to a very small extent), have been carefully restored.

Immediately above the belfry-arch is a Saxon window, which has also been opened and restored. It is about large enough to admit of a man passing through, and is very rudely constructed of long-and-short work in the jambs, and clumsily arranged arch-stones; the latter, indeed, are so put together on the lower side, as to suggest the idea that it was a mason's first attempt, and that he never could have seen, and had no notion of, the true principles of an arch.

But the belfry arch is a superior work, though very singular in its design. It is semi-circular, and contains thirty vousoirs or arch stones, of different thickness, all cut with tolerable regularity into a wedge-shape, but so arranged that they radiate from two centres. The material is Barnack stone. Round the arch, and continued below the impost to the ground, is a double moulding, consisting of a semi-circular fillet and a square-edged member, separated from it by a square channel of about equal width. The measurement across both these members is 13½ in. The arch and jambs are square-edged, and of one plain order. The arch-label, as well as the jambs, is constructed on the long-and-short principle; that is to say, the label is of six or seven segmental pieces, with intervening wedge-like pieces measuring 2 in. or 3 in. across; while the jambs are very neatly made of six larger slabs on each side, of different sizes, running through the entire thickness of the wall, which is 3 ft. These slabs are set up, as it were, on end, and separated by courses of stone about 4 in. thick, on the principle of long-and-short work. The impost is very bold, and has considerable projection. It seems a rude imitation of Roman architecture, something like a capital being worked to the shaft, or rather the moulded members that run down on each side. Towards the east, the label is terminated by an extremely quaint and rude figure of an animal, apparently a lion rampant, one on each side. Both these remain quite perfect, and measure rather over 2 ft. from head to tail.

The width of the archway is 8 ft. 4 in., and the total height, from the upper part of the label to the floor, is 20 ft. 6 in. Both sides, viz., the east and the west, are as nearly as possible the same, except that the figures of animals exist only on the nave side. The side-mouldings terminate both on the east and the west sides, a few inches above the floor, on a square stone projecting some 3 in.; these had been mostly chiselled away flush with the wall, but are now replaced.

The masonry on each side and above the arch was laid bare during the repairs, and found to be of the roughest rubble-work, composed of rag-stones, but mixed with pieces of clunch and flints. A piece of Roman brick was found in removing a broken stone at the base. The impost on each side is continued to the wall of the present nave, which is Early Decorated. This impost is rather more rudely cut on the north than on the south side. Its depth is 18 in.

From the jambs of the archway to the outer moulding on each side is a space of about 3 ft. A blocked arched recess had been cut in the inner face of the northern jamb, possibly for a holy-water stoup, though it is larger than those generally used. It appears to have been of the fifteenth century; but it has not been thought advisable to retain it, as it seriously marred the symmetry and really fine masonry of the original work, and it was so much mutilated as to render its restoration difficult.

It is not safe to venture any opinion on the date of this archway. One thing is certain; it has not a single feature in common with Norman design. It may probably be referred to the age of King Alfred.*

Some other features of interest were discovered in carrying out the repairs. Remains of an en-

* We will engrave a view of it for an ensuing number.

caustic pavement, in alternate tiles of highly-glazed green and yellow, but without patterns, were found under the present floor of the tower. This pavement, probably of the sixteenth or late in the fifteenth century, will be faithfully restored. A small doorway with good Perpendicular mouldings, and an aperture (hagioscope) opening obliquely into a chapel on the south side of the tower, had been completely blocked up, but are now opened and will be restored. Within the chapel, the marks of the original altar may be seen against the eastern wall. The altar-slab itself, though sawn in two, is laid down in the chancel pavement.

A Perpendicular window in the west wall of the tower will be replaced, and is to be filled with stained glass, the gift of a parishioner. This complete and ornamental restoration of the interior of the tower will, it is hoped, be followed by the rebuilding of the south aisle and the chancel, and the reseating the whole available area of the church.

NEW THEATRE ROYAL, NOTTINGHAM.

The new theatre in Nottingham, built from the designs of Mr. C. J. Phipps, was opened on Monday evening last, having occupied exactly six months in erection. The theatre itself, including auditorium and stage, occupies a space 112 ft. long by 67 ft. wide, and, taking in the box-corridors, saloons, dressing-rooms, &c., the whole forms a block 132 ft. long by 90 ft. wide.

The theatre is approached by six distinct entrances. The levels are so arranged, that in both Parliament-street and Sherwood-street the entrances to the pit are on a line with the street, there being no descending staircases. A staircase, 6 ft. 6 in. wide, leads to a circular saloon, on a level with the dress-box corridor. Communicating with this saloon are retiring and cloak rooms for both ladies and gentlemen. The gallery staircase is of stone, without winders, and both this staircase and all others have a solid wall in the centre, dividing the flights.

The plan of the auditorium, taking it on the dress-circle level, may be described as a semi-circle of 36 ft. diameter, opening, *before reaching its diameter*, by curves of a contrary flexure, to a width of 48 ft. at the first column of the proscenium, and at the same point uniting with the circular wall at the back of the boxes. There are two private boxes on each tier, between this and the opening of the proscenium, flanked on either side by a double range of columns. The curtain-line is 42 ft. from the front of the dress circle, and 48 ft. from that of the upper box and gallery front, the stage projecting from the curtain about 6 ft. into the auditorium; so from the stage-front the circumference of two circles, drawn from different centres, will touch, and the opposite circumferences describe the line of the dress-circle front, and the back wall of ditto, the former being 36 ft. diameter, and the latter 54 ft. 8 in. The ceiling is an exact circle, and takes the same line as the box-fronts, having an outer diameter of 42 ft. and 36 ft. to the edge of the cove. The centre of the ceiling is 44 ft. above the pit. In the centre, the dress-circle is 18 ft. 8 in. deep, giving seven rows of seats on platforms 2 ft. 8 in. wide, and, by the nature of the plan as mentioned, every seat faces the stage, and there is not one which does not have an equal and front view of the stage. The pit extends under the dress-circle to the back wall, having its separate outside corridor under that of the box-corridor. All corridors are 7 ft. wide, arched over on every tier in Dennett's patent fireproof material. The upper-circle does not take the same line as the dress-circle, but recedes in the centre nearly 6 ft., thereby diminishing the depth of the dress-circle, and admitting of two rows of balcony-stalls, something in the manner of the New Adelphi. The gallery extends over the box-corridors, and has eleven rows of seats. The respective accommodation in each part is:—Dress-circle, 250; upper-boxes, 250; pit, 850; gallery, 800; private boxes, 50; total, 2,200.

The dress-circle is fitted up with arm-chairs, so arranged as to admit of six wide gangways from the corridor, each seat being 21 in. wide, by a depth of 18 in., the back sloping 4 in. The seats, backs, and arms are stuffed and covered in rich Turkey cloth, the seats turning up to allow greater facility in passing. The upper boxes and pit have wide seats with sloping backs, both covered with American leather. On either

side of the proscenium, by the private boxes, are circular stone staircases, specially designed for the entrance to the private boxes on each tier, but giving access to every part of the house for the manager in a few seconds.

The lighting is effected by a powerful sun-burner, manufactured by Messrs. Strode & Co., of London, placed in the centre of the ceiling, but not depending more than 18 in. below it, around which are a series of ornamental glass drops. There is a large ventilating-shaft of iron, 6 ft. diameter, immediately above the sun-burner, carried through the roof, in the centre of which is another iron flue, specially to take off the products of combustion from the gas.

The stage measures in width from wall to wall 64 ft., by a depth from the foot-lights of 50 ft. to the back wall, a large recess being formed in part of this space at the back for a scene dock, over which is the scene-painting gallery, on a level with the flies, in the same position as at Covent Garden. There are three frames for painting, all properly counterweighted, and capable of being used for ascensions of scenery, &c. The width between the fly rails is 44 ft., height from stage floor to the foot beams, 41 ft., and depth from stage to the lowest cellar, 20 ft.; so that large pieces of scenery can be raised or lowered completely out of sight. The fly floors are about 22 ft. from the floor of the stage, and the grooves are blocked down to 18 ft., being the height of the flats and wings. The whole of the stage is composed of sliders, and the joists are so arranged, that at any time the whole of the centre, floor, joists, &c., could be taken away, forming one large open space for mechanical effects. The stage has been laid down and the traps constructed under the immediate superintendence of Mr. Tasker, the clerk of the works, while the whole of the machinery has been constructed by Mr. W. Jones, from Her Majesty's Theatre. The foot-lights (by Strode & Co.) are of novel construction, and this is the first instance of their use in England. They consist of Argand burners, with the light reversed, and burning downwards; all the combustion is thus drawn away through an iron flue under the stage; perfect safety is also obtained, as not a particle of heat or vapour rises upwards, as can be tested by placing even a piece of gauze on them. The stage is divided from the auditory by a solid wall of brick, 18 in. thick, which is carried on an arch over the proscenium, directly up to meet the roof. The theatre contains ten good-sized dressing-rooms, all having separate water-closets, lavatories, &c., with water laid in.

The principal front consists of a portico, supported by six Corinthian columns. The bases and sur-bases are of Mansfield stone, and measure 6 ft. in height. The shafts from base to cap are 18 ft. in height, of Ancaster stone, and gradually taper from a diameter of 2 ft. 3½ in. to 1 ft. 1½ in. They are surmounted by carved Corinthian capitals, 3 ft. 2 in. in height, and support an imposing entablature (with plain frieze and bracket cornice), making a total height from base to cornice of 33 ft. 7 in. Over all will be an attic story (panelled with a view to sculpture), about 11 ft. in height, finishing with ornamental vases. The portico projects from the main frontage about 12 ft., and is 47 ft. long. Under it are five entrance doorways to the boxes. The main frontage is 76 ft. long, of two stories, the windows and doorways being circular-headed.

The decorations were executed by Messrs. Green & King, of Baker-street, London. The starting-point for the decorators has been the acoustical objects of the mode of construction, in which all ornament in relief has been avoided, and plain surfaces left for flat coloured decorations.

The proscenium is supported on either side by two pairs of fine Corinthian columns, enriched with gilding and other decorations. Between these are the private boxes, which are lined with a paper of the same design as the other boxes, but the prevailing hue of which is a delicate sage-green, which materially enlivens this portion of the house.

The chief feature of the decorations is a large painting, which occupies a rectangular panel, 26 ft. long and 5 ft. high, immediately above the proscenium. The subject represents the poet Shakespeare, crowned with a wreath, and sitting upon a throne, between Comedy and Tragedy as his geni; while on either side are a series of his principal characters, considered as his creations. A background of mountains, blue in the glimmering twilight, with a still, luminous sky, and a few broadly-indicated trees in the middle

distance, serve to throw the various figures into prominence; while the massive throne of masonry, assisted by the composition, gives due prominence to the central group. Mr. Holiday, of London, was the artist employed by Messrs. Green & King to execute this painting.

It only remains to mention that the general contractor was Mr. Arthur Haw, of Nottingham, with the following sub-contractors:—Mr. Rest, carpenter and joiner; Mr. Shipstone, mason; Mr. Weldon, plumber, glazier, and gas-fitter; Mr. Brown, painter; Mr. Caldwell, smith and iron-founder; Messrs. Dennett, of Nottingham, executing the corridors and other parts in their patent fireproof arching. The sun-burner and float-lights have been made by Messrs. Strode & Co., of London. The iron gas border-lights and gas regulating apparatus were by Messrs. Jones & Co., Covent-garden. The stage gaswork was by Mr. J. White, of Bath. The seats for the dress-boxes have been manufactured at the steam works of Messrs. Wadman, Bath, from the registered design of the architect; and the private box chairs by Mr. Church, of the same city. The cost, with the purchase of the ground, has been little short of 15,000l.

SPIRES OF GERMANY.

In the Middle Ages, no people seem to have so far mastered the art of construction as the Germans: although their French neighbours far excelled them in artistic design and graceful detail, yet to the Germans must certainly be allowed the palm for engineering skill. The bridge over the Moldau at Prague is perhaps one of the greatest engineering undertakings of the Middle Ages. It is 1,500 ft. long, and has resisted the shocks of icebergs, with which the old river is often choked, for 500 winters. The old bridges of Würzburg and Frankfurt are scarcely less remarkable. The principal objects, however, on which the Germans seem to have delighted to bestow their constructive skill, are the towers and spires of churches and town-halls. Vienna, Strasburg, Ulm, Landshut, Freiburg, and Tahn, are perhaps the most important. There are, however, many less-known spires that are quite as beautiful, and exhibit quite as great constructive knowledge.

The towns of Prague and Würzburg, viewed from a distance, give one the idea of a forest of spires; and at Würzburg, in particular, they are grouped together in such a remarkably picturesque manner, that one can scarcely believe that the whole town was not originally planned and built only to be painted. Lubeck, Nuremberg, Augsburg, Landshut, and Erfurt, abound in spires; and as some of these towns are situated in very hilly country, they quite destroy the old theory that spires were only built in flat places.

I will attempt to give a slight chronological sketch of the gradual development of the spire in Germany. In very early Romanesque churches the towers are generally two in number, and are low and square, crowned with pyramidal roofs. Good examples are to be found at Treves, the "Ober" and "Nieder-Münster," and "St. Jakob's Kirche" at Ratisbon.

Sometimes the churches of this date have one immensely heavy tower at the west end, as at Paderborn and Soest cathedrals. In the latter example the tower is gabled on each side, and on the apex of the gables rest the angles of a dwarf square spire. This form of spire is very common in late Romanesque work, but is not to be often met with in very early buildings.

Late Romanesque churches have often a number of towers. The abbey church at Laach has as many as six; the cathedral at Spyer, five; Worms, five; Mayence, six; Gelnhausen, five; Bamberg and Würzburg, four each. None of these towers are of great height, generally not more than about 150 ft. The two eastern spires of the cathedral at Würzburg (fig. 1), are an exception to this rule; they are about 300 ft. high. They possess also two other peculiarities. In the first place, they consist of an elongated lantern, of several stories, "broached" on to a square tower, the angles being filled up for several stories, with pierced buttresses. This is common enough in late work, but very singular in such an early example. Their other peculiarity is their being built of alternate courses of red and white stone. First Pointed spires are not common in Germany. Churches of this date, if of large size, generally possessed two spires at the west end, and sometimes, though rarely

two, also at the east; the spires are generally covered with slate. The western spires of Bamberg cathedral are good examples.

In "Second Pointed" spires, Germany is very rich. Churches of this date have generally only one spire, and that at or near the west end. Large churches often have two, usually flanking the west front. At St. Stephen's, Vienna, they are at the ends of the transepts. Spires of this date, if early, are generally covered with lead or slate. Fine examples occur at Lubeck and Nuremberg, and a very pretty one at Gemünden, near Warzburg (fig. 2). Later in the style stone spires are to be met with. Good examples are to be found at Freiburg Cathedral and Maria Zell, in Austria. Late decorated spires generally consist of an elongated octagon lantern on a square tower. The spire proper forms only a very small part of the composition. St. Stephen's, Vienna; Steyer, in Austria; Botzen and St. Mary's, Würzburg, are good examples. A curious pair of slate spires of this date are to be found at the "Thein Church, Prague" (fig. 3). Third Pointed churches have generally only one spire, and early in the style they are similar to "Second Pointed" ones in general arrangement. St. Martin's, Landshut, is a very fine example (fig. 4). It is entirely of brick, 420 ft. high. St. Jodoc, at Landshut, has also a fine spire of this date, and similar in arrangement to St. Martin's. It is about 250 ft. high. Late "Third Pointed" spires of the same description are to be found at Nördlingen, Augsburg, and Munich. At Mayence and Frankfurt the towers are finished with small domes, instead of pyramidal spires. Examples of slate spires of this date are to be found at Prague (fig. 5), Erfurt, Nuremberg, Würzburg, Augsburg, and many other places. In very late examples the sides are hollow, and the spire itself painfully attenuated; and these continued to be used until the introduction of the bulb-shaped spire, which, in the earlier part of the seventeenth century, overran Holland, Belgium, France, Germany, and even found its way into England.

Figs. 6 and 7 are curious specimens of late German towers. The first is from a church at Landshut, the second at Augsburg.

H. W. BREWER.

REFERENCES.

- Fig. 1.—One of the eastern spires at Würzburg.
- Fig. 2.—Spire at Gemünden.
- Fig. 3.—Thein Church, Prague.
- Fig. 4.—St. Martin's, Landshut.
- Fig. 5.—St. Stephen's, Prague.
- Fig. 6.—Church of the Holy Ghost, at Landshut.
- Fig. 7.—St. Anne's Church, Augsburg.

MONUMENTAL.

The Albert Memorial, Mold.—The inauguration of a drinking-fountain and clock, which were subscribed for by the inhabitants of Mold and vicinity, as a tribute to the memory of the late Prince Consort, has taken place. The site is at the Cross. The memorial is made of bronze, and was cast by the Coalbrookdale Company. Just below the clock are two gaslights. On the sides opposite New-street and Chester-street are portraits of the late Prince Consort, with inscription underneath.

The Hatherton Memorial, Stafford.—At a recent meeting of the subscribers to the fund for a memorial of Lord Hatherton, it was stated that the amount contributed was 2,000l., and that a statue would cost from 1,400l. to 1,600l., so that the balance would not found a scholarship. An attempt was, therefore, made to limit the memorial to the foundation of scholarships; but an amendment by Major Chetwynd was carried, that a statue be erected in the marketplace of Stafford, as originally proposed; and any surplus be disposed of as might be directed by the subscribers. An attempt is to be made to procure additional subscriptions to found scholarships.

The Combermere Statue, Chester.—This statue, the execution of which was entrusted to Baron Marochetti, is now complete, and has been placed in the position it is destined to occupy, opposite the principal entrance to Chester Castle. The pedestal on which the statue rests is composed of blocks of granite from quarries near Falmouth, the height of the column being 12 ft., that of the statue about the same, making the total height from the ground to the top 24 ft. The statue is equestrian. The ceremony of unveiling is expected to take place in about a month's time.



H.W.BREWER.

T.HEAVISIDE.

SPIRES OF GERMANY.

"A WORD OF ADVICE TO MARGATE."

AN inhabitant of Margate writes thus:—
 "To prove how entirely justified your remarks have been, I inclose you copy of a correspondence thereon between the mayor and the sanitary inspector. If you think it worth while to publish the letters, would you mind kindly adding a line to the effect that as the people of the town seem so properly sensitive to any adverse remarks in the press, they should remember that the same channel is equally open to words of praise; and that if any important improvements are seen to have been set on foot, no advertisement could do them so much good as the encouraging notice such enterprises would be sure to call forth.

It is curious that the *Builder* should have stirred the folks up after they have been thundered at again and again to no purpose by other London weekly papers and the local organs."

"To the Worshipful the Mayor.

Sir—My attention has been directed to an article in the *Builder* of the 9th inst. (which I send herewith), 'A Word of Advice to Margate.' May I ask if you intend to notice it in the same manner in which you lately treated an article in the *London Observer*, &c., by directing the attention of the editor to the incorrectness of the statement. My object in asking this question is, that I am officially alluded to, and do not intend it to be passed over as a mere name.

An answer per bearer will oblige,

Yours obediently,

Margate, 12th Sept., 1865. THOMAS D. REEVE, Sanitary Inspector.

Dear Sir,—In answer to your note of the 12th inst., I can hardly think the two cases to which you allude are at all similar. On the occasion referred to in your letter, I replied to an unjust attack of the *London Observer*, because I had personal knowledge that the principal statement therein contained was untrue, and that every precaution had been taken by the council to remedy, in the jurisdiction of the borough, the lithero existing evil of indecent sea bathing.

As you have officially called my attention to the article in the *Builder*, reflecting upon the sanitary condition of Margate, I am induced thus to remind you that, you and many others are not strangers to my opinion of the unsatisfactory sanitary condition of the town; and to add that, being now placed in a position of responsibility, the existence of preventable nuisances is, I must confess, one of considerable anxiety to me.

You hold the office, of all others, the most important: upon its efficient discharge the prosperity of the town mainly depends, for all arrangements affecting health, and all improvements are to a large extent under its control. To my mind (and this you are aware is no new opinion) your own numerous occupations, however otherwise competent you may be, preclude the possibility of your giving that amount of attention to the duties of your office which it imperatively demands. Much as I regret that the department to which you are attached be open to attack in the *Builder*, it would be impossible for me, for reasons well known to yourself, to take the course suggested in your letter. The theory, however (quite new, I presume), advanced by the editor of the *Builder*, as to the cause of the stench at the back of Marine-terrace, appears to me to be an engineering one: its fallacy or otherwise I will not presume to question; but surely the fact is what it may, ought to be within the comprehension of a sanitary officer, and its remedy immediate.

As the sanitary question, affecting so materially the prosperity of Margate, is one of much public interest (and more particularly that no mistake may be made of my views upon the subject), I intend to publish in the local press the remarks in the *Builder*, your letter to me, and mine in reply.

I remain, dear Sir, yours truly,

THOMAS H. KEBLE, Mayor.

Mr. T. D. Reeve, Surveyor and Sanitary Inspector."

We may hope that, with a mayor entertaining, as Mr. Keble evidently does, right views as to the importance of remedying sanitary defects and placing the town in a proper condition, Margate will not long remain open to such observations as we have felt it our duty to make. Every inhabitant of Margate is personally interested in obtaining improvement in this direction.

Since the above was set up, we have received the following epistle from the surveyor. We print it without any further comment, at any rate at present, than that afforded by the mayor's letter above:—

"Sir,—An article, headed 'A Word of Advice to Margate,' having appeared in your journal of the 9th inst., reflecting upon me in my capacity of sanitary inspector of Margate, and which is also damaging to my property, beg you, in your next issue, to publish an explanation of the alleged 'facts.' No person residing in Royal Crescent has ever complained 'through the medium of the press' of the non-removal of their kitchen refuse as alleged. A letter, however, was sent to the council applying for the cart to call; and proper directions were immediately given. No letters have ever been addressed (as is asserted) to the local authorities by the inhabitants of Marine-terrace, nor by any other person, that I am aware of, complaining of a 'stench' coming from the back windows of 'all the houses'; but on the 10th of August last, a visitor residing in that terrace wrote to the mayor, complaining of a smell at the back of the house; that letter was handed to me, and I found that the cause of complaint arose from defective drains upon those premises. All nuisances arising from pig-sties, whether complained against or not, I abolish immediately I discover them. 'No Man's Land' is not a 'rusty natural cesspool,' as is represented: it is high and dry, and occasionally 'pigs' have been clandestinely there deposited oyster-shells, but the police have been

requested by me to prevent any rubbish whatever being thrown there. The water, alluded to, at the top of Love-lane, was not water from the bilge of any ship, commonly called 'bilge-water,' but was fresh rain-water occasioned by an extraordinarily heavy storm, which happened at the time of a high spring tide: that local being the level of such tides, the surface water from the hills could not then escape through the drain, but it subsided on the turn of the tide, and the cellars that were over-flowed were pumped out. The *Builder* in saying, 'who is to blame?' insinuating that the sanitary inspector is blameable,—as though the sanitary inspector could and should make all 'dirty people' pure and cleanly; and as if he had constructed the drains in Marine-terrace and the houses in Love-lane; and as if he could command the elements! Above and beyond the hypocrisy and wickedness of the writer (who, while pretending to give good 'advice to Margate' and to save it from 'ruin,' alarms its visitors by exaggeration of falsehoods), is his gross calumniation of myself, and his insidious damaging of my property, in the following sentence:—'Although we can hardly believe it, we are informed that the houses in Love-lane, affording examples of so terrible a nuisance, and the marsh, from which rises the horrible stench at the back of Marine-terrace, are actually the property of the sanitary inspector himself.' The fact and truth is, I have not, nor ever have had, any house in Love-lane. No stench arises from my land in the marsh, immediately facing which I now erect a number of new residences. The ditches on the part of the marsh belonging to me were under-drained and filled in during last winter, as soon as possible after I obtained possession of the property. At my own cost, I have also filled in the ditches of the adjoining marsh; and I am now under-draining and filling in the broad water-course in the marsh, belonging to Mr. Hatfield. So that the above-cited slander is manifestly unjustifiable and malicious.

I cannot sufficiently condemn the anonymous calumniator, who, under pretence of benefiting the public, as it were, steals men in the dark. I have, for upwards of fourteen years past, faithfully, zealously, and with credit to myself, performed the duties of my several offices under the local Board of Health, and the Council of the borough; and I hold faith in the moral utterance of *Job*—

'Good name, in man, and woman, dear my lord,
 Is the immediate jewel of their souls;
 Who steals my purse, steals trash; 'tis something,
 nothing;
 'Twas mine, 'tis his, and has been slave to thousands;
 But he that filches from me my good name,
 Robs me of that which not enriches him,
 And makes me poor.'

THOMAS D. REEVE, Surveyor and Sanitary Inspector, Margate."

TELEGRAPHIC.

IN course of a discussion on india-rubber as an insulator, at the Birmingham meeting of the British Association, Mr. Gassiot said he questioned if the time had arrived for a final experiment in the laying down and working of an Atlantic cable. He thought the bearing of india-rubber in its various qualities as an insulator ought to be satisfactorily and conclusively determined before the laying of another cable in the Atlantic was attempted. If they went on from year to year with unsuccessful experiments, they would absorb all the capital; whereas, if they only waited the result of the experiments being diligently prosecuted by electricians in all parts of the kingdom, they would be able to come forward with a scheme which would be a success. There would be no difficulty in raising capital, and there was no doubt that the Atlantic telegraph would be laid; but before again embarking on the enterprise every experiment should be made. Captain Selwyn, as representing the naval profession, recommended what he called the seaman's way of laying the cable; viz., laying it from floating reels, to be dragged behind the vessel commissioned to carry out the work. It was entirely in the laying of the cable, he contended, that the whole damage had arisen; because cables that had once been laid worked well. He objected to the spiral form of the cable, on the ground that the upper part was sure to untwist by the strain, and the lower part twisted up as it lay on the bottom. He expressed doubt as to the suitability of the *Great Eastern* for the purpose, on the ground that she rocked more violently than other vessels when a real storm arose. He recommended the employment of two vessels in the attempt to raise the cable, and concluded by declaring his conviction that the expense and difficulty connected with the enterprise might be greatly reduced.

The buoys left by the *Great Eastern* at the broken end of the cable are said to have disappeared.

The only alteration that will be made in the new cable, according to the *Mechanics Magazine*, will be the substitution of strands in the place of solid iron wires for the external covering. These strands will each consist of three wires, and each strand will be covered with manilla. It is thought that, by this means, all chance of the gutta-percha being pierced by the external wire will be prevented, as each wire singly would be too weak to be thrust into the interior of the cable.

SANITARY MATTERS.

Cirencester.—The local sanitary committee lately appointed a sub-committee to make a house-to-house visitation, and their report has just been made to the committee. Great improvement in the state of courts and passages has been made since before inspected, and more attention is paid to cleanliness and pure air on the part of the poorer classes. The drains, as a rule, are trapped and improved; but there are seventy pig-styes much requiring abatement, and cesspools and open privies still abound. Notices were ordered to be sent to the keepers of pigs and the owners and occupiers of premises having defective drains, as to these nuisances.

Leeds.—Various ward and other meetings have been held here for the promotion of sanitary improvement and the abatement of nuisances. A committee has been appointed to make district visitations, and report to the proper authorities all nuisances of a dangerous character. Fever is prevalent in the borough. The death-rate of Leeds for the last few weeks has been about double the average rate of the healthiest portions of England. The average death-rate of the Isle of Wight, for instance, is 16.5 per 1,000 inhabitants per annum, while the mortality of Leeds is at present at the rate of 31.8 per 1,000 per annum.

Hawick.—This town has been visited by a very virulent type of typhoid fever. There have been thirteen cases and four deaths from one house, three being inmates, and the others having caught the contagion by visiting the house. Several patients of the poorer classes have been removed from their houses to the hospital of the combination poor-house, and there one death has occurred. The number of cases is on the increase. British cholera of a severe kind also prevails in the town. Great rejoicings, however, have taken place on the occasion of the introduction of an increased supply of water to the town, and also of laying the foundation-stone of a new corn exchange. The Duke of Buccleuch opened the sluices which admitted the water to the pipes from the river Allan; and Mr. Whyte Melville, Grand Master Mason for Scotland, presided at the ceremony of laying the foundation-stone. A grand banquet was held, which was attended by between 300 and 400 persons.

CHOLERA THREATENINGS.

IN connexion with the cholera, we would still sound the note of preparation against it, in the same way as we would against a mortal enemy. Many months since we gave warning of the approach of this dread pestilence: then some thought we were unnecessarily alarming the public. Every week's experience, however, shows that we have been most unfortunately in the right, and that week after week the cholera is more closely nearing our shore. It has, as in its former approaches, come in direct courses. As we have before said, it passed along one side of the Red Sea, causing destruction of life and great terror. Then it passed to towns and provinces of Turkey, where thousands of deaths have taken place, and much misery has been created. Step by step, as this disease has progressed, we have most anxiously inspected maps, and ask our readers to do so likewise. It has touched points of Spain; we have ill reports from parts of Portugal; and by the French seaboard of the Mediterranean, there is no doubt that the cholera has established itself, and that it is approaching towards Paris. It has affected Toulon; and, if we trust the experience of former attacks of this description, there is actual fear that the cholera will soon be opposite to us in the Channel. But, as we have already said, this plague is marching our way from other directions. It has branched off into Austria; and thence, if we consider the former working of this disease, it is likely to pass over Prussia; and then again it may be brought by this road into close proximity with the coast, and from Russia and Asia across the Baltic Sea, by Denmark, we may have, as we once before had, the cholera attacking the Tyne; so that in three especial ways we are threatened with this scourge. And it must never be forgotten, in connexion with this question, that in England we have no reliance that the cholera will depend upon the heat of the weather, as regards its reaching this country;

for, as we too well know, when the cholera first reached England, it was at Tyneside, at about Christmas or New Year. Let us, therefore, not depend upon the winter or the approaching autumn for safety. The enemy, God willing, may not come, after all; but there is no doubt that we are threatened, and the chances are now very small that this country will escape a visitation. It therefore becomes an especial duty that those places which have been attacked before should be carefully attended to; and the Privy Council authorities should also look to all spots where the death-rate is high. And, might we hint, at this especial time it would be well for the Registrar General to tell us something of the death-rate of Newcastle-on-Tyne, Hull, and some other places along the coast which are most likely to be first brought into contact with the disorder, and that those figures should be kept before the public week after week. Attention to this will have more effect on the opinion of certain towns than might be thought, and perhaps lead to the saving of hundreds of lives. Dr. Hunter has been sent to Hull and elsewhere by the Government, for the purpose of inquiring into the state of health of towns, and we look with anxiety for some similar inquiry to be made in Manchester and Liverpool, where the death-rate is so very high—32 in the 1,000 in the former, and 27 in the 1,000, instead of a far larger usual amount in the latter. The death-rate of both these large towns is less than usual; but we want to know exactly to what the decline of the death-rate of Liverpool at the present time is especially to be attributed. Is it that a large part of the Irish population have gone to harvest-work, to hop-picking, and other pursuits which in the autumn season afford matters of profit to the Irish, as well as an advantage by removing this class of the people from the cellars of Liverpool to the fresh country air, and also affording them the means of getting better food? The London death-rate has risen from about 20 to 21 per 1,000, and it may be that the removal of the class to whom we have referred may have had some effect in connexion with this mortality; for during the harvest-time thousands of strangers pass through the metropolis, and crowd the casual wards of the workhouses, the lodging-houses, and so on. It is true that against this there must be set the large number of those who leave various parts of the metropolis. We refer to this in the hope that these peculiarities of the death-rate may meet with the needful amount of inquiry.

The accounts of the progress of cholera, as they come to us day after day, show how much the same is the effect now as it was formerly; the cloud of pestilence passes along, hovers over particular places, and does its deadly work; then, like a fire which has exhausted all the inflammable materials, the disease suddenly ceases.

During the present visitation, the ravages by this plague have been enormous; but in the East, and it may be some other countries, the number of the deaths will never be exactly known; for, as long as it was possible, the authorities did their utmost to deny the presence of cholera; and even now—for no useful purpose, so far as we can judge—the figures are disguised. At Constantinople the pestilence seems to have exhausted itself; but at Aleppo—that place so notorious in connexion with plagues at Damascus and Alexandria—the deaths are numerous.

At Constantinople the semi-official return now put forward is 34,000 deaths; but there is good authority for stating that the number may be put down at double this amount. The Levant newspaper reports that when the plague was raging in the Turkish capital, there were no birds to be seen flying in the air; and it is worthy of remark, that when the Government set earnestly to work the disease declined,—as it has done in every other instance where proper sanitary measures and medical means have been resorted to.

The great fire at Constantinople is another remarkable instance of a conflagration following closely upon pestilence. We could give many instances of the same result, but it may suffice to mention the Fire of London of 1666, which followed the Plague of 1665, and the fire and explosion at Newcastle-on-Tyne, which happened soon after the cholera attack there.

Since the above was written, a deputation from the council of the Epidemiological Society has had an interview with the Lord President of the Council. This Society was founded, on the cessation of the epidemic of cholera, in 1849.

This body has had extensive means of obtaining information, and seems to have done valuable work. In a document addressed to the Government, this Society refers to the experience of the visitations of 1832, 1848, and 1858, "as a proof that no reliance whatever can safely be placed upon quarantine to keep off or avert the pestilence. Sanitary precautions within a place are far more important than sanitary cordons without." Nevertheless, the council of the Society strongly urge that the interests of the public health require that a sufficient supervision should be exercised in all the chief sea and river port towns. In the successive visitations of cholera to this country it has always manifested itself, first on or near the sea coast, and in some large busy port. Thus it has attacked Newcastle, Sunderland, Hull, Edinburgh, and London. The report mentions, that besides the marked tendency in epidemic cholera, to commence on or near the coast, the seaport towns suffer with exceptional severity: the damp, low sites of the worst part of those towns, always in the vicinity of their harbours and docks, together with the filthy and crowded dwellings to which seamen generally resort, and their recklessly intemperate habits, cannot fail to aggravate other sanitary evils, and greatly to increase the predisposition of a maritime population to epidemic influences. The unfavourable state of health among the crews of merchant ships upon their arrival, renders them peculiarly susceptible of a poisonous atmosphere in the port. In the case of river ports becoming infected, the disease from its tendency to follow the line of the water communication, has often been observed to make its way thence upward into the interior of the country. In view of such considerations the council submit that it is desirable a sanitary inspection should be made of the principal seaport towns to ascertain their actual conditions, more especially their harbours, docks, shippers' dwellings for seamen, &c., and with a view of discovering what provisions or arrangements exist for the reception and treatment of cases of sickness in ships upon their arrival from abroad, in the event of the cholera making its appearance in the port.

This prayer we earnestly reiterate.

METROPOLITAN BOARD OF WORKS.

At the first ordinary weekly meeting of this Board after the recess, the chairman opened the tenders for the reconstruction of the Earl, Duffield, and Battle-bridge main sewers, and they were as follows:—Mr. W. Dethic, 88,500l.; Messrs. Hill & Keddel, 94,400l.; Mr. Webster, 102,000l.; Mr. T. Pearson, 90,000l.; and Mr. E. Thirk, 99,959l. Mr. Dethic's tender was accepted, subject to the usual conditions.

Mr. Bazalgette, the engineer to the Board, brought up his monthly report on the Thames Embankment. It stated that during the seven weeks ending the 20th instant, 19,711 cubic yards of filling-in material had been supplied to No. 1 contract from the land, and 23,778 from the river. None had been supplied to No. 2 contract. The quantity supplied from the first weekly return was to No. 1 contract, 86,207 cubic yards from the land, and 152,844 from the river; to No. 2 the quantities supplied were 6,864 cubic yards from the land, and 10,176 from the river.

The Chairman said he regretted to have to inform the Board that a water company was making an attempt to break up the new street that the Board had made in Southwark, for the purpose of laying down pipes. They had constructed a subway at vast expense, and it was greatly to be regretted that the street should be broken up, instead of the company carrying their pipes through the subway. The street, if once broken up, would never be so sound and level again. He was very sorry the Board had not the power of compelling them to make use of the subway. Mr. Bidgood asked whether they could not get an injunction against the company. The Chairman said they could not. The company had statutory powers, and the Court of Chancery could not interfere with them.

Other business was disposed of at the same meeting.

JARROW.—The new graving dock at Jarrow,—the largest dock of the kind on the east coast,—has been opened. The dock will accommodate vessels of the largest tonnage.

FROM LIVERPOOL.

The foundation stone of St. Cleopas's Church, Toxteth Park, has been laid. It is being built solely at the expense of Mr. William Peck, and is intended chiefly for the accommodation of the poorer classes. It will be dedicated to St. Cleopas, and will be in connexion with the Church of England. The site is a very suitable one, adjoining Beresford-road. The church is to be built of Yorkshire stone, with Stourton stone dressings, and is designed in the Decorated period of Gothic architecture. It will have a nave, north and south aisles, chancel, &c.; side chapel, tower, and spire at the north-east end, about 100 ft. high. The vestry will be under the tower, and the organ-chamber above, with an archway into the chancel. It is intended to erect a small gallery at the west end. The building will accommodate about 750 persons. Messrs. Nicholson & Eyre are the contractors for the whole work; Mr. James Williamson, clerk of the works; and Mr. John Denison Jee, the architect.

The Richmond Chapel, Breck-road, built for the use of the Baptist congregation hitherto worshipping at the Everton Athenæum, has been opened for Divine service. An eligible site was secured in Breck-road, upon which the foundation stone of the new chapel was laid on the 4th of July, 1864, that day being the 150th anniversary of the formation of the first Baptist church in Liverpool. The cost of the land, chapel, and schools will somewhat exceed 6,000l., towards which more than 4,000l. have been promised. The chapel and schools have been erected from the designs of Messrs. J. A. Pictou & Son. The former measures 66 ft. by 50 ft., and in front is a vestibule extending the full width of the building, from which staircases give access at each end of the gallery. At the opposite end of the chapel is a semicircular apse, or recess, containing the baptistery, with doors at each side leading to the vestries. On the left of the baptistery is the organ, built by Messrs. Gray & Davidson, with pews for the choir immediately in front. The pulpit is octagonal, of polished oak, with inlaid panels of ebony, supported by carved scrolls, and flanked by a flight of steps on each side. The whole interior of the chapel is fitted up with open benches, having an aisle 4 ft. in width down each side. The building will be warmed by means of hot-water pipes. The school-room is behind the chapel. It has an open roof, and is lighted at each end with large windows, rising in height with the rake of the roof.

A new Roman Catholic Church, situated in West Derby-road, the foundation stone of which was laid on the 1st of May, 1864, has been opened for Divine service. The church is built in a severe style of Gothic architecture, from designs by Mr. E. Welby Pugin, and it will accommodate from 700 to 800 persons. It is well lighted, and the approaches are good.

The increase of cattle and sheep weekly sent to the Liverpool Cattle Market has induced the directors of the Cattle Market Company to make a very considerable addition to the present market space, and the enlargement is now in progress. The space hitherto absorbed occupies an area of about 25,000 square yards, or upwards of five acres in extent; but, large as the area is, it has been found altogether inadequate. The committee have, therefore, obtained possession of an additional quantity of land at the northern extremity of their present property. This extension will increase the size of the existing market upwards of one-third, the space thus added being about 12,000 square yards, or between two and three acres; thus giving to the market, when the extension is completed, an entire area of nearly eight acres. A branch line from the new railway just constructed by the London and North-Western Company, between Edgehill and Bootle, skirts along the market at its northern boundary, on the margin of which a considerable number of large cattle-pens have been erected, extending upwards of 200 yards in length. The existing space in the market affords accommodation for about 3,000 head of cattle, and upwards of 15,000 sheep; but when the extension is completed, it is calculated that by the improved system on which the enlargement is being carried out, this accommodation will be nearly doubled, and that space will be afforded for as many as 6,000 cattle, and something like 30,000 sheep. The cattle-pens are formed of cast-iron columns, sunk a considerable depth into the ground, and passing through a massive block of stone, the frame-work of the pens being of oak. The sheep-pens are constructed of wrought-iron columns and frame-work. There

are two main avenues, 15 ft. wide, extending from the southern frontage in Prescot-road, and passing along the entire depth of the market to the northern extremity, where it is bounded by the railway; these avenues being 693 ft. in length, from south to north. The whole of the extension, which is being carried out under the superintendence of Mr. Thomas Wylie, of this town, surveyor, is expected to be completed in the course of a few months, when, it is said, the Liverpool cattle market, with the exception of London, will be the finest of its kind in the kingdom. The extensions which the Cattle Market Company are making will cost upwards of 8,000*l.*, being altogether independent of the outlay by the railway company.

RAILWAY MATTERS.

THE Metropolitan "inner circle" system, suggested by the late City solicitor, Mr. Charles Pearson, will be a very important one. The Metropolitan railway belongs to this system. Already, in its unfinished form, it stands at the top of the list for its mileage traffic receipts, while its shares are at 40 per cent. premium. While the long lines of railway coming into London yield traffic receipts ranging only from 60*l.* to 160*l.* per mile per week, this undertaking brings in 703*l.* per mile per week, as the result of carrying the 7,462,823 persons who were conveyed during the last half-year. These numbers represent the result that would happen if every inhabitant of London travelled five times on the Metropolitan railway in the course of the year. When its extensions and connexions are completed, the trains will have to start every two minutes. The Metropolitan Extension will proceed by Smithfield, along the line of Long-lane, Barbican, and Chiswell-street, to Finsbury-circus, thence to Aldgate and the Tower, where it turns to the westward again by Thames-street and the Thames Embankment. At present the section from Farringdon-road to Finsbury only is being proceeded with. The contractor, Mr. Kolk, is behind time, and has had to pay a large sum in the shape of penalty. Everywhere, however, along the line, workmen are employed in great numbers. The greater part of the line between Farringdon-road and Moorfields is completed. The stations, too, are in a very forward state, and as many workmen are employed on them as can find room to work. The present station in Farringdon-road is merely temporary in its character. The permanent station, on a still more extensive scale, is now being erected in Charles-street, a thoroughfare running from Turmill-street across to the Farringdon-road. The entrance will be under a verandah extending the whole length of the street. There will be three platforms, to serve two distinct lines of railway which converge to run into the station. On one side of the central platform there will be two lines of mixed broad and narrow gauge, to serve the Great Western, the Great Northern, and the London, Chatham, and Dover companies, and on the other side two lines exclusively for the Metropolitan company's traffic. The station will be 300 ft. in length, with a mean width of 110 ft. From Farringdon-road to Aldersgate-street the line runs half the distance through open cuttings, and half in double tunnels. The roof of the Aldersgate station is elliptical, with a span of 80 ft. between the sustaining walls. The platforms will be fully 300 ft. in length. The Moorfields station is to be temporary, until the completion of the line eastward determines the ultimate form and dimensions it will have to assume. The rails on the line are steel, 6 in. wide at the base by 5 in. high, and are carried on sleepers, 10½ in. by 5 in., laid so close together as to average only 2 ft. 7 in. between centres. The already enormous traffic on the Metropolitan will receive a considerable addition shortly by the opening of the communication now nearly completed between their railway and the important line of the London, Chatham, and Dover company.

A calculation, made upon a paragraph which has lately entered the Registrar-General's weekly report of the health of the metropolis, gives the somewhat remarkable result that we are safer in the rail than in the streets of London. Some very dreadful railway accidents have occurred within the past twelve months, in two of which alone 38 persons were killed and 498 injured; but, accepting the past year as an average return, nearly five times as many people are annually killed and wounded in the metropolis

by carts, cabs, and omnibuses, as are killed or injured on all the railways of England, Scotland, and Ireland, taken together.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 9th of September, on 12,241 miles, to 752,637*l.*, and for the corresponding week of last year, on 11,905 miles, to 705,336*l.*, showing an increase of 836 miles, and of 47,301*l.*

COMMUNICATION BETWEEN PASSENGERS AND RAILWAY GUARDS.

Our attention has been called to a very ingenious invention for securing the much-to-be-desired communication between the passengers and the guards and drivers on railways, which has been patented by Messrs. Picken & Bailey, of Congleton. The specialty of these gentlemen's plan is, that it includes a contrivance by which the carriage from which the signal is issued is bolted by the action of ringing the bell, while an indicator is thrown out pointing at once to that carriage. Thus the guard can of course communicate with the seat of real danger, while the mischievous or foolish alarmist is subjected to instant detection. We need hardly observe that this would serve as a check on the abuse of the power of stopping a train, which is the greatest practical objection to the introduction of any system of signalling the guards.

SIR WILLIAM HOOKER AND KEW GARDENS.

A FEW days since, when driving home from Richmond, I indulged myself in what is always to me a great delight, a walk through Kew Gardens.

It was a tender, calm evening, and the grounds never looked more charming. "Clever and earnest Sir William Hooker," mused I, "your work is done—and well done; and you have gone home to rest! Now that you have laid aside your peaceful arms—the spade and pruning-hook—in the grave, here, on this spot you have so beautified, should a modest yet noble statue be erected to your memory."

If the *Builder* should approve of the idea, and with its trumpet-voice spread abroad the suggestion, the thing could easily be done; for surely it would be no difficult matter in tree and flower-loving England, to raise sufficient funds for a statue in honour of the cultivator to whom all England is so largely indebted. Of course, we must have a first-rate statue, by one of our best portraitists, Theed or Durham, or some equally clever sculptor; else it would be of no value, and would give no gratification to the beholder; and I would suggest as the site the flower-terrace, or Italian Garden, in front of the large glass-house, and facing the so very ornamental lake: all of which beauties have been added to the gardens during the judicious directorate of Sir William Hooker. Here, at present, stand three vases—or large tazze—each one almost, if not exactly, like the other two. The centre one of these I would remove, and let the statue occupy its place; for two of such things are quite sufficient, and the third could well be spared. Just now, also, the centre vase is by no means ornamental; for, with a wise endeavour to produce variety of design, it has been left bare of plants at its base, while the other two vases are banked up to their pedestals with flowers and variegated foliage, amongst which the fine red-brown velvety leaves of the *Colletia verschaffeltii* assert themselves grandly.

I do hope something may be done, and speedily, in honour of the late Director. Months are already accumulating over the quiet resting-place on Kew-green, where Sir William Hooker lies beside his father and his first little grandchild.

J. STITH.

JOHN BRIEN, HOUSE PAINTER.

SIR,—Mr. John Brien, house painter, has lost his reason, and now is an inmate of a lunatic asylum. Mr. Brien having taken a prominent, and not unworthy part, in various movements to improve the condition of the working classes, he, in his earnestness to promote the wellbeing of his class, to a large extent forgot his own. At the time this sad calamity befel him, his wife was an invalid and his family in difficulties. Under the above circumstances, a number of working men, in the painting and other trades, have desired to make an acknowledgment to Mr. Brien for his services, and help his family, who are deprived of their only support. A committee to carry out the above object sits nightly, at Mr. Steven's Coffee-rooms, 183, Pentonville-road, to receive contributions and furnish subscription sheets. H. RANDALL.

INDUSTRIAL EXHIBITIONS.

Bristol.—The Working Men's Industrial Exhibition, which has been arranged in the great drill-hall of the 1st Gloucestershire (Bristol) Volunteer Corps, in connexion with Bristol, Bath, the West of England counties and South Wales, has been opened with much ceremony by the civic authorities, the bishop, deacons, and clergy, and numbers of the resident and neighbouring gentry. The exhibition is both a large and excellent one, and does honour to the ability, industry, and inventive and productive skill of the working classes connected with the district embraced by the operations of the committee. It had been intended by Lord Palmerston to open it; but his lordship's indisposition prevented his doing so, and Mr. Gladstone and Lord Stanley, who were invited at a late hour to accept the vacant honour, being both pre-engaged, the distinction was proffered to and accepted by the Mayor of Bristol (Mr. Naish). Prior to the ceremony there was a procession of the different trades and benefit societies, and the city was profusely decorated with flags; all the shops and places of business were closed; and there was bell-ringing, cannon-firing, a gala, and other tokens of rejoicing.

Preston.—The municipal authorities and inhabitants of Preston have reason to congratulate themselves upon the success of the art and industrial exhibition which has been inaugurated there. Lord Derby had promised to be present at the opening ceremony, and also to deliver the inaugural address, but was prevented by gout from being present. The exhibition, which was in aid of the funds of the Preston Institution for the Diffusion of Knowledge and the Central Working Men's Club, was held in the Corn Exchange, Lune-street. The Corn Exchange was set apart for the exhibition, and it was fitted up by Mr. Tyrer, of Manchester. The large room was the centre of attraction. In this were gathered many specimens of industrial and ornamental work. A procession of great length took place, and it included representatives from various industrial bodies with volunteer and other amateur bands. The streets were thronged with spectators, who lined the thoroughfares in dense masses, and every window was occupied. The proceedings were commenced by the choir singing the National Anthem, accompanied by the artillery band. The mayor opened the exhibition.

SCHOOLS OF ART.

The York School.—Mr. Tom Taylor presided at the annual meeting of this school, and in the course of his speech remarked that no young men or women could be said to have completed their education until they had availed themselves of the teaching of a school of art. Perhaps we should never make an artistic nation, but we should certainly never have a chance of becoming one until the work of schools like that had been going on for more than one generation. To some, the hope that England was ever to be an artistic nation might seem to be utopian. He could not himself think so. The powers that made the England of Alfred and Edward, of Henry and Elizabeth, of Cromwell and William, what it was, were still living in us. Some of them might be latent, some were in full swing. Some of our national faculties and tendencies might be adverse to art; our political and business facilities, perhaps, were not favourable to it; our Puritanical tendencies were directly opposed to it; but among our national powers most certainly lay the artistic.

The Manchester School.—The annual meeting and distribution of medals, books, and other prizes, awarded by the Department of Science and Art to students in this school, has been held in the lecture theatre of the Royal Institution. Mr. Thos. Bazley, M.P., president, occupied the chair. Mr. Muckley, the head master, read his report as to the progress of the school. Its success, with reference to the national competition just ended, was, said the report, almost as marked as before, eight awards having been made to the students of this school (but not yet received), that being the highest number this institution had hitherto obtained, and with one exception, more than any other school had gained this year. The numbers attending the artisan classes were much on the increase, and the amount derived from the fees of the past year was very satisfactory. The number of prizes taken in the second grade examination

was much larger than that obtained on previous occasions. Although their standard this year was very high when compared with former years, they were as yet on the threshold of that great art era which was so rapidly developing itself, and on which it was their duty to leave their footprints, as a vantage-ground for the benefit of future generations.

The Yarmouth School.—The new master of this school is Mr. Dornay, who has had experience as an art teacher in the metropolis. The prizes awarded to the pupils belonging to the school, at the two previous examinations, were presented by the mayor, at the town-hall. The hall was crowded to inconvenience with the parents and friends of the successful competitors, and the utmost interest appeared to be excited in the proceedings. The prizes were apportioned as follows:—First grade prizes: British School, 86; Hospital School, 45; Priory, 18; Charity, 33; St. Peter's, 5; total, 187. First grade certificate cards: British, 50; Hospital, 49; Priory, 20; St. Peter's, 16; Charity, 9; total, 144. There were also 22 second grade prizes and 14 cards; 8 bronze medals, and one national medalion (not presented).

CHURCH-BUILDING NEWS.

Gloucester.—The restoration of St. Nicholas's Church is progressing. The organ gallery, which was erected across the western end of the nave, has been removed, and the whole length of the building from east to west is now thrown open. Two or three of the pillars on the north side are of an older period than the other parts of the building, and appear to confirm a tradition that originally a small chantry stood on part of the site of the church, and that the nave and aisles, &c., were subsequently added. The outlay on the restoration first contemplated was about 600*l.*, a large portion of which has already been raised by subscription. But when the work was once well entered upon, the incumbent, the Rev. W. Balfour, found that to restrict himself to the original designs would leave the restoration only half done. Additional contracts were therefore entered into, and the entire expenditure will amount to at least 1,200*l.* When the old flooring was removed the ground was found to be honeycombed, or encrusted, with vaults. The ground has now been levelled and covered with concrete, and plain open seats will take the place of the former high-backed pews. One of the old pews was said to be held by faculty, and as the alleged owner objected to its removal, it was feared that it would present an insurmountable obstacle to the restoration. The seat has, however, been pulled down. The buttresses and a considerable portion of the exterior of the tower were greatly dilapidated. A large outlay was thus rendered necessary. A warming apparatus will be fixed in the church; the walls and columns are being scraped and renewed; the ceiling of the nave and aisles is to be renewed; additional buttresses will be erected to strengthen the external wall of the north aisle; and the present unsightly dormer windows on the north side of the roof will be removed, and more suitable windows be substituted. The carved wood-work with which the chancel had been disfigured has been removed, and the ancient piscina, and the squint in the north wall, are thus uncovered. The chancel roof will be divided by stained ribs, and the panels receded. The old "three-decker" has been carried away, and the new pulpit will be placed on the north side of the nave, at the entrance to the chancel. Some of the ancient monuments in the chancel will be cleaned and retained; and new mullions will be placed in the chancel window (which has now been opened to its full height), and in the east window of the south aisle; and the windows will be filled with tinted glass. The organ has been re-erected at the east end of the north aisle. A portion of the old flooring consisted of grave-stones, several of which had been laid down between two and three centuries. The inscriptions on some of these are curious. In the churchyard, on the stone at the family grave of a former printer of this city who was famed for his accuracy, is the inscription—"Here lie the remains of," &c., "who died," &c., "and was interred at the cemetery."

Norton Fitzwarren (Somerset).—The chancel and new chapel of the church have been re-opened for divine service, after having undergone a restoration under the management of Mr. C. E. Giles, of London, architect. In the east of the chancel is a memorial window, repre-

senting the Crucifixion, by Messrs. Clayton & Bell. The reredos is carved in Bath stone. The floor is laid with encaustic tiles, and the roof, of oak is decorated, by Mr. Stansell, of Taunton. The stalls for the choir are carved in oak. The whole church is now restored, except the rood screen, the nave and north aisle having been rebuilt about twelve years ago. In the new chapel is an organ, built by Mr. Vowles, of Bristol, at a cost of about 170*l.*

Neath (South Wales).—The Abbey Church, which has been closed for some time, whilst undergoing alterations, has been re-opened for divine service. Through the assistance of Lord Dynevor, Mr. Howell Gwynn, and other landed proprietors, a new aisle has been added to the church, which now consists of a centre aisle, with one on either side, and a chancel. The chancel has been laid with encaustic tiles, the gift of Mr. E. A. Moore, of Conlas. The glass in the window is "lined" in imitation of the old lozenge pane, and ground or leaded to render the light in the church diffusive. In the south aisle is a memorial window, which has recently been erected, representing the Angels at the Sepulchre announcing the Resurrection of our Lord. The church wants a stained-glass window in the chancel.

Penthrhyn (North Wales).—A new church, built by Colonel Pennant in the slate quarry district at Llandegai under somewhat remarkable circumstances, has been consecrated. In the midst of the Penthrhyn quarries, and almost surrounded by heaps of debris, a commodious little church was erected many years ago by the late Lord and Lady Penthrhyn, for the benefit of the workmen and their families. Year by year the heaps of rubbish thrown from the quarries increased in size and encroached upon this edifice, so that it became necessary to discontinue the holding of service within it. Colonel Pennant then undertook to build, at his own expense, a new church on a site not far from the old one. It is placed on a mount facing the slate quarries, about half a mile distant from them in a straight line. In the valley below reposes the village of Bethesda, through which the river Ogwen foams to the sea, while, in the background rise Garneidd Llewelyn and Dalfydd, the two highest mountains in Wales, after Snowdon. To the left frowns Penmaenmawr, with Puffin Island and the Irish Sea nearer to the left. A deep valley lies between the church and the quarries, so that many generations must pass away before another church will have to be built from the same cause which necessitated the erection of the present one. In addition to this there is a dense population in the immediate vicinity of the church, composed principally of quarrymen and their families. The church holds 400 persons, and is in the Geometrical style, the material being local stone, with Anglesea limestone dressings. A tower and spire, 110 ft. high, stand at the east end of the north aisle. The chancel windows are filled with stained glass, by Messrs. Lavers & Barrand.

Cramlington (Shields).—The foundation-stone of a new church has been laid at Cramlington, by Sir M. W. Ridley, bart., M.P. The new building will be a feature in the village, where the want of proper church accommodation has long been felt. It will consist of a chancel, nave, aisles, vestry, and organ-chamber, with a tower at the west end, and will accommodate about 415 persons. The style is Pointed. The tower will be about 75 ft. high, and will form a conspicuous object from the surrounding country and a landmark from the sea.

Books Received.

The New Testament. Illustrated. Edited by EDWARD CHURTON, M.A., and W. BASIL JONES, M.A. 2 vols. London: John Murray. 1865.

BESIDES supplying a plain explanatory comment for private or family reading, parallel passages and short inferences, with which we need not meddle, this edition is distinguished by presenting accurate views from sketches on the spot, and from photographs, of the places in which the events of the history occurred, and which tend powerfully to illustrate those events, and make them clear to all comprehensions. As the editors say truly in the preface,—"It surely lends vividness to the impression with which we read the New Testament, to find the fisherman still casting his net into the Sea of Galilee, the women of Palestine grinding at the mill, or lighting the

oven with the grass from the field; to see the lilies, outvying the glorious array of Solomon, as they may yet be gathered in the plain of Magdala, or the olive-trees of unknown age, still flourishing on the mountain eastward of Jerusalem. The road from Jerusalem to Jericho still remains as a witness to the truth of the picture in our Lord's Parable; and the figs, peaches, and pomegranates are growing, as of old, about the slopes and ruined walls of Bethany." The journeys of our Lord around the shores of the Sea of Tiberias,—from Galilee and Nazareth to Jerusalem, and from Bethany to Jerusalem,—and the voyages of St. Paul may, partly at least, be traced on the panoramic views. It should be added that the illustrations, which include some historical subjects from Overbeck, are drawn on the wood by Mr. Percival Skelton, Mr. Haard, and Mr. Scott. We can cordially recommend this very excellent edition of the New Testament, as well for its beauty as its usefulness.

VARIORUM.

"The Elements of Mechanism. Designed for Students of Applied Mechanics." By T. M. Goodeve, M.A. London: Longman & Co. 1865. This is a second edition, enlarged and improved, of a very good work of its kind, by the professor of mechanics at the Royal Military Academy, Woolwich, and late professor of natural philosophy in King's College, London. The author's intention is to simplify the subject as much as possible, and to convey a certain amount of practical information.—"Road Locomotives: an Epitome of the New Road Locomotive Acts." By Thomas Aveling. The owners and drivers of the new road locomotives are indebted to Mr. Aveling for this little handy book of road locomotive law.

Miscellaneous.

THE CHINESE.—The Chinese now exhibiting in the Egyptian Hall, Piccadilly, form a remarkable group. The giant has a singularly handsome head, and mildest manners. The London Stereoscopic Company, by the way, have sent us *cartes de visite* of the party, which are admirable and striking portraits.

ANTS.—So frequent are the inquiries how to get rid of this pest that we would almost require to give a permanent note in reply. We have not time to refer to what has been frequently said on the subject in our columns; but so far as our recollection serves us, chloride of lime was one of the most recent recommendations made by correspondents. The pyrethral powders, puff-balls, Keating's insect powder, &c., have also been advised, and boiling water where it can be conveniently or effectively used.

THE BUILDING TRADES.—A FURTHER ADVANCE OF WAGES CLAIMED.—A meeting of delegates from the carpenters' and joiners' society's shops and jobs was held on Wednesday night, when the following resolution was carried:—"That on Monday next notices should be sent in to the master builders that the carpenters and joiners would require an advance of one halfpenny per hour on the present rate of wages on and after the first Saturday in May next." A committee was appointed to carry out the movement. The masons met and passed a similar resolution, also appointing a committee.

SOUTHWARK IMPROVEMENTS.—The District Board of Works of St. Olave, Southwark, have before them a project for improvements, and the creation of valuable property, of great magnitude. The London-Bridge Land Company, the present owners of the site formerly occupied by St. Thomas's Hospital, purpose to cover a portion of Joiner-street beneath the Brighton Railway terminus, to make a street level on the level of the terminus, and to construct another street from Wellington-street, rising gradually to the level of the first. By these plans two new frontages would be created, and the value of the company's property greatly enhanced. The adhesion to the scheme of the directors of the railway company, and that of the local Board, is sought. The company will be willing to convey to the Board, on the project being carried to completion, land to enable St. Thomas's street to be widened at its junction with Joiner-street, and thus to effect an improvement which is much needed.—*South London Chronicle.*

EXHIBITION IN MANCHESTER.—A prospectus has been issued by the committee of the Manchester District Art Workmen's Association, announcing that it is their intention to hold an exhibition of arts and manufactures early next year.

THE MAGNESIUM LIGHT.—Experiments have been made at Birmingham to try the effect of the magnesium light when attached to a balloon in the air. The experiments were striking in effect, the light thrown forth being very brilliant, and illuminating the streets, houses, and crowds of people with a distinctness resembling day.

OPENING OF THE PORTUGUESE EXHIBITION.—The Portuguese International Exhibition has been opened at Oporto with great rejoicings, by the King and Queen, Dom Ferdinand, and Dom Augusto, who entered the crystal palace, with a brilliant suite, and were conducted through the central nave to the throne prepared for their majesties. Here an address was delivered by the president of the company by whom the palace has been constructed. England is best represented for manufactures among foreign nations in the Exhibition.

DISCOVERY OF AN ANCIENT CITY IN MEXICO. About 50 miles from Tuxan, in the province of Mexicalca, in Jicorumbo, a dense forest of gigantic cedars, situated on a healthy table-land, the ruins of an extensive Mexican aboriginal city have just been discovered. The temples, says the *Reader*, are of immense size, some with vaulted roofs, and so well preserved that ancient paintings appear fresh, and the courts are filled with figures of idols, and pyramids surmounted by the same.

HARTLEPOOL HIGHWAY SURVEYORSHIP.—At a special meeting of the Stockton and Hartlepool District Highway Board, for the purpose of selecting a surveyor for the district, out of a list of seventy candidates five of the number were selected; and, on a second vote being taken, the result was the election of Mr. Scott by a majority of twenty-two to seventeen votes. The salary is 180*l.* per annum.

MIDLAND MASTER BUILDERS' ASSOCIATION.—The master builders of the North Staffordshire branch of the General Builders' Association have celebrated the first anniversary of the formation of their society at the Saracen's Head Hotel, Ianley. A first-class dinner was provided. Mr. Ianley presided, and the vice-chair was filled by Mr. John Steele, the secretary. The company included the principal builders of North Staffordshire.

GRUMLIN VIADUCT.—We are asked to give publicity to the result of an examination of this ingenious structure with a view to allay anxiety, and willingly do so. It appears considerable alarm has been manifested for some weeks past in consequence of rumours that the viaduct was not in a secure state. The authorities very properly, and without delay, deputed Captain Tyler, one of their inspectors, to make the necessary examination, and to apply the requisite tests, with a view of ascertaining the stability of the bridge. This examination took place last week. The first test applied was that of running a train of seven engines and their tenders (weighing together 240 tons), from one end of the viaduct to the other at different rates of speed. This train exactly covered two spans of the viaduct, and the appearance of so many engines linked together, with their polished work reflecting the rays of a bright sun, was a spectacle remarkable even to men experienced in the railway world. The moment, as might be supposed, was one of no ordinary excitement, and the results, as will be seen, were as gratifying as the most sanguine could desire. After six seven engines, with their tenders, were placed on one line, and one powerful engine and tender attached to fifteen large trucks heavily loaded with coal and iron (each truck and its contents weighing 15 tons), were placed on the other line. These enormous masses, the greatest that could be put on, were simultaneously moved backwards and forwards at various rates of speed, the deflection and lateral oscillation being carefully noted. It is understood the report will show that there was not a shadow of foundation for the reports, and that the scientific tests now applied are well calculated to inspire increased confidence in the safety of this structure, the *chef d'œuvre* of the Messrs. Kennard, & Co.

SANITARY INSPECTION OF OVERCROWDED LOCALITIES.—By order of the Government Dr. Hunter is at present engaged in prosecuting a sanitary investigation in Bradford, having been charged with the duty of making a similar investigation in Leeds and Sheffield.

ST. PETER'S VAUXHALL.—Sir: I perceive in your number of the 2nd inst. a very clear and interesting account of the Church of St. Peter, Vauxhall; and although I have had the privilege of assisting in this good work, it was without my wish that my name appeared. I regret, however, that the names of the gentlemen (Messrs. Lavers & Barrand) who executed the memorial windows, and who also very liberally presented one of the triforium windows, are not mentioned. No doubt you were not aware of these facts, or the omission would not have occurred; and perhaps you will in justice to those gentlemen remedy the defect in your next number.—BENJAMIN LANCASTER.

SANITARY REFORM.—Under this title has been circulated a printed letter, addressed to Sir George Grey, as Home Secretary, by the town clerk of Wolverhampton, pointing out some defects in the law as regards the powers of local boards of health, and urging their amendment. The letter is an able one, in which difficulties in enforcing by-laws, and the want of comprehensive and compulsory powers for main drainage and sewerage of towns are more especially referred to; and the letter thus concludes:—"I trust that the interest you have hitherto evinced in sanitary reform will induce you, at the earliest possible period, to introduce and lend your powerful aid to the passing of a law which shall give to local boards of health ample powers to execute sewerage works, and provide for the comfort and welfare of her Majesty's subjects in populous places, particularly one's poorer brethren, whose lot it is to dwell in the crowded streets and pestiferous courts and alleys of large towns."

LIGHTING RAILWAY CARRIAGES WITH GAS.—The directors of the South-Eastern Railway Company have been making experiments with respect to gas-lights in carriages. A simple method introduced by Mr. Dalziel is on trial, and, should it answer, every carriage will carry its own supply of gas for a reasonably long journey. Experiments have also recently been in progress on the Great Northern, with the view of consuming the smoke from the engines, and of making gas for lighting carriages as the trains travel. Meantime, the Great Northern locomotives, of late, look much more like smoke-producers than smoke-consumers, so much so as to have attracted very general attention and some alarm about Holloway, and induced the belief that the smoke-consuming "experiments" are a mere blind. Why should locomotives be allowed to vomit forth enormous volumes of black smoke while other steam-engines are compelled to really consume their own smoke? We trust the proper authorities will look to this.

IRON COW-STALLS.—Musgrave's patent iron cow-house fittings appear to be an improvement in several respects on previous fittings. The patent has been obtained not only for improvements in the plan of cow-house fittings, but for the application of iron in their manufacture, and for the method of constructing them. The stalls are formed of strong division-plates of cast iron, the front having a round dwarf column, which offers a smooth surface to the cattle when turning in or out; and each cow is fastened by the ordinary chain passing round the neck, the end of which slides up and down a vertical iron rod, attached to the stall division. The troughs or mangers are of cast iron, the whole length of the stall, raised a few inches above the level of the pavement, and are combined with the stall division in such a manner that water emptied into any one trough will flow along the entire range. The fodder is contained in a wrought-iron rack, raised about a foot above the trough, and has open rails at back as well as in front, to expose the fodder to the action of the air. The advantages claimed for these improvements are—"the stalls are more durable than can be attained by any other means, very compact, easily cleaned, and will not harbour contagion. The arrangement is convenient, and facilitates dispatch in feeding. The cattle have a greater relish for their food, and the fodder never gets damp or heated." Fresh air inlets are placed in front of each cow, and a feeding-passage for trucks runs along the heads of the stalls. The floors are of flagging and asphalt or brick.

CONTRACTS FOR IRON AND COPPER.—The Mersey Dock Board, at their last meeting, agreed to accept tenders of the Mersey Steel and Iron Works Company for the supply of 400 tons of flat and round iron at the price of 17*l.* 17*s.* 6*d.* per ton for ordinary sizes of the best iron. They also accepted a tender of Messrs. J. Walker, Parlier, & Co., for the supply of five tons of pure dry lead, at 19*l.* 10*s.*; of Messrs. Goodlass, Wall, & Co., for Brunswick green, at 18*l.* per ton; Messrs. Hallows, Roach, & Co., for a large quantity of sheet copper, at 81*l.* 10*s.* per ton; and the Bagillt Smelting Company for bagillt spelter, at 22*l.* per ton.

NEW PATENT IRON DOORS.—Among the patents just sealed is one for iron doors, invented by Mr. Joseph T. Harris. These doors are intended as a substitute for wood, and can be produced at almost the same cost. When fixed and painted it will be difficult to distinguish them from any kind of wooden doors, as they will be precisely the same in appearance, and will open and shut with equal facility. They are especially adapted for dwelling-houses, offices, and public buildings, and, indeed, for every purpose for which wooden doors are now used, their great merit being their extra security, lightness, and durability, in addition to which they can be made perfectly fireproof, and are not liable to shrink, as is the case with wood.—*Western Daily Press.*

THE CAVES OF ELEPHANTA.—A correspondent of the *Times* draws the public attention to the Caves of Elephanta, and the present condition and future prospects of these wonders of ancient art. On the three faces of the great statue which fronts the visitor on entering the temple (he says), will be now found, written in pencil, impressed with ink, or rudely carved with soldier's or sailor's knife, the names of the visitors. To chip off a nose—soon there will no noses left to chip—is considered a feat almost worthy of national gratitude. But this is not all, a large reclamation land company, employing several thousand coolies, is already on the island in active operation; and another to connect the islands of Elephanta and Bombay by means of bridges and a railway has been spoken of, and may, when the panic is over, be carried out; and then, to move the sculptures of the temples to the Victoria Museum in Bombay or to the South Kensington Museum may be the next proposal.

BUILDERS' CONTRACTS: JARRETT v. BATEMAN. This was an action brought to recover 18*l.*, which, according to the plaintiff's statement, he had paid to the defendant in excess of a contract. The plaintiff is a publican, residing in Adderley Park-road, Birmingham, and the defendant is a builder, at Sparkbrook. Mr. Parry appeared for the plaintiff, and Mr. Cutler for the defendant. On the 4th of April, 1864, the plaintiff gave the defendant an order to build a house at Salford, for 470*l.* During the completion of the contract the plaintiff supplied money to the defendant from time to time; and it was not until after the last payment that he considered it necessary to reckon how much he had paid. It then transpired that the defendant had received 488*l.* Upon application for the 18*l.*, the defendant urged that he had done extra work for the amount. The extra work, which was the enlargement of a brewhouse, was not denied. His Honour, however, gave a verdict for the plaintiff for the full amount claimed, and pointed out to the defendant that the proper course to take with reference to the subject, would be to sue the plaintiff for the extra work done, if he considered he was entitled to it.

AUCTIONEERS SUING AS PRINCIPALS.—An action for use and occupation may be maintained by an auctioneer letting land without naming his principal as the contracting party, against a person who has received possession from him, and has occupied under the contract constituted by his being the highest bidder at the auction. The Court of Queen's Bench thus decided, in the case of *Fisher v. Marsh*, where it appeared that races were held at Port Meadow, a common over which the freemen of Oxford have common rights. The plaintiff, an auctioneer, by the usual posting-bills, advertised that he would let by public auction standings for booths, &c., on the race-course, to the highest bidders. He was acting on behalf of the race committee, and the names of the committee were given. The court held that the defendant, to whom a standing for a booth was knocked down at the sale, could not dispute the plaintiff's title to let the ground, he having bought of and been let into possession by the plaintiff.

OPENING OF A DRINKING FOUNTAIN AT EASTBOURNE.—On the 18th inst., the opening of the drinking-fountain, which has been erected at the sole cost of Mrs. Carling, of Kent Lodge, was inaugurated. The spot chosen is a suitable one, nearly opposite the Workmen's Hall, at the entrance of Penvensey-road. The fountain is composed of iron, bronzed, surmounted by two dolphins, above which is placed a public lamp. The stonework leading to the fountain itself was executed by Mr. Francis, of this town, and the iron work by Mr. Hood, of London, who supplies similar castings.

CONCRETE ARCHING.—In the extensive underground floors of a new barrack now erecting in Paris, the vaultings are being formed with the *Betons agglomérés* of M. Coignet. The *Society of Arts Journal* says,—"The walls are full 13 ft. apart, and the concrete is laid on timber centring, and trodden and beaten down with great care. The vault and flooring thus formed is about 2 ft. thick at the spring of the vaulting, but only about 10 in. on the crown, and it is found sufficiently strong for all practical purposes. It has also this great advantage, that the ceiling can at once be whitened and the floor laid with tiles of cement without further preparation. The process is said to be successful and economical."

ENLARGEMENT OF COVENT GARDEN MARKET.—The Duke of Bedford has determined to remove the block of buildings on the south side of Great Russell-street, from Wellington-street to the market, the extensive hotels the New and Old Hummums, in Tavistock-row, Covent Garden, and the houses on the west side of Wellington-street from Great Russell-street to the back entrance of the root and flower market, on the site of which a new market, with offices and standings, will be erected in a similar style of architecture to that of the present structure. The Duke has refused to renew the leases of the New and Old Hummums Hotels, which are now closed preparatory to the materials being sold and the premises pulled down. The remaining houses required for the improvement will be removed as the leases expire.

SOLID BRICK MACHINES.—That brick machinery has not yet been brought to perfection seems evident from the great variety of inventions, each intended to supersede all others. First we had the moist-clay machines, requiring softening before manufacture and drying after it. Then we have had the dry-clay machines, requiring previous drying of the clay, but obviating the subsequent drying. The solid brick machinery appears to be an improvement on both of these. In this machine (Oates's patent) the clay is used of such a degree of dryness as to allow of its being mixed up and macerated and compressed into bricks by a single continuous action; the clay being formed into a continuous column and compressed into the moulds by the action of a revolving vertical screw. The clay requires generally no previous preparation beyond that given by the ordinary crushing-rollers, and is sometimes ready for putting into the machine direct from the pit; in other cases, where containing a mixture of stones, it is first passed through a pair of crushing-rollers.

AN ANCIENT SCULPTURED STONE IN JEDBURGH ABBEY.—For some years past it has been known to a few persons that a curiously-sculptured stone was built into Jedburgh Abbey, serving as a lintel in one of the passages immediately above what is known as St. Mary's aisle. This stone has been regarded by some as a fragment of a Runic memorial, while others believe it to be Anglo-Saxon. It has been taken out of its place and put in the northern transept. The stone is broken, but evidently the principal portion is entire. It measures 2 ft. 9 in. in length, and 2 ft. in breadth. The chief object on it is a tree, bearing clusters of fruit somewhat resembling grapes. The branches of the tree are turned so as to form perfect circles of about 8 in. diameter each. In the two undermost circles there are two animals, that on the right side of a wolf-like character, and that on the left like a ram. In the circles immediately above are two birds like vultures; and these, along with the wolf-like animal below, are shown in the act of eating the fruit of the tree, while the ram has hold of one of the branches in its mouth. In the circles above these are two peculiarly-formed animals. The heads are broken off, but the two legs, part of the body, and a wing are seen, and the under-part seems to have been intended to represent a serpent coiled round one of the branches.

PANIC IN ST. ANDREW'S CHURCH, HOLBORN.—Just as the clergyman was closing the service, last week, the congregation was thrown into a painful state of excitement, owing to some man in one of the aisles falling on the floor, and then screaming out "Fire!" as loud as he was able. In the confusion that prevailed many persons were thrown down, some were injured, and others fainted. The Royal Society's escape was sent for from the Hatton-garden station, when it was clearly ascertained that there was not the least ground for the alarm. During the confusion which prevailed the fellow who raised the cry got off.

FATAL ACCIDENT AT BATTERSEA.—A man has been killed, and several others injured, by a fall of timber, at the new railway works in progress at Battersea. At the inquest, the foreman gauger of carpenters was examined. He said he was in the employ of Messrs. Pickering, the contractors, and was superintending the erection of the rims which received the brickwork. The railway was built on arches, and was to be a junction for the London and Brighton line. The men had just completed the centres, and whilst the deceased was getting down from the one last completed, it fell, bringing down the other two, and one of the centres fell upon his head and killed him. The jury returned a verdict of accidental death, but strongly recommended that for the future stronger plates should be used for the centre joints, and that they be made of the very best iron.

ONE RESULT OF A STRIKE.—As was predicted at the time the North-Staffordshire puddlers and shinglers were on strike, the extraordinary wages they were proved to earn when at work, frequently amounting in the case of men of the latter class to 20s. a day, have brought upon them the unwelcome attentions of the Board of Inland Revenue. A large number of men have this year been assessed to the income-tax, and the majority have paid it with a pretty good grace; but two of the shinglers in the employ of Earl Granville, at Hanley, persistently refused to pay, and they were accordingly apprehended. This bold step on the part of the district commissioners caused considerable excitement at the works; but the defaulters, rather than undergo a sojourn in Stafford gaol, paid the tax at the last moment, and heavy expenses besides.

CURIOUS DISCOVERY OF SEPULCHRAL SLABS.—Helpston churchyard, near Stamford, is at the present time strewn with sepulchral slabs, or stone coffin-lids, and the Rev. J. A. L. Campbell, the vicar, is inviting students in ecclesiology and archaeology to examine them. An architect had been instructed to examine the tower of the church, and as he had pronounced it to be unsafe, it was resolved to take it down, and rebuild it with the same materials, according to the original plan. On taking down the tower, it was found that a very considerable portion of the stone used consisted of monumental slabs of the Early English (thirteenth century) period. More than 100 of these interesting memorials must have been removed from the church floors and cemetery to build the Decorated tower. Some of them are still perfect: their length ranges from 1 ft. 8 in. to 5 ft. 11 in. All have the cross, and many also emblematical foliage. Mr. Tinkler, of Stamford, is the contractor for the work.

TENDERS

For new sewers, Clapham. Contract No. 3. Mr. C. W. Johnson, surveyor:—

Bickmore	£31,000 0 0
Walker	30,800 0 0
Lethick	30,600 0 0
Hill & Keddell	29,700 0 0
Pearson	26,997 0 0
Beaton & Routledge ..	23,000 0 0
Niblett (accepted) ..	22,500 0 0

For the erection of two houses, at Walnut-tree Bridge, near the works of Messrs. Wood, Brothers, for Mr. E. Mountjoy. Mr. J. Williams, architect:—

Stride	£785 0 0
Price	740 0 0
Cooper	725 0 0
Jarvis	693 0 0
Evans	649 0 0
Thomas (accepted) ..	645 0 0

For a public-house, at Walnut-tree Bridge, for Mr. D. James. Mr. John Williams, architect:—

Cooper	£850 0 0
Thomas	850 0 0
Price	815 0 0
Davies	811 0 0
Jenkins	810 0 0
R. Davies	795 0 0
J. D. Jenkins	775 0 0
Evans (accepted) ..	730 0 0

For erecting six houses, at Strood, Kent, for Mr. Cural. Mr. C. O. Corfield, architect:—

Gates	£1,477 10 0
Ball	1,471 0 0
Spicer	1,465 0 0
West & Sollett (accepted) ..	1,462 0 0

For parish schools and master's residence, including fence, walls, and playground, at Ringstead, Northamptonshire. Messrs. Wadmore & Baker, architects. Quantities supplied:—

Stratner	£278 0 0
Ball	267 0 0
Allen	223 0 0

For sundry alterations and additions, for Mr. H. Collier, Walthamstow, Essex. Messrs. Wadmore & Baker, architects. Quantities furnished:—

Ashby & Sons	£204 0 0
Patman & Fotheringham ..	970 0 0
Browne & Robinson	965 0 0
Perry	854 0 0
Rivett (accepted)	843 0 0

For a pair of semi-detached villas, in Essex-road, Enfield, for Mr. Began. Mr. T. J. Hill, architect:—

Webb & Sons	£1,400 0 0
Patman	1,398 0 0
Cushing	1,396 0 0
Ashton	1,397 0 0

For building a new branch store for the Brixton Co-operative Industrial Provident Society, at Wells-lane, Streatham:—

Harrington	£575 0 0
Candler	460 0 0
Mason	415 14 0
Glover & Thompson (accepted) ..	385 0 0

For public-house, Maple-road, Fenge, for Messrs. Day, Noakes, & Sons. Mr. G. Elkington, architect:—

Keat	£1,450 0 0
Wood & Mason	1,410 0 0
Hollidge	1,197 0 0
Bygon	1,185 0 0
Thompson	1,185 0 0
Eustace (accepted) ..	1,060 0 0

For restoring rooms, after fire, and erecting stabling, &c., at the White Hart, Tongham, for Messrs. Crooke. Mr. Henry Peak, architect:—

Loe	£295 0 0
Hughes	245 3 0
Duke	243 19 9
Mason	229 5 0

For new warehouse, and alterations and additions, for Messrs. Burgoyne & Burbridge, Coleman-street, City. Mr. C. E. Barlow, architect:—

Colls & Sons	£3,686 0 0
Piper & Wheeler	3,450 0 0
Newman & Mann (accepted) ..	3,396 0 0

For taking down and rebuilding the house, No. 19, Upper-street, Islington, for Messrs. Potter, Brothers. Mr. I. Bird, architect:—

Lawrence & Son	£1,944 0 0
Brown	1,820 0 0
Gaimson & Son	1,673 0 0
Newman & Mann	1,622 0 0
Henshaw	1,617 0 0
Williams	1,493 0 0

For rebuilding Premises, No. 35, Throgmorton-street, for Mr. Stephens. Messrs. H. & J. D. Mathews, architects:—

Webb & Sons	£2,589 0 0
Conder	2,317 0 0
Hardman & Sandon	2,227 0 0
Sewell & Son	2,147 0 0
Newman & Mann	2,026 0 0
Cannon	1,986 0 0
Axford & Wheeler	1,865 0 0
Ramsay	1,783 0 0

For the erection of a pair of semi-detached residences, in Southey-road, New Wimbledon, for Mr. A. O. Martin, from drawings and specifications prepared by Messrs. Lansdown:—

Colls & Son	£1,673 0 0
Neale	1,438 0 0
Bowman	1,400 0 0
Dover	1,390 0 0
Nutt & Co.	1,363 0 0
Smith	1,159 0 0
Keys (accepted)	1,055 0 0

For reseating the parish church, Richmond, Surrey, and other alterations. Mr. A. W. Blomfield, architect:—

Long (accepted)	£3,539 0 0
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For rebuilding the City Arms public-house, and two tenements, with shops adjoining thereto, in the City-road, also a stable and two shops in City Garden-row, for Mr. E. Lawrence. Mr. James Harrison, architect. Quantities not supplied:—

Green	£3,877 0 0
Sellick	3,720 0 0
Lamprell (accepted) ..	3,659 0 0

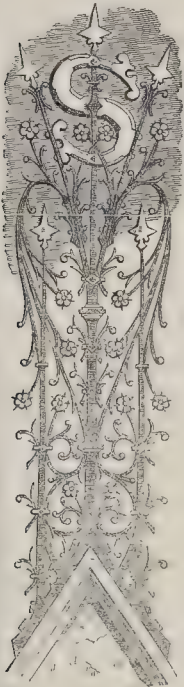
[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS.
J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming times on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

The Builder.

VOL. XXIII.—No. 1183.

Out and About: Shrewsbury, Wroxeter, and
Haughmond Abbey.



SHREWSBURY is an old town and a very interesting town. "Every one knows that," may be replied; nevertheless, a great many people pass it unseen, and so it may not be useless either to Shrewsbury or to travellers to re-assert the fact. There are, perhaps, more wooden houses and half-wooden houses left here than any where else; and they serve to give the town a distinctive aspect. Remnants of Elizabethan and older buildings will be found scattered about in all directions. These, however, are gradually disappearing; thus at Rowley's Mansion, in Hill's Lane, put up in 1618, and the first brick building, as some people say, erected in Shrewsbury, there was a picturesque porch of the period,

but it has been removed within the last four or five months. The building itself is now used for housing bark and wool. The Monastic Remains, including the Abbey Church and the old pulpit, want proper care. Considering that in the (now destroyed) chapter-house of this establishment England's first authorised Parliament was held, it ought to be kept in general memory and respect; though it is not so often heard of as "Shrewsbury Clock," through the lie of our poet's fat creation. At St. Mary's Church, considerable works have been going on for some time past, and deserve attention. The examples it affords of all the Mediaeval styles, from late Norman to Perpendicular; its lofty spire, running up to the height of 220 ft., and the admirable stained glass to be found in some of the windows, make it one of the most interesting buildings in the county. Mr. S. P. Smith, who acts as both builder and architect, has had it in his hands for some years, and appears to be doing the work with considerable thoroughness. The nave, with its very handsome roof, is finished; the plaster has been taken off the walls, and the face of the stonework made perfect. The chancel, divided off at the *cruc*, is still in progress. The opening to tower from nave has Norman columns and a pointed arch above. The nave, on the contrary, is separated from its aisles by an arcade on each side, consisting of semicircular arches on clustered columns with foliage capitals. Mr. Henry Pidgeon, in his careful little "Handbook for the Town of Shrewsbury," says, "although the mouldings on the shafts are peculiar to the

earliest Pointed style, they happily harmonize with the semicircular arches, and were probably additions cut in the thick heavy columns of the original Norman building," to assimilate them with other portions of the structure altered in the thirteenth century. It is quite clear, however, now, whatever may have been the case when Mr. Pidgeon wrote, that the columns and arches are the work of one time,—that time of transition when what we call the Early English style was superseding the Norman. In the course of the recent works the foundation, of concrete, for the original arcade was found, with that of a semicircular abais at the east end of the existing nave. The present nave, by the way, is slightly wider at the west end than it is at the east, and so, too, is the chancel. A grave-stone taken out of the foundation of the nave is sculptured with a serpent and interlacing ornament.

Amongst the glass windows there is one, on the north side of the chancel, particularly interesting. It sets forth, by small groups, incidents in the life of St. Bernard, and has been ascribed to the school of Albert Durer. It shows much fertility in design and power in drawing.

Shrewsbury greatly wants attention. Not long ago some observations in the *Builder* concerning "A Neglected Town on the Severn," were applied to it, and moved the indignation of some who ought rather to have aided any movement there which had improvement in view. Parts of the town are in a most deplorable, degraded, and discreditable state. We fell upon the back slums of Castle-street, a place called Roushill, and should need nothing worse to convict the authorities of scandalous neglect of duty. The present death-rate is a disgrace: but no wonder, with such want of drainage as exists, and when litigation and discussion take the place of wise deeds. The pavement "fanged with murderous stones," is villainous. Opposition on party grounds is manifested to every desired improvement. If one or two members of the Improvement Committee were hanged it would really be no more than they deserve, and it would save hundreds of lives. Indeed, if the act, striking a wholesome terror, served as a warning in other towns, it might save thousands. Pray, gentlemen, sink party differences, and try what can be done by a strong pull altogether to improve the health of your town. While councilmen squabble, men and women die. You would find even a money-profit from such deeds in the long run, and might perhaps lengthen your own lives, and save your children.

Amongst the few new undertakings in Shrewsbury, the Working Men's Hall must be mentioned with commendation, both in respect of purpose and of the building. Mr. Randall, who was the architect, has given them a capital meeting-room for lectures and other similar occasions, brick lined, with tile inscriptions. The refreshment department pays, and those who frequent it seem well satisfied with what is provided for them. Externally they have a sound brick and stone building, with tower, little columns, carved capitals, and other elements of the architecture of to-day. A neat little church and schools have been built just beyond the English Bridge; with red stone bands in the white stone walls. It must be observed by all, by the way, that everywhere throughout the country new buildings are showing thought and taste: the carving is good, and little points of interest, apt inscriptions and so on, are not uncommon.

The collections of the Shropshire Antiquarian Society and the School of Art occupy one building. The former include all that has been found at Wroxeter, once Uriconium,—and this is not a little. Painted stucco from the Roman walls, window glass, the eye-doctor's medicine stamp often mentioned, excellent red pottery, and important pieces of pavements are amongst the relics. It is to be regretted that these are not properly housed on the spot itself,—in the city where they

were found, and which they serve to illustrate. Wroxeter is little more than five miles from Shrewsbury by a charming road, especially at Atcham, where the Severn, the bridge over it, and the church, of red sandstone, ivy-covered, form a beautiful view. The church has one or two points of interest within, and should be looked at. And then comes Lord Berwick's place, Attingham Hall, with its somewhat stately lodge and handsome grounds.

We are not about to describe Uriconium: that has been done already more than once pretty fully in our pages, and unhappily no fresh investigations have been made for the last three years. A sad pity surely! There lie preserved for us in amber the remains of one of the largest cities built and occupied by the Romans in our land, capable doubtless of throwing great light upon the condition of the country at that time,—upon the life of Roman Britain,—containing evidence, perhaps, of the exact time at which Christianity was adopted in this country; and yet a few thousands of pounds are not forthcoming,—nay, a few hundreds would do a great deal,—to lift the veil that shrouds so much of interest, to open a casket that holds the memories of at least 2,000 years! His Grace the Duke of Cleveland, to whom the land belongs, has shown interest in the study of antiquities, and would, no doubt, co-operate efficiently and liberally with an earnest effort on the part of the public. If the Society of Antiquaries, the British Archaeological Association, and the Archaeological Institute could be prevailed on to take up the matter in earnest, we should soon have the Shropshire Pompeii unveiled. Ascending the mound at the eastern end of the excavations, and remembering that the walls of the city were three miles round, the large area open for investigation is evident. The apartments, baths hypocausts, and areas opened, occupy but a very small space, and so disappoint many visitors who go there. The massive piece of Roman masonry, known as the Old Wall, which has always been above ground, and served to point out to generation after generation where the vestiges of the city were to be found, still remains the most striking feature on the spot. The long narrow building, in three divisions, found on the north side of this, and first identified by the writer of these notes, now some years ago, as the Basilica, has been long covered over again. Let us hope that we may soon see a different spirit prevailing, and a good band of men at work upon the ground.

The visitor, still standing on the mound, has a glorious prospect. Behind him is the lofty Wrekin covered with wood,—at the time we saw it, a lovely mixture of purple and green. Before him is a noble panorama of hills, including those of Wenlock and Stretton; the Canadoc and the Breidden; while nearer is seen Wroxeter Church and a well-wooded country. Throwing back the mind's eye, we see here one of the largest towns of a British tribe, the Cornavii: not the merely painted savages of popular belief, but men capable of noble actions, and able at any rate to transport and set up, with marvellous regularity, immense stones. Then come in the Romans as masters; and a fine city is built, with columns, scientifically heated and well-drained habitations, public buildings, baths, mosaic pavements, window glass, roofing tiles, and painted decorations. On the hills we now see the Romans gazed. Look to some of the tiles that the civil and careful fellow who has charge of the place will show you, and you will see the shape of the foot of the dog that watched for them, and of the sheep and pigs they owned, left in the soft clay of the tile, walked over before it was burned. Some centuries pass, and then down come a horde of Picts and Scots, if not of Saxons, yet, from over the sea, and the town is sacked and burnt: the inhabitants who do not escape, being murdered.

One old man, who died crouching in a yard, had secured for our information the box of money he had saved, and this serves to tell us that the ruin of the city to which we are referring, took place probably about the middle of the fifth century. The dispossessed inhabitants then build Scrobbes-burg, now Shrewsbury (we know what sort of land we call "scrubs" to this day), and Uriconium remains, heaps of blackened ruins, for centuries untouched for reasons easily understandable. Then comes a time, the Normans dominant, when the ruins serve as quarries for the country round; and then the earth accumulates, and vegetation rots and flourishes and rots again, until a grassy mantle covers up from sight the remaining foundations. We may not, however, dwell longer on the story, and must now quit the grounds; first suggesting to Mr. Thomas Wright and other members of the committee, to whom much is owing, that a little roof should be formed over the small portion of tessellated work, a guilloche pattern, remaining on the wall of one of the apartments south of the Old Wall, or it will certainly fall off; and that attention should be given to the masonry over the opening through the Old Wall, at present held up solely by the strength of the mortar used.

Wroxeter church has parts of late Norman date; and there was a building here in Saxon times: the priest's door, in chancel, now blocked up, shows a good zigzag outside, while inside we get a dog-tooth moulding round it. A handsome trefoil-headed opening, with half-flower round it, and the back painted with representations of the Saviour and angels, was discovered in the north wall of the chancel about two years ago, and has been opened up. In the same part of the church there are some noticeable altar-tombs of late date, with recumbent figures; one in memory of Sir Thomas Bromley, 1555, and his wife; another, painted, dated 1570, for Sir Richard Newport, who married Bromley's daughter; and notably a third, with recumbent figures and this touching legend:—"Here lye the bodies of John Berker of Haughmond, esq., and Margaret his wife, second daughter of Sir Francis Newport, knight, which Margaret deceased the 12th day of March, anno 1616, she being then of the age of 33 years; and the said John Berker, being in good and perfect health at the decease of the said Margaret, fell ill the day following, and deceased, leaving no issue behind." He was himself but forty.

The font, at the western entrance, is made out of what is described in the guide-books as the capital of a Roman column, but it would seem rather to be the base of a column of that period, with a portion of the shaft, which is hollowed out to form the basin. The tower, rebuilt, is mainly of the Perpendicular time, and has some earlier sculptured groups in panels inserted here and there.

At the entrance to the churchyard stand as gateposts two Roman column shafts, each surmounted with a Roman capital that did not originally belong to it. These were brought together, with praiseworthy motive, by Mr. Oakley, who lives close by, and has in his garden ingeniously combined many relics of Uriconium, which were gathered together before the more recent excavations were commenced. The capitals at the gate are both delicately sculptured with two rows of leaves, and should be removed from their present position and placed under cover.

In 1155, as we should have mentioned before, William Fitzalan gave this church of Wroxeter to the Abbey of Haughmond. Should the visitor wish to know what remains of this abbey, he will go and see; the distance is not great—it is a little nearer to Shrewsbury than Wroxeter, but in another direction,—and he will be well rewarded for his pains. A very curious pile of ruins, indeed, is that of Haughmond, or, as it is often spelt, Hagghmond, Abbey, extensive and varied,—in some parts beautiful. The Abbey was founded by the Fitzalan we have named, and some of the remains,—the south doorway of the church into the cloisters, and the front of the chapter-house,—are of his time, say the middle of the twelfth century, and not earlier. The other remains are of the fourteenth and fifteenth centuries, grievously mauled in modern times by repairers, and include a noble refectory of good Decorated work, at the end of which,—

"A lofty window, hollow in the centre,
Shorn of its glass of thousand colourings,
Through which the deepen'd glories once could enter,
Streaming from off the sun like seraph's wings,
Now yawns all desolate."

Externally there is a stair turret on each side

of this window, with pyramidal top. A peculiarity is seen in the Norman remains, both in the church door and the doors of the chapter-house, which surprises at first sight; for between the columns of the semicircular-headed doorways,—the view we give of the church-door shows what we mean,*—stand sculptured statues under crocketed ogee canopies. It is of course obvious, however, that these are the work of later hands, though time has now given one colour to the whole. The courses of the masonry, it will be noticed, run through the figures; the old shaft seen in the view is in several pieces, but the more modern shafts are of one stone each.

Not far from these interesting but vexatious ruins is Battlefield, where we might gossip of Henry IV. and Hotspur, and of the church built, or enlarged, to commemorate the great battle they fought there in the month of July, of the year 1403: but time and space fail. One sentence of friendly advice; one expression of earnest hope, and we finish. There has been a deal of hard fighting done by the brave people of Shrewsbury in old time, the time of bows and bills; and they should now do a little more with weapons of another sort. The enemies they have to cope with at this time are Apathy, Ignorance, and Self-interest: tough ones they are; and by a bloodless battle with these, winning, as they are sure to do if they try, they may give health, save life, and advance the prosperity of their ancient and picturesque town.

PUBLIC BUILDINGS IN AMERICA.

STORES: SEVERAL: CEMETERIES.

THE public buildings of America show in an interesting manner the history of the country. At first all those originally erected were copies, more or less correct, of existing models in the old country, carried out as well as the material (frequently wood) would permit, whilst the architectural ideas, and often the plans to carry them out, were brought from this side of the Atlantic. So little were the resources of the country developed, that materials also to a very large extent were imported.

In some of the earlier settled parts of the Union, buildings may yet be found constructed of English materials; and in Massachusetts an Episcopal Church may be seen in a remote rural district sent out bodily complete in every material in the reign of Queen Anne, and exactly representing all the uninteresting architecture of that time.

After a while, as architects began to be employed, and the profession found national representatives, very creditable reproductions of well-known European buildings were erected, being in most cases almost *in fac simile* of the copied type. Girard College, a costly erection of white marble, in Philadelphia, is a reproduction of the Madeleine; and many of the churches of New York, particularly Saint Paul, show how closely the designs of the Wren era have been studied. There is, however, perhaps, less of the English than of the Italian school discernible; and some of the really best buildings in New York, public and private, and especially the earliest large stores, are due to the pencil of an Italian.

Meanwhile in country towns native architects were increasing in numbers. It is amusing to trace how very soon these got tired of copying the lessons in architectural books, and began to develop "patterns"—for so only can they be called—of their own. One of the prettiest towns in New England—called lovingly the "City of Elms," on account of the profusion and beauty of its trees, but properly Newhaven—has its streets and suburbs filled with buildings in every outrageous form of the Brighton Pavilion. The leading architect there, having become enamoured by means of a large book of coloured plates and details of that piece of artistic folly, multiplied ludicrous Yankee copies of the style, abounding with notions incongruous and whimsical.

In such days, Gothic was, of course, treated as one may expect, but not worse than may be seen in examples here before the progress of the past twenty-five years had taught architects and the public better.

It is perhaps difficult to say what cognate style now prevails, or at any time prevailed, in America. In Church Pointed architecture, the Perpendicular seems the most favourite expression, and the specimens are no worse than bad

specimens of the style are here. The grand church of New York is Trinity,—the first really substantially-built edifice designed by an architect,—but to Englishmen it possesses no features of interest, as its companions may be seen at Knightsbridge and so many other places elsewhere. New Yorkers speak of it as the Cathedral, but of course only in the sense of the mother church, as it does not possess any one of the architectural features of a cathedral. The style is Late Perpendicular, with a lofty nave and clerestory, side aisles, chancel, and tower and crocketed spire in the centre of the western front. Externally, it has flying buttresses, parapets, and all the usual details that might be looked for. The interior is effective, although too dark; and the general fault is a heaviness and clumsiness of ornamentation suggestive rather of the designs of the plasterer than the architect. The carving is due to Thom, the Scottish sculptor. The material is a warmly-coloured freestone, brought from a neighbouring state, but hardly proving in appearance as yet its claim to satisfactory durability. The congregation have built, in more correct style, a large church "up town," which they somewhat overmodestly call Trinity Chapel. This is gorgeously illuminated and decorated, but lacks effect from the timid hand which dared only experimentalize with half-tints and French-looking washes instead of positive colours.

Gracechurch was executed in rivalry with Trinity, and is as bright and gay and glittering as white marble and dazzling stained glass can make it. Its plan is cruciform, and it looks so very white externally, as always to suggest the idea of an enlarged ornament for a christening cake. The very spire is white, which as it is wood in semblance of stone, is in needless rigidity of purity. On the whole, "Old Trinity," as it is called, although erected not more than about thirty years ago, may be allowed its name as the New York Cathedral.

After naming these, it may justly be said that the vast number of New York churches have no especially distinguishing features. It may be mentioned, however, that St. George's, a very large building, is somewhat noticeable, from the fact that its galleries are supported upon brackets built into the walls, and the roof, a very wide span, is carried from wall to wall, thus requiring no columns or other obstructions to sight and sound. A new church in New York, somewhat after the style of Mr. Street, finds many admirers. From the stripy nature of its external finish,—intensely red brick and cream-coloured stone,—the people, who are very quick at nicknames, call it the "Church of the Holy Zebra." In Philadelphia the architectural taste is certainly purer than in New York; and some of the public buildings, especially the banks and several insurance offices, are deserving of much praise. All buildings there are under the control of a regular Board; all prices are fixed, and the works measured on completion, and the value determined by its officers. The erections are all of a substantial honest character, and the designs are less adulterated. The markets of this town are admirable in their arrangements, and the appearance of the streets and finish of the houses neatness itself. The "Quaker city," as it is called, well deserves its name—prim, somewhat over formal, but admirably neat and clean, and with a demure, subdued richness, very suggestive of the followers of Penn.

Wonderful as has been the increase of all American towns in the north, and notable the advance in improved conveniences, comforts, and adaptation of buildings to national tastes and wants, there is not yet to be seen any indication of the marked character that American architecture might have been expected by this time to have assumed.

The cause probably is, that the ideas and habits of the people have hardly yet settled into a definite shape, and that accepting the styles of the old world to a sufficient extent to mould them to their own uses, they have not had skill or perhaps time to develop an expression peculiarly their own. It is rather the fault of architects than of the people. The Yankees, shrewd as they are, are generously credulous in art matters, and yield only too ready a compliance to their professing guides. At present the German element, and that not of a good school, is much in fashion, and many costly and cumbersome erections have been permitted which a coming taste will condemn as unsuited to the material, climate, and habits of the country. The impression left after a pretty long acquaintance with the United States is this, that the intel-

* See p. 170.

ingenuity of the people have done far more to produce the many excellences of American buildings than the designs of architects. The merchant who requires a town or country house, the directors who erect a bank or an insurance office, and the vestry who desire a church, give much thought and attention to their requirements, and eliminate a plan that might be made much more of had they been better seconded by the architect's aid.

The native members of the profession are too impatient to devote at all the requisite time to its study. It is generally taken up as a business "to pay," and any such superficiality as an article apprenticeship in an office would be scouted as ridiculous in the extreme. How a man does pick up his qualifications it would be difficult to suppose; however, there are swarms of young men,—English, Irish, and German,—who go out to the country and are glad to accept situations as draughtsmen. These of course may be hired; and the contracts, specifications, and suchlike safeguards to the employer, are got up in so slipshod a way that a very brief experience enables a young man, previously a clerk in a store, or what not, to write "architect" on his sign, and sell plans by the sheet as many as he can have manufactured. Literally manufactured, for an office there abounds in all sorts of contrivances for reproducing drawings with accuracy and despatch; and it is well known that a certain New York architect, who perhaps has had more dwellings and stores to furnish plans for than all the rest of his professional brethren combined, has recourse to most ingeniously amusing contrivances to vary the details of, perhaps, not more than a half-dozen original designs, so as to meet the requirement of a hundred elevations, similar in all respects but in some points of embellishment or finish. Stencil plates, figured ruling-wheels to run in an ornamented carved moulding, and other manufacturing appliances were freely used, so that a set of drawings could, in advertising parlance, be undertaken with promptness and despatch at the shortest possible notice.

All this may be looked for in a country where the want of buildings is immediate, and where there is no responsible recognised organ of criticism. Art notices of the press there are, too often, either unmeaning panegyrics or personal abuse; rarely are they written by men educated specially to treat the matters they review.

The large buildings devoted to trade and commerce are more worthy of attention than the public edifices. The stores, as shops are called, are always spacious, lofty, well lighted, and fitted with every convenience for business. Of these, the buildings devoted to purposes of refreshment are very numerous, and deserve special attention. Nothing in London will compare with, and nothing in Paris surpasses, the best restaurants of New York. A celebrated one, the well-known Delmonico's, is a perfect model for a building of its kind. There have been many editions of this popular establishment, each one in its time the wonder of the city until eclipsed by its successor. The last new structure is on so vast and comprehensive a scale of convenience and elegance, as to leave nothing more to be desired; it is the only building of the kind where a man may find enormous space not incompatible with perfect quiet and comfort.

American towns abound with underground establishments of the same kind. The Germans much affect these; and there are vast cellars, like long streets, in which hundreds of barrels of *lager-bier* are emptied; but, as may well be imagined, they are warm and badly ventilated, although frequently fitted up with much magnificence.

Confectionery, too, has its palaces. The American belles, like their Spanish sisters, are very fond of "dulces," and splendid establishments are devoted to ices, chocolate, and suchlike trifles. One of these has so enormous a supply to provide, that the ice creams are manufactured by steam. It will not, it is hoped, be thought too trivial to state that American ice creams are exceedingly cheap and good, and leave an enormous consumption.

The bars and drinking establishments have been too often described to need remark: the most noted are attached to the hotels, of which they in fact constitute the chief support.

Builders would, however, do well to note the universal use of marble for flooring, and the utter absence of all woollen stuffs or upholstery. The rooms are always free from dead air and stuffy reminiscences of departed dinners, and are kept as cool as the great heats of summer

will allow. A very brilliant white paint is much used in such buildings, composed of zinc and colourless varnish, taking a very high marble-like polish and retaining no stain. Well washed, and the paint constantly renewed, the walls have a pure coolness of effect. The window and door openings are enormously large, and are filled with blinds, made as before described. Most of them are fitted with punkas, or movable flapping fans, of light material, suspended from the ceiling, and kept in motion by machinery.

Anything like our tap-rooms or gin-palaces is utterly unknown in American towns,—at least, in the North. There are abominations in the shape of "corner groceries," as they are called, where grocers, principally Germans, vend liquors even more poisonous than our own, and are frequented by the lowest class; but there is nothing in the appearance of a first-class American bar other than one of tasteful magnificence, cleanliness, and order. This can only be said of the large cities. The watering-places have in their huge barrack-like buildings,—gaunt, glaring affairs, most untasteful and mean,—the very strangest effect upon a European. The Americans certainly have no aptitude for life in the country, and all their favourite places of leisure resort only reproduce in their hotels city life and habits. Much as has been said in praise of the arrangements of many American hotels, not one hand can be raised in approbation of the accommodations, and the life at any of the fashionable watering-places.

Club-houses are beginning to be in great request in all the large cities, and are rapidly increasing in number and splendour. As a consequence, it is also a fact that the exclusive system of our own hotel life is making way in America; private rooms and private tables are in many houses rather the rule than the exception, and it is pretty well understood that the once time-honoured use of the hotel bar is not considered quite the thing now amongst the "upper ten."

In the American streets the first thing that strikes the eye is the height and regularity of the awnings protecting the shop-windows. These always extend the full width of the pavement, or sidewalk, as it is there called, and are carried upon iron pillars of uniform height. The covering is usually canvas or india-rubber cloth, which rolls up by machinery, as with us. Opposite each shop-door, is an opening in the overhanging drop-piece, so that crossing from one side of the street to the other is not impeded. The shop is internally of uniform width from front to rear, the staircase being in common to all the floors above, which generally are tenanted by different occupants. The staircase being wide and open to view, forms a peculiar feature in the appearance of a block of American stores. The shops are lofty and the windows large,—usually a wide sheet of glass on each side, with the doorway in the centre. The great depth of these stores renders some mode of interlighting necessary. The usual plan is to have glass flooring, or illuminators overhead, although many buildings are arranged with an air and light shaft from the roof to the lowest floor.

The most unfavourable appearance of American street fronts is from the utter absence of all congruity of design in regard to height. The finish of the cornice, projection, and style of roof, are as varied as possible to imagine; and, as it is very rarely, indeed, that owners combine in the attempt to produce a uniform façade, even for a single block, the really handsome elevations, and the beauty and reality of the material, are not duly appreciated. "Each one for himself" is plainly the motto; so that when a hotel intervenes, and fills up with its large front a great length of block, its appearance is hailed as a positive relief. Most of the large hotels in New York are thus placed, and as they do not recede from the line of continuous building, they greatly help to give something like effect to the street architecture of Broadway.

The sanitary arrangements of most of the large American cities deserve attention. New York and Philadelphia are so admirably placed, each between two mighty rivers, that a very little has been required, and nothing especially noteworthy recurs to memory in regard to the latter town. In New York, however, there have been some admirable arrangements carried out for many years that have greatly relieved the city of its sewage. In the first place, all the ashes and house refuse are required to be put out in proper receptacles early in the morning, and are collected each day by day-break. There are no dust bins or pits; but the inhabitants gene-

rally use iron boxes or barrels, and these are emptied, cleaned, and returned to each house early every day. All the sweepings of the streets, markets, &c., are collected every night, and are conveyed in properly-constructed carts to certain places by the water side, where their contents are received in iron flat boats expressly contrived for the purpose. These when filled are towed out before daylight, by a steamer employed by the city, and discharge their contents upon an island some miles distant, called Batten Island. All bone-boiling establishments and other recognised sources of nuisances, are by law compelled to be carried to this island, where there is an immense factory of artificial manure from the refuse brought to its shores. The natural situation of this large and densely populated city is so favourable for sanitary purposes, that it is not surprising that the system of general drainage has hardly been fully developed. There is, however, one custom that in the present lively sensitiveness to all things appertaining to sanitary measures, is worth investigating. A machine is used for the purpose of emptying cesspools and other receptacles, which is perhaps unknown here. It consists of a large air-tight metal cylinder, in shape and size somewhat like a locomotive boiler, mounted upon wheels, and drawn by one or a pair of horses. This cylinder has its air exhausted by an air pump, and attached to it is a leathern hose of large size, which is dropped down into the receptacle to be cleaned. Upon opening a valve, the contents, solid matter and all, are quickly drawn by atmospheric pressure into the cylinder, and when all is done the hose is drawn up, coiled into its barrel (filled with disinfecting fluid), and the machine rolls off to the boats before mentioned by the waterside. Many large blocks of houses, in the best part of the city, prefer this mode of drainage, all the houses emptying into one large well-made air-tight receptacle, well ventilated at top by connecting with an air shaft, and having a cover tightly keyed down, which is removed at night when the machine comes upon its regularly-timed errand. Very probably this system of sewage, the details of which are fully known to the writer, might be found exceedingly valuable in many inland towns, and such localities where the question of outfall presented unusual difficulty. Its cheapness, and the ready mode it presents of increase and enlargement, give it advantages; and as the proper working of the system depends upon the perfect tightness and the ventilation of the several receptacles, all the well-known and serious objections to ordinary cesspools are removed. The street sewers carry off the rain-fall.

The Croton Aqueduct, which supplies to New York water of excellent quality, brought from about forty miles from the city, is a well-known work, and is an admirable specimen of engineering skill. It conveys the water from such an elevation as to give it a natural flow to the highest required levels, and is provided in almost lavish profusion to every house.

Philadelphia is supplied from the Schuylkill River, the force of the current working enormous pumps which lift the water into a receiving reservoir, with sufficient head to convey it all over the city. The pumping-engines that do this work are considered admirable specimens of hydraulic machinery.

The cemeteries of America have often been admirably described. We might well take lessons from Greenwood, near New York; from Mount Auburn, and Laurel Hill. The beauty, extent, and cheerfulness of the grounds, and the exquisite neatness and order with which everything is kept are alike admirable and praiseworthy. Of course many peculiarities of individual taste may be seen; but, on the whole, the sentiment of the designs is touchingly appropriate, and the decorum and yet freedom from gloom of the places at large is very pleasant to contemplate. The small cost of interment in Greenwood is remarkable, when the certainty with which the memorials entrusted to the charge of the officials will be sedulously cared for, is considered. Nearly eight years ago a dear little child was consigned to the earth, in an inexpensive manner, in Greenwood; and yet, without hope of fee, and without any special care of friends near the spot, recent reports declare the little memorial left there to have been kept clean and perfect, and as much cared for as if it had been in one's own garden-ground, and close at hand.

No materials of a perishable nature are permitted to be used, and so far the climate seems

to promise a satisfactory durability to the monuments that have been erected. White marble, polished granite, and the brown and free stones of Connecticut, New Jersey, and Nova Scotia compose them; and as the size of each lot is liberal, and the rules compel considerable space between each grave or vault, there is not in any American cemetery the appearance of a statutory yard, so usual in our own places set apart for consignment of the dead.

BOOKS OF REFERENCE FOR ARCHITECTS AND ENGINEERS.

It has become a practice with publishers to issue books of a certain class without dates. This is better than misdating; but either system causes trouble to that useful class of men, the bibliographers, and to reviewers; and if it were the practice, as often suggested, to give the date of publication exact to the month, or even day, the advantages to many readers and inquirers would be great. Publication of second editions also requires to be managed otherwise than it is; such editions are much too often produced without the sanction of the original author; or they are made the vehicle for correction of defects that might, with proper care, have been prevented in the first edition,—that which the public were induced to take as correct, and so provide means for outlay on the edition following. There will be exceptions: in the case of some works, publication may be required in order to get sufficient revision,—which no single author would accomplish without assistance from his readers; but, generally, a second edition of a work should not appear without contemporaneous separate publication of the corrections and additions, in the form of pages purchasable by the possessors of the first edition. There would be greater readiness to purchase books, if the buyer had reason to believe that his property would not be deteriorated otherwise than necessarily by the progress of time, and the addition of new matter. And if one of the accompaniments of a change in the system were the publication of a smaller number of manuals, remembrancers, and rudimentary and educational works,—those published being as they would be likely to be, better,—knowledge would gain. Let literature be cheapened; let libraries be multiplied; let reference to books become within the reach of every student, and of every one engaged in a profession or trade; but it is possible to have too many publications. Where variation is made that is not improvement, there is no gain, but rather obstruction to progress; better than the publication of the new work, would have been the enlargement originally of the edition of the old.

These remarks are not meant to preclude future publications such as that of a class of books which are of great importance, giving tables and data for the reference of architects. There is nothing existent that exactly accords with our ideas of the requisites in pocket-remembrancers and office-books: though, as usual when a like observation has to be made, there are many works that have considerable merit in them, and from which useful hints could be taken.

Mr. Campin's "Engineer's Pocket Remembrancer," is not by any means the least useful book of its class. A copy of the second edition of the work is now before us, and has suggested some of these remarks.* Judging from the preface, this publication, excepting the short appendix, is a simple reprint of a volume issued in 1863; but as there is no date on the title-page, and no mention of revision by the original author, we are left in doubt on two points, the real date of the matter in the "second edition;" and whether Mr. Campin gives his imprimatur to it.

But we may say that an attempt to supply a book adapted for the pocket and the office in the same volume, is a mistake: in the one case, what is produced is too bulky,—that is, if the volume contain what will be wanted; in the other case, the work does not contain a great number of tables that will be required. The idea seems not to have occurred to any one to issue two companion volumes, of opposite

dimensions, the pocket-volume referring to the other, and being printed in very small but very good type. Where tables are already published, sufficient to render unnecessary and undesirable the publication of fresh ones, as in the case of tables of simple and compound interest, chemical tables, and others, it might be sufficient to refer in the pocket-book and the office-book, to those tables, where to be found; but, generally, the data, rules, and formulae, for architects' use, require both addition to their number in published volumes, and better and more easily to be comprehended tabulation and epitomization. The builder's price-books in particular require better and more logical arrangement of columns, headings, and items. This we have often said.

The object of Mr. Campin's volume, in 1863, as stated by him, was "to supply the practical engineer with a pocket or office book in a concise form, containing all that is commonly required in the shape of tables and rules, to facilitate the various calculations which furnish the means by which the dimensions and proportions of works are determined." The rules and formulae are from a collection made by the author for his own use, some of them being original, and others simplified or corrected. Verbal rules and formulae, with examples, both, are given. The reasoning upon which the rules and formulae are based, is omitted, in order not to render the work bulky; and, at the date mentioned, the author claimed to have taken great care in the preparation of the tables, and in checking the printing of the formulae. But we should have preferred different methods of notation to those which we find in the present edition, as where a point that will be mistaken by many students for the sign of a decimal is used, and which indeed may interfere with ready reference generally. For illustration of what we allude to, we may adduce the first page of the rules and formulae relating to roofs. Here, figures, in place of letters, of reference, have been used for the diagrams, and are given in the text as though not an indication of a point or member of the truss, but as a dimension including a decimal. To show that no amount of care can be considered excessive in works of this class, we may mention that, on the page that we have spoken of, a mere printer's blunder, by raising one line of type too high, has made the figures $10 \times 20 \times 10 \times 21$ equal to 15. If the number of handbooks were less, and more attention were given to one work, or of the companion-volumes that we have suggested, such defects as we have instanced would be eliminated. It must not be supposed that the like shortcomings do not occasion trouble to those who are thoroughly qualified to use rules and formulae.

One addition there is, that we are decidedly of opinion, should be made to an office-book. We mean the names of the authorities. The insertion would not absorb much space. Mr. Campin states only generally in his preface, names of those whose works he has consulted. When we have given us weights of different kinds of timber and metals, and strength of such materials, it is often desirable to know upon whose experiments the figures rest; for, records of experiments do not always agree; besides, as no one knows better than Mr. Campin, to state that cast iron has a tensile strength of 17,628 lb., or 7.87 tons per square inch, and a compressive resistance of 120,000 lb., or 53.57 tons per square inch, is really, without the authority, insufficient information, since the strength may differ widely of these figures, or according to the make of iron, which is a point that in calculations has to be taken into account.

These observations refer to what are rather lacunae than defects in the present work; which is one that good use may be made of. Its tables of data include squares, cubes, and roots of numbers; areas and circumferences of circles; logarithms; natural sines and cosines, and tangents and cotangents; logarithmic sines, &c.; decimals of feet, curvature and refraction; pressure of wind, Birmingham wire-gauge, coefficients of friction, strength of materials, and properties of steam, besides some "useful notes" to which we have alluded. In these last, many things, such as the weight of brickwork, are wanting. The first three parts of the Rules and Formulae comprise the calculations relating to mechanics generally of solids, liquids, and gases; and these are followed by rules for estimating weights of materials, and areas and contents, as in earthwork, and by rules for determining proportions of thermo-dynamic en-

gines, boilers, bridges and girders, arches and chains, roadway-plates, roofs, retaining-walls, and various matters in connexion with railways, and with gas, marine and hydraulic, lighthouse and electric engineering, respectively, and for surveying. The body of the work concludes with rules for the use of logarithms. The Appendix, of half a dozen pages, treats of "Calculations as applied practically to Engineering Purposes." It is given "in order to enable the student—or such as are unused to calculation—the more readily to modify or extend formulae, or find new ones if necessary;" but parts of it are not sufficiently elementary to attain the object.

There is much that is valuable in this work, as well as suggestive; though there are many things omitted that might be looked for in a book of reference: thus there is no sufficient explanation of the mode of calculating scantlings of timber beams. As to tables, or such as form the first portion of the volume, we may say that the figures of such tables, as calculated and printed, should stand published with the authority of the Government or of the Royal Society as the representative of the science of the country, that the tables should be stereotyped, and that no others should be liable to be put forward or used. Any engineer or calculator pointing out errors in such tables as are here suggested, would be doing good: his representation to the body charged with the supervision and publication, would be duly attended to; but to multiply settings of type, as by the publication of each fresh book of reference, tends to production rather than correction of errors in figures. The proper system would be for the society, authority, or body charged with such matter, to have stereotypes for each size of book-page, and to give casts to printers applying for them.

SOMETHING ABOUT ABERDEEN.

Between 500 and 600 miles of a railway ride is no joke, even in these days of swift locomotion, and not at all calculated to improve one's temper; hence it is, perhaps, that we find page or two of our note-book full of bitter complaints and invective against all railway management whatsoever, but more particularly directed to that glaring mismanagement which is so conspicuous when we cross the Tweed. The North British Railway seems to be in a sadly neglected condition. The rails, for example, at the Berwick station, were worn through the flanges; and the station at Edinburgh would disgrace a third-rate manufacturing town in Lancashire. In the first place, it is beastly dirty; and, secondly, it is quite unfit for the traffic. A poor woman had been crushed off the platform and killed a day or two before we passed through; and the only wonder is that such fatal accidents do not occur more frequently. As for time being kept, that seems out of the question: we were nearly an hour behind time on our arrival at Aberdeen; in fact, the line between Perth and Aberdeen is one of the slowest and worst appointed on which it has been our misfortune to travel. If Mr. Gladstone's proposal to subject the railways to the control of the State should ever be carried into effect, we are quite certain that it would bring an improvement in Scotland, at all events.

But to our subject. The scenery from Perth to Aberdeen is tame and uninteresting. Here and there, indeed, a bright spot may be seen, we get a good view of the busy little seaport town of Montrose; a glimpse of the distant round tower of Brechin; a glance at Stonehaven, the very small county town of Kincardineshire, near which is the ruined and dismantled fortress of Dunnotar Castle—the ancient seat of the great Earl Marischals of Scotland, and the prison of the persecuted Covenanters. As we approach the Northern capital, the country becomes remarkably bleak and sterile. We are now traversing the broad, low, moorish outskirts of the Grampian mountains, at the most rugged and inaccessible part of the north-eastern coast. Numerous moraines and vast quantities of glacial debris are easily observed. At last the prospect becomes perfectly barren and dismal; and it is with a sense of very high gratification and relief that we descry the Girdleness lighthouse and the smoke of tall chimneys; and then, all at once, we burst into view the broad expanse of the River Dee, the long railway viaduct, the forest of masts, and the city of Aberdeen.

* "The Engineer's Pocket Remembrancer: an Epitome of Data, Rules, and Formulae, applicable to Civil, Mechanical, Marine, Hydraulic, Lighthouse, Telegraphic, Railway and Gas Engineering, Surveying, &c. By F. R. Campin, C.E., President of the Civil and Mechanical Engineers' Society; Author of 'A Practical Treatise on Mechanical Engineering,' &c. &c. Second Edition, with an Appendix. London: Atchley & Co.' 12mo, pp. viii, & 186.

While enjoying the hospitable "Lemon Tree,"—the oldest inn in the place (like our friend Cornelius O'Dowd, who are fond of the old "inn"),—we shall, with the assistance of the guide-books and the "Gazetteer," give our readers some account of the history of this remarkable city,—of which we may say, *en passant*, that it is a place of great enterprise and originality, and that its inhabitants have positively worked wonders, both within the city and on the surrounding soil. Although it is not our primary purpose to demonstrate these facts, we cannot prevent them incidentally appearing in the course of our report.

The origin of a town proceeds often from the most accidental and sometimes unaccountable circumstances. But Aberdeen seems to have obeyed the general law which Schouw, and after him all good geographers, have recognized,—that the chief cities of the world have arisen on the banks of the great rivers or on the sea-coast. Of its antiquity we have abundant evidence. There are traces of a Druidical circle at Gilcomston, one of the ancient quarters of the town. Some writers identify the site with that of the Roman fortress Devana; and a porter brewery of some note close to the river has now, it would appear, inherited that Latin name. But the earliest authentic document which the antiquaries can discover respecting Aberdeen, is a charter of William the Lion (A.D. 1179), who conferred on the loyal burgesses by this instrument the right of trading as freely as their ancestors did in the time of his grandfather, King David I. William, it has been ascertained, built a palace at the east end of the green; and had also an exchequer, with a mint for the coining of money. Alexander II. founded a monastery of black friars here; and likewise conferred on the inhabitants the right of holding a weekly market.

King Robert the Bruce gave it certain ample possessions for the support of its political dignity; and King David III., with the sanction of a Parliament held in Aberdeen, confirmed to the burgesses and community all that they had obtained from his Royal predecessors. In process of time the town seems to have been consumed by fire; then to have suffered from siege and famine; it was totally destroyed by an English army under Edward III.; it was the scene of some of Wallace's exploits against the English; and in the year 1411 the inhabitants turned out and routed with great bravery, at Harlaw, a barbarous Celtic pretender named Donald of the Isles. "This great battle of Harlaw," Sir Walter Scott tells us, "might be said to determine whether the Gaelic or the Saxon race should predominate in Scotland." (See note 1 to chap. xix. of "The Antiquary," Edition 1848.) Aberdeen seems to have suffered great spoliation at the hands of the zealous Reformers in the sixteenth century; for, like all seats of ecclesiastical learning, it had been much indebted to its Bishops. In the Covenanting era which followed on the heels of the Reformation, it was tolerably fleeced by both the contending parties. For some time it was in the possession of the Rebels when the standard of the Chevalier was raised in 1715. The Duke of Cumberland made it his head-quarters for a few weeks, when on his march to the field of Culloden. In short, Aberdeen has suffered all the vicissitudes which could possibly be incident to a place of strength and importance enduring the stormy and unsettled periods of Scottish history.

The gradual development of the town has been satisfactorily traced by the local topographers. The first dwelling-houses in Aberdeen were probably a few rude huts on the shore, near the spot where Trinity Church now stands. The ground next occupied was probably in the neighbourhood of the Castle. After the destruction of the town by the English army, in the fourteenth century, a grand improvement and extension took place,—in fact, a new town was then built. But with the exception of its few churches and public structures, this must have been rude and unsubstantial; for in the year 1545 a stone edifice was considered a mark of great opulence. Even so late as 1741 the houses on the west side of the Broad-gate were constructed of timber. The very best streets, long after this, were narrow, unlevel, and unpaved, or, at least, paved with a causeway of round boulders dug from the bed of the neighbouring river; and the town consisted of houses built so close to each other, and so inconceivably filthy, as to render them obnoxious in the highest degree to disease and pestilence.

But towards the close of last century the spirit

of improvement had spread northward, and Aberdeen was rebuilt, extended, and adorned, after the fashion in which the Imperial Government of the present era has adorned and remodelled the city of Paris. The Old Town was literally cut to pieces. A street was opened from Broad-street to the north; Marshal-street was opened from Castle-street to the south; and as it constituted the principal thoroughfare to the harbour and quay, it had the honour, above all other streets, of being paved, for the first time, with dressed cubes of granite. A loch was then drained, on the north-west, through which George-street was opened, to communicate with a new turnpike to Inverury. Finally, two grand new exits were formed from the middle of the town,—to the north by King-street, to the south-west by Union-street. To correspond with these new streets new squares were laid out, new churches were built, new banks, assembly-rooms, a town-hall, and other public buildings; and then, at the end of twenty-five years or so, came the day of reckoning. The result was that the corporation of Aberdeen awoke one morning and found themselves bankrupt. We do not find it stated in any of the authorities that we have consulted in what manner they got over their difficulties. They had, it was said, been misled by the architects and engineers; for example, the estimates for King-street and Union-street were 42,000*l.*, the actual cost to the corporation 171,280*l.* Undoubtedly they had been too sanguine also with regard to the prospective revenue; but it is the old story, and we need not dwell upon it further than to adduce the equally old maxim, that towns, like other communities, must grow up by a slow and gradual process of development, and all attempts to interfere with or unduly stimulate this process, either by municipal or imperial governments, is certain to end in disaster and ruin.

We shall add here that the town council of Aberdeen is composed of nineteen members, including a lord provost and four bailies. The general police is regulated by an Act passed in the year 1829. The town is distinguished for its shipping trade and manufactures. It has long been celebrated in the annals of commerce for its large exports of "salmon fish and granite stone;" and it is altogether worthy of its honourable position as the seat of a university, and the capital of the north of Scotland. The population of Aberdeen, at the census of 1861, was 73,791.

And now having given our readers a proper quantum of historical knowledge, we shall proceed to survey the principal features of the town. It is first of all necessary to explain that the capital of the north of Scotland comprises two towns—Old Aberdeen and New Aberdeen,—situated about a mile and a half from each other, of different aspects, and with distinct charters and privileges. Although included within the limits of one parliamentary borough, they are, in fact, two separate towns. Of course it will be understood that our examination is chiefly confined to New Aberdeen, which, although not so interesting to the antiquary, is infinitely more so to the engineer and the architect.

Aberdeen, then, is situated on a cluster of eminences, which rise along the northern bank of the river Dee, and which slope gently through the Old Town to the south bank of the river Don. Although prettily enough environed, it has nothing of that grand and picturesque beauty which distinguishes Stirling or Perth. Its general plan is very irregular. All the modern streets, however, run at right angles to each other (or nearly so), and accordingly we can easily detect the incongruities of the junction with the older portions of the town. At present, reckoning only the extent of surface which is fully built on and inhabited, it covers a space of about eight miles in circumference. An error which is by no means peculiar to Aberdeen seems to have been committed in planning a poor street between two rich ones, such as Gordon-street, between Dea-street and Don Accord-street. Most of the houses have gardens attached to them even in the town. But this is always the case in the suburbs, which from this cause present a rich and exuberant appearance. Rubislaw-terrace is much superior to anything of the kind we have seen elsewhere in Scotland.

The greater portion of the city, as we have seen, is comparatively of modern date. Nevertheless, a few of the ancient houses remain—sufficient to instruct the student in the style and manner of the Scotch domestic architecture of the sixteenth and seventeenth centuries. Pass-

ing through Justice-street we have within Bothwell-court the last vestige of a tower which is said to have belonged to the Knights Templars. In the School Hill there is another old house with projecting circular staircase and antique lintel, which is said to have been the ancient manse or parsonage of St. Nicholas. In the Shiprow, and that building in the nether-Kirkgate denominated "Wallace Tower," we have specimens of the ancient hosteleries; and lastly, we may note the old tenement in the Gallowgate, known as "Mars Castle,"—a very ancient building capped with a diminutive crow-stepped and corbelled gable with circular staircase and small square openings for windows. All of these ancient buildings bear a strong generic resemblance to each other, and are deserving, in our opinion, of more study than the local antiquaries seem to have bestowed on them. Of that portion of the old town which belongs to the later part of last century, there is nothing to observe except in a sanitary point of view: it has very little architectural interest; indeed the only thing worth noticing is the house in which Byron spent part of his boyhood. But of the most recent and improved quarters of the town we can only observe that these are the most remarkable things of their kind it is possible to conceive. Supposing we take our stand in Castle-street, which is the original market-place of the city, and has been described by the enthusiastic natives as "the glory, the pride, and the apple of the eye of Aberdeen,"—and look westward along Union-street, we have before us a vista such as no other city in the empire could furnish. It might be easy to find fault with its proportions; but Union-street, on the whole, is an architectural feature without a compeer. About a mile in length, it consists of a double line of handsome public buildings and houses, all built of a greyish white and glistening granite. The tombs of Teobes, the Cyclopean walls, the marble temples of ancient Greece,—all rise up to the imagination of the spectator as the prototypes of this remarkable street. By moonlight, the *coup d'œil* is singularly surprising and romantic; for not only is the street spacious and elegant of itself, but it runs on a much higher level than the ancient parts of the town on its southern flank, and is carried over the ravine of the Den-burn by a magnificent bridge of solid granite, the view from the parapet of which approaches something to that which we so well remember from the North Bridge of Edinburgh.

This Union Bridge, which is undoubtedly the finest in Aberdeen, was designed by Telford. It consists of three arches, two of them concealed, 50 ft. in span, and a large and elegantly built centre arch, of which the span is 132 ft. The height from the top of the balustrade is 50 ft.; the rise above the spring, including cornice, parapet, and balustrade, is 20 ft., and the breadth across the soffit is 43 ft. It consists wholly of Aberdeen granite, and the materials are supposed to weigh over 2,000 tons. It cost upwards of 13,000*l.* We may here point out that it is easy to understand why Aberdeen should be called *par excellence* "the granite city."

As an improvement to Aberdeen, Union-street, occupies pretty much the same position that Regent-street does to the metropolis. We mean, of course, in the design; for the analogy does not hold good with regard to the materials. What Mr. Nash would have done with such obdurate stuff it is now useless to inquire; but one thing is tolerably clear: there was greater room for free decoration and elaborative details in the tempo than in the granite.—Although the granite buildings of Aberdeen are sometimes highly enriched, as we may observe on the Roman Catholic church in Huntly-street, which has its crockets and finials carved from the solid blocks. The most conspicuous object in Union-street is the Music Hall, which is adorned with a fine portico of six Ionic columns of whitish dressed granite, 30 ft. high. The Trades Hall, at the opposite side of the bridge, is a very handsome edifice in the Elizabethan style. The Aberdeen Bank is an elegant structure, of pure Grecian Doric; and colour is sparingly brought into play in the Town and County Bank, which is profusely embellished with Corinthian capitals and cornices of grey Aberdeen granite, relieved by red interlaced shafts and soffits. The north parish church, which seems to have been modelled after St. Pancras, has a very imposing portico and tower; and the Town House and North of Scotland Bank, which are built adjoining each other,

are excellent specimens of plain and substantial municipal offices. One of the best public buildings—to our judgment the very best—in point of composition in Aberdeen, is the new Grammar Schools in Skene-street, tastefully planned in the Scotch Baronial style, to which style the hard and obdurate material seems to have a sort of natural affinity. There is a façade of Ionic pillars, with centre arch, which forms the entrance to the churchyard of St. Nicholas; and there are many other architectural beauties scattered around, which we have no room to particularise. The grand defect—if we may be permitted to point out a defect—in the general aspect of the Aberdeen architecture, is the want of colour. So much white micaceous granite glittering in the sun comes at length to have a cold and chilling influence on the mind; and to such an extent does this feeling grow upon us, that the eye rests with positive relief on the tall and somewhat ungainly brick spire of that group of Free churches which are so conspicuous from Union Bridge. In a district of country where granite prevails in all shades of colour, this feature in the landscape might surely be of easy improvement.

As a piece of good construction, as well as of appropriate design, there is little in the north of Scotland we have seen to compare with the quadrangle of Marischal College. The striking and harmonious range of mullioned windows, the open arcades and centre tower, give us an excellent idea of what a college ought to be, and a still higher conception than what we had previously entertained of the capabilities of the material. It is a pity that the approach to this college should lie through the purlieus of a back street; and still greater we think that the effect of the beautiful buildings is destroyed by a clumsy and pretentious granite obelisk, 72 ft. high, erected in the very centre of the square, to the memory of Sir James Macgregor. However appropriate in itself such a monument may be, it is unquestionably out of all keeping with the character and design of the quadrangle, and with the nature of the site.

Speaking of the Aberdeen public monuments generally, we are sorry to say that there is far too much room for hostile criticism. In point of importance we may first advert to the bronze statue of the Prince Consort, by Marchetti, which is anything but a favourable specimen of that artist's powers. It consists of a figure of the Prince in the costume of a field-marshal, seated on a chair of state, which rests on a pedestal of red Peterhead granite. But the figure is far too diminutive and *petit*,—in fact, it seems to represent rather a slender youth than a full-grown and handsome man, as the Prince undoubtedly was; and there is too much prominence given to those accessories which ought always to be subordinate; the chair, for example, and the military boots, which are really the most conspicuous points in the statue. It is impossible to deny that there is much ingenuity and skill displayed in the modelling; but, as a work of art, it is a poor conception of an Albert memorial. In the Church of St. Nicholas, close by, there is a very fine marble statue by Bacon; and another in the south transept, "consecrated by his fellow citizens to the memory of Provost Blackie," by Westmacott. St. Andrew's episcopal chapel, in King-street, contains another marble statue of Bishop Skinner, by Flaxman. In addition to these bronze and marble statues, there are at least two in granite: one to the late Duke of Gordon, in the centre of Castle-street, and one—a priest in full canonicals—in front of the Roman Catholic schools. Perhaps the most curious and original of the Aberdeen statues is a very ancient effigy of Wallace, stuck in a niche of that old building we have mentioned in the nether Kirkgate. Of its history we know absolutely nothing; and of its artistic pretensions the less we say the better. It is only curious as a Medieval relic of that spirit which in our time seems to have extinguished itself on the Abbey Crag, near Stirling! When will the Scotch learn to say of their immortal patriot what Milton once said of Shakespeare:

"Dear Son of memory—great heir of fame,
What need'st thou such weak witness of thy name?"

There are a number of excellent portraits in Aberdeen, some by Jamieson, the "Scottish Vandyc," as he was called; a portrait of Queen Anne, by Godfrey Kneller; one of Prince Albert in Highland costume, by John Phillip, (who we believe is a native of Aberdeen); and there are others by Lawrence, Pickersgill, &c. The market cross is worthy of notice as being a

rare and unutilised specimen of those ancient structures "whence royal edict rang," which are now gone out of fashion among the Edinburgh ballies and others of that ilk. There are also several ornamental fountains and antique public wells scattered about the town. Indeed, the Aberdeen authorities deserve credit for the zeal with which they preserve and restore the antiquities, and keep in proper repair the artistic features of their city. St. Nicholas, we may add here, has a fine old peal of bells—one of which (the great bell Lawrence) has a fine sonorous tone, and bears the date *Anno Domini* 1352.* Of other subjects we will only remark that the number, size, importance, and general value of the Aberdeen churches quite took us by surprise. The steeples are as thick set in the granite city as they are in the city of London; and the churches are all filled there, which is more than we can say of the city here. But the churches are altogether eclipsed by the charities. There are, first of all, two or three different sorts of ragged or industrial schools, of which most useful institution the Aberdonian philanthropists were the nurses. Then there is an orphan hospital, a hospital for incurables, a deaf and dumb institution, two or three lunatic asylums,—all very handsome buildings. The Royal Infirmary is really a magnificent structure, and cost 17,000*l*. The very poor-house cost 10,000*l*. But the most conspicuous of the Aberdeen charities is the hospital, founded by an old miser of the name of Gordon, for the sons of the burghesses, who, on fine days, may be seen, like a juvenile regiment, parading the principal streets, to the tune of "O send Lewie Gordon home," which they play very well on their miniature band of fifes and kettle-drums. The schools are equally numerous and well attended. But, for a complete list of the various churches and charities, together with the different medical, legal, philosophical, and theological seminaries, are they not all written in the pages of the Aberdeen Almanac?

We shall devote our next article to the sanitary condition of Aberdeen.

THE OLD TOWN OF SORRENTO.

THE southern side of the Bay of Naples is bounded by a hilly promontory, which, running out into the sea to the distance of some four or five miles, forms a line of coast about equal in extent to that on which the city itself stands, and which is separated by a narrow channel from the famous and beautiful island of Capri.

On the eastern side of the bay, and connecting the two promontories, is Mount Vesuvius, with the ruins of Pompeii at its feet, and its shore dotted with the numerous small villages which, in spite of the warning given by the ruins of the old city, and even in spite of the convulsions by which they have again and again been destroyed, still persist in growing along its slopes, and are still inhabited by large populations.

On the south is a second bay and a second mountainous promontory, on the side of which, on a clear day, may be seen the three temples of Paestum, appearing like white dots on the dim mountains.

Thus the little tongue of the plain of Sorrento separates the two great bays of Naples and Salerno, both of which may be seen without turning the head from some points among its hills.

Looking from the side of Naples, the outline of the promontory is beautifully broken into a series of peaks belonging to the chain of the Gran Sant Angelo; while the pointed crags which rise into the sea round Capri are visible at the termination of the main land; but when, after winding by a broad road round the Bay of Naples, you approach nearer and nearer, it becomes visible as an uneven plain rising towards the south, and surrounded by hills only, the high peaks of the Sant Angelo being hidden behind them.

The whole extent of the plain of Sorrento is divided by a low chain of hills, called, in opposition to the greater chain, the Piccolo, or Little Sant Angelo, which runs north and south, and makes an unequal division.

The greatest and most eastern of the two halves is bounded on the north by the sea, on

the east by a chain of four hills, down the most northern of which the great Naples road passes; on the south by the high land overlooking the Bay of Salerno, and on the west by the before-mentioned chain of the Piccolo Sant Angelo. In this part of the plain there are four villages through which the road passes, and various hamlets scattered over the hills; but the capital of the plain is situated on the western side of the dividing range, in a second plain or valley, surrounded on three sides by a curving ridge of hills, and on the fourth bounded by the sea, which, running into the land, forms a small gulf in the Bay of Naples, which has become the harbour of Sorrento.

On arriving at the gate of the town from the Naples road, the traveller finds himself in a city in which time seems almost to have stood still, the dark, narrow streets, the old walls, and the public buildings and churches having an ancient and venerable appearance, as though dating from Medieval times; and, although it has never been explored or investigated, and although the existing remains are but few, yet the date of the foundation of Sorrento is even carried back as far as the age of Rome, and it may be contemporary, for any proof to the contrary, with that of Pompeii.

The most ancient of the remains existing at the present time in the middle of the town is of much greater antiquity; but how it came there, and what its history is, can not be discovered. Unless, indeed, the characters of the hieroglyphics which cover its sides can be deciphered. It is one of a class of statues, many of which are carefully preserved in museums of Egyptian antiquities, but at the present time only a portion of it remains.

On a pedestal of dark black stone, about 4 ft. or 5 ft. high, stands a tablet, with a flat stone on the top, covered with hieroglyphics, and hewn out of the same block as the pedestal; while on each side of it are the legs of a kneeling slave, the head, arms, and the greater part of the body being destroyed, and the hands alone supporting the tablet.

This monument has stood for year after year in the market-place, washed by the winter rain and baked in the sun during summer, until its surface has become black, smooth, and polished all over, on which account it is, during the heat of the day, the favourite resting-place of great swarms of flies, which may be seen covering its sides, and, as it were, basking in the heat of the sun.

It would be interesting to know whether it was originally erected in some other position, or whether it may possibly have been originally placed where it now stands; and this, probably, could be ascertained from the hieroglyphics.

The position of Sorrento was one of some strength in the times which followed the use of artillery. On the east it was defended by a long, deep, and narrow ravine, with a winter torrent flowing throughout it. On the north it overlooked the sea, being built on a range of cliffs which extend all along the coast line of the plain; and on the south and west two other ravines of equal depth with the first, of which they are branches, form natural defences. The more modern fortifications stand just within the natural boundaries, and sufficient remain of the Roman walls exist, to indicate that they occupied the same position. On the east are the piers of a Roman bridge, close to the more modern arch over which the road now runs; and on the south, where a gate was afterwards built, stood a second bridge, of which the piers still remain, covered with ivy and broken into blocks of unequal height. In the neighbourhood of the cathedral, near the east end of the present south wall, are many pieces of sculpture and relics of architectural decorations. More to the west, on the same side, in cutting a new road through the walls, the Roman fortifications were exposed to view, situated immediately within those of later date. Thus, on the south, east, and west, the old city appears to have covered the same ground as the present town; on the north, therefore, it is but natural to suppose it extended to the present boundary—the sea; and thus it occupied the whole of the little square, which, being surrounded on all sides by natural fortifications, seemed designed by nature for the seat of a small city.

To what date the foundation of Sorrento is to be ascribed it is difficult to decide; for, although most of the Roman remains belong to a period of very low art, and from the name of the Cæsars which appears in various places, must have been works of the time of the Empire;

* In Black's "Guide-Book through Scotland" for this year (a most excellent and generally accurate work) the weight of this ancient Aberdeen bell is stated to be 40,000 lb. (nearly 18 tons). But this is obviously a mistake; 4,000 lb. (that is, nearly 36 cwt.) would probably be nearer the mark.

yet over the façade of the cathedral, and on each side of the door, are remains of fine Grecian sculpture of a high order. Beside the principal door are two pillars of Ionic order, cut out of fine marble, and surmounted by a simple but well executed capital; and above these, on an architrave of rough stucco, is a beautiful portion of a frieze, on which are cut two griffins, with an elegant foliated scroll growing from the ends of their tails and curling up to their wings, so as to fill the space which is generally left so bare on other friezes, and the whole is inclosed in a border of rich mouldings; and from the position of the two figures, which stand face to face, it appears that they supported between them some kind of vase, now covered with a rough scutcheon of stucco, painted with some bishop's arms. The whole is cut in low relief, but sharply and carefully, and in richness and beauty of design and execution it rivals the most famous friezes of Rome. The material is a smooth, mellow-looking marble, with a slight amber tint, marked with brown in some parts where stained by the rain.

Both the pillars and the frieze evidently belonged to some Classic temple, and have been torn from its ruins to be erected in their present place by an architect who little knew what he was doing; for, in their beauty, they form a most striking contrast to the clumsy and ugly erection of which they form part. Unless these spoils were brought from a distance to their present site, the building of which they formed part must have been close to the spot where they now stand; and that they should have been sought from any great distance for the purpose of beautifying such a building as the cathedral, is not very probable. They therefore appear to have been originally placed in the vicinity of the town; and this fact would appear to bring back the history of Sorrento to a very early date, a time of perfection far exceeding that of the second class of remains.

The whole of the court-yard before the cathedral, and the vaulted archway which supports the great tower, are filled with relics of the second order; while sarcophagi of the same date may be found used as drinking-troughs, and the shafts of ancient pillars for door-posts, in every part of the town.

The court-yard contains the capitals of many pillars of the different orders, but all feebly and clumsily wrought, while altars, eagles, fluted shafts, and large sarcophagi are strewn over the yard or built into the walls.

In the gateway are several pieces of sculpture in very low relief, and almost infantile in their want of imagination and ignorance of form. The Roman eagle, or rather a kind of parrot, which is its representative, the four letters S.P.Q.R., and the names of the Cæsars, appear in all these pieces. The gateway has two pillars on each side, formed of bases, shafts, and capitals, which belonged originally to different columns; and of these four capitals, not one is of the same order as the one corresponding to it on the opposite side. One of the bas-reliefs represents the wise men of Greece standing in awkward attitudes; another, bolder and better than the first, a fight between warriors and amazons; and a third, perhaps the worst of all, two winged cart-horses drinking from a fountain surrounded with trees. The various pieces appear to have been executed at different times, the latest being the worst; and in their character they form a strange contrast to the delicate beauty of the former relic of earlier date.

The town appears to have been supplied with water from the hills, by a long but small aqueduct, of which portions still remain. The arches are all broken down, but from the distance between the piers it may be concluded that they were of a respectable span. Two piers, broken down to unequal heights, are to be seen crossing a ravine near the city, covered with ivy, and forming a most picturesque foreground to a view of tall rocks at the head of the gorge, down which, in winter, the silver thread of a torrent may be seen descending. Another pier is to be found at a much lower level, nearer to the town, and two or three more higher up the hill side, so that the slope of the aqueduct must have been considerable. It cannot, however, be determined at what point it entered the city, or where it began.

Such was the Roman town of Sorrento. Its history is continued until the times of the early Christians by the tradition attached to an aged tower outside the east gate, on the summit of which some of the first Christian martyrs suffered for the faith, a circumstance which is

commemorated in one of the paintings on the roof of the nave in the cathedral.

At an early date Sorrento became an episcopal see, and afterwards it was raised to its present dignity as an archiepiscopal city. It was subjected to attacks by the Saracens, who entered the city and carried away the great bell from the church of the patron saint, famous for his miracles; but when they had conveyed it to the midst of the sea, between Capri and the mainland, the legend, like that of the Bell Rock, relates that it was cast overboard, or sank through the bottom of the ship, into the sea, where it now is. On other occasions the town made some resistance, and appears even to have repulsed the infidels in several incursions.

The date of the present walls and defences is probably as early as the times of the Angevin princes, whose arms are to be seen carved on the wall of the Judgment Hall, in the middle of the piazza and the cathedral, with its great brick clock-tower, and the palace of the archbishop may probably be ascribed to the same date. None of the public buildings present any remarkable architectural peculiarities, and are but poor specimens of Italian art. The most striking feature in the cathedral is the frieze before mentioned over the gateway.

The walls follow the same line as the Roman fortifications. On the east the gateway alone remains, surmounted by a colossal bronze statue of the patron saint; but on the south and west the whole walls are standing. The Roman bridges are superseded by others of clumsier workmanship, leading to gates guarded by images of the saints, and provided with holes for the portcullises. Above are loopholes and brackets for archers, and windows through which the oil and pitch were poured on the heads of the enemy. On each side of the gate is a tower, from the sides of which the artillery could sweep the bridge, but so placed that each tower could have destroyed the other, and in many exposed parts of the wall the same unusual mode of defence is made use of.

The walls are lofty, ornamented with a narrow string-course, and composed of stone, so worn that it would be no difficult matter to climb them without any aid, save the hands and feet. They are covered with creepers, and the purple of the caper flower is to be seen in all parts of them. On the top are terraces, planted with vines, figs, oranges, and olives, except in one part, where the road runs close behind the fortifications, in which part the steps, battlements, and ramparts remain untouched, in one place looking down to the suburb, which has sprung up without them on the seashore.

Except by the hand of time they remain untouched since the day when they were last manned by the rude defenders, for whom alone they are fitted; for a few small guns would soon reduce them to a mass of ruins.

BARGA.

TRAVELLING in search of a cool spot in which to exist in Italy during the scorching, enervating heats of its summer, none offered a cooler retreat than one of the lovely vales of Tuscany called *Bagni di Lucca*, about fifteen miles from the town of the same name, and claiming the name of *Bagni* or *Baths* from its mineral springs, said to be efficacious for rheumatism, cataneous diseases, &c. It is the *Baden-Baden* of Italy; and now that *Aix les Bains* has been ceded, with Savoy, to France, it lays claim to be the first and almost only resort for those to whom such remedies are necessary, in Italy. But the natural beauties of the spot; its home-like, comfortable hotels; its quiet and, above all, its refreshing coolness, are its first charms. Added to these is the surpassing beauty of its environs. Small carriages are to be hired in abundance that carry you to all parts, with the well-known speed with which the Italian *Jehus* drive their horses.

Through miles of chestnut forests, over as good roads as ever were made by the hand of man, with walls of vines on each side, now breaking down under the weight of the heavy grape of all hues, but which will soon be seething in the wine-kvat, producing a richer wine than has been known for many a year, though not in such great quantity on account of the want of rain,—to one of the principal points of attraction, we drove for about eight miles, till we came to the town of Barga, one of the many old picturesque Tuscan towns built on one of the many rocky heights in the vicinity.

The town contains nearly 10,000 inhabitants. The houses, thickly crowded together on the side of the slope, give the idea of a much smaller and less densely populated place. Passing outside the walls, by a well-kept ground with seats on each side under shady acacias, and with an amphitheatre at one end, formed from a rising bank overtopped with shadowing trees, where the youths assemble in the evenings to play at their national game of "pallone," and through the old gate of the city, we mounted to the duomo, or principal church of the place, dedicated to San Cristoforo. It is an Early Lombard church, of grand proportions and much interest. It was restored about ten years since, and the whole gives an idea of its being in good preservation. The columns on each side the interior are coloured alternate white and black in horizontal stripes. A handsome low screen raised above three steps leading to the choir, divides it from the body of the church. It is of coloured marbles, with rudely-carved heads in relief at measured distances. Within, over the high altar, is a coloured terra-cotta life-size figure of San Cristoforo and the infant Saviour: before this is placed a modern painting of the same, only removed on festivals. In a small chapel to the right is one of the most exquisite bits of Luca della Robbia work: the two draped female figures of angels on each side of the small shrine are of perfect grace and beauty. The pulpit is of Early Byzantine,—the subjects in relief, crowded in in the most comical of styles. On the north side are seen the three kings, hastening to pay their devotions, the horses conveniently prancing to get into the allotted space. On the west are the Annunciation; the Birth of our Saviour; the Washing of the Infant, at which two sagacious-looking, well-cut asses' heads are introduced, peering over the child. The south side has the four Evangelists. The pulpit stands on four twisted columns, each differently supported at the base,—one by a lion (which a gamine of about eight years old bestrode, to exemplify the size), crushing a dragon; a second by a lion, under which lies a man, his hand to the lion's mouth; a third by the back of a grotesque squatting figure of a child, with his hands on his knees: the fourth terminates with a simple pediment. The font is of the rudest Lombard. The exterior of the church has many well-cut heads inserted in the brickwork, which, as usual, should have been covered with marble. The western door is handsome, and has remains of deep, well-cut ornaments of leaves of the vine, the fig, &c.

From the steps leading to the entrance,—what a panorama!—are seen gray gigantic Apennine peaks rising to the sky in forms of grand beauty, unrivalled in any other European chain,—range beyond range, with such rich verdure on their slopes, as they near the foot, as fair Italy alone can show; beautifully situated towns and villages nestling among the valleys, and bathed by the small rivers of brilliant flowing waters over silvery boulders, worn round by the constant washing over them of the streams.

From one point of view, at Barga, can be seen thirty-two of such villages, either half hidden among the verdure or perched on sterile rocks. We then visited a neighbouring convent, to see two other beautiful specimens of Della Robbia; then descended through a shady green lane to the hospital, to view in its chapel works said to be by della Robbia, but only of the school of Della Robbia, distinguishable as such by the colour introduced on the figures; but they were for the most part very fine. A terra-cotta of the Virgin and Child, with saints, almost life-size, in the cloisters of the old chapel, said to be a Robbia, and evidently of his time, was remarkably beautiful. In fact, all around that part of the country are to be found works either of Della Robbia or his school. (The finest we have ever seen for beauty of design and execution of the conception, is an Assumption, in the church of the Franciscan Convent of L'Osservanza, five miles from Sienna, and which is now about to be offered for sale, we hear.) If the secret of the composition be hidden, as the story goes, within one of the figures of the true Della Robbia, there is work enough for an army of iconoclasts in this neighbourhood alone in search of it. We found one of the most interesting museums of Cinquecento ironwork, majolica and Georgio ware, Venetian glass, &c., we have had the good fortune to meet with in many private collections in the possession of Signor Cardosi, one of the magnates of Barga. But to the English at home will Barga and its sister town Corbina be made more interesting by the fact that a class of people ever being brought before their notice come chiefly

from these two towns, namely, the *figuristi*, or makers of those images paraded about our streets on boards on the heads of itinerant Italians, or exposed for sale under available porticoes of churches, theatres, and elsewhere. There is a yearly emigration of 10,000 Italians from the duchy of Lucca, or rather that part of Modern Italy formerly so called, and from Barga alone 1,500. The duchy of Lucca is a most densely-populated part of Europe,—three persons and a half to the Italian *ettaro*, or 10,000 square metres (equal to about 2½ of our square acres). In the last statistical returns the population of England is said to be, including our overcrowded huge cities, 1·75 acres to each person. There are in Barga large silk factories, as in all the towns around. The makers of *gesso* (plaster) images have two large factories, and two in Corelia, three miles distant. They manufacture their *Pio Nonos*, their Garibaldis, their Washingtons, their Little Samuels, their Walter Scotts, their Virgin and Family converted into "Religion" for Protestant England, with all absence of nimbus; and they carry off their wares to England, America, Australia, suiting them to the opinions, both religious and political, of the countries to which they wend their way, taking care not to carry their Garibaldis to Venice, or their *Pio Nonos* to Milan, and finding purchasers for all in tolerant England. The aim of their life is to make a little fortune, return to their beautiful country, buy their plot of ground, for which, our informant assured us, they invariably pay a third more than its value, plant their chestnuts, their vines, mulberry trees, and maize, and settle down for the remainder of their lives in their native country. What frightfully hideous contrasts have they to live through to gain that little territory of their own! Contrast in imagination the squalor, the suffocating bad air, the black smoky atmosphere of the parts of London where herd these poor image-makers, with the deep blue heavens above, the lovely groves, the mountain, the sweet ever-changing flowers of fair Italy, in one, too, of its most lovely spots; and the thought arises—the conjecture—how many of those annual 10,000 emigrants return to tell the tale of their wanderings and privations, with the end of both accomplished?

THE GLASS MANUFACTURE.

CHILDREN'S EMPLOYMENT COMMISSION.

The fourth report of the Children's Employment Commission is devoted to the metal manufactures of the Sheffield district, the foundries and machine shops of the West Riding of Yorkshire, the glass manufacture, type foundries, hand-loom carpet weaving, the manufacture of umbrella and parasol handles, artificial flower making, tobacco manufacture, India-rubber manufacture, paper manufacturing, tailoring, shoemaking, gloving, and hatting. Among these, the glass manufacture was assigned for inquiry to Mr. J. E. White, who visited most of the works in England, and prepared an exhaustive report upon the subject. He shows that the age at which children usually enter glass-works is from nine to eleven; but it varies much in different districts and kinds of work. In some works few boys are found, and in most the majority of those now at work are over eleven. At the works of Messrs. Chance, of Birmingham, there is a rule against any boys being employed under the age of twelve; and it appears to be strictly enforced; but a very few get in under that age. Several other employers expressed a dislike to boys below that age. The average age appears to be lower in Birmingham than at Stourbridge (where the work is of much the same kind), and at most other places.

Females are not employed in glass-making, though a few are found engaged in various ways in connexion with that department. In plate-glass works, the "smoothing" of the plates, a part of the polishing process, is done by females, as it is also in a large sheet-glass manufactory, where a like process is employed. Females are also employed in the cutting department of flint-glass works, in roughing or obscuring glass for lamp-globes, &c., in washing and cleaning glass, wrapping up in warehouses, and some other miscellaneous ways. In all the plate-glass works, boys appear to get regular wages. The girls who smooth usually work as helpers to some woman, and receive such part of the woman's wages as the latter allows.

The state of the places of work occasionally

renders the labour of the boys unnecessarily irksome. In consequence of the faulty arrangements of furnaces and kilns, they are sometimes placed literally between two fires. Some flint-glass works with comes of the old construction are also very hot. There are frequently strong draughts close to where the boys work, bringing a large amount of dust, with which their faces become begrimed. The new houses, especially at the largest manufactories, are comparatively cool, airy, and clean. In some work, as in crown and sheet-glass houses, the boys are almost permanently in a high temperature, the hottest being that of "pushers" in crown-glass houses, and of "shovel-holders" in sheet-glass houses—work done by the youngest boys. In one instance, Mr. White found the thermometer, held close to the head of a little shovel-holder, register 130 degrees. He adds that, while standing near the fire for that purpose, his hat was so drawn out of shape by the heat that it was unfit to wear until restored by a hatter. In many flint-glass cutting shops, attention to cleanliness and ventilation is much required. Putty powder, of which lead is the chief ingredient, is used in two of the finishing processes, and flies off plentifully. A certain amount of sharp particles are also thrown off from the glass, and from the stones or cutting-wheels, of which one kind consists of discs containing lead. The sheds in which boys grind, and those in which women and girls smooth plates or sheets of glass, are, in some cases, sloppy from the water used in those processes, a defect which could easily be removed. Owing chiefly to the above causes, cutting shops are generally regarded as much less healthy as work-places than glass-houses.

The hours of work in glass-houses of most kinds are very peculiar and varied, being governed mainly by one common principle, namely, the length of time which it takes to prepare and work out the quantity of "metal" which it is found expedient or practicable to manufacture at one time. In crown, sheet, and bottle-glass works, the "journey" usually begins as soon as Sunday is ended, and occupies from eight or nine to ten or eleven hours in sheet-glass houses, and an hour or two longer in crown and bottle-glass houses. In these works it is said to be impossible to secure any regularity as to hours.

Mr. White visited the Birmingham Plate-glass Company's works at Smethwick, where information on the subject of the inquiry was given him by Mr. Lockhart, the manager; but he was not permitted to examine the boys employed there, the company considering that their mode of manufacture requires absolute secrecy. This was not the case at Messrs. Chance's works, in Spon-lane, of which Mr. White gives the following description:—

"These are very large and important works, covering many acres of ground, and employing many hundred workpeople, of whom only a small proportion—about 300—are children and young persons. There are many separate glass-houses, most for making sheet glass; others for crown, stained, rough plate, and optical glass. Boys are employed in grinding and polishing the plate-glass made, and females in smoothing it, in just the same manner as in the plate-glass works. The smoothers, whose work is wet and sloppy, are provided with muleskin aprons, and wear high wooden shoes. They are said by this means to be able to leave work dry and tidy. About thirty boys are employed in grinding lighthouse glass. Great regard has been shown by the employers for the education of those under or around them. Large and handsome schools, including three lofty school-rooms, with class-rooms to each, supplied with maps, &c., and a house for a master, have been built by the firm close to their works at their own cost, which must have been very considerable. The benefit of these schools, though mainly intended for, is not confined to those engaged in the works, for whom classes are held on three nights in the week, including instruction in drawing, which is of great use in certain branches of glass work, though said to be not yet so much appreciated by those who would benefit most by it here, as by other persons near who avail of it. It having lately been thought by the employers desirable to ascertain the actual educational state of their younger workpeople, all have been examined, and the result has led to a rule that all under the age of eighteen, who fail to show the required knowledge of reading, writing, and arithmetic, shall attend the evening school. A qualified surgeon is appointed to attend the people employed in the works, and has a surgery, forming part of the school buildings."

A visit to the Stourbridge Crown and Sheet Glass Company's Works completed Mr. White's inquiry into this branch of the manufacture, so far as the Midlands are concerned.

The inquiry into the flint glass trade commenced with a visit to Messrs. F. & C. Osler's works in Freeth-street and Broad-street, Birmingham. This is one of the leading firms in this branch of the manufacture, and the evidence of Mr. Percival gives a very full account of the flint glass-house system in reference to the employment of boys. Visits while at Birmingham were also made to the works of Mr. Arculus,

Broad-street; Mr. Sarson, Upper Windsor-street; Mr. Hughes, Tower-street; Mr. Hateley, Chester-street; Messrs. Lloyd & Summerfield, Spring-hill; Messrs. Stone, Fawcay & Stone, Dartmouth-street; Mr. Robertson, Brice-yard, Broad-street; Messrs. Gammon & Co., Brook-street. Mr. Webb, Messrs. Richardson & Smith, and Messrs. Walker & Son, Stourbridge, were also visited; and Mr. Renand, Dudley.

The Commissioners state in their report that they consider the protection of the Factory Acts Extension Act requisite in reference to the state of the places of work, the excessive hours of labour, the absence of proper rest for the young at meal times, and the education of the young. The very exceptional nature of the glass manufacture, involving as it does many varied and complicated details, renders it difficult to determine what the precise regulations should be in respect to some points; but they are of opinion that the evidence justifies the following recommendations, as securities against overtasking the strength of the young:—

No female to be employed in any manufacturing process. Boys under twelve to be excluded. Boys under sixteen not to work at night, nor more than twelve hours in one day, including intervals for meals amounting in the whole to not less than an hour and a half. Youths between sixteen and eighteen not to work more than eight hours at night, including intervals for meals amounting in the whole to not less than an hour; nor to be employed at night-work two consecutive weeks. Any excess of time owing to accidental delay in any of the processes not to exceed an hour. Boys under sixteen employed at glass "making," to attend school not less than nine hours each week, and other boys according to the regulations of the Factory Acts. The Factory Acts Extension Act to be applied to the processes of grinding, polishing, and cutting plate and window glass, the cutting of flint glass, and all the processes done out of glass houses.

The Commissioners express their belief that, if these recommendations should be embodied in legislation, they would work as satisfactorily as the regulations of the Factory Acts Extension Act have done in respect of the earthenware and porcelain manufacture.

FROM SYDNEY, AUSTRALIA.

It will have been noticed that a serious catastrophe occurred at Sydney on the 29th of June, in the destruction by fire of the Roman Catholic Cathedral, a spacious structure. The occasion has called forth the energies of the members of that church in this colony, who have subscribed liberally for its reconstruction. By somewhat of a coincidence it happened that previously to the fire a public meeting of the members of the Church of England had been called to raise sums for the completion of the Cathedral Church of St. Andrew, which, commenced many years since on a scale then too large for the means of the Church here, was but too long delayed in its construction. The efforts of the Roman Catholic body to raise means for their own object, very properly excited, in the meantime, the emulation of the Church of England community; and at the meeting of the latter referred to, large subscriptions were contributed, and measures taken which insure the prompt finishing of the building. The general subscriptions will be applied to the building itself. The married ladies of the colony contribute 2,000*l.* for the purchase of a large organ. The unmarried ladies gave 1,500*l.* for the eastern window. The children of Sydney gave means for the purchase of the font, and the pulpit, it is expected, will be supplied by English bishops.

Steps are at length, by news of date 21st June last, being taken by the Government preparatory to the erection of the new General Post Office, in George-street, according to the designs prepared last year by the Colonial architect. Tenders were invited for the removal of the old Post-office. The new building will be in the Italian style: it will have an architectural elevation in George-street, and also facing the new lane which it is intended to carry through to Pitt-street in continuation of Barrack-street.

The masonry for the new office of the Pacific Insurance Company is approaching completion, a portion of the walls being up to the cornice.

Tenders have been invited for the enlargement of the Congregational Church in Pitt-street. The width of the building is to be increased, by taking in 25 ft. on the northern side; and additional accommodation is to be provided for 618 persons. A contract has been taken for a new Congregational Church, in the Gothic style, at the corner of Ocean and Piper streets, Woollahra, to accommodate 340 persons, and to cost about 1,150*l.* A Gothic church, for the Wesleyan body, is

about to be erected at Chippendale, on the site adjacent to the old church; a design prepared by Mr. T. Rowe having been adopted. The plan is that of an oblong, with a chancel projecting from the centre of the east side; also with a projecting tower and porches on the west front opposite the road, and with four entrance doors. Above the tower will be a spire, terminating at a height of 126 ft. from the ground. The dimensions of the interior will be 100 ft. by 46 ft., exclusive of the chancel, including which the width will be 56 ft. The seats will be disposed so as to form a semicircle round the rostrum. In the chancel wall behind the rostrum there will be a wheel window; and below a reredos with moulded arches supported on small columns. The walls will be entirely of stone, and cedar will be used for the internal fittings. The ground-floor is to accommodate 740 adults, and the gallery 500 children, with sixty adults; altogether there will be sittings for 1,100 adults. Tenders will shortly be called for the work, which will probably cost about 6,500l.

Considerable progress has been made with the lining and covering of the high-level reservoir at Paddington. The contract was to be finished in six months.

The tunnels for the sewerage of Woolloomooloo Bay are advancing towards completion. The width of the main tunnel is 10 ft., and that of the branch tunnels 6 ft. and 8 ft. Messrs. Love-ridge expected to complete their contract in three months.

FROM QUEENSLAND, EASTERN AUSTRALIA.

The foundation stone of the new Parliament Houses has been laid at Brisbane by the Governor.

We have received the following interesting particulars respecting this building:—

Some years ago Sydney made a great effort to build for itself a set of Parliament Houses more worthy of that colony than the wretched group of houses, now called by that name, in Macquarie-street; but, beyond issuing a competition for designs, and expending a large sum in prizes, nothing more was done. Our own Houses of Parliament in Queen-street, Brisbane, are nothing to be proud of either; and it is, therefore, gratifying to us to be able to record that we are going ahead of our neighbours in having actually commenced a set of buildings, of which we hope future generations will be proud. The stone was laid with some ceremony on the 14th (of July) by the Governor, Sir George F. Bowen, in presence of a large concourse of people, after which the workmen sat down to a dinner, at which Mr. Charles Tiffin, colonial architect, presided, supported by the President of the Legislative Council, the Speaker, the Colonial Secretary, and several members of both Houses.

The general arrangement of Mr. Tiffin's design, now in course of erection, is that of a large quadrangle, 304 ft. by 230 ft., surrounded by buildings, the chief of which will rise 103 ft. to the top of the curved mansard roofs. The centre portion will be three stories high, with circular-headed windows and detached columns, and having a projecting carriage-porch of five bays on the ground-floor. The entrance-hall is 27 ft. by 19 ft., and 18 ft. high, that being the height of all rooms on this floor. The grand staircase is 31 ft. by 23 ft., with central flight, branching off to the right and left, on the half-landing. Taking the entrance as the centre, both sides of the plan are alike,—that to the right belonging to the Legislative Assembly, whilst that on the left is intended for the Legislative Council.

Taking one side, the space next the porch contains the hall to the public stairs to the galleries; there are two committee-rooms, 27 ft. by 14 ft., and 17 ft. by 14 ft.; also entrances for reporters and witnesses. At back are more committee-rooms, strong rooms, and staircases. On the first-floor are—the reading-room, library (with terrace over porch), and corridors leading right and left to the assembly and council chambers, which are each 63 ft. by 36 ft. 6 in., by a height of 32 ft. The public galleries pass over the writing-rooms and staircases, so that the upper dimensions are 80 ft. 6 in. by 36 ft. 6 in. At the further ends are entrances for president and speaker, from their respective private rooms. Sundry offices and reading-rooms occupy the second-floor.

The refreshment-rooms form a detached group at the back of the centre portion, with cellars, &c., in the basement, and kitchens on the

ground floor; whilst the refreshment-room, 49 ft. by 20 ft., and smoking-room, 27 ft. by 16 ft., are on the first floor, and are approached from the grand staircase. Above are attics for porters' bed-rooms. The style chosen is the French Renaissance, and, although devoid of much traditional ornamentation, it is considered effective by the judicious breaking up of the front and sky line, and by a two-storied loggia connecting the wings with the projecting centre.

The walls are of freestone, and the roofs will be covered with English slates, with iron cresting at the ridges. The principal floors are to be fireproof, the iron joists being supplied by Messrs. Fox & Barrett, of London.

From returns upon various subjects, which have been laid upon the table of the Legislative Assembly, and from evidence obtained through other channels, the *Queensland Daily Guardian* learns that the public works of the colony are not only rapidly becoming more numerous and important, but that they are being constructed in a permanent and substantial manner, and with a despatch that is satisfactory, considering that this is only the sixth year of the colony.

The engineer for the Brisbane Waterworks has reported to the Minister for Lands and Works, upon the progress made at the works, from which it appears, that the dam at Enoggera Creek is about half completed, and will be finished about November; and although unforeseen difficulties have arisen in carrying out some parts of the work, he expects to have the dam, tunnels, and main completed by the end of January next.

Numerous and important works are now progressing within the Brisbane city boundary, under the city surveyor, Mr. Ambrose, as well as the no less important works for which tenders have been called. The contractor for making the bridge approaches on the South Brisbane side, has commenced operations. The bridge between North and South Brisbane was opened on the 24th of June.

Great improvements are in progress at the eastern end of Stanley-street, by cutting away the hill; continuing the street in a straight line to meet the Ipswich-road; and filling up a dangerous siding at the top of the reserve. In North Brisbane side there are several works nearly completed;—the bridge and approaches in George-street; a large stone invert culvert in Old Boundary-street; the cutting in Leichhardt-street; cutting and formation in Elizabeth-street; and several important works of smaller magnitude. The slip on the North Quay has been made up; and, in addition, a landing-stage for market produce, for the convenience of the farmers up the river. The landing-stage is 90 ft. long by 20 ft. wide, with approaches from each end.

Among the largest of the many private buildings which have lately been completed and opened in Brisbane, the shop of Messrs. Perry, Brothers, ironmongers, of Queen-street, stands conspicuous. The front of the basement story, about 50 ft. in width, is occupied by two plate-glass windows, with door between. The shop is 47 ft. wide by 84 ft. long, with cedar counters running the whole length. In the centre of the shop is a large double flight of stairs, with carved bannisters, leading into the show-room,—a lofty room, the same size as the shop, with open roof, the woodwork painted of a light neutral tint. At the back of the shop is the warehouse, the same width as the shop and 60 ft. long, two stories in height, but lighted entirely from the top. The upper story is in the form of a gallery round the walls, the centre being open, and traversed by a patent hoist, movable to any part of the room by a boy, and capable under such management of lifting and carrying to the place where it is wanted any package, however large and heavy it may be. The architect was Mr. Cowlishaw; and the builder, Mr. John Petrie.

"A WORD OF ADVICE TO MARGATE."

We have received from Mr. T. D. Reeve, the late sanitary inspector (Mr. Reeve has resigned the office), a reply, already made public by the local press, to the mayor's letter printed in our last, with a request that we should publish it. As it is simply a series of accusations against the mayor of having obstructed in all quarters the sanitary improvement of the town, which may or may not be true, we decline to do so. We were anxious to avoid the personal part of the subject, our object being, not the annoyance

of any individual, but the improvement of the town. The inspector's reply in our last, however, and his more recent assertion that the original "Word of Advice" is "an untruthful article," leave us no alternative but reply. This will be better done than by any words of our own, by the insertion of the following letter, just now received from the mayor of the town:—

SIR,—I am obliged by your recognition of my earnest desire to improve the sanitary condition of Margate. I may say, that the governing body are quite alive to the great importance, to the prosperity of Margate, of a strict enforcement of sanitary laws; that we listen to the kindly comments of friendly critics, and, so far from ignoring existing evils, are quite determined that they shall speedily be removed. It was not my intention to make any remark on letters from Mr. Reeve concerning myself; he, however, having replied to the article in the *Builder*, "A Word of Advice to Margate," begging an insertion of his contradictions and explanation of the alleged "facts" contained therein, it is, I conceive, but a simple act of justice to yourself for me to say, that although I feel it would be trifling with your time and mine to go into details which must be lengthened to explain Mr. Reeve's strange denial of notorious facts, I am prepared, either by personal inspection, or by any other way suggested by yourself, to prove that the nuisances mentioned in your paper really existed at the time of its publication. I must, however, take an exception to your theory of the cause of the stench at the back of Marine-terrace: it is new to me, and one that I am not able to determine. As Mr. Reeve's resignation of the office of surveyor and sanitary inspector has been received, it would be unfair to make any further allusion to his letter to yourself. I am reluctant personally to be drawn into this controversy, but my duty as a public officer compels me thus briefly to notice Mr. Reeve's letter to yourself.

I remain, Sir, yours faithfully,
THOMAS H. KEENE, Mayor.

Margate, October 3, 1865.

Another correspondent says, with reference to the assertion of the late sanitary inspector that he has not, nor ever has had, "any house in Love-lane."—"This statement would be equivalent to a man owning property at the corner of Rathbone-place saying he had no interest in the lower end of Oxford-street! The property alluded to would naturally be spoken of in general terms as 'Love-lane,' that being the nearest thoroughfare; and the house charged as a nuisance is owned by Mr. Reeve. The right name, I believe, is 'Puddle-dock,'—certainly more suggestive than 'Love-lane.'"

We repeat, that we have no desire whatever to injure any individual: we care no more for the mayor than we do for Mr. Reeve: our sole object is to get such attention to the condition of the town as may lead to the supply of its obvious sanitary deficiencies; and we would specially call the attention of the medical men residing there to their evident duty, reminding them how much their own interest is concerned in removing from the town the stigma that attaches to it.

TERRA COTTA STATUE OF THE LATE PRINCE CONSORT.

At the terra cotta works, Stamford, Mr. Blashfield has just completed a statue of his late Royal Highness the Prince Consort, made from a model executed by Mr. Theed, the sculptor. The statue we are about to describe much resembles in pose and arrangement that which Mr. Theed modelled and executed in bronze for Coburg, the model for which may be seen in the Crystal Palace. The Prince is represented in the robes and order of the Garter. He stands in an easy and dignified position, holding a field marshal's baton in the left hand, while the right hand points to a scroll on a pedestal, upon which is indented the facade of the Crystal Palace of 1851. The pedestal has upon it a medallion portrait of her Majesty; and a wreath of flowers is entwined round the pedestal. The likeness of the Prince is truthful. The colour of the statue is a warm buff. The figure, inclusive of the plinth on which it stands, is 7 ft. 2 in. high. It has been burnt in one piece, is without flaw, and is as hard as black marble. The materials used in the formation of the statue are clays from the estate of Mr. Arthur Helps, at Bishop's Waltham, and clay from the Marquis of Exeter's celebrated pit at Wakerley, mixed with felspar and Lynn sand. Mr. Blashfield arranged that one of his patent kilns should be the workroom for building up the different parts of the statue after they had been removed from the moulds, and for finishing the entire work. We are informed that gas was laid on to the kiln for this purpose, and after the work was complete the gas was used for drying it. In this state the statue remained several weeks. When quite dry, the doorway of the kiln was bricked up, and the process of firing commenced, which occupied about a week. After a lapse of nearly another week, the kiln became sufficiently cool to enter and remove the



HAUGHMOND ABBEY, NEAR SHREWSBURY. SOUTH DOOR OF THE CHURCH FROM CLOISTER.

[See p. 702, ante.]

statue. The composition of the body has melted together in just sufficient degree to produce as much vitrification as shall make it proof against the weather and all acid or alkaline bodies, without warping or twisting. We sincerely hope it may prove so. Some modern works in terra cotta will not last a dozen years exposed to the weather. The statue is intended to be placed over the entrance of the new infirmary at Bishop's Waltham.

DISTRICT SURVEYORS AND THE METROPOLITAN BOARD OF WORKS.

At the meeting of the Board held on the 29th ult., Mr. Robert Taylor, pursuant to notice, moved the following resolution:—

"That it be referred to the Main Drainage Committee (a committee of the whole Board), to report generally on the payment of district surveyors by fees; on the extent, value, and convenience of the present districts; and on the expediency of their fusion and rearrangement; also as to the advisability of directing the payment of the fees collected under the Act into a common fund, out of which to defray the payment of a staff of salaried officers, devoting their whole time to the public service."

In support of his motion he alluded to the very large sums received by district surveyors, and said that nevertheless, in many instances, the whole of the work was done by deputy, and all the district surveyor himself did was to receive the fees. Every district surveyor should be compelled to do his duty personally.

Mr. Taylor's view was, that 10,000*l.* per annum out of the 30,000*l.* paid to district surveyors would maintain a staff of officers connected with

the Board, and who should give their whole time to the work, so that 20,000*l.* a year would remain to be applied to improvements.

The Chairman, Sir John Thwaites, pointed out that it would not be legal so to apply such a balance. The proposition was discussed very dispassionately and ably, and the Board showed they were fully aware of the difficulties and objections that exist in the way of the alteration suggested. The motion was carried with a view to a full inquiry.

One member stated emphatically, and we believe with perfect correctness, that the district surveyors, as a body, did their work very efficiently, and with satisfaction to the public.

PROPOSED MONUMENT TO SHAKESPEARE IN STRATFORD-ON-AVON.

It will be remembered, with reference to the Tercentenary Shakespeare festival held in Stratford-on-Avon, that the erection of a permanent memorial of the poet there was contemplated. A design by Mr. John Gibbs, of Oxford, was selected, and a subscription to defray the cost was commenced. We are now assured that earnest efforts are again being made to obtain funds, the late Mayor, Mr. E. Flower, and the present Mayor, Mr. Jas. Cox, materially assisting, and that the memorial will certainly be erected. We have in consequence engraved a view of the design, and now lay it before our readers. The total height will be 106 ft.; the width at the bottom of the steps, 36 ft.

The plan at the floor-line shows four buttresses, ornamented with angular columns, capitals, and panels. Each of the buttresses supports a pedestal, on which a large statue will be placed. The memorial is not to be a solid structure, but so constructed at the lower part as to form a space in the centre for a vaulted chamber, lighted by four windows, and entered by an arched doorway on one side only. This chamber is intended to contain a marble statue of Shakespeare, resting on a carved pedestal opposite the entrance. The walls of the chamber are to be historically treated, by tinted sculpture in bas-relief. Medallions of dramatic writers and actors are to fill the spandrels of the doors and windows, and other parts, both internally and externally. The form of the statue-chamber is indicated on the design outside, as it rises by various architectural lines, amidst which are four large gables, partly occupied by the arms of Shakespeare, supported by dramatic characters. In the second stage more figures are shown, singly and in groups, illustrating personages in some of the chief plays of ancient English life, some being under canopies. The upper tier of statues is shown upon the third stage, which, with these below and the crowning group at the top, St. George of England slaying the Dragon, number between thirty and forty.

The estimate shows the following items:—

Masonry.....	£2,220
External sculpture and carving.....	600
Internal sculpture.....	200
Statue of Shakespeare.....	500
Colour.....	100

£3,620



PROPOSED MONUMENT TO SHAKSPEARE IN STRATFORD-ON-AVON.—MR. JOHN GIBBS, ARCHITECT.

THE NEGLECT OF SANITARY LAWS.

DURING the remarkable summer which is now passing away, the death-rate of the metropolis has afforded matter for both agreeable and anxious thoughts; but, notwithstanding the very large number of deaths from typhus-fever and other disorders of a kindred class, the rate of mortality has been on the whole satisfactory. There are tangible reasons for this. From the large extent of the sanitary measures which have been in progress during the last few years, we have a right to look, as a natural consequence, for a reduction of the metropolitan death-rate, which ought, ere long, to be reduced from twenty or twenty-one deaths in each thousand, to say, seventeen in the thousand; a most important matter, when we consider that a saving of only 1 in 1,000 of the population of the London district,—taking it at three millions,—means 3,000 men, women, and children. The causes to which we may look for the decrease of the deaths, include the removal of large numbers of persons and their families engaged in the City into country quarters; the removal of others from the dens and alleys, which were situated somewhat similar to those in Maypole-alley, and some of the other parts in this neighbourhood and elsewhere, into more open spaces; the immense improvement of the drainage, the advance of medical science, and increased facilities of attendance on the sick poor; the disuse of intramural interments; the inspection of common lodging-houses; and, to a certain extent, the greater disuse of unwholesome food. These and other steps which are in progress will all have a sure and beneficial effect on the public health. In order to give some idea of the advantage which must result from the inspection of food alone, Dr. Letheby states, that in one seven weeks altogether as much as 89,821 lb. of meat, or upwards of 40 tons, have been seized in the City markets alone. The meat consisted of 148 sheep, 12 calves, 40 pigs, 849 quarters of beef, 25 hares, and 65 head of game. A considerable quantity of this meat was affected by the prevailing epidemic, and it is easy to form an opinion of the immense amount of damage which would have occurred if those polluted articles had been used for food. There is still much to be done; and amongst other matters to which attention should be given is the enforcement of the sanitary enactments which already exist. If this were done, the abuses such as those which have been illustrated and described by us, as in Maypole-alley and many other places, would no longer exist; and by this means the typhus and other fevers, which have for some time past proved so fatal, would be checked to a great extent. If a proper inspection of houses let into numerous dwellings were systematically enforced, fever would be robbed of half of its victims. The very circumstance would itself prevent much overcrowding, and cause more attention to ventilation and drainage than is shown at present. We have found many places—some of them only at a short distance from King's-cross—which are hot-beds of disease. In one house eight navigators sleep in a garret; a man and wife in the back parlour; a man, wife, and two children in the front parlour; man, wife, and four children in front room of the first floor, or the drawing-room, as it is called. Our informant did not know how many there were in the back drawing-room, but it was inhabited by a family, and we will put the numbers at three only. In the kitchens are a family of eight, and three lodgers. We would thus find the population of this house as follows:—Garret, 8; front drawing-room, 6; back ditto, 3; front parlour, 4; back ditto, 2; kitchens, 11: making 34 persons in a small, inconvenient house, very ill drained. This is a bad instance, but there are others which are much worse. We may here long direct attention to some of these dangerous spots in detail; though this would be sure to inflict damage on individuals,—a most unpleasant duty, even when it is performed with a view to save life and preserve health. But, as we have before said, these are matters which the State authorities of the country are bound to inquire into; and if this were carefully done, the evidence would be so clear, and the necessity so evident, that we should soon see an inspection of such houses carried into effect. Our readers know we are anxious to see a measure of this kind brought into working order. It will need to be done; but it requires long persuasion before the most necessary changes can be pressed upon the attention of the Government or a large mass of the people.

In the case above referred to, we believe that the lodging of the eleven navigators comes under the action of the Common Lodging House Act, and that the person who rents the house ought to be called upon to register this place as a common lodging-house; but this would not be done in consequence of the house not being fit for the purpose. In order to obtain a license for letting a house in this way, the drainage must be perfect, all parts trapped and secured, and water laid on so as to provide for personal and other cleanliness; there must be a sufficient sitting and cooking room for the lodgers, good beds, certain arrangements for the sleeping of the sexes, and a sufficient amount of cubic space for the occupants of the dwelling, and other provisions. In many other of the tenement houses this evil arrangement of admitting lodgers is carried on to a great extent; for instance, persons take one or two rooms for the express purpose of sheltering their families, and then admit lodgers who are not related to the tenant. In some instances two kitchens are rented, and then one, two, or more lodgers are taken in to sleep with part of the family in the back or front kitchen. This is completely against the law, and causes mischief. In such unfavourable conditions fevers break out which would never have occurred in the licensed common lodging-houses, and in those situations fevers are both generated and developed, so that the good intentions of a wise Act of Parliament are frustrated.

At the present time, when the overcrowding of a large number of tenement houses has been increased, and is still increasing, attention to the water supply is of very great importance. In Maypole-alley they never had any water on the Sunday. How is it possible that they could have had, when the casks are so small and the population of the houses so large? Here there are little casks provided for the water, and there is no water laid on, so that the closets cannot be flushed; and it is likely that the people will "waste" the precious article, of which they have so little? If the drainage were right, a short leaden pipe would carry the water which is needed for the closet, and well flush the drains; but, as we have said a hundred times, when bad drains and cesspools exist, this flushing does more harm than good. By the Act of Parliament, those who let houses are bound to provide water-vessels of a sufficient size; to have these vessels covered; to have dust-bins provided, and have them also covered over. How many instances throughout the metropolis,—how many hundreds, how many thousands of cases of neglect in this respect are to be met with? And yet the law as at present established is sufficient for the purpose of enforcing those regulations which are so especially needed.

In the present time of the cattle disease City and other parish authorities have employed additional inspectors; and, after all, the expense of these officers is not of large amount. Mr. Reindle remarks that, in the comparatively poor parish of St. George, Southwark, with a poor population, which pays poor-rates to the extent of not far from 30,000*l.* annually; where, as we have elsewhere stated, there were 400 deaths from fever in five years, and where, in the two last cholera epidemics, 1,600 persons died of that disease; if we estimate the number of fever cases in the five years referred to as eight cases of fever to one death, we have 3,200 attacks of fever, and it will be understood how great the expense must have been to the parish caused by those attacks of fever. Therefore it would have been, in a money point of view, better to have expended sums for sanitary inspection, and the enforcement of the laws connected with the public health.

It is clear that if the parochial authorities do not enforce the regulations, another and more active and independent power must be called in. Now that the cattle plague is raging to an extent which causes alarm in all directions, and which is ruining many persons, additional inspectors have been appointed. We believe that if inspectors to a sufficient extent, and of the right kind, had been appointed long since, and stricter regulations made in the cowsheds, the disease would never have appeared. And similarly in connexion with human health and life. By proper inspection of the dwellings, by the enforcement of needful measures, we shall the better be able to prevent the spread of cholera, against the attack of which we are by no means safe; for, if it has been partially stayed in some places, it is spreading to others which are nearer to us.

In Constantinople and the places near where this scourge has in part declined, typhus fever of the worst type has appeared, just as if it were, as we suggested, merely another state of the same disease. In one small place, out of 400 cases, 200 persons died. The cause of typhus following in the wake of cholera, however, is easy enough to comprehend on other grounds; for, in the panic, the populations, instead of fighting with the foe in their own neighbourhoods, have rushed away to places which were bad even in comparison with the spots they had formerly occupied, and the new resorts then became so densely overcrowded that, if cholera did not come, typhus was almost certain to arise and spread amongst the visitors.

FROM SUNDERLAND.

SIR,—I sallied out, a few mornings since, from my inn, in the pursuit of knowledge under difficulties. Unlike Doctor Syntax in quest of the picturesque, I was in search of the practical. A ramble through the highways and byways, the near ways and the narrow ways, the old ways and the odd ways of this ancient borough, supplied me with pictures for illustration as well as food for reflection, had I been an adept at the pencil.

Sunderland is a showy sort of a sea-port town, full of life, and much given to pleasure. Perhaps it is like other sea-port towns; social life is similar, though it has strange semblance and surroundings. Its main artery is High-street, and it appeared to me that the different High-streets of the several English, Irish, and Scottish towns and cities I have been through, bear a remarkable resemblance to each other. They have been high and low in situation and social life and manners, portions of them having been sacred to the *élite* and the lowly. High-street, in Sunderland, is no exception in this respect. It is an undulating, tortuous thoroughfare, of upwards of a mile in length, stretching from the antique church of Bishopwearmouth to the South Pier. Branching off at either side for its whole length there are about half as many side streets, entries, opens, garths, riggs, chares, closes, wynds, and lanes as there are houses. The upper and most respectable end of the street is entered by several side streets, faultless in appearance, befitting respectability; but, approaching the lower part of the street, when you pass Sanson-street, and nearing where you enter for the Ferry Station, the narrow streets and entries on either side are anything but *sans* taste, *sans* smell, *sans* everything. From here to the lower end of High-street, branch off where you will on either side, but particularly to your right, and you will meet varieties in the animal, vegetable, and mineral kingdom to study.

"The freaks of the Fungi" are the least observable freaks witnessed here. If you are not particular as to perfumes, enter with me this narrow defile, called, out of respect to the builder, a street, but scarcely wide enough to allow two to pass without rubbing each other's sides. Have patience, now; it is only one of a sample, and, as friend Pat says,—six of one and half-a-dozen of the other. Come on; but take care you do not crush with your boot-soles the little limbs of those belligerent babies squatted and squabbling beneath you on the doorstep and pavement. It is a warm day, surely, this, the middle of September, in the North, or their mammies would not let their little nude Adams and Eves gambol about in a state of nature, as innocent of covering as in the hour they were born. Perhaps it is washing-day, and mother or aunty has gone to the wash-house with the babies' bibs, &c. Perhaps—no, it is useless to speculate: we must move on. The children will have a roll in the muck, as well as the pigs; for pigs and donkeys, by the by, are to be met in these back lanes of Sunderland, nigh as thick as they are in Skibbereen.

The landlords of those wynds and garths are not particular about anything save the rent, and the borough officers pay their flying and peremptory calls for their taxes with their finger and thumb on their nose and a malediction on their lips, which is visited on the savory inhabitants, whether they are successful or not in their errand.

Sunderland is badly in need of a sanitary inspector to poke his nose into those back lanes and shambles seething with rottenness and refuse, animal and human. Many of those narrow entries off the High-street are almost inaccessible to all save the unfortunate resi-

dents who perforce are located and obliged to live in them.

Were there a continuance of the warm weather experienced here for the last few days, and no better precaution adopted, cases of cholera, virulent enough in type, would probably exhibit themselves.

The Corporation of Sunderland, without doubt, has done a good deal, but much remains for them to do. They have drained a little, opened a park, and are adding thereto and daily improving it; have erected public urinals, and put up some small drinking-fountains. But these last accessories to health and sanitary improvements have been confined to leading thoroughfares, or in very close proximity to them, leaving the ulcerated spots untouched.

As long as these narrow back streets and entries are uncleansed, or but half cleansed at intervals, and the houses within them overcrowded with families, without sufficient accommodation and convenient water-supply cheap, and as long as they are not looked after and examined weekly—if not oftener—by a sanitary inspector or assistant, you cannot expect health, and you cannot be out of danger.

Bishopwearmouth district exhibits a large increase in mortality over the corresponding weeks of last year, as shown by the register. The River Wear winds its serpentine course slingshingly along, coaly and black, flanked by ship-building yards, iron and wood, foundries, stores, and many others more or less connected with the shipping interest.

There is always a goodly number of vessels in the river, but mostly connected with the coal trade; a few, however, trade with foreign ports. The river is spanned by a handsome high-level bridge, leading from Monkwearmouth to Bishopwearmouth, under which the tallest masted vessels can pass up the river. The inhabitants of Sunderland take great pride out of it. The original construction was put up in 1798; but alterations and improvements were added thereto under the direction of Robert Stevenson in 1859, whereby the approach each side was brought to a level: said improvements entailed an immense expense on the town. A toll was exacted for a long time for foot passengers, who had to pay, as there was no other crossing but the ferry. Though this toll is now for some time done away with, it is still exacted for traffic. It is rather intolerable to have such an impost levied on the carriage business of the inhabitants of such a business town as Sunderland. For horse or cart, hand-cart or barrow, no matter what kind the vehicle, whether drawn by man or beast, toll is exacted. The retention of the toll-bar on the bridge of Sunderland is the retention of a bit of barbarism, out of keeping altogether with the commercial status and municipal and industrial progress of this rapidly-improving town.

C. C. H.

SANITARY MATTERS.

Bradford.—In a communication to the local *Observer*, Dr. J. H. Bell gives a horrifying account of certain localities in Bradford; and winds up with the following remarks and statistics:—

"I do not know whether any attempt has previously been made to localize the excess of the mortality of the borough. I will, therefore, give you the result of my investigations for the year ending August 3, 1865. The annual mortality of the whole of England is about 218 for every 1,000 persons living. Assuming the population of our borough to be now 120,000, the death-rate for the past year has been 29.1. For the townships of the borough it has been as follows:—Bradford east, 30.9; Bradford west (excluding 30 deaths which occurred in the Infirmary), 28.9; Bowling, 28.0; Horton (excluding 143 deaths which occurred in the Workhouse), 26.1; Manningham, 18.9. In the back streets I have described, adding ten per cent. for the numbers from them who have died in the Workhouse, it is 51.1 and in the Leys, it rises to 67.3—the highest death-rate under ordinary circumstances I ever heard of. But disease in these parts is not only more common, it is also much more fatal, from causes quite different from those which produce disease. Taking fever (typhus and typhoid) as an example of preventable disease, the general mortality is about 12 per cent., and under favourable circumstances, only 6 per cent., but in these low streets it is about 50 per cent. The mortality from fever throughout the whole of England is 8.3 for every 10,000 persons living. In the borough, 1865, it is 12.5, representing 1,200 cases of fever; Bradford east, 16.4; Bradford west, 18.2; Bowling, 9.1; Horton (excluding 22 cases which occurred in the Workhouse), 6.4; Manningham, 6.4."

Manchester.—The sanitary state of this city at present is not satisfactory. Dr. Morgan, in his last weekly report, states that in the previous week there was an alarming increase of continued fever cases, a large proportion of which belonged to the typhus and typhoid forms of the

disease. "We are probably within the mark," he says, "if we affirm that no fewer than seventy cases of true typhus were seen in the public practice of Manchester and Salford." Five of the cases are distinctly attributable to overcrowding.

The Registrar-General's return for the week showed that the rate of mortality in Manchester was 34 in 1,000—the highest recorded among the eleven large towns with the exception of Liverpool, where the rate was the same. *Lichfield.*—A public meeting has been held, "for the purpose of taking into consideration the sanitary state of the city, in order to the amending anything therein which may be dangerous to the health of the people." Mr. M. B. Morgan said he remembered the time when all the sewage flowed through Stowe Pool, which took away all the refuse from the town, but now it all went into the sewers. All the water having been drawn away, too, they had now no means of flushing the sewers, and no attempt had been made to mitigate the evil. Their great want was water. He suggested an application to the feoffees of the conduit lands for a largely increased supply of water; and to the corporation, for further sewage accommodation. Mr. Browne proceeded to notice a case in which, at a farmhouse not far from the city, three persons had died in six weeks from the fearful stench issuing from the stream which passed near the house. He believed the corporation were quite alive to the necessity of removing the nuisance, and the only obstacle was "the expense," which ought not to be considered in such a serious case. Mr. A. Hinckley drew the attention of the meeting more particularly to that part of the sewage which empties itself into a cesspool not far from his residence, at Stowe, and stated the supply of water had been so deficient that the cesspool was quite a nuisance, which he could sometimes smell at his own house. He suggested the appointment of a committee to take the matter into consideration. Archdeacon Moore proposed an adjournment of the meeting, and the appointment of a committee to report to the adjourned meeting on the 17th of October on the sanitary state of the city, and, if possible, to devise a remedy. The motion was adopted, and a committee appointed.

THE BUILDING TRADES.

Plymouth.—In the early part of May, the members of the Society of Amalgamated Masons working in this neighbourhood struck in consequence of the refusal of the employers to accept a "code of rules" which the society had drawn up. There were, it is stated, only two rules in the code which could be said to be different from those already in force in the principal establishments. The first was, that the current rate of wages should be 4s. 6d. per diem, instead of 4s., the usual rate up to that time; the second, "that no employer should sub-let any work, or mason sub-contract with any employer." The strike of the masons involved, to a greater or less extent, a suspension of work in Government and other contracts. Upwards of 4,000 excavators, and, perhaps, 1,500 artisans, in addition to those on strike, were consequently discharged. After a struggle of eighteen weeks Messrs. Branson & Murray, the contractors for the north-eastern defences, extending from Egg Buckland to Saltash, and employing some 120 masons and 1,000 excavators, yielded, according to the allegations of the other contractors, to the demands of the masons. The other masters, believing further resistance useless after so important a defection, met the delegates from the Masons' Society, and drew up a set of rules, embodying the terms for which the masons had contended. The masters, it is said, have nearly come to the conclusion that they are in the men's hands; that they must not take contracts which are likely to require more than twelve months to complete; and that they must endeavour so to arrange their work that the Government and the public must indemnify them for all future advances in wages, which they fear will be perhaps more rapid than hitherto. In the last five years they have been advanced 50 per cent. Curiously enough, the success of the Amalgamated Society of the Stonemasons is said to have given offence to the Society of Operative Wall Masons, who charge them with tyrannical conduct, and have themselves announced by public advertisement that they are ready to work for any employer without

pressing the code of rules. Where the wall masons in an establishment are sufficiently strong to do all the work, they continue; but where there are few they are ejected as "blacklegs" by the stonemasons. When about fifty of the "amalgamated" men went to work again at Staddon, they found there a mason named Carter, and another, on whose discharge they insisted. Two "blacklegs" were permitted to remain, on payment of 4l. each, entrance money, to the dominant association.

Gloucester.—The committee of the operative carpenters and joiners of Gloucester have addressed a temperately-written circular letter to their employers, asking for an advance after Monday, April 2nd, 1866, of 6d. per day, or 3s. per week, on the present rate of wages; and that their working hours be reduced and regulated to 57½ hours per week, and all overtime to be paid at the rate of eight hours per day.

Norwich.—The carpenters and joiners of this city have struck work for an increase in their wages of a halfpenny per hour. The men employed by the following builders, embracing a majority of the trade, turned out:—Messrs. Brown & Bailey, Murray, Hall, Spaul, Lacey, Burrell, Hood, Wales, Rogers, Gilbert, Borking, Aldous, Wagg, and Atkins. It was stated that the masters were, on the whole, disposed to give the advance, if the increase became general, but none were found disposed to make a beginning.

Liverpool.—At a recent meeting of the house carpenters and joiners, it was resolved:—"That we, the operative house carpenters and joiners of Liverpool and the vicinity, having taken into consideration the high price of provisions of all kinds, and that our wages are five shillings per week lower than other branches of the building trades, propose to memorialise our employers for an advance of sixpence per day, with six months' notice, such notice to expire on the first week in May, 1866."—"That we, having seen the ill effects of the working rules not being adhered to, respectfully submit that they be ratified by both employers and employed, so that they may become the custom of the town and vicinity, the said rules to be revised to the satisfaction of both employers and employed;"—and, "That we resolve into one grand tontine, to be composed of every house carpenter and joiner in Liverpool and vicinity who wishes for an advance of wages, the object of the said tontine to be to raise the necessary funds to meet the expenses that may be incurred in agitating for, and obtaining an advance of, sixpence per day."—The Liverpool Masons' and Quarry Masters' Society have held their annual meeting for the confirmation of new rules, which were unanimously approved. Rule No. 3 says:—"That the special object of this society shall be to protect the members against the speculative builders of Liverpool and suburbs." Rule 22 says:—"In the event of a building being incomplete, owing to the non-payment for labour or material supplied, no member shall complete the work until all due demands are paid by the purchaser or land-owner."

MASONIC HALL, BIRMINGHAM.

THE foundation-stone of the new Masonic Hall and Club Buildings, in New-street, has been laid, by Lord Leigh, the Right Worshipful the Provincial Grand Master, in the presence of a large concourse of brethren and ladies. In the early spring plans were submitted in competition for these buildings, and the designs sent in by Mr. Naden and Mr. Holmes were selected conjointly, and those gentlemen were directed to amalgamate the best parts of their designs, and together work out a complete building. But there was great difficulty in carrying out these instructions, and after several preliminary sketches had been made, Mr. Naden and Mr. Holmes mutually agreed upon terms to separate, Mr. Holmes, with the sanction of the Board of directors, retaining the appointment of architect to the company. The directors finally adopted the plans and designs of Mr. Holmes, arranged almost entirely as in his original competitive drawings—the position of the entrances, staircases, grand lodge-room, grand banquetting-hall, and kitchen offices being identical. The style of the buildings will be, in conformity with the instructions to architects, Classical, the exterior partaking of the Greek treatment, while the interior will be carried out in a manner somewhat more free in character. The erections will comprise, on the ground-floor, the grand entrance

in New-street, and shops similarly disposed to those in the Exchange-buildings, by the same architect, with living-rooms, &c., in the basement, and warehouses in Pinfold-street. The remainder of the basement and sub-basement will be occupied by vaults and cellars. On the mezzanine story will be the smaller lodge-rooms, each 28 ft. by 25 ft., with preparing-rooms, ante-rooms, regalia-rooms, lobbies, and muniment-rooms adjoining; and on the same floor the offices for secretary and the club smoking-room, ascending by a grand staircase. On the first-floor, over the smaller masonic rooms, will be the grand banqueting-hall, 71 ft. 6 in. by 40 ft. and 32 ft. high. This hall will have a panelled and ornamented coved ceiling, springing from an entablature carried by marble columns with carved Corinthian capitals. An orchestra will form a prominent feature in the design of the end of the room, and adjoining will be ante and retiring rooms. The portion of the building on the first, second, and third floors, facing New-street, will be set apart for the purposes of the club, with a separate staircase from the ground-floor. A prominent feature in these rooms will be an angle-projecting window. It would seem that Mr. Holmes was the only competitor who complied with the express instructions, as to this, of the directors, who saw the importance of not losing the view of New-street to be obtained by this means. The grand lodge-room, together with the other rooms necessary for the carrying on of the objects of the craft are to be on the third floor. The grand lodge-room will be similar in area to the grand banqueting-hall, but 4 ft. less in height, and will be lighted from the ceiling when required. The kitchens and servants' rooms will be placed at the top of the building, and lifts will communicate with the various landings and serving-rooms throughout. In addition, there are to be service-stairs and several bedrooms and closets in every available corner.

THE WORKMEN'S HALL, BIRKENHEAD.

The new hall recently opened in Cloughton-road, Birkenhead, by the Workmen's Hall Company (Limited), has been erected to provide club-rooms, reading-room, refectory, committee-room, keeper's residence, and a large hall for meetings, concerts, public dinners, tea-parties, or other aggregate gatherings. The architect was Mr. James Fisher, of Birkenhead, who designed the Free Library. The club-house will provide every convenience, a news-room and library, and appliances for serving all sorts of refreshments, except wine, beer, or spirits. The building occupied a little under fourteen months in erection. The entrances and stairways are commodious and plentiful, and are calculated to prevent any danger in the event of a sudden crush. The contractor for the building was Mr. Thomas Lund, of Tranmere.

The material: half brick and stone, no cement in imitation of stone being used.

The accommodation consists of a well-lighted and ventilated coffee-room and reading-room, 38½ ft. by 21 ft.; a smoking-room, which will be also used for chess, drafts, bagatelle, and other games, the same size; two club-rooms for ordinary meetings; one lecture-room, which is so arranged as to be used as a room for extraordinary club-meetings; lavatory, &c.; a bar or attendant's room, from which the whole of the working men's club will be served with their requirements; a spacious kitchen, with apparatus sufficient to cook a public dinner; with pantries, larders, &c., &c.; and apartments for the hall-keeper.

On the upper floor is a large room, intended for concerts, public meetings, lectures, *soirées*, and other entertainments, having seating room for 900 to 1,000 persons, spacious orchestra to accommodate about 100 artistes, retiring-rooms and every convenience, with suitable approaches easy of ingress and egress. A lift is provided from the kitchen department to this room for public dinners, tea parties, and *soirées*.

The building has its principal front to Cloughton-road, with a side elevation to Kendal-street, and rises to a height of 50 ft. to the top of main cornice. The style adopted is Italian, being freely treated by the architect.

The ground-floor is entirely appropriated to the purposes of the Workmen's Hall or Club.

The contractor for the gas-fittings was Mr. Hinson, of Birkenhead, and for the internal fittings, Mr. Wright, of Tranmere. The total cost, exclusive of land, was about 3,850l.

THE ATLANTIC CABLE.

THE spirit-wire has reached a cave
Two thousand fathoms deep,
Beneath the dark Atlantic wave,
Where Nature lies asleep.

Oh! what a rare, unearthly thing,
That spoked with tongue of fire,
To imitate the lightning's wing
In speed along the wire!

The spirit-wire will speak again,
In time and season due;
And send its message 'neath the main,
Laconical and true.

Hold on your way, brave engineers,
Nor let your hands grow slack:
Bold Britons seldom cherish fears,
And never turn their back.

Though mountain-waves the moon assail,
And blackest tempests roar,
The spirit-wire will tell its tale
Even to the farthest shore.

And friends who dwell in distant lands,
Three thousand miles apart,
Will feel as they were shaking hands,—
Conversing, heart to heart.

J. RITCHIE.

MUNICH AND ENGLISH STAINED GLASS.

Sir,—On returning from a tour on the Continent last week, I fell in with a back number of your paper with a letter in it recommending the Munich glass as superior to the English. In the few following lines, I trust to overturn an assertion so erroneous. The Munich designers are certainly not men of the same artistic capacity as the best artists who occasionally design for stained glass in England. One firm in England is especially noticeable as possessing some of the greatest living artists as occasional designers. I never saw any Munich designs as fine as those I saw exhibited last spring by Mr. F. M. Brown. The Munich method is totally false.

In a glass painting you have to paint with glass, not upon it. The Munich people paint upon it, enamel it, as they would paint upon canvas.

Glass being transparent, it is wholly contrary to the material to cover it over with colour. The only natural way is to use glass already coloured (pot metal only), which, however, may be occasionally stained, such as white-yellow, blue-green. The only colour placed upon glass should be the black lines, to designate outline. This is the English and true manner.

Glass being transparent, it is impossible to render perspective perfectly. Therefore, the Munich principle of trying to get the same pictorial effect as in an oil-painting is absurd.

Stained glass must always seek its effect by colour, not by subject; and in old times they well understood this, and introduced chiefly figures standing alone, or very simple subjects.

The Munich colouring is cold, dazzling, and ugly in the extreme. For instance, they use a cold dazzling blue, very offensive. The old blues in Venetian paintings—and surely these are good colour—invariably have a tone of green in them, just like the Oriental blues of the present day, warm, not crude or hard. If there is one thing modern German art cannot do, it is to colour.

CHARLES FRASER.

THE ANTIQUITIES OF ROUEN.

THE thirty-second session of the Scientific Congress of France—a nomadic tribe, like our own British Association, going about yearly to consult upon all that can promote man's welfare,—took place lately in Rouen, the ancient capital of Normandy, rich in archaeological monuments of every stage of antiquity.

Archæology and history formed the subject of the fourth section, in which were read papers on "The Entrenched Roman Camps," "The Art, Laws, and Geography of the Gauls in the Time of Julius Cæsar," "The Religious and Military Art of the Thirteenth Century," "The History of Ceramic Art," "The Nationality of Joan of Arc," &c. Here we must regret that no paper was presented upon a single monument of archaeological and architectural character in Rouen especially when most of them are in such

a dilapidated state that after next winter some will possibly disappear. How then renew them? Take, for example, La Croix de Pierre, a cluster of private houses of intense artistic merit, ready to fall; and if they do, what will probably become of the stained-glass window of Saint-Godard and Saint Patrice, in more shabby walling than the former? The Hôtel Bourgtheroulde, the type and study of the Renaissance; also Saint-Maclou, are undergoing reparation; but it proceeds so slowly that the work of time has already made fearful inroads on the newly-scarped work. There are so many needing care,—the Cathedral, Saint-Maclou, Saint Ouen, Saint-Vincent, the Palais de Justice,—that the delay in repairing is not to be wondered at, as the cost will be enormous. Will not the State come forward? Yes, provided the inhabitants subscribe a certain quorum. Rouen is a wealthy town, and much visited; it should not shrink before any expense that will be well laid out.

WATER FOR PARIS.

THE great aqueduct has been constructed to supply the water of the river Dhuis to the new reservoirs lately completed on the heights of Menilmontant, in Paris.* On the 11th inst., at 1:40 p.m., the waters were let into the basin, but some days must elapse (during which the conduits will receive their first cleaning) before the regular supply is distributed to the service-pipes of the town. The aqueduct takes its rise in the Commune of Parquy (Aisne), and traverses the departments of Aisne, Seine et Marne, Seine et Oise, and Seine, the length of its course being 84 miles, thus composed:—Portions constructed in masonry, with regular inclinations of 1 in 10,000, in length 74 miles; siphons or forced conduits of cast-iron, crossing the valleys, with a fall of 34·8 in. per mile, 10 miles. About 6 miles of the aqueduct in masonry have been executed in tunnel, the principal ones being those of Montmartre, Montretout, Montceaux, and Quincy, which are from 700 to 2,200 yards long. The principal siphons are those of Petit Morin, Grand Morin, the Marne, and Villemeuble, which are from 1,100 to 4,900 yards in length, with from 180 to 210 ft. of Sagitta. The works were commenced on 20th June, 1843, and the first water introduced for trial, on 2nd August last. The total cost is 640,000l., including the purchase of land and factories.

HEATING HOT-HOUSES.

M. LAURENTIN, the celebrated horticulturist, of Leipsic, has invented a species of thermo-siphon or hot-water conduit, for hot-houses, which can be obtained at a price within the reach of all classes of cultivators. The pipes, instead of being constructed of wrought-iron, as is usually the case, are of pottery ware, and are thus described by the *Journal de la Société Impériale et Centrale d'Horticulture*. The boiler of this thermo-siphon is of wrought-iron, cylindrical in form, and 6 ft. 7 in. long by 33 in. diameter. It has three boiler tubes or flues, 8 in. diameter, through which the flame and hot air pass. Each section of the earthenware water-tubes is 3 ft. 3 in. long, 6 in. external diameter, and of inch-thick pottery. One of its extremities is enlarged into a sort of neck, 12½ in. diameter, while the other end is fitted with a thread or screw, to better retain the cement which serves to form a hermetically-sealed joint. This joint is made with tow and a lute consisting of cement and soft cheese dampened with whey. The tow is well soaked with this mixture, and then wound round the threaded end of the tube, which is introduced into the larger end of the next tube, and well secured into it. A layer of cement completes the joint, the luting becoming after a short time so hard that it is impossible to separate the pieces of tubing. This mastic can also be prepared by mingling six parts of graphite or common black lead, three of quick lime, eight of sulphate of barytes (heavy spar), and three parts of linseed oil varnish. Though the price of these earthenware tubes is only 1s. 1d. to 1s. 5½d. per lineal yard, yet, owing to the fragility of pottery, and the consequences resulting from a fracture that may occur, it may be found that cast-iron hot-water tubes are better suited for the heating of conservatories.

* For description of these basins see *Builder*, Nov. 19, 1864, p. 849.

FROM SCOTLAND.

Edinburgh.—At a recent meeting of the city council, a letter was read from the council of the Society of Antiquaries of Scotland, respecting the restoration of the ancient shaft of the City Cross, presented to the city by Mr. Mitchell, of Stow. The site proposed was the vacant piece of ground within the rails to the east of the great entrance to St. Giles' Church. The expense of transferring the shaft from the grounds of Drum, and placing it on a plinth, with large hewn freestone steps, in the style of other market crosses, would not exceed 10l. or 50l. The lord provost's committee recommended that the council approve of the erection of the cross on the place proposed, and contribute one-half of the expense—the work being done at the sight and to the satisfaction of the city architect. This was agreed to.—A large space of ground known as Orchardfield, adjoining the Lothian-road, which belonged to the late Mr. Grindlay, and was bequeathed by him for behoof of several of the city hospitals, has within the past few years been fenced and built upon to a considerable extent; and at present building operations are in progress on several parts of it. Mr. David McGibbon, architect, was appointed by the trustees of Mr. Grindlay to lay off the ground in fens; and under his superintendence the fens already let have been or are being built upon, and already a great and important addition has been made to the house accommodation of the western district of the city.—The new peal of bells for the city has arrived from Sheffield. The black-washed steel octave was safely deposited on planks in the cathedral lobby, preparatory to being elevated to the mitre-crowned steeple of St. Giles'. The bells are of different sizes, weighing from about 5 cwt. to 15 cwt. amounting in the aggregate to a gross weight of about 4 tons. They are circled on the kettle and lips with the name of the casting firm, and some of them bear date 1863, and floriated scroll. The bells will be hoisted up by the grate-fenced apex of the groined arch through the timber-jacob galleries by a clear riseway, where they will be fixed to a solid beam, upon which there will be no swing strain, the music to being struck out by isolated hammers. It has been suggested that the first merry peal should be rung on the return of the old market-cross shaft from Drum.

Glasgow.—The foundation-stone of a new clubhouse for working men has been laid at Bridge-town. Sir Archibald Alison was a prominent figure at the head of the procession, wearing all his masonic badges of high office. At the conclusion of the ceremony he addressed the brethren. He said the reason why the efforts made on behalf of education had not hitherto been attended with the success expected was, that the people who directed the educational schemes considered man as an intellectual being only; whereas, to carry the mass along with them, they must address the moral being also, interest the heart, and do all to attract men to those places where learning was to be obtained. He trusted the working classes of the district would support the club-house well, shunning the ale-house, spirit-cellar, and all places where corrupt indulgences might be encouraged.

EDINBURGH NEW CITY POORHOUSE.

The Parochial Board of the City of Edinburgh having found the present poorhouse inadequate to meet the requirements of the parish, and that, from the nature of the site, it was impossible to obtain the requisite accommodation by adding to it, were forced to look out for ground on which to erect an entirely new building. It was thought advisable the new building should be placed outside the city, and the Board have purchased the small estate of Craiglockhart, situated about two miles to the south-west of the city. The estate consists of nearly 250 acres of arable land, one-third of which it is proposed to devote to the purposes of the Board, the remainder to be disposed of for villa residences. The portion set apart for the poorhouse is isolated from the remainder of the estate by a range of low hills, on the southern slope of which it is proposed to erect the new buildings.

In order to obtain the best design for this purpose, the Board advertised for plans, offering four premiums of 150l., 100l., 50l., and 50l., and in answer to the advertisement, twenty-two sets of plans have been sent in, which have been exhibited in the Corn Exchange.

The requirements of the Board were, that accommodation should be provided for 1,200 inmates, and that a mode of classification should be adopted providing separate departments for the old and young of both sexes, regard being had to the character of the paupers. Small cottages to be set apart for married couples of good character; a suitable hospital for the sick, and an asylum for the insane. The building to be of stone, plain and substantial in character; the cost not to exceed 40,000l.

Many of the competitors do not limit their estimates to the sum set down by the Board, and several of the designs are of an ornate character, but none of them display much artistic merit. Some of the plans, however, show much thought and ingenuity, and there are examples of almost every mode of arrangement. In some of them the different buildings are quite isolated; in others they are formed into quadrangles; a few adopt the pavilion system, one is on the village system, and one on the radiating principle.

Open competitions of this nature are apt to startle one from his preconceived ideas. It is an undoubted fact that we have made a great advance in taste within the last twenty years, and a large section of the educated public have acquired a knowledge and appreciation of what is just and true in architecture; and yet we find men, professing to be architects, who have not participated in this improvement, and who seem entirely ignorant of the change. These remarks are suggested by the elevations in one of the designs, with the motto "Economy," which show a building in the mock castellated style of last century, studded over with numerous small pepper-box turrets, which are as far from being beautiful as they are from being economical.

PROVINCIAL NEWS.

Folkestone.—Workmen have been engaged in driving piles, at high-water mark, on the beach, near the toll-gate, on the Lower Sandgate-road, from which place to Folkestone a broad sea-wall and esplanade, large enough to build marine residences upon, is about to be constructed by Lord Radnor. There is every probability that this will give an impetus to building operations along this road, as there are numbers of sheltered nooks under the cliffs where pretty villas could be erected.

Bedford.—The new cattle market has been opened. The sheep-pens are iron-fenced and asphalted, and capable of giving accommodation to from 1,000 to 1,200 animals. The office is a neat building, fitted up with desks, the floor being constructed of wooden blocks. The paths leading to the sheep-pens are of granite, the space for the cattle gravelled, and the whole drained. At fairs or other times, if more space should be required for cattle, the gates in the fence at the south-western side will be thrown open, and the adjoining ground made available. There are also sheds for stock. The works are not quite completed.

Oxford.—The completion of the extensive alterations in the Hall of New College, which have been for some time in progress, will be celebrated on the 26th of October, by a grand banquet, to which the Lord Chancellor Cranworth, the Chancellor of the Exchequer, the Colonial Secretary, and other distinguished persons, numbering between 200 and 300 have been invited.

Birkenhead.—The graving docks have sustained some injury from the prevalence of fresh-water springs, which have been undermining one of the piers. At a recent meeting of the Mersey Dock Board, it was stated that the pier was in some danger of falling, and that the repairs would cost about 800l.

SHILLING COURT GUIDE.

THOUSANDS of your readers are probably unaware that there is a map of London, on the scale of 5 ft. to the mile, which is published in sheets of about 3 ft. by 2 ft., and at a shilling per sheet. It can be had at any map-seller's; and I have found it most useful in looking up certain insanitary districts to which my attention has been drawn by yourself and other good-doers, into which districts I should not have ventured to penetrate without some clue to their labyrinth. One sheet, or any number, can be had. This is old news to you, but I was quite unaware of the existence of the map till a month ago. Every court is shown clearly. W.

COMMUNICATION BETWEEN PASSENGERS AND RAILWAY GUARDS.

OUR attention has been called to an invention of Mr. R. F. D. Campbell's now represented at the Anglo-French Exhibition in the Crystal Palace at Sydenham. The object is to inform the guard and engine-driver of accident immediately such may occur; such as carriage off the lines, fire, coupling broken, carriage oscillating dangerously, &c. The apparatus is self-acting, without requiring any interference from a passenger, intelligence being given with certainty even though a carriage be empty. The principle of this invention, as described to us, is, that two $\frac{1}{2}$ in. or $\frac{3}{4}$ in. tubes are fixed to each carriage, the ends of which tubes are so arranged as to connect of themselves without any trouble, by the mere pushing of the carriages together, and to disconnect by their simply coming away from each other. When a train of carriages thus fitted is formed, with the addition of the guard's van and engine, two air-tight tubes run the whole length of the train. Upon a train starting a fan upon the engine will commence working, drawing the air up tube 1 and blowing it down tube 2, with a speed of at least double that of the train. Now, if a ball be placed in each tube it would be carried one to the guard's van, one to the engine; and by the particular shape of the ends of these tubes, when the ball arrives it would cause the air to sound as a whistle to call attention to its arrival. To each carriage the inventor proposes to fix five differently coloured balls (having the number of the carriage to which they belong marked on them) representing five signals such as those already referred to. Passengers could have a similarly arranged signal to tell of what would only be their own wants.

A new railway safety signal has been patented by Mr. John Anderson, assistant general manager of the Edinburgh and Glasgow line. This invention is not intended to supersede the ordinary fixed signals now in use, but to be wrought in connexion with them, appealing to the ear instead of the eye in all cases where "caution" or "danger" is indicated. The danger-signal presently in use, it is well known, is worked by means of a chain or wire passing along on pulleys from the station to the signal post, and Mr. Anderson proposes to extend this chain to (say) 600 yards, or any distance desired, beyond the ordinary terminal point, having at its extremity an arched piece of wood which may be fixed either inside or outside the rails. When the danger-signal on the line is at rest, this piece of wood remains in such a position that it is not interfered with by a passing train, but immediately the signal is put on from the station, the arch is so moved that it must be acted upon by the up-coming train. The arch is passed over by a lever arm depending from the front of the engine, guard-van, or tender, and a gong-bell is set in motion, the action of which may be prolonged for any length of time, and may also be arranged so as to register the fact that an alarm has been given.

THE LONDON (CITY) BATHS AND DWELLINGS.

SIR,—With respect to your able article upon the above establishment, permit me to state that the rear or chapel portion of the buildings, with the arched flues, light iron railing, &c., were not designed by me, the arrangement of the laundry being the only branch of this portion of the establishment upon which I was consulted. The principal or front buildings have been erected by the architect, who is a new builder, with a view to obtain the greatest possible accommodation at the least cost; and to effect this he has adopted the principle of purchasing his materials and fittings immediately from the merchant or manufacturer, and of having the work executed by workmen employed upon the premises under his own superintendence, assisted by his foremen.

This anxiety on the score of economy has led to his departing from the more expensive modes of construction, as in the case of the divisions to the private baths, which, as well as the floors, were designed by me to be of slate.

With regard to the lightness of the roof (I refer to that over the front buildings), as you are aware, the swimming baths occupy the basement portion, and the introduction of intermediate supports would therefore have been obstructive; as a consequence, the several tiers of floors could only be carried upon the massive external walls and girders; and, to avoid weighting these to a greater extent than was absolutely necessary, the lightest kind of roof consistent with durability, was decided upon.

I beg to add, that no estimate was at any time made, to my knowledge, of the probable cost of the establishment; but the benevolent proprietor, anxious to extend its benefits to the greatest number, has provided accommodations and extended the building to a magnitude far beyond that originally contemplated by him.

CHAS. MARTIN.

CHURCH-BUILDING NEWS.

Writtle (Essex).—A meeting of the parishioners of Writtle, convened by the vicar and churchwardens, has been held to consider what steps should be taken for the repair and restoration of the parish church, which is at present in a sadly dilapidated state. The edifice was examined in April, 1864, by a local surveyor: it was reported to be unsafe, and, therefore, unfit for public worship. The churchwardens, acting under professional advice, at once took steps to make the building secure, with the least possible interruption of the usual services; and by so doing they incurred an outlay of 120*l*. A further expenditure of 80*l*. was necessary to replace the two cracked pillars at the north-west end of the nave, so that the total sum for which the churchwardens are liable amounts to 200*l*., to which must be added 30*l*. incurred for a survey of the church by Mr. Stock. There are no funds to meet this liability. The vicar and churchwardens urged strongly on the parishioners the need which exists for a thorough restoration of the building, and appropriate resolutions for the opening of a subscription, appointment of a committee, &c., were passed.

Wolverhampton.—The restoration of the collegiate church has been completed. Both exterior and interior of the edifice have been repaired and restored, as far as circumstances permitted, to their form and appearance at the time of their construction. The transepts or chapels have been renovated, and various unsightly incumbrances removed; the chancel has been rebuilt in a style according with that of the church, and is already adorned with eight painted windows.

Burntwood (Wolverhampton).—The new church of St. Ann's, Burntwood, has been consecrated. The edifice, with schools adjoining, has been erected and endowed by the Cannock Chase Colliery Company, at a cost of 3,000*l*., for the free use for ever of the adjacent population. The church, consisting of nave, aisles, and chancel, is built mainly of bricks of various colours, moulded for the windows and doorways and other openings. Very little stone is used, it being mainly confined to the capitals of the interior columns. Mr. E. Adams, of Westminster, was the architect. The building is in the Byzantine style. Mr. Highway, of Walsall, executed the work. The arches of the nave are formed with red and blue moulded bricks. The floor of the chancel is laid with Minton's tiles, the communion enclosure being of stone inlaid with alabaster. The font is of Caen stone inlaid with alabaster. Gas is laid with ornamental fittings. The organ, an instrument of considerable power, consisting of 886 pipes, was built by Mr. Joseph Walker, of London. It was the gift of Mr. McClean, the managing director of the company.

Leaving.—The church of St. John the Evangelist, newly erected in this place, has been consecrated by the bishop of the diocese. The Coalbrookdale Company, in conjunction with Lord Forester, gave the site, and made donations to the building and endowment fund. The building is in the First Pointed style, and the seats will accommodate 302 persons. Every seat is free and unappropriated. The church was built by Messrs. Nevett, Brothers, of Ironbridge, from designs by Mr. John Ladds, of Lincoln's-in-fields, architect.

Chatter.—The proceedings in connexion with the intended rebuilding of Trinity Church are proceeding. The old walls and the tower are nearly down, and the foundations of the new north wall are level with the ground. The new church will consist of a nave, with north and south aisles, and will be thrown back from Watergate-street the depth of the present tower. This, however, will remain on its present foundations, and be connected by an iron railing with a vestry at the east corner of the south aisle. The cost of the tower and spire (some 1,600*l*.) will be defrayed solely by Mr. Charles T. W. Parry, as a memorial of the late Mrs. Parry. Exclusive of this the funds already promised amount to about 5,300*l*., which is within 200*l*. of the sum now contracted for, namely, 5,500*l*. This does not include the cost of lighting, warming, or of the internal fittings, for which 2,000*l*. more will be required.

Marske (Yorkshire).—The foundation-stone of a new church, in the Northern French style of architecture, has been laid at Marske by the Earl of Zetland. The church has been erected in consequence of the growing population attracted by iron mining, and owing to the old church of St. Germain's being too small, and at

too great a distance from the village. The new church will, when finished, contain sittings, free and open throughout, for 495 adults and 116 children. The Earl of Zetland has given the site, which is opposite the Literary Institute on the Redcar-road, and in a very central situation. His lordship also gives the stone for the building, a donation of 2,000*l*., and promises further help if needed. The architect is Mr. T. P. Cockerell, of London.

Denton Holme (Carlisle).—The chief stone of the Church of St. James, Denton Holme, has been laid by the Countess of Waldegrave, stepmother of the Bishop of Carlisle. The district embraces the whole of that extensive and now populous suburb of the town lying to the west of the River Caldew, which was opened out by the erection of the Nelson Bridge in 1852. The result of a competition was the selection of the designs of Messrs. Andrew & Pepper, of Bradford, architects, and tenders for the work having been called for, Mr. Dodd was selected to do the stone-work, and Mr. Davidson the joiner-work. The entire cost of the building will, it is believed, be about 3,500*l*., of which upwards of 2,000*l*. have been subscribed. The site is on a gentle eminence, formerly known by the names of "Seven Wells Bank," lying between the Cemetery and Murrell Hill House, and access to it has been obtained by two new streets, which have been formed by the Ecclesiastical Commissioners—one running from Norfolk-street to Dalston-road, and the other from Nelson-street to intersect it. On the angle formed by this intersection the church will be placed,—a spot already rendered interesting from the fact that there once stood a chapel dedicated to St. Bede, of which, however, no traces are now to be found. The church is to be in the Geometric style, and will be built of red and white stone. All the tracery and moulded work will be of white stone from Howrigg Quarries. The total length of the building, that is, from east to west, including the chancel, is 112 ft.; the width, including the aisles, 58 ft. At the south-west corner there is a tower and spire rising to a height of 120 ft. One of the chief entrances to the church will be by a richly-moulded doorway through the tower. The tower is 54 ft. 6 in. high, and it is relieved by two windows on each side, filled with tracery and moulded work. The spire is of octagonal form, with pinnacles at each corner of the tower. The four other sides of the octagon have projecting windows also filled with tracery. The rest of the spire is relieved by white bands of stone. Adjoining the tower at this end is a large light window filled with Geometric tracery. The apex to this end of the building is finished with a carved stone cross. On the north side there are four two-light windows filled with tracery, and relieved by mouldings, finishing on carved bosses. On this side there is also another entrance by a porch projecting from the main building, the apex of which is formed with a stone cross, and at the north-east corner there is an entrance to the vestry. The walls are all relieved by buttresses. The chief feature in the east end are the circular chancel with three windows, and the windows of the vestry and chorister vestry. The south elevation is similar to the north, but has the tower at the south-west corner. The roof of the chancel will have an ornamental ridge. The height of the church from the floor to the top of the ridge is about 50 ft.

DISSENTING CHURCH-BUILDING NEWS.

Sevenoaks (Kent).—The foundation stone of a new Congregational Chapel has been laid here. The new chapel is situated in the centre of a very populous district, the site being the corner of the National Freehold Land Society's estate, which, together with an adjoining estate, is now being rapidly covered with dwellings, and public roads pass it in every direction. The edifice is to be of Kentish rag stone, which will be dug from the quarries on the Knole estate, and all the interior fittings are to be of stained deal. There will be 450 sittings, and provision will be made for the erection of galleries at some future time, if necessary. The spire or tower will be 130 ft. high, and it is in contemplation to place in it an illuminated clock. The contract was taken by Mr. Potter, builder, of this place, the sum being 2,450*l*.; but the total cost, inclusive of the purchase of the land, will exceed 3,000*l*.

Winchester.—The new Wesleyan Chapel in St. Peter-street has been opened. It is built by voluntary contributions for the use of the

Conference Wesleyans, whose old chapel in Parchment-street had become unsuited to their religious and educational requirements. The site chosen is upon the east side of the street, on ground formerly occupied by the Convent of Benedictine Ladies (now removed to a more convenient spot in Essex), and nearly opposite the Roman Catholic Church of St. Peter. The architect was Mr. Pocock, of Guildford and London, who not only gave his services, but also subscribed liberally to the building-fund. The style adopted is Early English, treated in a rather continental manner. The building consists of two portions. The basement is occupied by large school-rooms, class-rooms, and offices. The chapel is approached from the road by a flight of steps, the entrance to the edifice being through two advanced porches. Above these are a wheel window and three other lights. The wall-work is done in stone and flints, the same materials being used externally throughout. The chapel is lighted on the north and south by six windows on either side. The east end is minus any light, being occupied by the pulpit. The south-east corner is reserved for a harmonium and choir, the opposite one giving access to the basement. The woodwork is all stained and varnished. The roof is partly open and partly ceiled, there being wooden supports to it from the chapel floor, which are somewhat detrimental in an architectural point of view, but they are, it seems, intended to provide, if necessary hereafter, for gallery accommodation. The chapel stands east and west. The edifice will, with the land, cost about 2,000*l*., of which 1,700*l*. have been obtained by subscriptions, including 300*l*. from the Conference Building Committee. The contractors were Messrs. H. Newman & Son.

Swindon.—The building committee of the new Congregational or Independent church in the course of erection here, we are informed, accepted the estimate of Mr. Bedford Ponton, but recommended that Mr. John Phillips should do a portion of the work if arrangements could thus be made, the estimates being so nearly equal. It was then arranged between the two tenderers to sign a joint contract, which was accordingly done, Mr. Phillips doing the carpenters' and joiners' work.

Devonport.—A special harvest thanksgiving service has taken place in St. John's Chapel, in celebration of the opening of the new eastern windows. Since the appointment of the Rev. Mr. Everett to the incumbency of this place of worship, there have been several improvements effected in its internal arrangements. A new organ has been erected at a cost of 400*l*. A new pulpit has also been erected from the design of Mr. Alfred Norman, architect, of Devonport. The new windows are of stained glass. The next step by the proprietors in the way of alteration or improvement will be the lowering of the seats and the formation of a choir. Some few years since it was mooted to have a set of bells for this chapel; but on the strength of the tower being tested it was found to be constructed far too weak, and in other respects ill-adapted for their reception.

Blackburn.—We understand that the contract for the erection of St. George's new Presbyterian Church, the foundation stone of which was laid in March last, on a plot of land in Preston New-road, has been let to Mr. Benjamin Abbott, contractor, Blackburn. The chapel will be constructed from designs by Mr. Patterson, architect, of this town, and will cost about 7,000*l*.

Salisbury-by-the-Sea.—The new Wesleyan chapel here has been opened. The edifice, which is in Milton-street, is in the Early English style, the designer being Mr. Peachey, of Darlington, and it is estimated to seat 300, with provision for the erection of galleries, when needed, to accommodate an additional 200.

Hornsea (Yorkshire).—The new Primitive Methodist chapel, which occupies one of the best situations in the town, has just been opened. It contains sittings for 360 persons, and is built of red bricks and Roche Abbey stone dressings, with a frontage to the main street of 45 ft. enclosed with iron palisading. The external dimensions of the chapel are 33 ft. by 48 ft. It is galleried on three sides. There is a platform instead of a pulpit, with preacher's vestry and organ gallery behind. The whole of the basement is occupied with school and class-rooms, with the usual out-offices in the rear. The pews and fittings are of red deal stained and varnished. The architect was Mr. J. Wright, of Hull, and the builders were Mr. F. Keynard and Mr. W. Allman, of Hornsea. The total cost, including site and boundary walls, will be about 1,000*l*.

STAINED GLASS.

Memorial Church, Eype, Symondsburys (Dorset).—The great chancel window has four lights, with three quatrefoil openings in the upper tracery. This is what is termed the "Mercy Window;" and at the bottom is an inscription stating that it is "In memory of the Rev. Gregory Raymond" to whom the church is dedicated. In the two centre lights are compositions, representing our Lord as the Good Shepherd, and the miracle of feeding the five thousand. Above the figures there are canopies. The side-lights are so arranged as to display four subjects, all connected with the same parable. In the trefoils are represented the "Nativity," the "Crucifixion," and the "Ascension." There is likewise a three-light window in the south-west of the chancel, which is from a design by the rector. In the centre compartment is represented our Lord as the True Vine, with the bread and wine in each hand; and in the side-lights are a sower and a vine-dresser, symbolical of the elements of the Sacrament which the Saviour instituted. In the tracery is the crest of the rector, with his arms, and those of the see of Salisbury. Adjoining this, on the south side of the sacristy, is a two-light window, representing in one compartment the charge to St. Peter, "Feed my sheep," and his miraculous release from prison. Above these are the arms of the late rector. Opposite, on the north, is a window of similar architectural features, the stained glass in which delineates the call of St. Peter. The whole of the chancel windows are thus filled with stained glass, which has been contributed by various persons. The whole of the work has been carried out, under the superintendence of Mr. Talbot Bury, by Messrs. Heaton, Butler & Bayne.

St. Paul's Church, Walsall.—A large triplet window has been erected in this church, in memory of the late Mr. Darwall. The ornamentation of the glass is in the Romanesque style, in harmony with the architecture of the structure. In the dexter compartment is a representation of the Raising of Lazarus; and in the sinister is Christ raising the Widow's Son. In the central light is an angel seated on the side of the sepulchre, announcing to the two Marys that Christ has risen. In the upper portions of the dexter and sinister lights angels are introduced; and in the top of the central light are angels bearing musical instruments, surrounding a harp intertwined with a cross, emblematic of the musical acquirements of Mr. Darwall. The artists were Messrs. Ballantine & Son, of Edinburgh.

Sutton Coldfield Church.—A memorial window has just been placed in this church by the Rev. Mr. Bedford to his son, Arthur Edward Kiland Bedford. The illustration is our Saviour blessing a child, whom he carries in his arms. The artists are Messrs. Ballantine & Son.

Althorn Church.—There has been lately placed in this church a stained glass memorial window in three compartments. In the first, our Saviour is addressing St. Peter and St. Andrew, who are both in a ship, with their nets, &c., about them, in those memorable words, "Follow me, and I will make you fishers of men." In the second, the Saviour, with lambs at His feet, presses a duty upon His disciples in these words, "Feed my lambs." In the third, the Saviour, surrounded by persons representing the inhabitants of Europe, Asia, Africa, and America, in their national colours and costumes, proclaims these words, "Preach the Gospel to every creature." The work was executed by Mr. Wailes, of Newcastle-on-Tyne.

Trinity Church, Stratford-on-Avon.—The four lower compartments of the south side chancel window of Holy Trinity Church, Stratford-on-Avon, have been filled with stained glass, illustrating the raising of Lazarus, taken from the 11th chapter of St. John. In the first opening, left-hand side, are the figures of St. John and St. Peter; in the next, our Saviour, with female attendant; adjoining light, Martha and Lazarus; and outside right-hand opening, Mary and two of the Jews. Above the figures are perpendicular canopies, with ruby backgrounds. The glass was designed and executed by Mr. William Holland, of Warwick.

Whitworth Church.—A stained window has been erected in the parish church of Whitworth, near Rochdale, by Mrs. Rawstron, as a thank-offering for the restoration of health to her son. The window, which is Perpendicular in style, is divided by a transome, into three upper and lower compartments. The upper lights are filled

with ornamental quarries, bearing the sacred monogram, and the emblematic rose and lily, and have a coloured border of a character in keeping with the style of the window. The entire of the three lower compartments is occupied by a subject, "Christ blessing little Children," having a rich background, and enclosed by tabernacle work. The window was executed by Messrs. R. B. Edmundson & Son, of Manchester.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Hampton-on-the-Hill.—Lord Dormer has just caused a life-sized figure of our Saviour on the cross, when yielding up his last breath, to be placed at the entrance to the Roman Catholic church in this village. It is painted in oil on a metal ground, by Mr. T. Dury, of Warwick.

Wantage.—The Roman Catholic Church of St. Mary, East Hendred, Berks, founded by Mr. C. J. Eyston, has been consecrated. The style of the building is English of the close of the thirteenth century. It consists of a chancel and sacristy, nave, and north aisle, and an octagonal belfry. The stained-glass was provided by Messrs. Hardman & Co. The church was built by Mr. Davidson, and the sculpture was done by Mr. Boulton, of Worcester. The whole was executed from the designs and under the superintendence of Mr. Charles A. Buckler, of Oxford, architect.

Hastings.—The first stone of the Church of St. Thomas of Canterbury, at Hastings, has been laid. The designs have been prepared by Mr. C. J. A. Buckler.

Askyrd.—A new church at Barrow-hill has been opened. It is of the Gothic style and cruciform shape. The length of the building, when the chancel is finished, will be over 70 ft., the width of the nave 23 ft., and the transept 60 ft.

Middlewich (Cheshire).—A chapel has been opened lately here. It is very simple and plain, having been restored and built out of old materials. The building measures internally 40 ft. by 23 ft. A small chancel and vestry are placed at the east end. The architect was Mr. Edmund Kirby, of Liverpool.

THE GRINDING-MONEY QUESTION.

At the City Sheriff's Court, on Wednesday, the 27th ult., before Mr. Gibbons, the deputy judge, the case of Thompson v. Jackson & Shaw, extensive building contractors, carrying out some large works in Clement's-lane, occupied the court for some time, plaintiff, a labourer, seeking to recover grinding-money under novel circumstances. Plaintiff, in opening his case, stated that he stood forward as one of a body of men to enforce a right which had been previously secured in many cases, and which had been discharged from his work by the defendants, and they refused to pay him the customary grinding-money. He was now at work at Messrs. Coburn's, where the system was recognized, and plaintiff could testify to twenty years' experience. In the present case plaintiff had worked up to the Friday night, but was too ill to resume his employment on the Saturday, and when he went on the Monday he found that his place was filled up. His wages were paid, but the grinding-money was refused. Defendant's representative said he did not attend to dispute the principle of grinding-money as a rule. If the workman was discharged he was paid for setting his tools in order; but if he discharged himself he was not. Now plaintiff absented himself on the Saturday, and as defendants were under a contract to open a lane, in course of erection by them, by a certain day (and in default there was a penalty attached to the agreement), they were obliged to fill up his place. Plaintiff said he was not out all day on Saturday, but was confined to his bed with a severe cold. He did not know that defendant were under a contract to complete their works by a certain day. Defendant's representative informed the Court that all the men must have known it, as they worked till a late hour, and plaintiff with many others made "in times" eight days last week. Plaintiff urged that he was not bound to go to work if he was ill. He came from a body of men. The judge did not wish plaintiff to repeat the observation, as it was only calculated to prejudice his case. In fact, his Honour did not like cases in which men combined to fight or tyrannise over their masters. He considered that it was the duty of the man to give his master notice when he was ill; and if he did not do so he must take the consequences. It appeared in the case that the plaintiff was away on Saturday, and sent no intimation to his employers of the cause of his absence. They did what they were clearly entitled to do, filled up his place, and then the question of grinding-money undertook. Large building works they made certain terms, and there was a time fixed for their completion, penalties being also fixed for every day over such time. Thus it was clear that the plaintiff was bound to give his employer such information as would preclude all nature of the contract; and if the workman was taken ill, he was bound to inform his master. Plaintiff must be consulted.

Books Received.

"On Water-supply to Villages and Farms." By J. Bailey Denton, Mem. Inst. C.E. Chapman & Hall, London. The object of this essay is to show in what way rural districts may be supplied by the application of surface and drainage waters as they flow, or by the storage of those waters. Mr. Denton urges that the inhabitants of our villages and the stock of our fields ought not to remain dependent for their summer supply upon rain falling in the summer, though it may often providentially happen that the rain is so heavy and frequent during the summer months, as to allow of its being collected in sufficient quantity for present uses in ponds, tanks, butts, and other receptacles. The author is of opinion that there are few villages in which some adequate means of obviating such a water famine as that of the summer just past do not exist. Wherever, on this occasion, stock had a plentiful supply in the fields, the driest pastures became the heartiest feeding grounds, and cattle and sheep alike thrived well in spite of the apparent dearth of food. Mr. Denton's remarks, calculations, and suggestions are of practical and special importance at the present time.—"London Society" for the current month has a more than usually good shilling's worth of illustrations, by James Godwin, L. C. Henley, Edith Dunn "Egomet," Brunton, and others.—Mr. Murray has published a pamphlet by Professor Kerr "On Ancient Lights and the Evidence of Surveyors thereon," which will have early attention at our hands. It includes tables for the measurement of obstructions.—"The Popular Science Review for October." Hardwicke. The present number of this excellent periodical contains interesting papers on "Epidemics past and present,—their Origin and Distribution," on "Pure Water," by Dr. E. Lankester, F.R.S.; on "Atlantic Telegraphy," by Mr. Robert Hunt, F.R.S.; on "Lake Basins," by Professor Ansted; on "The Moon," by Mr. James Breen, F.R.A.S.; and on "Photography and some of its Applications," by the Editor, Dr. Lawson; with various others, besides the usual reviews and scientific summary.—"A Dictionary of Science, Literature, and Art." Edited by W. T. Brande, D.C.L., and the Rev. George W. Cox, M.A. London: Longmans & Co. The 6th part of the present issue of this standard work runs from "Illum" to "Lath." Brande's "Dictionary of Science" has long held a high place in the public estimation. The present edition has been re-edited throughout. Dr. Brande himself presides over its general chemistry and physics; the joint editor principally devotes himself to architecture and general literature; Professor Owen treats of the biological sciences; Dr. Lindley of botany; and so on.—A new series of the *Quarterly Magazine* (Cassell, Petter, & Galpin) is now being issued on a new-fangled paper. This is a fair example, as others of Cassell's publications are, of what may be had for a penny, both in the way of literature and of engraved illustration. We may take this opportunity also of alluding to another periodical of the same publishers, the *Scientific Review and Journal of the "Inventors' Institute."* The number for 1st October contains a useful paper on "The Cholera and its Sanitary Teachings," by Professor McNauley.

Miscellaneous.

UNIVERSITY COLLEGE, LONDON.—The introductory lecture of the season will be delivered on the 9th inst., by Professor Hayer Lewis, F.R.S.; subject,—"The Fine Arts and their Connexion with Education."

NEW PIER FOR CAPE CLEAR.—Miss Burdett Coutts has signified her intention of subscribing 2,000*l.* towards the erection of a pier at Cape Clear, or in its neighbourhood, for the accommodation of the local fishermen, and of the seafaring interest in general.

MONUMENT TO THE PRINCE OF ORANGE.—A monument has been erected on the seaside at Scheveningen, in commemoration of the day when the Prince of Orange, afterwards George I., King of the Netherlands, returned from England. The monument is in the form of a pedestal, and bears the following inscription:—"God has saved the Netherlands, November 30, 1813: the nation is grateful: August 24, 1865."

DULWICH.—A new hotel has been erected near Dulwich Station. The builder, Mr. F. H. Green, entertained his men with supper on the completion of his contract.

DARLEY DALE STONE.—With reference to our remark in "Out and About" as to Mr. Whitworth's quarry, we are asked to mention that Darley Dale stone is still obtainable from the Darley Dale Stone Company, who have a quarry in full operation.

RESTORATION OF STOW CHURCH.—As a memorial of the late incumbent, the Rev. G. Atkinson, it has been resolved to endeavour to raise a sum of money for the restoration of Stow Church, and also for some more specific object in memory of Mr. Atkinson. A committee has been appointed to carry out the views of a meeting lately held on the subject.

GUSTAVE DORÉ'S ILLUSTRATED BIBLE, upon which he has been engaged for the last four years, is now on the eve of completion. Messrs. Cassell, Petter, & Galpin have purchased the engravings for their use in the English language. The illustrations will consist of 230 large page drawings, the cost of their production being upwards of 15,000l.

"JOURNAL OF SOCIAL SCIENCE."—Under this title a new journal is announced, which will include the sessional papers of the National Association for the Promotion of Social Science. It will be edited by Dr. Lankester, and issued, by Messrs. Chapman & Hall, on the 1st of every month. The journal will be devoted to the publication of papers, reviews of books, and information on the various subjects embraced in the departments of the National Association for the Promotion of Social Science.

THE MONT CENIS TUNNEL.—A letter from an Italian engineer announced that the workmen employed in piercing Mont Cenis have come upon a bed of extremely hard quartz, which turns the edge of the best-tempered steel, and that it is feared this obstacle may retard the opening of the tunnel for four years. Foreign engineers have expressed an opinion that the tunnel will take longer to complete than the sanguine Italian managers anticipate. The summit railway, however, is likely to be made before the end of next year, and will shorten to four hours the passage of the mountain.

ADORNMENT OF THE CAMBRIDGE CEMETERY.—The disgraceful state of the grounds of this cemetery has been for some time a matter of local comment, but the *Chronicle* states that at last the incumbents of the several parishes have determined to remedy the defect. For this purpose they have consulted with Mr. Mudd, the curator of the Botanical Gardens, who offers his gratuitous services, and proposes to fill up blanks in the present beds, to plant an avenue of trees along the road leading to the chapel, to place standard roses by the sides of the paths, and, where the space will allow, to form flower beds. In order to carry out this design a committee has been formed to seek for contributions. It is also proposed to furnish a bell for the use of the chapel.

CLEARING UPPER THAMES OF SEWAGE.—Mr. Menzies, acting under the deputy ranger of Windsor Great Park, recently attended at the Windsor Board of Health, and stated that he appeared on behalf of the Board of Works, for the purpose of obtaining the consent of the Windsor Board to the surveyor in giving the necessary statistics and other information with a view to the disposing and utilising the sewage of Windsor, instead of permitting it, as at present, to be discharged into the River Thames. From Mr. Menzies's statement, it appears that the Commissioners of the Thames Navigation have been making a general survey of the river, from Oxford, with a view of ascertaining the general effect of the discharge of sewage into the Thames from the various towns and villages between Oxford and London. Mr. Menzies, who, under the Board of Works, has the control of that portion of the drainage which passes through the private part of Her Majesty's grounds in the Home Park, proved the present great nuisance, especially at low-water, not only at Windsor, but at all other towns on the banks of the Thames. He also stated that he had a scheme by which the sewage may be utilised and the discharge into the Thames avoided. The Board passed a resolution agreeing to afford Mr. Menzies all facilities in their power, with a view to carrying out the object contemplated.

NORTH OXFORD ARCHEOLOGICAL SOCIETY.—This society, after four years' suspended animation, has had a field-day, under the guidance of the Rev. D. Royce, of Lower Swell, who conducted the party through the churches of Bledington, Icomb, and Stow-on-the-Wold, and also through an ancient dilapidated mansion (formerly moated) at Icomb, at each place Mr. Royce reading papers he had prepared on the several places in view.

SOMERSET ARCHEOLOGICAL SOCIETY.—The seventeenth annual meeting of the members of this Society has been held at Shepton Mallet. The meetings and the museum were held in the Music-hall, and everything possible was done to accommodate the Society. The museum collection was not large, but included many objects both curious and valuable. The Rev. Prebendary Scarth read a paper "On the Roman pottery kiln," discovered in Shepton Mallet, in November last. Shepton Mallet church was afterwards visited, under the guidance of Mr. E. A. Freeman; also Doulton church and quarries; and other proceedings took place. The second and third days of the meeting were set apart for excursions to various points of interest in the neighbourhood, including Pilton, Pylle, Ditchet, Evercreech, Chesterblade, Cranmore, Masbury Camp, Chilcot, and Croscombe; after which the excursionists visited Dinder church, and lunched with the rector. The party then went some to Wells and others to Shepton Mallet.

A BUNGLED CENSUS.—The taking of the State census in the city of New York is now nearly completed, says the *New York Herald*; and it appears to have been done most bunglingly and carelessly, and in a manner to render it entirely unreliable. Large numbers of families have not been visited at all by the enumerators, and in some cases entire blocks have been omitted. Some of these enumerators, it is said, are very illiterate, others devoid of common sense, and still more of them negligent of their duties, as evinced by the returns.

GLUE.—Common glue, as used by cabinet-makers, is not always sufficiently strong to resist the strain to which the pieces joined together with it may happen to be exposed; sometimes, even, it is required to make metal, glass, or stone adhere strongly to wood; in which case a mixture of glue and ashes of wood will be found greatly preferable to glue in its ordinary state. The latter should first be reduced to the proper consistency required for wood, and a sufficient quantity of ashes added to give it the tenacity of a varnish. It must be applied hot.

STEEL AND CAST IRON.—A process for the production of steel directly from the ore has been proposed by Mr. G. Hand Smith, of Philadelphia, in the Franklin Institute. Pure oxide of iron, such as the magnetic oxide, for example, is crushed, washed, and packed in layers alternating with charcoal, in the ordinary cementing furnaces; after heating, a porous mass is obtained which may then be rolled into plates. Mr. Fleury also described, at the Institute, a process of manufacturing steel analogous to that of Bessemer, in which the decarbonisation of the cast-iron was effected by introducing into it while melted pulverised oxide, whose oxygen served to combine with and remove the excess of carbon. He also gave an account of a process for increasing the strength of cast-iron by the addition of an alloy of zinc, lead, and tin, in the proportion of about seven per cent. This process has been patented in the United States.

ACCIDENT IN A STONE QUARRY.—An accident, resulting in the death of three men, has occurred near the village of Uplyme, in Devonshire. Three labourers in the employ of Mr. Simon Fowler, lime-burner, went to a limestone quarry for the purpose of digging stone. Mr. Fowler, in passing the quarry, observed that about a hundred tons of stone and rubble, which previously overhung the pit, had fallen in; and, on seeing a horse and cart on the edge of the fallen mass, thought it probable that some one was beneath. He procured assistance; and, on removing the mass of stone, the labourers came upon the bodies of the three men, all dead and horribly mutilated. At the inquest a verdict of accidental death was returned, the jury expressing a wish that some mode might be found of working from above, and strict orders given that the quarrying should not be proceeded with without the presence of an inspector. Three men were previously killed in the same pit.

THE MIDLAND INSTITUTE.—Lord Wrottesley, the President of the Midland Institute, has delivered the inaugural address, before a crowded audience, in the Lecture Theatre. The President chose as the subject of his address "The Recent Applications of the Spectral Analysis to Astronomical Phenomena," on which text his lordship delivered an able and interesting discourse.

DISCOVERY IN WORLHAM CHURCH, BASINGSTOKE.—This church is in course of restoration, under the superintendence of Mr. D. Brandon. A curious discovery has been made in the floor of the church, of a stone monument, like a coffin, containing the figure of a lady, apparently an abbess of the fourteenth century, carved, with her hands crossed one over the other, and holding what appears to be a rosary, the ribbon of which passes round her neck. Her dress is fastened with a round brooch, which has a cross carved in the centre. The lower part of the coffin is closed, and a cross or crozier, 3 ft. long, is cut out upon it. The length of the whole stone is 6 ft. 5½ in.; the width at the head is 1 ft. 9½ in., and at the feet 1 ft. 5 in.

COMPETITION FOR A MATURED DESIGN FOR IMPROVING AND ENLARGING THE PORT OF ODESSA. The Russian Government proposes to carry out works for improving the port of Odessa. The competition is thrown open to engineers of all countries, who are to send in designs in accordance with a given programme. Engineers wishing to compete may address the Director-General of New Russia and Bessarabia, at Odessa, who will place at their disposal the plan of the port of Odessa mentioned in the programme. In their examination of the port, the competitors will receive every assistance from the local administration. The design that is adopted for execution by the Department of Roads of Communication will obtain a premium of 8,000 silver roubles (1,800l.); and the second-best design, if of sufficient merit, will receive a premium of 2,000 silver roubles (325l.). Incomplete designs will not be admitted to the competition.

SCARBOROUGH CLIFF HOTEL.—This building has been sold by auction. The edifice is about half complete, and has, it is said, already cost 90,000l., including 30,000l. for the land. It has 222 ft. sea frontage. The building was subject to a mortgage of 30,000l., an annual charge of 8s. 6d. to the Scarborough Corporation, &c. Mr. Yewdall, solicitor, Leeds, was the first bidder, at 10,000l., exclusive of mortgage. After several bids of 1,000l. each, Mr. Janowski, of Scarborough, offered 22,000l. Mr. Thos. Shaw, of Scarborough, shortly bid 23,000l., and this was followed by 23,200l. Mr. Shaw increased this by 200l., and the sale was declared open. The auctioneer having, to prevent any misunderstanding, explained the purchaser's liability to the mortgage claim, offered the lot at the price really offered, 43,400l., at which sum the bidding remained for a considerable time. Mr. J. Benson, sharebroker, Leeds, then offered 43,600l., at which sum the hotel was knocked down. It is said that a new limited liability company will be at once formed, and the building carried on.

MOUSE POWER.—A gentleman in Scotland has trained a couple of mice, and invented machinery for enabling them to spin cotton yarn. It is so constructed that the mouse is enabled to make attachment to society for past offences by twisting and reeling 100 to 120 threads per day. To complete this little pedestrian has to run 10½ miles. This journey it performs every day with ease. A halfpenny's worth of oatmeal, he says, at 1s. 3d. per peck, serves one of these treadmill culprits for five weeks. In that time it makes 110 threads per day, being an average of 3,850 threads of 25 in., which is nearly nine lengths of the real. A penny is paid to women for every cut in the ordinary way. At this rate a mouse earns 9d. every five weeks, which is one farthing per day, or 7s. 6d. per annum. Take 6d. off for board, and 1s. for machinery, there will arise 6s. clear profit from every mouse yearly! The canny Scot is going to make application for the lease of an old empty house, 100 ft. by 50 ft., and 50 ft. in height, which will hold ten thousand mouse-mills, besides sufficient room for keepers and some hundreds of spectators. Allowing 200l. for rent and task-masters, 10,000l. to erect machinery, and 500l. for the interest, there will be left a balance of 2,300l. per annum! Of course the "hundreds of spectators" are likely to be also made to pay for their house-room no less than the mice.

The Builder.

VOL. XXIII.—No. 1184.

The Holy City.



ERUSALEM (the heritage of peace) has, since the time when King David stormed the stronghold of the Jebusites, and founded there his capital, been the scene of the most sanguinary warfare and of the most terrible massacres the world has ever witnessed. Not to speak of the ravages of the

Egyptians, the Philistines, and the Assyrians; the Romans, under Titus, destroyed, during the siege, more than one million Jews within and around the city walls. The Arabs then had their turn, and afterwards the Crusaders, who slew there 70,000 Moslems in one week; again, the Mahometans fought for and conquered El Khuds (the holy), whence they believe the Prophet ascended through the Seven Heavens, as related in the 17th chapter of the Koran, entitled the "Night Journey."

Even in our own day, the holy places of Jerusalem, and of the neighbouring village of Beth-lehem, afforded a pretext for the bloodiest contest of modern times, which fertilized the Crimean plain with the best blood of England, France, Russia, and Italy, and paralyzed the minds of great statesmen, rendering them impatient for future good. What a mournful picture of the results of religious bigotry does all this present to the Christian philanthropist and philosopher.

From causes similar to those which produced such direful effects, arose the wordy war that is now going on around us regarding the exact site of the holy places. The battle is still raging between Ferguson, Williams, De Vogüé, and others, about the position of Mount Calvary, and of the sepulchre of Our Lord. How each chief combatant crows when he discovers the weak points of his adversary! How each minor combatant chuckles when he thinks he has produced a new fact for the consideration of the archaeological world! At last, however, we have hopes of a truce; for a society has been established, composed of men of every shade of opinion and religious belief, for the purpose of investigating these matters thoroughly, by sending out an expedition of competent persons to explore, excavate, measure, draw, photograph, or in any other way obtain the information which is necessary to solve these doubts and end these discussions. So we must all be prepared to accept the truths which these efforts will bring to light; and, if necessary, to surrender our most dearly-cherished belief in the authenticity of all that has been said or written upon the subject previously. This would be a hard task for some, no doubt. It would be hard for the pious Russian who has journeyed from the region of Siberian snows, enduring privation in every form, for the privilege of visiting the holy tomb, of sleeping all Easter eve within the Rotunda in order that he

might be one of the first to light his taper at the miraculous flame (unsuspecting of the agency of lucifer matches), to find that his pilgrimage was in vain, and that he was in the wrong spot altogether.

It would be hard to the Romanist who has gone the circuit of all the holy places, under the guidance of a monk, and has received a certificate setting forth that he went the appointed round, to find that his certificate is false and only so much waste paper.

It would be hard, also, though in a slighter degree, to the untravelling Christian, who has formed a tolerable idea of the appearance of the surroundings and belongings of the Holy Sepulchre, from photographs, drawings, and panoramas, to find that his treasured ideal picture is but a dissolving view; that it disappears while he contemplates it, and somehow leaves him in a middle, and uncertain about his bearings. To all of these, we repeat, it would be hard to give up the long-entertained conviction that the Church of the Holy Sepulchre was what its name imported, and to be compelled to own that it was in some entirely different locality. It would be a painful wrench, as bad as the pulling out of an eye-tooth; but still, if necessary, it must be borne, for "Truth is great and must prevail," as say the copybooks.

Pending the results of these investigations, we shall not hazard theories of our own upon the subject, but simply note what came under observation during our walks in and about the city of Jerusalem; and, as the true names of places are still in doubt, we shall, for the sake of avoiding prolixity in description, prefer to call places by their old world names, declining to adopt Lord Russell's phraseology, when speaking of the South as the so-called Confederate States, but saying the Holy Sepulchre, in place of the so-called Holy Sepulchre.

After what we have said about the wars that have been carried on, and the disputes that are now raging about Jerusalem, and more especially about the Holy Sepulchre, which is the kernel of the nut, our readers will be as much surprised to hear as we were to see, upon going to the terraced house-top early in the morning after our arrival (we always find it the best plan to endeavour to gain a general view of any town that is new to us as soon as possible, in order to lay down the bearings of any place we wish to see), that there was a great gap in the dome of the Church of the Holy Sepulchre. Many square yards of lead were wanting, the timbers were visible; and, whenever it rained, the water must have sapped the walls and poured into the building itself; and yet there were dwelling in Jerusalem dignitaries of all the Churches, who were squabbling, writing, and almost cursing one another, in order to obtain a footing in this self-same building, which they naturally considered the most sacred of any. We asked for an explanation, and were told in reply that France wished to repair it (the second Helena, of course, would be delighted to do so); Russia wished to repair it; England was, of course, indifferent; but the Sultan was anxious to have a finger in the pie, and the Christian Powers were unwilling that the infidel should participate, and thus have a further lien upon the sacred edifice: so between the three it was allowed to fall into a state of dilapidation which, if it occurred in a public building in England, would excite the interference of that despotic power, the police under the Building Act. We cannot vouch for the truth of the story, but the plain frightful fact was before us—typical, we afterwards had occasion to remark, of the anarchy produced in Jerusalem by strong prejudices. Fanatics of every faith abound. Jealousies, scandals, quarrels, and fights, even in the Holy Sepulchre itself (on the occasion of the lighting of the sacred fire in 1834, four hundred people were killed within the Rotunda), result from them, and profane the

holy pile,—say, and will continue to do so until men learn that Charity is the elder sister of Faith.

From the top of our hotel we saw to our left the dome of the rotunda of the church, which is flat-sided. Next to it, the old Campanile, now disused,—for the Turks will not tolerate the sound of bells;—and beyond it a smaller dome, which stands over the choir. In front of us were the flat-topped houses forming our street; and over them was a large space of waste ground, formerly belonging to the Hospital of St. John, a foundation of the Crusaders, and now, we believe, ceded to the French—(why do they not build upon it?) In the distance was the green cupola of the Dome of the Rock, always the most imposing feature in a view of Jerusalem. The background was formed by the Mount of Olives, crowned by the Mosque of the Ascension. Behind us was the Pool of Hekziah, black and stagnant, and surrounded by houses.

Before proceeding it would be well to give our readers a general idea of the form and position of the city. Many of them, no doubt, are acquainted with the plan of it; but those who are not may gain a tolerable notion of it in the rough by drawing a lozenge on a sheet of paper, point uppermost, and then sub-dividing it into four smaller lozenges by lines drawn from the centre of each side. Let them write upon the uppermost or northern division, Bezetha; on the southern, Zion; on the east, Moriah; and on the west, Acra. These will represent the four parts, formerly mountains, into which the city is divided within the walls. Bezetha is the Mahometan quarter; at its west angle is the Damascus Gate; at its east the Gate of St. Stephen. Acra is the Frank quarter; in it stands the Holy Sepulchre. Zion is the Armenian and Jewish quarter; and at its west corner is the Jaffa Gate. Moriah is occupied almost exclusively by the Haram-es-Sherif—the site of the Temple; and is separated from Zion by the Tyropean valley, which is represented by the dividing line, and which terminates in the Dung Gate, now closed. The Golden Gate, in the centre of the side of Moriah, is also closed; but there is an open gate in the middle of the south-west side of Zion.

Jerusalem is not a regular lozenge in form, but a trapezium, with the west and east sides longer than the others; nor does the point stand due north, but rather to the east. Still, the sketch we have suggested will convey a better idea of its form than any simple written description.

The city lies on the side of a mountain, sloping gradually towards the south-east, and is surrounded by valleys on all sides but the north-east—that of Jehoshaphat being on the east; that of Hinnom on the south; that of Gibon, which is shallow, on the west; beyond there are high mountains. Thus a traveller coming from Jaffa, when crossing the ridge of the mountains, sees little but the outer walls; whereas, from the summit of the Mount of Olives, on the east, he has a splendid panorama of the entire city.

The general character of the country around is arid, stony, and barren; here and there a little grass is to be seen, and in the valleys and on the slopes of the mountains there are a few olive-trees; otherwise all is burnt up, and of a brown colour. Of all representations of the character of the scenery, Seddon's picture, in the South Kensington Museum, is the best, the most faithful and conscientious. The colouring is here true to nature; but it appears to have been painted early in the year, when vegetation was green; we saw it in October, when it was the colour of hay. Roberts sacrificed truth for the sake of effect, by making the valleys too deep and the rocks around too precipitous. His views of the city are very charming, but they are of an idealized character.

Our first impressions were, we suppose, similar to those of most travellers. We were struck

with the insignificance of what was the royal city of David and Solomon, as compared with our modern towns; with the paucity of fine buildings; with the squalor of the inhabitants; with the crowded state of some parts of the town; the Jewish quarter, for instance, contrasted with the great quantity of waste land in the Mahometan quarter, and in proximity to the walls; and with the heaps of dirt, dust, and ashes, which abound on every side. No wonder that parts of the Tyropean valley and other natural hollows have disappeared. There are but four practicable gates in the walls, and the inhabitants, rather than take the trouble to carry rubbish through them by a circuitous route, throw it into the nearest hollow. We believe that most of the modern houses are reared upon dust-heaps, and that deep excavations would reveal much concealed by this accumulation of ages, especially in those places where there have been valleys.

There are but three chief thoroughfares in the city, and these are constantly crowded with shrieking Arabs, grave Turks, greasy Jews, Greeks, Armenians, and Copts, in variously-coloured dresses, the effect of which is toned down here and there by a European in sober black. One street leads from the Jaffa Gate to the Haram, and may be represented by the line drawn on our lozenge, except that it does not reach the corner, but the middle, of Mount Moriah. A second leads from the Damascus Gate, with one or two turns to the Gate of Zion. A third leads from St. Stephen's Gate to the Holy Sepulchre, and is called the Via Dolorosa, as it is reputed to be that by which our Saviour was led from Pilate's Hall to Mount Calvary. There are many other smaller streets and lanes, dark and gloomy from being partly arched over, leading nowhere, or ending in the city walls. Along one of the former, which may be considered part of the chief thoroughfare, we walked to the great centre of attraction, the Church of the Holy Sepulchre. Turning to the left when we quitted our hotel, and then again to our right at a distance of a few hundred yards, we reached the narrow street of the Palmers, which flanks the south side of the church. Passing down this to the east amidst the booths of those who sold candles, beads, relics, and such like commodities to the pilgrims, we soon reached a square flagged area in front of the south entrance. Before us rose the façade, which has been so often engraved and described. Two fine pointed arches, each of several orders of mouldings, spring from verde-antique columns with richly-carved capitals. These form doorways, and have lintels and tympana, with sculpture. The easternmost of these is blocked up. Above there is a richly-foliated string-course, and above that are similar arcades inclosing windows. The whole is as fine a façade of French Gothic of the latter part of the twelfth century as one could wish to see. Adjoining, forming the west boundary of the area, is a campanile of three stages, also in good style. Bases of columns existing on the south side of this area show that formerly there was a porch or atrium here. On entering the church our attention is arrested by a group of Turkish cavasses, who levy a tax of a few piastres upon pilgrims entering the church. The church is actually the property of Mussulmans, who are paid, as a Franciscan monk informed us, every time it is opened for service by the community, whether Latin, Greek, Armenian, or Coptic, whoever wishes to celebrate, and who also must receive considerable sums from pilgrims, as there are sometimes no less than 30,000 in the city during Holy Week. Whether this money goes into the treasury of the Government, or whether some of it goes to the Christian patriarchs, we cannot say; but it certainly seemed strange that the sepulchre of our Lord should be guarded by unbelievers.

In order to a clear comprehension of the plan of the building, let us imagine the transepts and circular apse of a French twelfth-century church, with a dome over the crossing, a choir carried to the western bay of the cross; and beyond it a sanctuary, both of them separated by walls from the transepts and circumambulatory; three radiating chapels in the large apse, a lady-chapel at the south-east corner, tacked on to a circular nave. The choir and sanctuary belong to the Greeks; they have also chapels in the south transept and in the Rotunda. The Armenians have the lady-chapel, in reality that of St. Helena; but the poor Latins are left "out in the cold" on the north side, where there are no holy sites, but they share the chapel of Calvary with the Greeks. The Rotunda is common to all, though

we believe the Eastern churches alone have the right of celebrating in it. Would that the building were more like what it was originally; but unfortunately, after the fire of 1808, it was rebuilt and beautified by a Greek architect, who cased the columns of the Rotunda, rebuilt the central chapel in bad taste, and otherwise altered and disfigured the interior of the church, so that but little pure Gothic is visible. Le Brun gives a large view of the interior in its former state, which in every point confirms M. De Vogüé's restoration. Within this building are crowded most of the spots which were the scenes of our Saviour's passion. We shall content ourselves with enumerating them. On our right on entering the church, that is, on the south transept, are two staircases of eighteen steps, leading up to the chapel of Mount Calvary. The floor of this is without doubt founded on a rock; for in one place may be seen the hole in which the foot of the cross was placed, and near it the rent that opened at the Crucifixion. In the transept near to the choir is the Stone of Unction.

In the thickness of the wall of the Rotunda are the tombs of Joseph of Arimathea and Nicodemus. Near the Latin chapel, on the north, is the spot where Christ appeared to St. Mary Magdalene. The chapels in the circumambulatory mark the place where our Saviour was stripped and crowned with thorns. There is no occasion for us to remark how many of these sites appear apocryphal to us, or the reverse, especially at a time when the authenticity of the whole is called in question. The Chapel of St. Helena is the most interesting for its architecture. Its floor is 16 ft. below the level of the church, and is reached by a flight of twenty-eight steps. It is square in plan, and has a central dome resting upon four pointed arches, which spring from as many columns with large capitals. The lower part of the bell of each capital is of basket-work. There is a row of acanthus leaves above, and the abacus has a classical character. They are altogether Byzantine, but the pointed arches are twelfth-century work; so we are naturally led to conclude that the chapel was rebuilt at the last-mentioned period, and that capitals of an earlier building were used. At the south-east corner another flight of steps leads down to a smaller chapel in a cave in the rock, in which it is said that the true cross was found by St. Helena.

Beyond the Chapel of St. Helena there is little to remark in the building. The Rotunda is in a nondescript style of architecture. The Greek choir is rich in decoration, and has a magnificent iconostasis. The Franciscan chapel is quite a modern structure, or, at all events, bears no marks of great age. There are many dependencies of both the Greek and Latin convents attached to the north and south sides of the church, but in none of them did we notice any architectural peculiarities.

Upon quitting the church, and proceeding eastward through the street of the Palmers, we perceive on our right-hand a fine Norman arch, with a label adorned with sculpture representing the months of the year. Within this arch have been two small arches forming the doorway of the Hospital of St. John, a sort of xenodochium or khan established by the Crusaders. It is now entirely destroyed, and its ruins occupy that plot of waste land which we saw from our hotel. At the corner are the remains of the Church of St. Mary the Great, and upon the opposite side of the street those of another church, St. Mary Latin. These three edifices, as well as the Church of the Holy Sepulchre, have been fine specimens of twelfth-century Pointed architecture. What astonishes most is to find so many traces of the Crusaders and so many fragments of really good Gothic. In addition to the three buildings above mentioned, there are the Church of St. Anne, almost entire, that of St. Mary Magdalene, the Tomb of the Virgin Mary, and the Church of the Ascension. Besides these, the ruins of ten or twelve more churches are known, the sites of which have not been identified. Having passed the church on our left-hand, we turn southwards, pass the east end of the Church of the Holy Sepulchre; then again go a few yards to the west, and, ascending a flight of steps on our left, reach a platform, on which are several detached cells,—we cannot call them houses,—inhabited by black men, who, from their beardless faces and long blue robes, look like Arab women. These are the Copts and Abyssinian monks, and this is their convent. In the centre of the platform rises a dome. We find, upon looking into it,

it is that of St. Helena's Chapel, and that we are standing actually upon the roof of that chapel; for its floor, be it remembered, is 16 ft. below the level of the ground, and we are some 10 ft. or more above. The black monks take us to their chapel and show us every civility. They seem miserably poor. They get no live beef-steaks and such like luxuries here, but live in a state of indigence, and are barely tolerated by their fellow-Christians. We should say lived,—for since the time of our visit British protection, which was their sole safeguard, has been withdrawn, on the pretence that Abyssinia is a province of Turkey (how long shall we maintain the power of the Crescent against the Cross?), and the poor fellows, expelled from even this wretched abode, have had to trudge back to their own country, and have there excited the animosity of King Theodore against us. This had led to the imprisonment of our consul and missionaries, and has alienated from us the minds of all members of the Coptic church, which church, though it may be said to possess but a barbarous form of Christianity, flourished when our ancestors lived upon acorns, tattooed themselves in wonderful patterns of a bluish colour, and worshipped Thor and Woden, for whom we have still such a surviving affection that we perpetuate their memory in the names we give to the days of the week. May not our enemies likewise say that there are traces of paganism lingering amongst us still? Dr. Gobat, the Anglican bishop of Jerusalem, and Dr. Beke, the Abyssinian traveller, are the authorities for this account of the reasons for the exodus of these poor monks, and better authorities there could not be, as both of them know more about the merits of the case than any one else.

Proceeding due east from the Church of the Holy Sepulchre, by a street which descends till it crosses the main thoroughfare from the Damascus Gate, we find ourselves in the Via Dolorosa; we find the spots where Jesus Christ is believed to have fallen under the burden of his cross, marked by columns; the house of St. Veronica; that of the wandering Jew; the place where Simon of Cyrene, helped to bear the cross; the chapel standing where the Virgin Mary fainted; the arch of the Ecce Homo, part of which is Roman work; and, lastly, the palace of Pilate, which adjoins the north side of the Haram. Here, seeing a street on our right, terminating in an inviting open space, with trees in it, we turned into it, but were soon startled from our meditations by the apparition of an infuriated Mussulman at the further end of it, who, by threats and violent gestures, signified to us that we must turn back, and we found that we had been strolling towards the sacred enclosure of the Haram, which none must approach except in the company of a consular cavass, prepared to smooth the path by a liberal bakshesh: so we consoled ourselves by visiting the ruined Pool of Bethesda, near St. Stephen's Gate, and looking at the Church of St. Anne, which stands opposite. The Pool is a cistern in the form of a parallelogram, about 300 ft. in length by 120 ft. in breadth, and about 60 ft. in depth. It is now half-filled with rubbish, from the crumbling walls around it. It lies along the north wall of the Haram. The Church of St. Anne, which has been ceded to the French, stands a short distance from the road, on the other side; it has nave, aisle, four bays, groined roofs, a low dome over the fourth bay, and three semi-octagonal absides. It is, as well as the other Pointed buildings in Jerusalem, thoroughly illustrated by De Vogüé. Why it is still disused, and allowed to remain in a state of neglect, we cannot imagine.

THE HEALTH AND DWELLING QUESTION AT THE SHEFFIELD CONGRESS.

THE meeting at Sheffield of the National Association for the Promotion of Social Science, commenced on the 4th and terminated on the 11th inst. With reference to numbers and the consequent financial results, we are disposed to think the congress will not prove so satisfactory as might be desired; but as respects the interest of the papers read, the ability and vigour displayed in the discussions, and the advantages, sanitary and otherwise, likely to ensue, it must be placed on a par with the most successful of previous meetings. We confine ourselves on the present occasion to the proceedings that relate to health, and for personal reasons make the reports given by the local press, the *Sheffield and Rotherham Independent* and the *Sheffield Daily*

Telegraph, the basis of our account. At the first meeting of the Health Department (on Thursday morning) Dr. J. C. Hall, senior physician to the Sheffield Public Hospital, read a valuable and elaborate paper "On the Effects of certain Sheffield Trades on Life and Health." In the course of it he said,—"What is the file cutters' disease? Poisoning by lead. I have already stated that the file rests on a bed of lead during the process of cutting, and that fine lead dust may be seen to rise every time the chisel is struck by the hammer. The men have a foolish habit of wetting the finger and thumb with which the chisel is held, by licking them; they frequently eat their meals without washing their hands, and often take dinner in the workshop where the files are cut. As though fine lead dust, handling the lead at each shifting, and licking the fingers were not sufficiently poisonous, I saw in one of the file-cutters' shops during the last few weeks a man whose wife had just brought him his dinner, eating it with unwashed hands, and dipping his fingers, blackened and covered with fine lead dust, into a paper which contained the salt for seasoning his beef. I went this day (September 25, 1865), to a file shop in which several men were at work cutting. These men all take their dinners in the shop; they never wash their hands till they go home at night—"sometimes not then." They do not change their clothes when they get home. One man made this statement:—"I have known a thousand file-cutters, but I only know one who takes the trouble to wash his hands before he gets his dinner; he works at Cammell's; I never think of washing mine."

Further on he spoke thus of the causes which produce the grinders' disease.—The cause of this disease is first the irritation produced by the metallic and gritty particles inhaled in grinding, and also in "hanging" and "racing" the grinding stones; and next, the constrained position in which they labour, and which is unfavourable to the free action of the respiratory organs; to this must be added the working for many hours in a badly ventilated room. When at work the grinder mounts what he calls his "horsing." This is a low narrow wooden seat. His elbows rest upon his knees, and his head, particularly when employed on very small articles, is bent over the stone. This position is a very injurious one, and when long continued is calculated, unquestionably, to induce pulmonary congestion. In many of the branches—table-knife grinding for example, the men often work in the coldest weather very thinly clad, their handkerchiefs off, their shirts open, and their chests fully exposed; and this, too, in a room every bit of glass from the windows of which has been removed, that the light may not be obstructed, by the splashing of the dirty water from the grinding stones. The floors of such halls are generally of mud, and always wet, dirty, and uncomfortable. The men perspire freely at their work, and in this condition often leave the hall, and, without putting on additional clothing, lounge about the yard in the open air, even when the weather is very cold. Inflammation of the lungs, pleurisy, rheumatic fever, and diseases of the heart are not unfrequent among them. I have seen many young boys suffering from grinders' disease arising from the dust inhaled in polishing; and in dry-grinders very often before the age of twenty, evidence is present of the existence of this fearful affection. I had a patient at the Public Hospital last week, a grinder aged twenty-two. On inquiring what was the matter with him, he said, "I grind razors, and have got what I shall never get shut on" (rid of).

He began to work at eleven, and had never used a fan. Both lungs were affected by the grinders' disease, but not nearly to the extent I have seen them, even in younger men than this poor fellow. At the commencement of the disease the breathing is difficult, more particularly when walking up a hill, going up-stairs, or ascending the steps leading to the upper halls in which they work. At this early stage, the shoulders are often elevated, in order to relieve the distress occasioned by shortness of breath. The disease shortly increases, and day by day makes certain progress in all dry-grinders working without the protection of the fan. The digestive organs become impaired, the breathing is more and more short and oppressed, the face has a dirty-white aspect, the countenance is indicative of much suffering, he stops to cough in the street as he crawls to his work, supporting himself against the walls. They all complain of a dry sensation in the throat, and tell you "they

feel screwed up," and that something is so tight across their chests they cannot breathe. The cough is at first dry, but after a time there is a good deal of expectoration, which at first is frothy, and indicative of irritation.

As to prevention.—This disease was formerly almost unknown, and for this reason: until the year 1786, when the first steam wheel was erected, grinding-wheels were built upon the banks of rivers in and near Sheffield; and water being the power employed, it will at once be obvious that the grinder would have many interruptions to his trade, and that to grind day after day as the grinders now do was then impossible, and many of them were makers as well as grinders of cutlery. Nor was this all. By the old regulations of the Cutlers' Company, passed in the reign of Elizabeth, it was provided "that no person engaged in the said manufacture, either as a master, servant, or apprentice, shall perform any work appertaining to the said science or mystery of cutlery for eight-and-twenty days next ensuing the 8th day of August in each year, nor from Christmas to the 23rd day of January, upon pain and forfeiture, for every offence found and presented by twelve men of the said fellowship, of the sum of twenty shillings. No person occupying any wheel for the grinding of knives to allow of any work being done during the holiday months: penalty as before." When grinding became a separate branch of trade their hours were no longer limited, and then, it would appear, that the fearful effects on the animal economy of constantly inhaling particles of steel and grit day after day began to develop themselves. This, then, leads me to a first practical suggestion for alleviating the condition of the grinders,—namely, to diminish the hours of labour; and the most effectual way to do this is to abolish "Saint days," as the first days of the week are called by these men, and which are spent by but too many of them in drunkenness and intemperance. What is the result? They crowd into three or four days the labour that ought to be distributed over the whole week, and many soon find, to their cost, the folly of such proceeding. It is a notion in some of the hulls that a drunken grinder often lives the longest. This is a very great mistake. Intemperance has hurried hundreds of these men into their graves.

Many years ago, the late Mr. Trickett, at the Union Wheel, showed me how the different processes could be gone through without injury to the grinder from the dust; and at the Sobho Wheel I saw that shaping razors, and even "racing" a stone, by adding a properly contrived box, could be rendered perfectly innocuous by the use of the fan; almost all the dust being driven off by the fan, up a shaft on the outside of the building. The particles of dust and steel not carried away by the fan in "racing" a stone may be prevented from entering the air passages by tying, as all intelligent grinders do, when performing this work, a light handkerchief over their nose and mouth. That these fans, or "fannies," answer perfectly well, I have convinced myself by actual experience, and by the testimony of every dry-grinder who uses them. To prevent the grinders' disease, I am, therefore, of opinion,—1st. That the hours of labour should be reduced. 2nd. That wet and dry grinders should on no pretence be allowed to work in the same room. 3rd. That the owners of wheels should be compelled to provide a fan for all dry-grinders. 4th. That all wheels should be placed under proper inspection,—properly ventilated and kept clean,—the rooms built of a proper height, with sufficient space for each man, and every wheel properly provided with conveniences, the want of which at present, or the substitution for which, at many wheels, is a disgrace to the civilization of the nineteenth century, and, in a sanitary point of view, a great evil. No floor should be of mud. Where wet grinding is carried on the floor should be flagged on a sufficient incline to let the water run off.

The Workmen's Meeting, on Thursday evening, was a great success. The Alexandra Music Hall, formerly the theatre, crowded from floor to ceiling, pit, boxes, and gallery, with about 3,000 men, was a remarkable sight. Lord Brougham presided. The Common Serjeant, Mr. Thomas Chambers, the new member for Marylebone, made a most effective speech; and Mr. Thomas Hughes, M.P., and Professor Fawcett, M.P., also addressed the meeting. Mr. Hastings, the general secretary, introducing each to the meeting. We confine ourselves to what was said by the two speakers who had been requested to talk of health and homes.

Dr. Lankester, coroner for Middlesex, said he did not feel so much the having to speak after an honest lawyer (Lord Brougham had so spoken of Mr. Chambers), as to have to speak after a brilliant orator. He felt, too, that after the subject of education, and the able manner in which the Common Serjeant of London had treated it, the subject of health would hardly be one that he could draw their attention to for a sufficient length of time to make any impression; at the same time he would remind them that if they were to be educated, if they were to develop their minds to the utmost, there was one condition necessary to that development, and that was good health. He appealed to the working men of Sheffield, and asked them whether that was not the platform on which all their hopes were centred, and from which all must spring. There was no working without health, there was no going on in life with integrity and success without health, and it was the want of health that rendered the poor man miserable and desolate. And yet they knew that in that very Sheffield,—that busy, active, successful Sheffield,—there were many working men who did not possess health, who were so little possessors of that health that there were whole classes of them who lived, not to the age of 70, which was the hope of man, nor to 60, nor to 50, nor to 40, nor to 30; there was a class amongst their fork-grinders, the average of whose health was but twenty-eight years. He hoped they knew that; he hoped that had been told them; and he hoped that it had been told the fork-grinders that there was hope for them; that they had it in their power to relieve themselves from the desolation and misery brought about by having to give up life at twenty-eight which God intended to last till seventy. The Health Department would be no department of the Social Science Association unless they should come and show them by inevitable demonstration that the life thus lost was unnecessarily lost, that there was no law of God that they should die at that great rate, but that it is by breaking the laws of life that their death was thus ensured. The second paper read in the Health Section that day shocked him. The death-rate in Sheffield during the present year was 34 in 1,000, and they were told that it had been rising year after year 1 in 1,000, from 28 per 1,000 up to 34. Well, what did that mean? Why, 34 in 1,000 was one of the heaviest death-rates in the kingdom. He did not know any other town where it was so high; and ought that to be in a city most gloriously situated for the purpose of obtaining health, surrounded by those everlasting hills, pouring down glorious torrents of water, ready to drink or to be used for washing or manufacturing purposes? There they stood, in a position by which all that accumulated filth—which produced disease—could be easily carried from them. What could be the cause of the high death-rate? He asked what were the employments of the men, and he was told of dreadful employments which carried off men unnecessarily, fork, razor, scissor, and needle grinding—all businesses in which life was shortened below the average of other artisans; and when they came to inquire why that was, they found that it arose from removable causes. He found that certain grinders worked at their trade and still had an average of life longer than the average of men employed in the same work. Where the means were properly employed of cleansing the atmosphere, life was prolonged. They had had the pleasure in the Health Section of seeing a grinder, and a more intelligent man he had not met during the meetings of their Association in the various towns. He had heard with great pleasure from the lips of John Wilson, of this place, the statement that the death of the grinder, and the disease of the grinder, were not the necessity of his employment, but due to the want of attention on the part, on the one hand, of employers, and on the other of the men themselves, in not using the proper means for the saving of their lives. Remove from themselves that cause of death, and discontinue carrying on their works under circumstances which necessarily led to the destruction of their lives. Let them educate themselves to the utmost on that point. Begin there. Leave, if they liked, their politics, their science, their mathematics, and study first how they were to live, how they were to make their existence healthy, their work the greatest success, and let nothing divert them from that study till they found they had discovered the means of preventing those terrible calamities coming upon them. He did not mean to say that this death-rate in Sheffield was

entirely owing to the grinders. There were other unhealthy occupations. They had heard from Mr. Holland that the workers in metal-mines were, from the want of proper ventilation and other inattentions, more exposed to danger than the workers in coal-mines. The deduction he drew from all this was, that there must be action taken on the part of the Government; for whenever the local authorities failed it then became imperative on the part of Government to interfere, and say, "We cannot allow this evil to continue. If the people would not do it themselves, then it would become necessary that Government should interpose and prevent this reckless waste of human life. The working men must look to Government for that protection of which they were at present deficient. He was no advocate of combinations of working men on wages questions; for there every man was entitled to get all he could; but he was confident that there would be justice in the working men combining to compel the masters to protect them whilst exercising their daily calling. Let that be part of their organization—let them remember that their health was a question of interest to their wives and families. The life of the working man was a question in which the whole community was interested. The death-rate of Sheffield ought not to be more than 24 at the utmost in 1,000. They managed to do with 23 per 1,000 in London, and a reduction of 10 per 1,000 would give a saving of 2,000 lives per annum in Sheffield. Did they think that those lives were worth nothing? Why surely they were worth 100l. per man. That was a small price for a black man, and he thought a white man was surely worth more. Well, but that increased death-rate of Sheffield over London was a loss to Sheffield of half a million of money per annum. He appealed to political economists whether he was in that statement reckoning without his host. If he were right, then what folly, what madness it was for people to go on in this penny-wise, pound-foolish manner, neglecting great things on which depended their life and happiness.

Mr. Godwin said it was a great satisfaction to him to be permitted to meet such an extraordinary assemblage of the "bone and sinew" of Sheffield, and to assist in making known to them the objects of the Social Science Association, and to show that in some of these objects they were as much interested as any part of the people. In respect of health, for example, it was of even more importance to the working classes than to capitalists, that they should be possessed of it. It was more important to them than to the capitalist, because the latter had his wealth to fall back upon, while the working man had either to starve, go to his benefit society, or receive parish relief. They had a right to look for protection in directions where they could not protect themselves; but unless they got information and learnt how to protect themselves no good would be done. They would then see, that to have health, it was necessary to have pure air. This would no doubt appear a very simple matter; yet people did not see that, if they shut up in a small house a man and his family, or a large number of persons in a small space, they would gradually undermine their health. So it was with the pent-up inhabitants of a large manufacturing town. The sanitary condition of London and other great cities was frightful. Man was doing all he could to render impure and lessen the quantity of the two great agents of nature—pure air and pure water. Ignorance prevailed to an extent that was almost incredible. At a watering-place on the east coast he found, a few weeks ago, a range of houses, in an extremely good situation; yet there was a constant succession of illnesses in the houses, and the medical men could find no cause. Accident revealed to him the cause: the pump which supplied each house was within 6 ft. of the closet cesspool. Could they wonder at the illness? He had felt surprise at the death-rate in Sheffield, but he had ceased to experience that feeling after a walk in the town. He proceeded to say, he was sorry that he had to make the remark he should make, and he did not wish it to be thought that the Social Science Association had come to Sheffield to find fault; but if such were the case, he hoped that the blame would be put upon his shoulders, and not upon the society generally. He had been through the courts of Pen-croft, of White-croft, and of Hollis-croft. What he had seen there would of itself more than account for the terrific death-rate which they had heard of that day. In one court, in which were seven houses, each having two rooms,

there were sixty-two people. The pavements were broken, and the stagnant water and refuse remained about them. The receptacle for the refuse had not been emptied to the bottom, as he was informed, for six months. To add to this, they were half-starved for water. Again, he would say, that to the whole of those sixty-two persons there was but one convenience, and that had neither door nor seat! Talk of education, it was perfectly ridiculous to suppose that education could have any hold or advantage there. What must be the people produced from such a home? Pretty men must be turned out from such a "manufactory"—the children were educated downwards instead of upwards. It was impossible that a good state of health could exist under such circumstances. Such things should not be allowed to exist. They had heard of home—there was a magic in that little word—but what was such a hole as the one he had mentioned? No clever farmer would have ventured to place his horses or dogs under such conditions as those in which he found these men and these women. Contrast this with a real home, a haven of rest, where the affections and powers might be alike developed. He implored the local press of the town not to stir the matter as they did, much against their will, in 1861, when the miserable condition had been set forth of the very places he was then talking of. He had spoken warmly because he felt warmly, and he expressed a strong hope that something would be done to remove so crying a disgrace. He knew there were many men in Sheffield most anxious to do it, and he urged that where life and progress were concerned, money should not be allowed to prevent the right work.

In the Health Department, on Friday, Dr. Lankester gave a discourse on "The best means of preventing the spread of contagious diseases?" He commenced by stating that a considerable amount of time had been wasted in the discussion of the question as to whether the small-pox, typhoid fever, or scarlet fever, were contagious. If they were contagious, the disease would be making progress while the discussion was going on. He held that the safest plan was to treat those diseases as if they were contagious, and to take the steps that were thought most proper to prevent the spread of them. At the present moment, whilst he had the cattle disease in our midst, a discussion was going on all over the country, as to whether the plague was contagious or not. He held that small-pox, typhoid fever, and scarlet fever, were all contagious, and that the way to ward off the approach of these diseases was to avoid all those things which induce them. It was one great mistake, however, to say that disease will only be found where there is an accumulation of filth to induce it. The contagion has been communicated to places where the sanitary arrangements were complete, and where the individuals themselves were supposed to be beyond its reach. As an instance he would give the case of the late lamented Prince Consort. No one could have imagined that contagion could have got into Windsor Castle, and yet it did. The spread of contagion was unseen, and the modes by which it was spread were various. If small-pox was taken as an instance, it was impossible to say how the contagion was conveyed, the ways were so varied. It could be conveyed on the point of a lancet, or even on a piece of paper. Then, again, it was not every one who could be affected by the small-pox. Those who have had small-pox do not take it again, and those who are not predisposed to the disease will escape. In the case of typhus fever the disease is contagious, and the contagion can be spread by contact with the invalid or the clothes. It often happens, however, that if a member of a family be affected, all the others can attend them without contracting the disease, and it often happens the very reverse. In small-pox, there were cells formed, and those cells contained poisonous animalcules. Here was the reproducing agent of the poison; and if a healthy person came in contact with those cells, the disease was the inevitable result. As a preventive measure, he implored them not to neglect the vaccination of children. Typhus, he maintained, was never propagated but by contagion. You could so dilute the atmosphere as to render the poisonous influence inoperative. Dr. Christison approved of heat, and he was one of the greatest authorities. He said that a temperature of boiling water (212 degrees) would destroy the virulent influence of the disease. Let the clothes of the diseased be placed in an oven at that

heat, and the vitality of the disease would be destroyed. Oxidizing agents would do much to destroy the poison. Iodine was a most powerful agent in disinfecting organic matter, and it was easily applied: four grains of iodine would be sufficient to purify a room. Chlorine might be used with advantage, and was extensively employed. Anything more terrible than the existing fact that those poisons were self-propagating we could not contemplate. They had the power of rapid multiplication. There is no doubt that persons may suddenly assume the power of propagation. I remember the case of an emigrant ship which sailed from the Thames in a perfectly healthy state. The vessel had hardly got down the river when the cholera broke out, and she put in at Torquay. There had been no disease there previously, but the cholera immediately broke out and ravaged the place. The air and water were a great medium in carrying disease. That it was found in water was evident from "his own case," as he called it, of the Broad-street pump, Golden-square, where 500 persons died in one night. He gave instances taken from Lambeth and Vauxhall, to show it might be conveyed in impure water. Typhus fever could be retained in clothes and dirty linen for years; that this was so, he quoted instances in which drawers and boxes had been opened a year or more after the occurrence of fatal typhus cases, and in which the disease again broke out and terminated fatally. In like manner he quoted cases of scarlet fever suddenly breaking out, and traced their propagation to the linen of deceased people having been retained in the house. Then there was predisposition to disease, and he was persuaded that this had something to do with the prevalence of the cattle plague. Into that subject he did not go further than to say that careful investigation and research would not unlikely reveal something which would enable us to prevent its spread—a remark which he applied to all forms of disease. At the same time, he felt humiliated to think, that whilst we were so careful about the cows, we were so indifferent to the life of human beings. Why, last year, he found from the official returns, that 119,000 people died in England of preventable diseases; and of the total number of deaths which took place in Sheffield last year, 1,109 arose from those preventable diseases, namely,—

Small-pox	280
Measles	121
Scarlatina	328
Diphtheria	41
Whooping-cough	177
Typhus fever	164
	1,109

He said that this was a fearful sacrifice of life among those who were the producers of the wealth of the country. He hoped the town council of Sheffield would consider the fact, that a farthing in the pound judiciously laid out would prevent a deal of disease.

Mr. Philip Holland commenced the discussion by taking exception to the theory held by Dr. Lankester as to all zymotic diseases being contagious. He contended that they were not so, and that the precautions taken to prevent the spread of diseases were the means by which they were spread still more. He referred to the case of the army in India, who were all huddled together when the yellow fever broke out. If they had been allowed to spread themselves, there would have been less chance of the disease proving so fatal as it did. Then, again, there were the quarantine laws, the observance of which was simply ridiculous and tyrannical. There were a lady and a gentleman lately coming from the Mediterranean who, it was suspected, were affected with a contagious disease. They were taken to Malta, and confined in a prison worse than any in which the felons in this country are put. There they were confined, and had to pay 10 guineas for their lodging and 15s. to the person for keeping them in it. He contended that such incarceration was a most dangerous proceeding. They ought to have been allowed their liberty, and the chances of taking the disease would have been lessened. It was a mistake to crowd infected persons together. They ought to be allowed to spread themselves in a wider area, and by that means the danger would be lessened.

Lord Brougham said he thought it clear that no harm could be done by viewing all doubtful diseases as contagious, while great harm might result from the contrary course.

Mr. Godwin was obliged to differ from that opinion. Harm could be done by inducing the belief that disorders not contagious were con-



THE WHITE HART INN, HIGH STREET, SOUTHWARK.

[See p. 726.]

tagions. He thoroughly believed that the best preventives of the spread of disease were plenty of good air, good water, and good food. Fear was a great predisposing cause of illness. He thought the well-known monk of Bury St. Edmund's, Lydgate, who wrote about the year 1380 the following lines, had correcter views:—

"By archis strong, his cours for to reflecte,
Thorough condyte pyys large and wyde withal,
By certeyne means artificiall
That it made a ful pargacion,
Of al odure and fylthes in the town,
Wesshyng the stretes as they stode arowe,
And the gutters in the erthe lowe,
That in the cite was no fylthe sene,
For the canell scoured was so cleane,
And deuoyded into secrety wyse,
That no man myght sepe nor deuyas
By what enyng the fylthes far nor nere,
Were borne awaye by course of the ryvere,
So covertly every thyng was couered,
Wherby the towne was utterly assured
From endengeryng of all corrupcion,
From wycked ayre and from inflexion."

"Wycked ayre," indeed. A capital expression, but the air was not half so wicked as those men who forced persons to live in this "wycked ayre." He said he was afraid that he should get quite a bad character in Sheffield. Some observations he had felt it his duty to make last night had offended some of the people. He could not help it: he must speak of the things he saw. When he entered the town on Wednesday, and took up his residence at the Victoria Hotel, he looked down upon the river Don, and the smell from it was so bad that it appeared to seize him, and he suffered for two hours severe illness. Let the people of Sheffield look at the river Don, and ask themselves the question, in what state would the town be if cholera came amongst us? The condition of that river Don, which was nothing more nor less than an open sewer, was a disgrace to any civilized town.

Alderman Saunders said he wished to reply to some of the observations of Mr. Godwin. He thought the town of Sheffield had been very unjustly attacked by some of those who had come into it. Mr. Godwin, he thought, had been far too strong in his condemnation. He remembered, some years ago, the editor of the *Builder* published a number of articles upon the town, and at the time he, Alderman Saunders, answered them. Those articles contained a vast number of misstatements about the state of things that existed in the town. Much had been said about

the death-rate in Sheffield. It was stated at 34 in 1,000. Admitting that the return was correct, he was far from saying that Sheffield was therefore, an unhealthy town, and that the death-rate of its regular inhabitants was 34 in 1,000. In all large towns there were a great number of poor and wretched people flocking from other districts to obtain a living, and the larger the town the greater this evil was. It was among this class of persons that the deaths were so numerous as to make the whole death-rate of the town appear so large. They would find that the death-rate in Sheffield was little above the death-rate in far more favoured places. If they were to go to such localities as sensation writers, anxious to produce telling articles, visited when they came to the town, there they might find the death-rate high enough. If they went to Pea-croft, Hollis-croft, and other such places, they would find a very high rate of mortality; but they must not take them as samples of the people of Sheffield. Such places existed in every town, and they were the natural consequences of poverty and ignorance, and had nothing to do with the sanitary arrangements and authorities of the town. Within five minutes' walk of the *Builder* office, in London, he had seen places full of filth and wretchedness, to which nothing in Sheffield could be compared. [A voice: "Two wrongs will not make one right."] Such places as had been mentioned existed in the town from causes over which the authorities had no control, namely, poverty, wretchedness, and gross ignorance. They would find in Hollis-croft, and similar places, a death-rate of 44 and 54 per 1,000 instead of 34. It was people of this class, living in such localities as these, that raised the death-rate. They raised it not because of defective sanitary arrangements, but because of the poverty and ignorance of the inhabitants. They lived in wretched houses because they could not afford to pay for better. Sanitary reformers were in the habit of telling them that larger houses ought to be built, in certain forms and shapes, and that poor people ought to live in them. He was prepared to go further than that, and say that the poor ought to have good coats on their backs, and good food in their stomachs, and coaches to ride in when they pleased. But it was no use telling a man he ought to live in a house at five shillings a week if he could only afford to pay half-a-crown. Landlords built

houses, as they bought shares or invested their money in any other way, in order to get a return for their capital. ("More shame.") They might say "shame," but he thought there were few men in that room who would be willing to lay out their money in building houses to return them only 2 or 2½ per cent. If they built good houses they must charge a higher rent. He referred to the cellar dwellings which formerly existed in Manchester, and went on to speak of the state of the rivers in Sheffield, which had been referred to by Mr. Godwin. It was a sanitary question, and he spoke with some hesitation in the presence of ladies; but the fact was they had very few closets in Sheffield, and therefore the sewers contained very little more than surface-water and house drainage. The contents of them were of little or no value for agricultural purposes. The water of the rivers was discoloured by our manufacturing, and if they could prevent the sewage from running into the streams we should still have water dirty. There was another thing that made the amount of sickness greater than it was in villages, but not greater than it was in other large towns. This was the ignorance of the people. They were ignorant, and consequently reckless of the dangers to which they exposed themselves. Sanitary reformers appeared to have got the idea that laws and government must do everything for the people, but he urged that this kind of thing might easily be carried too far, until the people would do nothing for themselves. He complained of Mr. Godwin's remarks on Thursday night about the scarcity of water, and said how unfair it was to make such reflections at an exceptional time like the present, when nearly all the large towns of the country were in a similar position. The people who suffered most from disease were not half clothed, and in winter had no fires. He would answer for it that, knowing as he did the state of the Sheffield sewers, they might have the best sanitary arrangements in the town, and still they would not reduce the death-rate more than 1 per 1,000. Take the people in White-croft and Hollis-croft and remove them to High-street, and remove the people in High-street to those crofts, and the death-rate in High-street would rise to 44 per 1,000, while that in Pea-croft would fall to 17 per 1,000. The people and not the situation were the cause of the death-rate.

Pea-croft was as well drained as High-street, and ought to be as healthy. He referred to the death-rate in certain parts of London, which varied from 18 per 1,000 in the aristocratic quarters of St. George's, Hanover-square, to 29 per 1,000 in St. Saviour's, Southwark. He thought if Dr. Lankester would get the returns that had been prepared by the registrars in Sheffield, he would find that it was not on account of the public sanitary arrangements of Sheffield that the death-rate had increased, but because of the want of the means to secure comforts and necessities of life and the spread of knowledge among the mass of the workpeople.

Dr. Griffiths supported Dr. Lankester's view, that diseases should be treated as if they were contagious, in spite of the opinions that were entertained to the contrary.

Mr. Edward Smith (Fir Vale) said he did not believe any greater service could be rendered to the poorer classes, to whom reference had been made, than by sending among them a lecturer to explain and enforce upon them some of the great truths of which they were so lamentably ignorant. He felt sure that any rooms that could be got for such a purpose would be well filled, and that much benefit would result.

Mr. Mort, chairman of the Health Committee of Birkenhead, corroborated what Mr. Godwin had said about the smell near the Victoria Hotel, and said he had experienced most offensive smells in other parts of the town, and had been unwell in consequence.

Dr. J. C. Hall energetically denounced the state of the Porter and the Sheaf as a disgrace to the nineteenth century. It was one that the authorities were determined to put a stop to. It was in contemplation to make a covered sewer of the Sheaf right away from Heeley to the Don. It was useless to complain of Young's knacker's yard, for it was a bed of roses compared with the goat that was allowed to run just behind it. Mr. Saunders had said that the death-rate was only 17 in High-street and 44 in Pea-croft. He was glad to hear that, for if it meant anything, it was that things were so much better in High-street than in Pea-croft, while 44 died in Pea-croft. They knew the haunts of cholera and fever, and if they did not remove the cause of these diseases, the swallow did not return to its nest more swiftly than cholera would return to its old haunts.

Dr. McAdam, of Edinburgh, supported what had been said about the state of certain parts of Sheffield. He had taken a walk by the side of the Sheaf, and found it to be merely an open sewer, with the aggravation of dead dogs and other things that did not belong to a sewer. Such a condition was certain to injure the health of the locality. In the soil of the bed of the river he found large quantities of putrid matter giving off the most noxious gases.

Dr. Lankester then briefly summed up the discussion, and said, he thought the chief point of difference among them was the question of the influence of the poison in producing contagious diseases. He quite agreed with Mr. Holland in what he had said about the folly of quarantine regulations. They were not only absurd, but quite ineffective for the purpose designed.

At another meeting of the Department, Mr. Griffiths said it had been suggested by one speaker that Government should take some action in sanitary matters. But it was not easy to induce Government to bring in a bill such as would be required to meet cases of that kind. Boards of Health were, he conceived, improperly constituted. For instance, they very seldom found an engineer, or a lawyer, or a medical man connected with them; and yet it was highly necessary that there should be an engineer to direct the works of drainage, a lawyer to show how far their action was legal, and one or two medical men, at least, to inform them respecting sanitary and other matters. There was no medical officer for the borough of Sheffield, and yet it had a population of 200,000 souls. There was a certain amount of parsimony exercised; and as an instance of this he stated, that some years ago, when certain members of the town council proposed certain improvements they were opposed, and at the following election they were opposed, and placards were actually put up to vote for "So-and-so" and "no improvement."

On Saturday, after a paper, by Professor Gamgee, "On the Cattle Disease," in the discussion of which Mr. Robert Rawlinson, who has been active in all the discussions, took prominent part,—

The Rev. Henry Moule read a paper, "On

the Use of Dry Surface Earth as a Deodorizer, and in the Removal of Excrementitious Matter, Preventing and Diminishing the Contamination of Air in Towns." This led to a long discussion, in the course of which Mr. P. Holland said, that any person who gravely proposed that water-closets and drains should be superseded in towns by this dry earth system ought to have his head shaved; and, as we think, he was not far from right.

A paper was read by Mr. Godwin, "On the Familistère in Guise, France, with the particulars of which interesting experiment our readers are acquainted; and the meeting then adjourned, to sit again on Monday morning.

THE WHITE HART INN, SOUTHWARK.

THE old inns which have long characterized Southwark can scarcely hope to keep their place much longer. The large area they occupy in the shape of courts surrounded by buildings, with land at its present value, is too tempting a bait to owners and speculators, to be resisted. The Tabard,—Chaucer's Tabard,—as we said was about to be the case some months ago, has been sold, and is probably doomed to give way to modern buildings. The White Hart Inn, close by it, has been partly demolished within the last few weeks, and on the south side of the yard new buildings are being erected. We give a view of the old inn, as it appeared before the present works were commenced.

The White Hart was the head-quarters of Jack Cade when he held London, briefly, in the reign of Henry VI. Shakespeare makes him say,—"Hath my sword, therefore, broke through London gates, that you should leave me at the White Hart in Southwark?" The late Mr. G. R. Corner quotes a contemporary account of some of Cade's doings in Southwark, and "The Chronicle of the Grey Friars" records that,—"At the Whyt Harte in Southwarke, one Hawaydyne of Sent Martyns, was beheaded." Jack Cade's Inn, however, was burnt down in the great fire that consumed about 600 houses in Southwark in the year 1676; but was rebuilt soon after, on the model of the old one. It was in the present inn yard, such as we represent it, that Mr. Sam Weller was first introduced to an admiring public.

ITEMS FROM ROME.

THE artistic event of this city since we wrote last has been the opening to the public of the great hall in the Vatican (once pertaining to the picture-gallery) where Podesti has spent nine years on his pictorial illustration of the Immaculate Conception. Four lofty walls and a ceiling are covered by these frescoes, whose subjects may be classified as follows:—The Discussion of the Dogma, represented in the historico-allegoric style, with a group in which personified Theology takes her place among cardinals and prelates, and a statue of the Virgin dominates over the council scene; the Definition of the Dogma at St. Peter's, at the moment the Pope is intoning a *Te Deum*, while above the complex group of ecclesiastics and other assistants a celestial vision appears,—the Triune Deity represented, with one of those bold flights of imagination long encouraged at Rome; and, associated with the Divine persons, Mary, a central and supremely-honoured figure amidst the hierarchy of evangelists, prophets, Old Testament saints, doctors of the Greek and Latin Church, exulting angels, and skulking demons, who are driven into the infernal regions; the coronation of the Virgin's image, or Pius IX. placing a gold crown on her pictured head in the choir-chapel of St. Peter's, surrounded by the canons, the senator, and other officials, a peasant group in the foreground; the Triumph of the Church, an allegory in which a female, wearing the Papal insignia, and seated on a high throne, receives homage from the representatives of the world. On the ceiling, which is divided into six compartments, with gilt stucco reliefs in the interstices, are those heroines of the Old Testament regarded as types of the virgin mother, and other allegoric females; and along the lower wall compartments are chiroscenae, corresponding to the great groups, of the Pope holding a Consistory, the Birth of Mary, the Presentation

in the Temple, the Homage at the Papal throne, the Wolf and the Sibyl, of classic legend. We have had occasion, more than once, to express, in these pages, our impressions from modern painting in Rome, and may here state, that no merits manifest in Podesti's frescoes oblige us to modify the unfavourable opinion already held. Yet this great series, perhaps the master-piece of a veteran artist deservedly placed at the head of the local historic school, displays a degree of power, science, and technical skill, which it would be indeed unjust to ignore. The gorgeous ecclesiastical groups (most figures being portraits) are well composed and telling; the blending of the imaginative with the historic is highly ingenious; the colouring vivid without glare; allowing due praise to all which qualities, we are unable to recognise in these works any higher attributes. Poetic sentiment, religious elevation, spirituality, are not here; and the inferiority of the celestial to the terrestrial scenes is nothing less than painful, the hierarchy of Heaven seeming but an accessorial accompaniment to the ceremonial at St. Peter's,—no depth of distance, no mysterious supernaturalism or solemnised dimness. The position assigned to Mary, as absolutely co-participant in the glories of the infinite, strikes us as the most offensive example of idolatrous feeling in art, and suggests objections much too grave to be here entered upon more fully.

At Civita Lavinia (the antique Lanuvium), a wild little town among the Alban Hills, has been discovered, by a local proprietor, a statue buried in the ground, 3 metres in height, of an imperial personage with the attributes of Jupiter, the head (severed, but not missing) crowned with oak-leaves; the face beardless, expressive, and noble; an eagle at the feet, and the fragment of an inscription, from the pedestal, containing reference to the tribunitial office. Conjecture has fixed on Vespasian, Domitian, Trajan, as the subject of this truly valuable antique; but we are led to prefer the theory well supported by a Roman antiquary, Signor Gori, namely, that Claudius, whose pleasure it was to be represented as Jupiter, is the emperor here seen in sculpture; and, indeed, the physical characteristics are sufficiently marked for a reference to Suetonius's description of his person (chap. xxx.) to corroborate this conclusion. On the same site was found a female torso, probably an Agrippina, with the attributes of Juno, the goddess especially worshipped at Lanuvium; also a column of fine African breccia.

One may spend years in Rome before many an out-of-the-way remnant of antiquity chance to be seen or heard of, as we experienced the other day on first ascertaining the existence, in private hands, of two Classic fragments well worthy of notice. One is a bas-relief, on a large block of Parian marble, representing the façade of Hadrian's temple to Venus and Rome, curious indeed, on the sole authentic view of what that structure, now reduced to ruins in brickwork, really was in its olden magnificence, with a Corinthian peristyle of nine columns, and a triangular pediment adorned with bas-reliefs of Romulus and Remus suckled by the wolf; Faustulus and his wife with a flock of sheep on one side; on the other, Rea Sylvia surprised by Mars while sleeping. The proprietor, a marble-cutter, asked 2,000 fr. for this object; and we understand that the French Government has been treating for the purchase. The other curiosity we allude to is a small statue, 14 by 11 centimetres, found in 1861 in a vineyard beyond the Porta Portese, representing, in concave outlines, a segment of the Colosseum, chiefly remarkable in that the large windows, now opening at wide intervals along the highest story, are here wanting; and a detail which only derogates from the majesty of the whole is thus shown to be due to one of this edifice's various restorations.

The Quirinal Hill, on its western slope, is now undergoing a complete transformation through levelling, for improvement of the approach to the Papal palace. Some mosaics, with figures in black and white, a centaur, a dolphin, and a marine horse;—near this another mosaic geometric design, also black and white, the torso of a statue, and some fragments of sculptured and painted ornamentation, recently exhumed on this declivity, are to be added to the list of treasures found in the course of these works. But most interesting among such results was the discovery of the majestic mausoleum front, in massive courses of square-hewn travertine, with an ample archway at the centre, and a frieze of graceful foliate design, with the epigraph below:—*Cn. Sempronius Cn. F. Romulus Sem-*

zironia Cn. *F. Savor* *Lascia* M. *F. Mater*.—"the whole elevation perfectly preserved, and measuring 21 palms in height by 18 palms in width. Amidst the buildings that have recently sprung up along the hill-side, this monumental antique is now completely surrounded and shut in; but, on application to an official, we obtain access to a narrow court, where we look down upon it from a level almost equal to its cornice line,—a position most unfavourable for the beholder, though by being thus encased and unapproachable, the monument is saved from the profanations which others in Rome have been exposed to. Observable, too, is the circumstance here manifest of the considerable depth to which the ancient lay below the modern hill-side in this direction; the universal alteration of Rome's level, caused by the vicissitudes of ages, supplying to this day one of the problems for antiquarian study to solve. An architect lately commenced some diggings on the Forum, with the object of laying open the channel of the Cloaca Maxima, hitherto only visible at a point nearer to the Tiber, and this research has not proved unsuccessful.

SANITARY MATTERS.

Southampton.—A meeting of the members of the town council, the guardians of the poor, and the medical profession of the town, has been held at the Audit House, convened by the sanitary committee, for the purpose of dividing the town into districts for house-to-house visitation. There was a numerous attendance. Dr. Parkes, of Netley Hospital, was present, and stated that on the previous day he received a letter from the Privy Council Office, directing him to visit Southampton, and report daily on the nature and extent of the diarrhoea and cholera prevailing there, the measures taken by the authorities, and the sanitary state of the town. He approved of the measures which had been so energetically and properly taken. Dr. Parkes said he gathered from the statements made at a meeting of the sanitary committee that seven cases of cholera had occurred in the town, three of which had proved fatal. The talk about alarm he regarded as puerile, for if they had cases of cholera here, it was their duty, as a matter of common sense, to do everything in their power to stay its progress. After some further proceedings a medical man was assigned to each of the several districts into which the town has been divided.

Liverpool.—The medical officer of health has presented his quarterly report to the health committee. The number of deaths registered in the borough of Liverpool during the September quarter, which terminated on Saturday, the 30th ult., was 3,597, being an increase of 259 on the corrected averages of the corresponding periods of the last ten years, and making its death-rate equal to 33·8 in the 1,000. Of the total deaths, 2,081, or 59 per cent., were of children under five years of age. Although the total number of deaths from zymotic causes was somewhat less than last year, yet the quarter presents the unfavourable aspect of excess in typhus, infantile fever, diarrhoea, and scarlatina.

Blackburn.—The people of Blackburn have been suffering very greatly in consequence of the scarcity of water. The reservoirs of the Waterworks Company were all but empty, and there were places in the town where the inhabitants had not had the water on for more than a week. The people were consequently driven to all manner of straits, and water had to be carried by them from the lakes in the park, and from springs and other places in the outskirts of the town. A committee of the town council was appointed to confer with the directors of the Waterworks Company on the subject, and at a meeting they had held, the directors stated that they had now again as much water in the reservoirs as would supply the inhabitants, for domestic purposes, for six days at one hour each day. The corporation, however, had accorded to them the privilege of taking water for the public from about thirty springs and pumps in different parts of the town, and a man had been stationed at each of these places to assist the public in getting the water. The members of the council were unanimously of opinion that the waterworks ought to be in the hands of the corporation, and a resolution has been passed authorising negotiations to be entered into with a view to purchasing the waterworks.

Lincoln.—A number of gentlemen have formed themselves into a committee for the purpose of obtaining signatures to a requisition to the

mayor, to convene a public meeting of the inhabitants to consider what steps should be taken to improve the sanitary state of the city, and to gain information from other towns as to the cost of effecting a complete system of drainage. Much valuable information has been obtained from the surveyors of towns where the Local Government Act is in operation. It appears, from the answers to the questions which were submitted, that the average cost of the drainage works was about 14s. per head, and that in every instance a great decrease in the mortality has been the result. Mr. Holmes, the registrar of births and deaths for Lincoln, has prepared a return of the deaths in the city, for the past five years, and the figures show how urgently improved sanitary arrangements are required. The mortality is at the rate of nearly 28 in the 1,000, while the general average of deaths, in towns of similar size, is about 21 in the 1,000.

PORTSMOUTH DRAINAGE.

The extensive system of drainage works for the borough of Portsmouth, designed by Mr. Lewis Angell, the borough engineer, were formally commenced on Tuesday, the 26th ult., by the mayor, Mr. R. W. Ford, who laid a memorial stone in presence of the corporation, heads of the naval and military departments, and a large number of the inhabitants of the borough. The stone, a block of granite, which will be built into the chimney-shaft of the pumping-station at Eastney, bears the following inscription:—

"This Stone
was laid by
The Worshipful the Mayor,
R. W. Ford, Esq.,
To commemorate the
commencement of a general
System of Drainage Works
for the Borough of Portsmouth.
Lewis Angell, C.E., Engineer.
Frederick Furniss, Contractor.
September 26th, 1865."

The contract for the first section of the work, comprising the sea outfall and a portion of the upper and low level mains, was let for 46,800l. The total cost is expected to be about 100,000l.

A SCHOOL OF SCIENCE FOR PLYMOUTH.

A public meeting has been held in the Plymouth Guildhall, the Mayor in the chair, for the purpose of hearing a speech from Mr. J. Buckmaster, as the representative of the Science and Art Department of the Government, on the advisability of establishing a School of Science for Plymouth and the neighbourhood. There was a large and respectable audience, and the remarks of Mr. Buckmaster were listened to with marked attention.

Mr. Buckmaster, on being introduced by the Mayor, briefly detailed the reasons of his being present, and then proceeded to show the importance of science becoming one of the elementary subjects of education. He maintained that the reason why manual labour was often irksome was because the workman failed to understand the science of his work: if he did, the work, on the contrary, would be most interesting. If he knew his work by the light of knowledge and science he would no longer be inclined to look upon it as a dark unmeaning process, but would regard it as the object of inquiry and investigation until what was hitherto regarded as difficult and inexplicable obtained a ready solution. He trusted the object proposed would be fully carried out. Mr. Spence Bate moved the establishment of a school in the town, and pointed to such men as Humphrey Davy and George Stephenson to show what years of study they might have spared themselves if they had known the laws of science. This resolution having been carried, a resolution was also passed nominating several gentlemen for the committee. A vote of thanks to the Mayor terminated the proceedings.

LIVERPOOL ARCHITECTURAL SOCIETY.

VARYING VALUATIONS.

The first meeting of the present session of this society was held on the 4th inst. Mr. Joseph Boulton presiding. Mr. Frank Howard was elected a member of the society. Mr. Watt called attention to the discrepancies in the valuations of property lately given in this town and neigh-

bourhood, saying they had caused some scandal. He thought the society would do well to give some expression of opinion on this subject. It was remarkable that such different valuations should be made by professional men examined on oath, and that the valuations of all the gentlemen on one side should be so enormously above or below those given by the gentlemen on the other side. The difference was sometimes as great as 75 per cent.; 50 per cent. was an approximate valuation; and only 30 per cent. difference was considered very close. He thought it strange that architects seemed, as it were, to take briefs on one side or the other; and that those on one side should all agree, while differing so widely from the other side. The sooner such a society as this took the matter into consideration, and attempted to lay down some rule, the better. The president observed that it should be remembered that gentlemen on each side, whose evidence was not considered satisfactory, were not called in disputes of the character referred to. Those who were not high enough for the property owner, or those who were too high, were winnowed out. The connecting links between the two extremes were, therefore, lost; and, by leaving out all intermediate opinions, marked discrepancies might appear.

In his opening address the president referred to the same subject. He said, that in compensation cases, the surveyor consulted, with a view of giving evidence, was not in the position of a person who acted for both parties. He acted *en parte*. The regard which a surveyor had for his professional standing and repute was the check which should prevent any gross abuse, and this made it so desirable that the persons who conducted cases of this kind should select as witnesses men of experience, honour, and probity. There were other conditions which occasioned discrepancies in the opinions of surveyors, included under such items as conditions of tenure, letting and sub-letting, life interests and settlements, good-will, and others. Some of these involved points of law, upon which the surveyor received special instructions. Sometimes the special advantages or drawbacks were known to one side only, and the surveyor might be entirely ignorant of their existence until he learned them in open court.

COMPETITIONS.

New Unitarian Church, Bradford, Yorkshire.—Designs have been submitted in competition from several architects for the erection of a new church on the site of the present old one. The plans selected by the committee were under motto "Unity" and are by Messrs. Andrews, Son, & Pepper, of Bradford, by whom the design will be carried out.

Silloth, Cumberland.—Designs were, some little time ago, submitted by several architects, in competition for a new church about to be erected at Silloth, Cumberland. The committee selected those submitted by Messrs. Andrews, Son, & Pepper, of Bradford, Yorkshire, who are instructed to proceed with the works immediately.

The Proposed Manchester Infirmary.—The designs for the new infirmary which have been sent in by the three selected architects (Mr. Waterhouse, Manchester; Mr. Stevens, Macclesfield; and Mr. Lee, London), are now exhibited in the Assembly-room, Town-hall, for the inspection of the committee and subscribers, and any other persons who may take an interest in the Institution.

The Edinburgh City Poor-house.—The city parochial Board met on Monday, to decide on the plans. Having heard the report of the special committee appointed to consider them, and opened the sealed letters accompanying them, the Board awarded the premiums as follows:—1st, 120l., No. 21, "Comfort for the Poor"—Messrs. George Beattie & Sons, Edinburgh; 2nd, 100l., No. 9, "Alpha B"—James Thomson, Glasgow; 3rd, 80l., No. 1, "Alpha A"—Perkin & Son, Leeds; 4th, 50l., "Stella Diurna"—J. G. Peat, Hamilton. A committee of the whole house then appointed the authors of the first prize plans—Messrs. George Beattie & Son—to be architects for the new poor-house, by a majority of 18 to 3.

Belfast.—A correspondent writes,—"Can any of your readers give any information on the state of affairs at Belfast, connected with the Albert Memorial Clock Tower, which you previously ventilated in your columns? I have just applied for my drawings. Can Mr. Lanyon throw some light on the matter?"

THE FRENCH EXHIBITION PALACE OF 1867.

We copy from a recent number of *Le Patrie*, on the reduced scale of 400 ft. to an inch, the ground plan of the French Exhibition building about to be erected in the Champ de Mars; and also reproduce, for the sake of comparison, the ground plan of the design for an exhibition building by Messrs. G. Maw, of Broseley, and E. J. Payne, of Birmingham, that was published in the *Builder*, of February 16th, 1861, and to which we have already referred as the apparent source from which the French Commissioners' design was derived.

Independently of the very peculiar and striking system of classification suggested by Messrs. Maw & Payne, which the Imperial Commissioners have adopted, their building appears to be a close reproduction of Messrs. Maw & Payne's plan; the only material deviations we observe being a slight elongation of the ellipse and the omission of some of the rectangular apartments external to the ellipse. Otherwise, the elliptical form, the central elliptical garden, the number of the avenues radiating from the central garden, and even the widening of four out of these sixteen avenues into intersecting transepts, and the external arcade surrounding the elliptical building, are common to both designs.

We would also point out that the arrangement of the concentric avenues and courts which in the French ground-plan appear to slightly differ from the engraved plan of Messrs. Maw & Payne's design, is actually described and suggested in Messrs. Maw & Payne's letter-press. They say, "If it is desired to divide the whole or any part of the space into courts, as in the Exhibition of 1851, the avenues can easily be converted into enclosed spaces without sacrificing the double system of classification;" and again, that "As some of the specific divisions might require wider exhibiting blocks than others, there would be no objection to vary the widths of the concentric rings to suit necessity;" both these suggestions are carried out in the French design.

It is a matter of surprise that without any definite data to work from, Messrs. Maw & Payne should have arranged a plan that can be at once applied to the requirements of a particular exhibition, with such trifling alterations as those made by the French Commissioners.

It is scarcely possible that the numerous points of identity of the two designs can be the result of a series of accidental coincidences, or of separate and independent invention. This is made more manifest by the disavowal by the official architect of the authorship of the plan, which had been adopted before he was appointed by the Commissioners. It is also worthy of remark, that in so great an undertaking no one should have been put forward as the author of the Commissioners' design.

The greatest length of the oval is 1,575 ft.; the greatest width, 1,215 ft.

A. The central garden is 56 mètres wide, and 166 mètres long.

B. Circular gallery, 7 mètres wide, in which will be gathered together all objects belonging to the History of Labour.

C. Gallery of the Fine Arts, 15 mètres wide.

D. Gallery reserved for the material and the application of the Liberal Arts.

E. Central road through Gallery D, 5 mètres wide.

F. For furniture and connected industries; the part nearest the centre 17 mètres wide, the other part 14 mètres.

G. Pathway, 5 mètres wide.

H. reserved for the industries connected with clothing: the first part, 7 mètres wide; the second, 14 mètres.

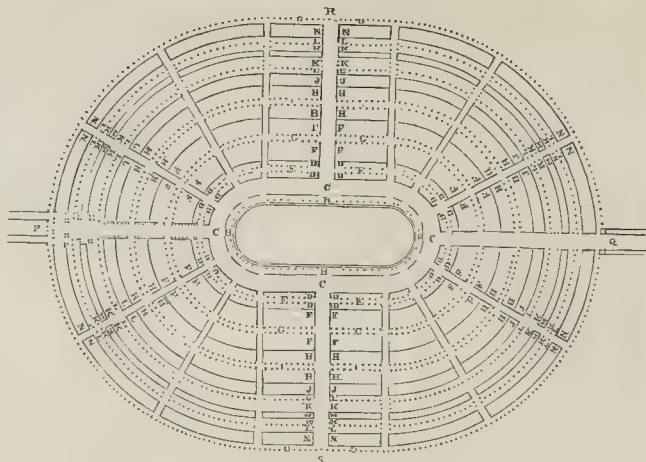
I. Pathway, 5 mètres wide.

J. Gallery for raw materials, 9 mètres wide.

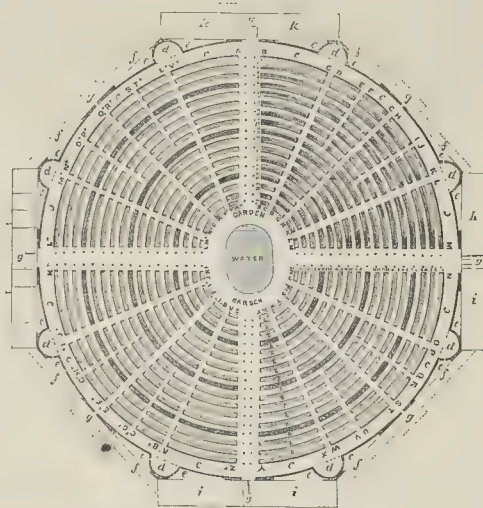
K. Gallery for machinery, with a total width of 35 mètres, with a pathway, L, 6 mètres wide, and a raised passage-way, M, 3 mètres above the surface.

N. Gallery for products used as food, at the outer extremity of which will be placed the refreshment counters, with a covered promenade, 3 mètres wide.

The entrance to the Exhibition Building will be at P, Q, R, and S: the first, P, next the Seine, being the only doorway of monumental character. The ground surrounding the building will be laid out as an English park, and will contain separate buildings for agricultural productions, models of workmen's houses, &c. &c.



PLAN OF THE PROPOSED BUILDING FOR THE PARIS EXHIBITION OF 1867.



REFERENCES.

- b. Avenues.
- c. Fine Arts Gallery.
- d. Recesses for Sculpture.
- e. Retiring and Lumber Rooms.
- f. Arcades.

- g. Entrances.
- h. Machinery in Motion.
- i. Machinery at Rest.
- k. Refreshment Rooms.
- l. Newsroom and Exchange.
- m. Rooms for Officials and Exhibitors.

PLAN FOR AN EXHIBITION BUILDING BY MESSRS. G. MAW & E. J. PAYNE,
PUBLISHED IN "THE BUILDER," FEBRUARY, 1861.

NEW GRAND STAND AT KNUTSFORD, CHESHIRE.

A VERY convenient Grand Stand has been provided for the Knutsford Race-course, through a company organised for the purpose. The ground floor is subdivided into a refreshment-room, 40 ft. by 20 ft.; a committee-room and a jockeys' room, each about 12 ft. square; and apartments for weighing and other purposes.

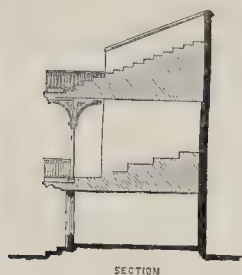
The first floor consists of a covered gallery, a steward's-room, and passages. The gallery is made to project forward from the lower front like a balcony, the front being open, and the roof supported by a range of ornamental iron columns, with brackets above, forming a series of arches, and projecting forwards so as to support the higher balcony on the roof level. Raised tiers of seats are provided in the covered gal-

lery for the accommodation of 600 persons. The slated roof and the projecting balcony are furnished with planks affording standing-places for about 900 people. At the south end there is a brick tower, wherein is a spacious and convenient oak staircase. At the north end is situated an outside staircase of ironwork leading to the covered gallery, and a set of enclosed stone steps conducts to the stand upon the roof.

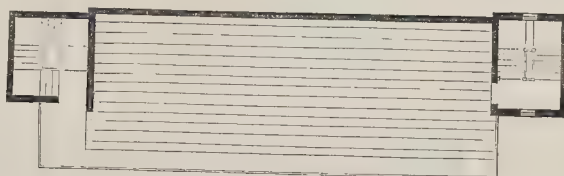
The entire works have been executed by Mr. Paul, builder, of Knutsford, from a design by Mr. Richard T. Bellhouse, architect, Knutsford, at a cost of about 1,700l. The ornamental ironwork in front of the covered gallery forms an important feature in the design.

The length of the building is divided into ten bays, with iron columns, spandrels, brackets, &c. Messrs. E. T. Bellhouse & Co., of Manchester, supplied this portion of the work.

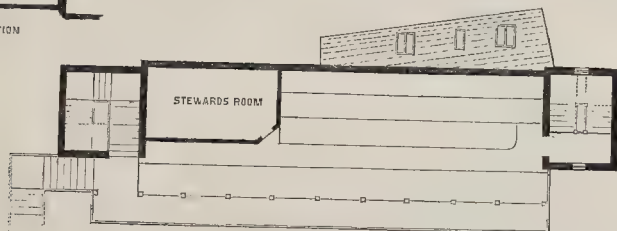
THE GRAND STAND, KNUTSFORD, CHESHIRE.—MR. RICHARD T. BELLHOUSE, ARCHITECT.



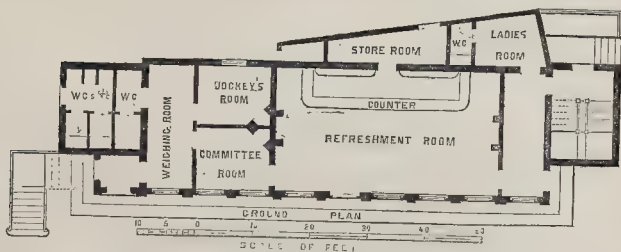
SECTION



SECOND FLOOR PLAN



FIRST FLOOR PLAN



GROUND PLAN
SCALE OF FEET

the great bronze caldrons which they used there. And think of the skill which the common blacksmith of our country showed in the commonest things of use,—the handle of a key, the hinge of a door, the cover of a book.

And these things, though looked upon (as indeed they are) as art-relics now, were not made up for us to see, as something special to be put aside as things for study. I doubt if the most advanced of Romans ever dreamed that the things his servants used,—the lamp that lighted his chamber, his ladles and his caldrons, would be considered of so great value as to form the ornaments of a museum. And little did the village blacksmith think, as he forged the massive hinge or chased the delicate little key, that it would be covered up in after-times in a glass case, as a thing to be admired, and considered, and talked about as one that we would equal if we could. And even less, perhaps, did he imagine that, in a few centuries only, and in his own land, the very traditions of his work would be so lost that the fabric of the metal, the design in which he worked it, and the method of its working, would all be studied as something to be learned.

And yet it is so. Few there are, comparatively, of those who visit our galleries and museums, and admire (sometimes not that) the mass of artistic wealth they see there, who realise to themselves the truth that it is, in the main, a collection of common things,—of household goods,—as much the things of ordinary life as the willow-pattern plate or the threaded fork with us.

Will it be the same with us? Will the ordinary fittings of our households be ranged as things of beauty in the museums which our descendants will form? Will the New Zealander of Macaulay place our works by the side of those of the Roman and the Goth, as food for study and instruction? I fear not. Few, I think, will they. Many perhaps will scarcely think it of any consequence whether what we do is worthy of being preserved or not. But, believe me, if art be not so commonly diffused amongst us—if it be not so far appreciated—so made part of the mind of our people that its presence may be made visible to them in the most common things of life as well as in its most refined, if they be not in fact so educated by the constant presence of art to grace of outline and harmony of colour, as to have an almost intuitive perception of what is good and beautiful and true in outward things, we shall never attain to that excellence in minor things, nor be able to develop them into those higher ones which we admire, and envy, and wonder at.

In those times whereof I have spoken, art was a fact everywhere—with the lowly workmen as with the wealthy world who employed him. You cannot investigate the history of any period of ancient or Mediaeval art without discovering that not only the master who designed the work and a full appreciation of the beautiful or quaint, but that the man who carried out its details—who worked its mouldings, carved its sculpture, and tinted it with colour and with gold—was in himself, in his own humble way, an artist, appreciating the beauty of the whole and the due of his own part in it, and showing by some little variation of design, some turn of a leaf, some free movement in the foliage, that he rested in the doing of it from his own resources, and that the work was stamped with his own feeling as being in some sort his own, and not a mere literal rendering of another man's design.

And this independent feeling, which made him trust in some sort to himself, gave a ease and freshness to it which a mere copy never could. No mere copyist, too, could ever much love his work; and if he do not, there is little chance of his doing much that is worth the doing.

Now, with our museums and art-schools, and all more by the general interest which has of late years been taken in all that relates to art, we have, no doubt, done much. But try now, in anything beyond the commonest range of the nature and rule (and so far, no doubt, our workmen could scarcely be excelled), and leave them to carve the stone or to forge the iron into forms of beauty or of grace, or to give the silver or the gold a beauty such as was found with it in the quaint old goldsmiths used to work it, and (with exceptions happily more common now than they were wont to be), one quickly finds that they are altogether lost, and that the stone and metal are taking forms which, although they are their own, have scarcely the recommendation of quaintness or of beauty.

But worse than that, I fear, I much fear, that the workman's skill, be he skilled ever so much, would scarcely be so appreciated by the general world as to allow him much reward. Yet there is hope for the future. There is no want of interest in it in any of its phases—no want of admiration of the great works which adorn our own and foreign lands.

But admiration is not knowledge; sometimes, we well know, quite otherwise; the subject of it is oftentimes an unworthy one, and the danger is that the two may be mistaken for the same thing,—that the pleasure which all must feel in looking at a work of art may be judged to be the result of an innate power of appreciating it—a power which would make a special study for obtaining it quite useless. As if the admiration with which we hear the eloquence of an advocate could fit us for the practice of the law—as if wonder at the skill by which there is built up, from a few dried and broken and discoloured bones, the whole body of the extinct denizen of a former world, could give to us the art of the anatomist.

And of all ignorance none can be so great, so helpless, as that of one who, knowing little or nothing of a subject, is thoroughly well satisfied that he knows it well.

Your eye may, indeed, by habit or association, be brought to such a state of perfectness as that the good and the bad may be discerned by it without a special study. But then, that case is the very one I put before, viz.—that of a constant presence of and association with correct and harmonious forms and coloring, giving of themselves a constant lesson of the beautiful; and we are very far from having arrived at that state yet.

Rely upon it, art has a grammar to be learnt as much as language has. A certain amount of study—I might almost say, of drudgery—has to be gone through, before the understanding (set aside the practice) of an art can be mastered.

It is, I think, scarcely necessary for me to plead on behalf of art and of its diffusion. I know that it may be said, and it is indeed a matter of some wonder, that the knowledge of the beautiful is most conspicuous in the nations of the East, enervated, treacherous, and fierce. But all their art came to them traditionally with their blood. You see in them the relics only of the skill and taste which made the capital of the Persian kings, the great store-hive of all which was most beautiful and grand in art. It is passing away now, as their power has passed; and many a lovely work, which, but a few years since, would have been one of more routine, could scarcely now be done at all. It was not their artistic knowledge which has debased them; they have been debased in spite of it, and in their debasement are gradually losing it.

But I have heard it said that the full appreciation of the beautiful is a gift reserved for the nations of the South and East—India and Persia, Italy and Greece; that art here can never have a genial growth; that we may perhaps improve in it, but never excel.

Never excel!

Can we Northernmen forget Westminster, and Wells, and Lincoln? Why, when Giovanni was sculpturing his Pisa pulpit (a world-famed work), the niches at Wells were being filled, and, all classic as he was, Flaxman admitted that though the sculpture is rude and severe, it has a beautiful simplicity and grace, often excelling the productions of modern times.

True, the name of their sculptor is lost. So is the name of many another artist of Mediaeval times, who worked in his cloistered cell, and of whose memory and record nothing survives. Truly illustrious instances of utter self-negation. But that they were Northern if not English men, there is no doubt. I know that William of Sens began the glorious choir of Canterbury, but I know that English William finished it. And, to come down to later times, Wren was no less English when he designed the spires (his own creation they are) which so adorn our city, because he went for the details to the same source as the Italians did.

But it has been said, too, that opinions are so different in questions of the arts;—there are so many schools, and each with such ardent advocates, that nothing can be taken as truly certain; and to understand them even, would seem to be attempting a hopeless task.

Now do you find agreement in Theology, in Medicine, in Music, in anything, in fact, worth fighting for? But in every case there is a certain groundwork, a solid stand-place from which all disputants take their start, and it is only

when that is quitted and we enter into the more subtle details that we begin to differ. And it is that groundwork only that I want taught. Some will stop there. Others, more captivated, will be led, by study or association, to follow art in her various paths, each in his own. But, in any case, the means by which he reached the standing-place will have brought with them some better appreciation of the beautiful than he had before, and, rest where he will, will not be altogether lost.

To descend to details; I fully believe that, in order to be able thoroughly to appreciate the beautiful in form, one must, as a general rule, be able to draw it.

Some minds, of course, may, by an otherwise cultivated taste, have arrived at a high standard of it; but this is rarely found. Be this, however, as it may, no one who has been well accustomed to mark with his own hand the graceful flow or contrasted curve of a line, could fail to see the want of grace in an object that he was making, or that he was about to buy.

Get so far as this on the one side with the mechanic, on the other side with his patrons, and we have got a very long way on indeed.

I believe that if in the schools of our little villages, as well as those of our great towns, each youth were taught to know, by drawing it with his own hand, what is graceful in form; if he were taught to draw, with the special object of showing him that one outline is beautiful and another is not; if he were shown, with the things before him and his own hand to mark it, the beauty of the common things he sees about him—the curve of the ear of corn as it bends gracefully on its stalk, the veins of the wavy leaf, the delicate drooping of the willow bough, the contrasted curve of the chestnut or the oak—we should in a short time have effected a mighty change.

I do not say you would have taught these things to all; not a twentieth part, perhaps, of those who at first learnt, would very much appreciate them. You cannot make clever scholars in anything, no matter what, if there be not the wish to learn, or the special genius to apply. But you would have given all a chance, and many a time developed a latent power otherwise lost. And many a clever mechanic, who now does so excellently well exactly what he is told to do, and no more, would have a chance of being able to work up a thing in whose designing he has had some hand.

And those of the ranks above, whose knowledge and acquirements cause them to be, to a great extent, the arbiters in things of taste,—of how much real value would their knowledge be had it been directed specially to the beautiful in form, in place of the poor conventionalities now taught? A tree is a thing one is taught to draw, because to copy it is difficult. I have seldom heard of its chequered and rugged bark, the massive sweep of its boughs, or the delicate curve of its leaves and tendrils, being marked out as things of beauty, and specially to be drawn as such. And if not put upon this path, your drawings will scarcely be of much use, so far as my object goes.

I think that I can see some change that way; but it is not easy in any subject to make a likely guess, when the time is very limited. To use a simile not my own, we are there as one looking at the tide on the sands, and watching the unquiet sea. Sometimes a great wave will overwhelm the rest, and dash up to your very feet, and you will think the great sea is coming in. And then will come many another, smaller and more gentle than the last, and you will think that the sea is surely falling back.

So it is with art.

Sometimes a great work is done, and we think that the man who did it is a forerunner only of many another, and that we are to see the olden times again. And then there comes a dearth in art, and all looks blank. But I hope now for the best.

I wish now, in a few words, to point out to you, my hearers, whose training and education have been of the higher class, the attractions which the arts will offer; how fascinating to yourselves, how useful to others may their study be in ways quite different from those in which they usually are studied.

No one here but knows that it is within a few years only that new chapters have been added to our history by the unlooked-for discoveries of Layard in Assyria. Much the same has been done in Egypt. And how has this been done? The page of history was silent. Every line which Herodotus is said to have written on Assyria has

been lost. Of the earlier times of Egypt all that we know wellnigh is from the list of kings—a bare barren list, understood by none, altogether disbelieved by many. There is enough, just enough, in Holy Writ to excite our curiosity and wonder, but nothing more; and the grave appeared to have closed for ever over the records of those mighty kingdoms, whose grandeur would seem to have surpassed all that the world has witnessed since.

We know it now. We have seen the great cities of Assyria disinterred, and on the walls of her palaces and temples we find graven the sculptures which the Jewish prophets saw when Nineveh was the capital of the great Assyrian king, and in this sculpture read her history.

Strike from the list of things that are what men call ornament. Strike out from the cities of the nations the works of the sister-arts, and those bright pages of long-lost history would have been lost still—utterly, irrevocably lost. But there is more even than this.

We all know, as household words, how Rome and Carthage, Athens and Thebes, were founded, and in the simple stories willingly forget or soberly disbelieve the facts whereby the historians of our day have shown them to be well-nigh myths.

But they show no more. Our old belief has been destroyed, but we get no certain other in its place. Go back some four or five centuries only before the time of Philip the Macedonian king (a space no greater than from our time back to our second Richard), and the guides of our written history disappear, and their accounts are lost in the dark and gloomy fable.

How shall we recover the lost chapters of our early race, peoples of whom the Bible gives us but uncertain glimpses, of whom the Father of History speaks only with dark and doubtful words?

Who shall tell us the deeds of, and what our nations owe to, that mysterious race who has left upon our country and every other in Europe, and in Africa, and in all Asia between us and India, those stupendous works which, in our utter ignorance of their authors, we call Celtic, or Druidical, or Pelagic?

How shall we find the solving of that riddle of the Western world—the sudden coming of a Northern race, whose ancestors and whose native country are alike unknown, and introducing or working out in a few years a state of civilization in Mexico and Peru, which was as much the astonishment of its first discoverers as it is now? Or how recover the annals of that people, one of the mightiest that ever overran the earth, who, Lycian, Etruscan, Greek, whoever they may have been, seem to have formed the groundwork of all that was grand in the nations of Greece and Rome? Not in the pages of history will they be found. Those pages have all been scattered to the elements thousands of years back; and if ever their annals are recovered, it will be by the records of the arts, as it has been with Assyria and with Egypt.

And not only will this be from the characters on the walls (the Greek-like writing of Etruria) the Runic lines of the Druids. There is not an ornament, a moulding, a change of style in the sculpture or the painting that will not come to the aid of the careful student. It will help to tell him what the race whose history he investigates has borrowed from the other known nations around. How it has improved or how deteriorated. For, strange as it may seem, the history of the races of mankind may be studied, and to some purpose studied, in a bold general way, by the traces which they have left in their architecture, their sculpture, their painting; and as the earth can be boldly marked into definite tracts of strata by the fossils they contain, so these fossilized artistic works of man will tell as truly of the extinct race who reared them. And the change of these races, as one swept over a country and dispossessed another, will be as plainly shown by the works they have left behind, as change from one fossil to another shows that we have passed from the strata of the silures to those of the oolites. We have no scale of time as yet in either case, but we have a scale of succession; and the help which that gives us is immense.

And thus it is that though the state of art in the early ages of the earth may at first sight seem scarce worth notice now, you will find its study of a deepening interest, although the name and memory of the earliest of the nations may for many a century have passed away.

It is the same with art of later date. You can tell in a Gothic building the nation by

whose artistic influence the mouldings were shaped, the sculpture cut. You can tell within a few years the time at which each part was done; and there is as much difference in the enjoyment of the beauties of a great cathedral or a village church by those who understand these things and those who do not, as there is between the feelings of a botanist or geologist and of one ignorant of their arts, as they look at the splendours of a botanic garden or the finest series of strata or of fossils.

But other questions still suggest themselves in studying the higher branches of the Fine Arts. One cannot carefully consider the details of the works to which I have alluded in Egypt and Assyria without being struck by the discovery that the earliest works of art are in many a case the best; that some luxuriousness of detail and many a grace, perhaps, were afterwards added; but that a force and energy were shown in the earliest works never exceeded in the latest. Now see what a new world this opens out to us. At the time when the patriarch Abraham and his tribe were wandering shepherd, not only did there exist in the plains of the Tigris and Euphrates a civilization and advance in art which move our wonder now, but that, at that early time, art had advanced to almost the utmost which the great Assyrian monarchy ever carried it. What thought does that not give us of a distant world, far reaching beyond the narrow boundary fixed by our present knowledge, and how does that boundary which once appeared its utmost limit seem but a barrier hiding the times beyond?

Whence came this civilization and these arts? From some great and earlier nation still, the memory whereof has perished? Or was the Assyrian or the Egyptian itself the great primordial race? And did the art of those early times come gradually and painfully into being; or did it spring, as I believe it did, and as the legends of the Greeks would have it, in its full strength, all armed, as Minerva sprang direct from the god,—as little a creation of man's as language is?

Have we ever had, in any case, in any time, a clear authentic record of an advance in art and civilization from the lowest point to the highest? Is it not, rather, the result of all experience, that when a nation's art or industry has suffered change, it has come, not from the unassisted mind of the nation itself, but from some altogether different influence of another race, conquering or civilizing as the case might be, and bringing with them their own peculiar style of art to mix with or supersede the other?

We know no more of architecture in its beginning than we know of the origin of language; nor of any of the higher branches of intellectual knowledge, which seem to have been favoured gifts, from a higher Power than ours to some favoured nations. But we do know that, so far from art having gradually emerged, as a matter of ordinary progress, from the necessities of mankind, it is quite certain that it never has appeared at any time, except amongst those nations who have derived it direct from the banks of the Nile, the Euphrates, or the Ganges; and that these three came from the same source can scarcely be denied.

Wherever insulated from contact with these favoured nations, no power of mind or body has been able to raise up to a state very much beyond the savage any other race whatever. One exception may be cited, viz., the civilization of Mexico and Peru. But we are utterly ignorant of the conquering or civilizing races there, and the whole is, at present, an utter enigma. The arts rose, too, where they did rise, to perfection, not by a steady, gradual progress, but by a series of waves, as it were—suddenly rising to the summit, slowly curling over, and then, first hurriedly and then with more gradual course, sweeping over the sands of time: sometimes to be there altogether lost, and sometimes to be urged on again by some new force; but never from the same direction.

The story of the arts have ever been that of a nation's power and of all civilization, since records have existed; and a more fascinating study—one that would lead you to higher thoughts—I do not believe exist.

And now a few words to those who are about to make my profession a study.

The course marked out for them is a wide one—the history of the art of all nations; and truly it forms so clearly connected a series, that it is hard to say where one can stop with any definite mark. But I wish this all to be studied

as a history only; to be thought of just so much as, and no more than, in an architectural practice, the laws and usages recorded in history affect us now at our present time.

And above all, do not imagine that, because you have so studied, you can, at your pleasure, take up their several styles, and practise them, and make them your own. You may, indeed, be called upon to do so, as we all are at some time or other; but do not suppose that this is a matter of indifference, and that you can work in your own practice upon many styles with a chance of success.

Depend upon it, it is hard enough, as you will find, to excel in one only.

Now, when we are wandering in so many ways, and so much doubt is felt as to which is the right, it would scarcely be right for me to indicate the path; but what I wish to impress upon you is, that you should mark out for yourselves one clear, distinct, definite course of study in architecture and all that relates to it, and keep that one prominent in all you do.

Do, as all must do in other things who hope for excellence in them: fix your mind steadily upon one, and follow it to the utmost.

One word more, and I have done. Your course of study will embrace more than the mere history of an art. It will take in, too, its ordinary practice and all those several branches of knowledge connected with it.

It is only in a general way that I can teach them, for time will allow no more; but I would urge most earnestly upon you that you satisfy yourselves as you go on that you have obtained a solid groundwork in them; that you have clearly and distinctly understood the general laws of each. If not, consult the various authorities whom I shall indicate until you do so. Leave details, if need be, for future study, as time or occasion may suggest.

There is a vast difference between raising for yourselves an edifice complete in look but fragile in reality, and laying the foundation of a solid one to be finished hereafter, thoroughly well, at your leisure.

And to conclude, speaking to those who have the battle of life to fight, and their own way perhaps to work, unaided, upward in a world where chance and talent go for much, but steady enterprise for more, I would say in the words of that Book which we all learn when young, but value perhaps at its full worth only in our riper years: "Whatsoever thy hand findeth to do, do it with thy might."

CHEMICAL RESTORATION OF ANCIENT GLASS.

ON this subject Mr. Crace Calvert, in his Cantor Lectures, has some observations which may interest our readers:—"It has been for a long time a disputed question," he says, "whether the stained windows we all admire in old cathedrals could be restored in such a way as to resume the brilliancy they had at the time they were placed there by the artists. At all events, there is now no doubt that this can be effected by the process discovered by my eminent master, M. E. Chevreul, as is proved by the application of it in connexion with the restoration of stained windows existing in a well-known church in Paris—that from which the toxin of St. Bartholomew was sounded,—St. Germain des Prés. The process devised by M. Chevreul is highly practical; it consists in removing the stained glass from the windows, and dipping it for several days, first, in a weak solution of carbonate of soda of a specific gravity of 1.068, then washing it, and dipping it for several hours in a solution of muriatic acid of a specific gravity of 1.080. On the glass being washed and dried, it will be found as brilliant and beautiful as when it came from the hand of the manufacturer. M. Chevreul has found that the dim and dirty appearance which stained glass assumes by time is due, especially in large towns, to the various products of smoke being first condensed on the glass by fog and rain, and then, becoming oxidized, they act as a cement to various mineral matters, such as chalk, gypsum, oxide of iron, &c., which help to impoverish the transparency of the glass. The alkali acts upon the organic matter and dissolves it, while the muriatic acid removes the minerals. The durability of glass placed in our monuments is extraordinary, when we bear in mind the curious results published some years since by the eminent chemist, Pelouze, who observed that

when window, bottle, and other varieties of glass were reduced to a fine powder, and mixed with water, they were soon acted on, yielding a large quantity of silicate of soda to that fluid, amounting in several cases to eight or ten per cent. when cold water, and even to thirty-six per cent. when the finely-pulverised glass was boiled in water; and that, in many cases, it was a definite compound which was dissolved from the glass, namely, a silicate of soda, composed of three equivalents of silica and two equivalents of soda. M. Pelouze explains the extraordinary difference in the effect which water produces on glass when in large masses or plates, as compared with its influence on the same substance when reduced into a fine state of powder, by assuming that, in the first instance, water does not act because it seldom remains sufficiently long in contact with the glass to act upon the elements which compose it; while, in the second case, there exist numerous points of contact between the fluid and the solid body, thus facilitating the action of the fluid on the solid material. I am inclined to think that the peculiar molecular condition which the surface of glass assumes, when manufactured in plates or otherwise, must exercise a great influence on the property which glass has to resist the action of water. If it were not so, how could be explained the limited action which watery fluids, such as wine, cause upon the interior surface of a bottle, though they remain in contact for many years? I can conceive glass assuming a peculiar surface by the pressure of the atmosphere, thereby producing a homogeneous one susceptible of resisting the action of water. A similar instance occurs in the case of polished steel, or of the rolled surface of wrought iron, or the skin of cast iron, which resists the chemical action of either air or acids in a far greater degree than does the interior of the substances which compose those metallic bodies.

THE STAFF OF A BISHOP IN THE ROMISH CHURCH.

RESTORATION OF THE CITY CROSS, WINCHESTER.

SIR.—“G. M.” who writes from the Charterhouse to “*Sylvanus Urban*” regards as a “groundless objection,” but fails to disprove my opinion, to which you kindly gave expression, that it is a mistake to represent, or rather misrepresent, a bishop with the pastoral staff in his right hand.

My remark was entirely practical, and, I believe, incontrovertible, being grounded on the highest authority, namely, the Pontifical and the Ceremonial by which the bishops themselves are guided. Episcopal functions do not depend in the evidences of sculpture or painting, whose value as authorities is precisely commensurate with the amount of knowledge which inspired their respective authors.

“G. M.” identifies the crozier with a crutch or walking-stick. For the disposal of this bright theory I may refer him to Bona and Durandus. He asserts that, “when passing in procession up the church to his episcopal station in the choir, the bishop naturally held the crozier in his right hand, to steady his step,” &c.

The Ceremonial (lib. i., cap. xvii.), on the contrary, directs that the bishop should use his pastoral staff in his own city or diocese; and that, in processions, if the distance be long, it may be borne before him by an attendant, who will carry it with both hands; but, if the way be short, the bishop himself will carry it in his right hand,—which is to be understood, when the bishop is vested in cope and mitre (“*nam mitra et baculus pastoralis in episcopis sunt correlati*.”)

If the bishop be vested in *chasuble*, we are guided by the Ceremonial for Pontifical High Mass, which reduces the question to a narrow compass (lib. ii., cap. viii.; lib. i., cap. xvii.). The bishop with the pastoral staff in his left hand, the crook turned towards the people, then he proceeds from the sacristy to the altar, from the altar to the throne, and from the throne to the altar, &c.; thus leaving the right hand at liberty to bless, to give, or to receive.

I may repeat the conclusion, by no means groundless,” derived from the Pontifical, that, at the consecration of a bishop, the pastoral staff is placed in his left hand by the consecrator, and that it is subsequently so held,

with very few exceptions, easily to be enumerated, in which the pastoral staff is supported by both hands. Moreover, that it is satisfactory to be correct, and very poor consolation to be able to cite precedents for blunders.

C. A. BUCKLER.

COMMUNICATION BETWEEN PASSENGERS AND GUARDS.

SIR.—It is much to be deplored that no practicable method has hitherto been brought into use to avert the frequent railway accidents and collisions that are taking place, and the fearful loss of life resulting therefrom. I have suggested a fog-bellows for the means of communicating with passengers and guards. The bellows are about the size of a kitchen bellows, and so easy to blow that a child may blow them with ease. I would suggest that a bellows should be placed in every carriage, with printed directions when to blow, and a penalty for blowing without occasion; the first from the guard to blow one, and continue to blow one till the guard has his attention directed to it, and communicates with the engine-driver, by means of a bell, to stop the engine as soon as practicable; the second to blow twice, and the third three times, &c. Every express carriage should have two.

RICHARD LIMBURY.

TO DESTROY ANTS.

I HAD the basement story of my house fearfully infested with ants. I tried all kinds of means to destroy them without avail: it then occurred to me to syringe all the parts infested with fluoric acid, which I did, and the effect was marvellous. In about one hour after there was not one insect to be seen alive,—it entirely destroyed them. I may also say that I syringed the same places afterwards with spirits of tar, commonly called oil of tar. I did this about three years ago, and have been quite free from these annoying insects ever since. I use the tar and acid in my profession, therefore I had no difficulty; but should any of your readers find it difficult to procure the fluoric acid, I presume sulphuric acid would answer the same purpose. But if fluoric acid be used, it must be done with a leaden syringe; a glass one would not answer, the acid would soon destroy it and its own chemical properties.

CHARLES A. GIBBS,

Stained Glass Works.

. Hydrofluoric acid is also painfully destructive to the skin, and requires very careful management; as, indeed, though in a less degree, does sulphuric acid.

SANITARY CRIMINALS.

MR. EDITOR,—I have perused your note on Shrewsbury, and, after a deal of battling and floundering in past years, I find you have hit on the sovereign remedy at last—the rope, ay, the rope. To such a pitch are we arrived and arriving, that, take my word, nothing but the rope will put an end to sanitary as well as social disorders: it is the grand panacea; once remove the cause, and the effects will cease. Go on, then, sir, to advocate the rope, and let those who have inflicted this mass of misery, sanitary and social, and whom no preaching or teaching has hitherto moved to their duty, feel the penalties of their misdeeds and taste the rope, the glorious rope, that has been effective upon great criminals as well as small.

A WELL-WISHER AND EXONIAN.

CIRCLES OF STONES.

At the recent meeting of the Wilts Archaeological Society, a paper on the Geology of the Stones at Stonehenge was read by Mr. Cunningham, F.G.S., who first pointed out the erroneous statement that had been made on the subject at various times, and showed the difference between the sarsen stone and the olite.

On the second day an excursion was undertaken to Stonehenge, Old Sarum, Stratford Church, Woodford Church, Great Durnford Church, Ogbury Camp, Lake House, and other places being noticed on the route. On the arrival of the party at Stonehenge, Dr. Thurnam,

of Devizes, came forward and gave an explanation of its principal features. In reference to the projected raising of the trilithon and altar-stone, which he said had been suggested by the British Association, and which had brought their society into so much notoriety within the last few months, he was of opinion that it might have been done without endangering the structure in the least. If they had placed the matter in the hands of competent engineers, the altar-stone might have been undermined, and this have been the means of eliciting much valuable information, without endangering its safety.

Mr. Parker reminded the meeting, that in the Oriental languages a circle of stones was called a gillal, and in Scripture there was every reason to believe that such a place was a circle of stones. A gillal was a temple where holy rites were celebrated, where the army met together, and was also used for a place of burial for the chieftains; and if they put all things together, and took into consideration that the Celtic tribes were sprung from Oriental origin, it was clear that Stonehenge was a gillal, and was erected for the purpose of celebrating holy rites, a place where the army met, and where the chieftains were buried. They might, therefore, call it a burial-place, or a House of Commons.

HAMPTON COURT PALACE.

As an instance of how rapidly things pass “out of mind” when they are “out of sight,” we may mention that the recently uncovered tapestries at Hampton Court, and of which many persons speak as if they were altogether new discoveries, have only been hidden from view for about thirty years. In a small guide-book to Hampton Court, published in the reign of William IV., these tapestries are described as to be seen on the walls of “Her Majesty’s Gallery,” showing that the pictures had not then been placed over them. While speaking of guide-books, a word of praise may justly be given to the exceedingly well-compiled little manual now sold within Hampton Court Palace, at the small charge of sixpence. This clever little hand-book gives a curious amount of interesting and pertinent information; and the directors of many another picture-gallery might advantageously take a lesson from “The Stranger’s Guide to Hampton Court Palace.”

FROM SCOTLAND.

Airdrie.—Two public drinking-fountains have been inaugurated here. One is the gift of Provost Forrester. It was executed by Messrs. Walter Macfarlane & Co., of the Saracen Foundry, Glasgow. It is erected in the centre of Graham-street, opposite the Royal Hotel, and consists of a column, or centre-piece, furnished with a saucer-like reservoir, into which the waste water runs. Above the taps is the figure of a pelican, which occupies the centre of an arch with four sides. This arch is surmounted by a canopy of ornamental work, in which are fixed four shields, on two of which is inscribed the name of the donor; and on the other two shields figure the burgh arms. A large lamp crowns the whole. The extreme height is from 18 ft. to 20 ft. The other fountain is the gift of Mr. Patrick Rankin, of Auchingray and Otter. It has been designed and executed by Messrs. George Smith & Co., of the Sun Foundry, Glasgow. It is in the Early Decorated style. The base is an irregular octagon, and projects from the broader faces into a cruciform shape, at the same time providing bases for four embossed shafts, with floriated capitals, thus forming a clustered column. These four small columns carry four brackets. These, with the centre octagonal column, support a circular basin, simply ornamented by a projecting dog-tooth on the outer edge, and a twisted head on the inside. From the four trusses or brackets spring four floriated buttresses, forming a support to the centre column, which rises from the basin in a series of mouldings, in which, at the junction of the four stays, is the chamber from which the water is supplied by four taps in the space between the stays. Here the shafts supporting the superstructure take a slightly tapering form, some 4 ft. high, terminating in a moulded and coronated cap, from inside of which rises a floriated pierced circular bracket, of an O G form, for supporting the canopy. On this circular band, at equal distances, are placed four small lamps. The

canopy takes a simple curved outline for some little height, and the plainness, which would otherwise be apparent, is relieved by a number of goblets filled with tracery, and surmounted by small finials. An open fret gives relief to this heavy portion, and terminates in a small dome, surmounted by a lamp. This fountain has had the site of the old cross, where four roads meet, assigned to it.

METROPOLITAN BOARD OF WORKS.

At the last ordinary weekly meeting of this Board, the following proceedings took place:—

City Improvements.

Mr. Pollard, the clerk to the Board, read a letter from the City Commissioners of Sewers, stating that some of the houses were about to be removed at the corner of Gracechurch-street and Lombard-street, and that they had communicated with the Fishmongers' Company, with the view of widening those streets. That company had offered to sell the ground wanted for 8,000*l.*, and the commissioners asked the Board to contribute.

The letter was referred to the streets committee.

Ventilation of Sewers.

Mr. Bazalgette said the Board had received various plans for the ventilation of the sewers. They were under consideration.

Thames Embankment Works—Low Level Sewer, North, &c.

Mr. Bazalgette brought up his monthly report on the progress of these works, which stated as follows:—

"North side of Thames (Contract No. 1) between Westminster and Waterloo Bridges.—About 1,415 ft. in length of timber coffer-dam have been either completed or are in course of construction, and about 1,760 ft. in length of caisson dams are sunk, or in process of sinking. Structural works of concrete, brickwork, granite, and other masonry, &c., are in various stages of progress within a length of about 1,074 ft. of dam, and preparations are made for excavating within a further 470 ft. of dam. As part of the works, 725 ft. of the Low-level Sewer, 284 ft. of the flushing-sewer, and 1,600 ft. of the 4 ft. by 2 ft. 8 in. brick sewer for intercepting small drains, &c., have been completed, and about 571 ft. of the subway have been completed, or are in a forward state. The works at the Westminster steam-boat pier have been for the most part brought up to the level of the subway, and the river wall and works adjoining are in a still more forward state. About 375,500 cubic yards of material have been filled in behind the embankment either from the lead by means of carts, or dredged from the river and barged to the works. The approximate value of the whole of the foregoing, including the material and plant upon the ground, is 215,905*l.*, of which the sum of 45,324*l.* is for the progress made by Mr. Furness in the past two months. Of the total amount, the proportionate sum of 27,210*l.* is for works, 36,327*l.* for materials, and 82,368*l.* for plant.

Thames Embankment (Contract No. 2) between Waterloo Bridge and Temple-gardens.—The coffer-dam forming Somerset House, and extending from the west end of this contract, near Waterloo Bridge, is completed and made watertight. The dam at the eastern end is also fast approaching completion, and thus by the completion of both dams, the entire length of works will shortly be enclosed from the effects of the tide. The construction of the Temple steamboat-pier is being rapidly pushed forward. Since my last report, 11,438 cubic yards of excavation have been removed, and 5,340 yards of concrete filled in, 167 rods of brickwork constructed for the low-level sewer and subway, and 7,354 cubic feet of granite bedded for the river wall. The approximate value of the whole of the works completed, and of the material and plant upon the ground, is 144,871*l.*, or 18,145*l.* for the progress made by Mr. Riton in the past two months. Of the total amount, the sum of 82,368*l.* is for works, 20,980*l.* for materials, and 39,017*l.* for plant.

Low-level Sewer.—The total length of the main line of sewer completed is about 2 miles 1,385 ft., and of the Old Ford branch 3,211 ft., making in all a completed line of about 3 miles of sewer. The works under the river Lea, from their nature necessarily progress but slowly, but, at the same time, their progress is steady and satisfactory. The total approximate value of the completed work is 144,118*l.*, of which the sum of 20,668*l.* represents the work done by Mr. Webster in the two past months.

South side of the Thames.—The Thames Embankment works have been commenced.

Greenwich and Deptford Sewers.—These works are now virtually completed.

The report was approved.

Increases of Engineers' Salaries.

Mr. Pickett moved that certain resolutions of the Board, fixing the salaries of the chief engineer and his assistants, be rescinded, with the view of increasing their remuneration. He proposed to raise that of Mr. Bazalgette to 3,000*l.* a year.

Mr. B. L. Taylor moved that the whole question be referred to a committee of the whole Board, and report.

After a long discussion the amendment was carried by a majority of 26 to 3.

The Thames Embankment Contracts and the Contractors.

The engineer brought up his replies to the questions that had been put to him by Mr. H. L. Taylor, relative to the Thames Embankment contracts, on Friday previous. They were as follows:—The contract No. 1, for 1,415 ft. of the Low-level Sewer, for No. 2, 225,000*l.* The date of the order to commence No. 1 was the 10th of February, 1865, and the contractor was bound to complete it within a period of two years and six months. The order for commencing No. 2 was dated the 19th of March, 1864, and the contractor was bound to complete it in two years. The contractors did not obtain possession of the wharfs and ground necessary until some time after the date of the engineer's orders; and there were other causes of delay, for which the contractor was not responsible. The penalty for the non-completion of the work at the specified time was 1 per cent. on the amount of the tender for each and every week that might elapse between the appointed and the actual time of completion. That amounted to 5,200*l.* per week on contract No. 1, and 2,280*l.* per week on contract No. 2. The value of No. 1 contract, including plant and materials on the ground, was 215,905*l.*, which showed a monthly progress of 11,363*l.* The amount required in

future per month to complete the contract within the time specified, extras included, was 27,645*l.* The value of the work done on contract No. 2, including plant and materials on the ground, amounts to 144,871*l.*, which showed the amount of the progress per month to be 8,048*l.* The amount required in future to complete the contract within the time specified was 14,021*l.*

In reply to a question,

The Engineer further stated that the value of the works done in the last two months amounted to 45,000*l.*

Mr. L. Taylor moved that the statement of the engineer be entered upon the minutes.

Mr. Carpmal said, that at the rate they had been going on they would complete the works in the time specified.

Mr. Taylor said he was credibly informed that it would be years before the works would be finished.

Mr. Bazalgette said the delay might be a few months, but certainly not years.

The motion that the statement be entered on the minutes was agreed to, and the engineer was ordered to add a report of the state of the works to it.

CHURCH-BUILDING NEWS.

Hollington (Sussex).—The foundation-stone

has been laid of a new church, to be called St. John the Evangelist's, for the accommodation of the inhabitants of a large district of the parish which has sprung up within the past few years. The site is about two miles and a half to the north-west of Hastings, on a rising ground to the right of the road which leads to Beampton and Battle, and just beyond Tivoli. It will be in the Gothic style, and capable of accommodating about 400 persons. Mr. Edward A. Wyon was the architect of the design chosen out of five submitted for approval, and the tender of Mr. John Howell for 3,342*l.* was accepted.

Leicester.—The chief stone of the new church of St. Matthew the Apostle in Chester-street has been laid. The edifice, which is in the style of the fourteenth century, will consist of nave, 84 ft. 6 in. by 30 ft.; north and south aisle, 84 ft. 6 in. by 20 ft.; chancel, 86 ft. 8 in. by 26 ft.; and chancel aisle, 26 ft. 8 in. by 22 ft. The tower will be at the south-east angle of the building, with vestries under it. The height of the spire will be 220 ft. to 230 ft. The church will be built of Mountsorrel stone, with brick dressings. The principal entrance will be at the west end of the nave, and another entrance will be provided at the south porch, and a private entrance is to be placed for the clergymen at the north side. The architect is Mr. Scott, and the contractor, Mr. J. W. Tims, of Stamford. The whole of the works, which are expected to be completed in November, 1866, are being constructed under the superintendence of Mr. Saville, as clerk of the works. It is calculated that the building will accommodate 1,100 persons.

Wolverhampton.—The restorations of the collegiate church of St. Peter, in this town, have been completed, and the church re-opened. In the nave the clerestory has been rebuilt, and a new roof erected, in substitution of that previously existing. The new roof is in the Perpendicular style. The material used is English oak.

A new oak roof, of plainer design than that of the nave, has also been placed on the north aisle. The south aisle roof is likewise entirely new. The porch has been restored, and a new parapet added. The lead-work of the tower has been repaired, and new parapets and pinnacles have been erected. The surface of the tower required but little repair, that part of the church being built of a superior kind of stone to the rest of the building. The west front is new, and constitutes one of the main features of the building. It replaces a restoration of a few years previously, combining anomalies, in an architectural point of view. In the north transept, the "very beautiful roof," as the architect describes it, has been repaired. In a niche in the transept has been placed a full-length statue of John the Baptist, in Caen stone, executed by Mr. Earp, of London. A new roof, corresponding with that of the north transept, replaces the previously-existing covering of the south transept. The whole of the windows have been re-glazed. An improvement has been effected in the drainage. In the interior of the church, an old organ-gallery at the east end of the nave has been removed, and a floor under the tower cut away, thus opening a view from the western door to the end of the chancel. The piers and arches under the tower have been restored. In the nave and north and south transepts the walls, which had been disfigured years ago by whitewash, have been scraped and restored, and the warm facing of the red sandstone is now exhibited as in the early history of the church. In the side aisles the old plaster has been removed, and new put on in its place. A hot-water apparatus has been introduced, as a sub-

stitute for the stoves formerly employed for the purpose of warming the church. The side-walls of the new chancel stand on the old foundation; but the present chancel is longer than its predecessor, by reason of its having an apsidal ending. The walls exteriorly are constructed of stone of the same kind as that used in the other portions of the church; and, in the interior, above the string-course of the windows, they are finished with the same material. The roof is open-timbered, and of English oak. The seven windows of the apse are filled with stained-glass, each of two main lights and tracery, of the Early Decorated period, the whole forming a public memorial of the late Mrs. Farke, of the Deanery. The windows are designed to illustrate the mission of our Lord upon earth, and that of his apostles, St. Peter, either by his figure or in emblems (as the patron saint of the church), being always borne in mind, subservient to our Lord, of course. The outer windows, north and south, are of single figures, four figures in each window. The four on the north side represent the Gospel writers, St. Matthew, St. Mark, St. Luke, and St. John; and the four on the south side the Epistle writers, St. James, St. Peter, St. Paul, and St. Jude. These figures are placed upon a diapered curtain background. The main lights of the remaining windows of the apse contain a consecutive series of subjects from the life of our Lord:—1. The Nativity; 2. The Epiphany; 3. The Baptism; 4. The Transfiguration; 5. The Call of St. Peter; 6. The Agony in the Garden; 7. The Crucifixion; 8. The Resurrection; 9. The Last Supper; 10. The Appearance to St. Mary Magdalene; 11. The Denial of St. Peter; 12. The Charge to St. Peter; 13. The Ascension; 14. The Descent of the Holy Ghost. The cost of the windows was about 500*l.* The first window eastward in the chancel and on the south side is of a memorial character. It was erected in commemoration of the death by drowning of the Rev. T. H. Campbell, his wife, and five children, at Dunedin, in New Zealand.

In the main part of the centre is a single figure, nearly life-size, of Our Lord Walking on the Sea (St. Mark, vi. 50); above Him, a cross of stars, to represent the constellation of the southern cross, the sign of the southern hemisphere; on the left, Noah, with his ark behind him, as a symbol of resurrection, and especially from a watery grave; to the right, St. Peter, with a net, as a fisher of men. The lower portion of the window is filled with groups: under Noah, Noah's Sacrifice (the rainbow intended as a symbol of covenant with God); under our Lord, his Blessing Little Children; under St. Peter, our Lord's charge, "Feed my Sheep." All these windows are the production of Messrs. O'Connor, of London. The other windows of the chancel are of ordinary glass. The restoration was planned by Mr. Christian, of London, and the works have been executed, under his superintendence, by Messrs. G. & F. Higham, builders, Wolverhampton.

Leintwardine.—The parish church has been re-opened. The restoration has been carried out according to plans prepared by Mr. Nicholson, the diocesan architect. The first work was to rid the church of its galleries and the seats in the nave, the former being abolished entirely, and the latter superseded by low, open seats of red deal, stained and varnished. The roof and the pillars of the aisles and the walls have been cleared of whitewash. This operation disclosed to view in the roof of the nave some oak carving of the fifteenth century, which has been restored by Mr. Merrick, of Hereford, who was the contractor for the whole of the interior work. The roof of the north aisle has been restored, but that of the opposite side has been replaced by a new one. The roofs, being nearly flat, were covered with lead, which was found to be in a very rotten state; and this, therefore, has been removed and new substituted. The masonry of the walls has been freshly pointed and restored. The principal alteration internally has been, perhaps, the elevation of the chancel arch. The chancel will now afford accommodation to 600 or 700 persons. The contract for the exterior work was taken by Mr. Taylor. The total cost of the work, we believe, is about 2,200*l.*, which is exclusive of the repair of the tower, which will be commenced as soon as the funds in hand will justify. During the excavations for laying the new floor of the church, there were brought to light a number of encaustic tiles bearing the arms of the family of Hugh de Mortimer, who, as an ancient document informs us, gave the parish church and other properties to the Abbey at Wigmore.

THE THEATRE.

Princess's Theatre.—Whatever objection may have been felt on the first night to Mr. Reade's drama, "It is Never too Late to Mend," it now "goes" successfully from beginning to end. The second act, showing what has been done at times in our prisons, is not so agreeable as the rest of the piece; but it tells a useful story, and may serve to disabuse that portion of the public who have taken it into their heads to believe that to be sent to jail now-a-days is no punishment. The piece was played for some time in its present shape in Manchester, where Mr. S. Calhaem acted, as now, the *Australian Jacky*. Mr. Vining plays *Robinson*, the reformed thief, with great vigour and force; and Mr. Dominick Murray, Mr. T. Mead (better known in the East than the West), Mr. J. G. Shore, and Mr. F. Villiers, also merit commendation. Mr. F. Lloyds has again produced some very striking scenery, especially "The Grove Farm," with all the adjuncts of farm life, the interior of a "Model-prison," and a "Ravine," in Australia. The last is seen under three aspects,—moon-light, the rise of morning, and the setting sun, and is very artistically constructed and painted.

English Opera, Covent-garden.—The management have put forth a very promising programme. The house will open on the 21st, with an English version of Meyerbeer's "*L'Africaine*," the libretto translated by Mr. Chas. Lamb Kenney. A new opera by Mr. Henry Leslie, called "Ida," will be produced early in the season; an opera by Mr. C. Deffeil, called "Christmas Eve;" and a version of Felicien David's "Lalla Rookh." A grand ballet, too, will be early given. The list of *artistes engaged* includes Miss Louisa Fyne, Mdlle. Ida Garcia, Mdlme. Sherrington, Mdlle. Florence Lancia, Mr. Chas. Adams, Mr. Haigh, Mr. Alberto Laurence, Mr. Henri Corri, and other well-known names. Those who desire to see an English Opera House established, where English composers and English singers may get a fair hearing, should support the present undertaking.

Miscellaneous.

THE LATE MR. JOHN BROWN.—We mention with great regret the untimely death of this clever sketcher and earnest labourer in sanitary matters, of whom we took occasion to speak only a fortnight ago. He had been ill, but was better, and went down to Southampton last week to learn something of the sanitary condition of the town. By an accident, the exact particulars of which have not reached us, he fell from the quay into the water; and, though he was rescued and rallied, diarrhoea set in, and he died the next day. He appears to have been kindly attended to by Dr. Cooper, and by Mr. Mabb, of the Platform Tavern. He has left a widow and several young children utterly destitute.

DUBLIN EXHIBITION AWARDS.—There has been a ceremonial in the Exhibition building, on the occasion of the declaration of the awards of the jurors. The Duke of Leinster presided. Addresses were delivered by the Duke of Leinster, Earl Russell, the Earl of Meath, Lord Houghton, the Lord Mayor, the Lord Chancellor, and Sir C. Peel. The price of admission was half a crown, notwithstanding this charge there was a large assemblage. The building was brilliantly lighted up. The medals not being yet ready, the proceedings were necessarily confined to an announcement of the awards.

INTERPRETATION OF CONDITIONS OF SALE.—On a sale of lands, by one of the conditions of sale it was provided that, in the event of the purchaser making any objection to the vendor's title within a certain time, the vendor might, at his election, either rescind the contract on repayment of the deposit money without interest or costs, or negotiate with a view to the removal of the objection; and by a further condition it was provided that any such negotiation should not prejudice the vendor's subsequent right to rescind. In this case (*Gardour v. Lee*) where the purchaser making an objection to the vendor's title, the vendor declared the objection unfounded and held the purchaser to his contract, it was held by the Court of Exchequer that this operated as an election on the part of the vendor not to rescind, and that he could not afterwards rescind on repayment of the bare deposit, but was liable for interest and costs at suit of the purchaser.

TRADE BOOKS.—Messrs. Cottam & Co., of Winsley-street, have recently issued two catalogues which will be found useful; one of Stable Findings, the other of Balconets and Railings for tombs, graves, and chancels. The prices are given, and the drawings are to scale. Some of the designs for railings are exceedingly satisfactory. In respect of good workmanship the Messrs. Cottam need no commendation from us now.

BIRKENHEAD IMPROVEMENTS.—On Tuesday, the Birkenhead commissioners agreed to expend £21,300L. in the construction of a new road, to extend from the upper end of Hamilton-street and join the Happy Valley-road, made by the Tranmere Local Board. The new thoroughfare is to be called the Borough-road, and will give ready access from Woodside Ferry to the heart of a suburban district, which is already being rapidly covered with houses. The design includes a large square at the junction with Hamilton-street, which will probably be used as a hay and straw market.

SHOREHAM CHURCH.—It has been resolved by a few of the most influential parishioners to restore the entire building,—a work which, it is thought, can be accomplished for 8,000L. or 9,000L., the expense being considerably curtailed by the circumstance that the whole of the old foundations have never been disturbed, and are available for the work of re-building. To consider the matter and bring it more prominently before the public, a vestry meeting was called, and has passed resolutions approving of a report prepared for presentation to the meeting. The plans were executed in 1853 by Mr. E. Carpenter, architect. A committee has been appointed by the vestry to carry out the objects of the meeting.

PLYMPTON ST. MAURICE, DEVON: MEMORIAL OF SIR JOSHUA REYNOLDS.—A desire has been expressed that some worthy memorial of Sir Joshua Reynolds, in this his native place, should be erected; and a window in the church, it is thought, will be at once the least expensive and most durable. At present, the visitors from all parts who come to Plympton as the birthplace of Reynolds, find little to remind them of him. The small town has a somewhat picturesque appearance, owing to some of the houses being built upon pillars, and thus extending over the footpaths. The grammar-school, where Sir Joshua was not only educated, but born, is almost shut out from view by a high wall, and is in bad repair. It is hoped that the Charity Commission will shortly cause some of the ample funds in hand to be expended in the repair of the building. The church itself requires a considerable outlay, and a committee is at work, who hope to be able to do some portion of the restoration in the spring. A number of the very wealthy possessors of Reynolds's pictures, it is hoped, will be willing to aid the committee, of whom the perpetual curate, the Rev. Percy Nicolas, is a member, with some small sum—say 10s.—from each person. Mr. Henry Graves, 6, Pall-mall, London, who has subscribed 5L., will receive subscriptions.

THE HAWKS MEMORIAL.—Shortly after Mr. Hawk's death the workmen of the Gateshead Ironworks resolved to erect a monument to his memory, and various designs were submitted for that purpose. Ultimately one by Mr. J. Craggs, of the firm of Messrs. Craggs & Sons, of the Percy-street Marble Works, was selected. The artist is a native of Gateshead. The memorial consists of a statue of the late alderman on a pedestal, on either side of which is a drinking-fountain. The figure, which is 7 ft. 3 in. high, has been cut out of a block of Sicilian marble, which originally weighed about 7 tons. Mr. Hawk is represented in his official costume as mayor of Gateshead. The pedestal, which is formed of Priddon stone, is about 14 ft. high, and rests upon a large double stone platform, the second layer being less, so as to admit of an approach to the plinth by a step. On either side of the monument the drinking-fountains are placed. The fountains are of iron, with basins of Sicilian marble, which are supported on pedestals of Priddon stone. The fountains work upon a principle patented by Mr. Macfarlane, of Glasgow, the water being obtainable by pressing the drinking-cup against a button spring in a socket immediately below the supply pipes. Two cups are attached to each fountain, and are so suspended by chains that they cannot touch the marble basins, which therefore will not be injured by the cups being thrown upon them.

THE THAMES EMBANKMENT.—Within the last few days the cofferdam fronting Somerset House, and extending to the west end of No. 2 contract, near Waterloo-bridge, has been completed and made water-tight. The dam at the eastern end is also fast approaching completion; and thus by the completion of both dams the entire line of works will shortly be inclosed from the effects of the tide.

CONCRETE.—Sir: In your last number you speak of arches in concrete, the walls being 13 ft. apart. I have used this material exclusively, and in various ways, for many years. More than twenty years ago, at the residence of the Bishop of Exeter, Bishopstowe, Torquay, I arched, or rather groined, the whole of the cellars under the dining-room, &c.; also arches in the corridors (which receive the floor above), and the ribs under which were constructed in the same manner.—JOHN MASON.

COTTON AND LINEN TISSUES.—Professor Boettger has discovered the means, by the aid of chemistry, of recognising the presence of cotton in linen fabrics. He takes a piece of the suspected cloth, about 2 in. by $\frac{3}{4}$ in., and, after having unravelled both weft and warp, plunges it in an alcoholic solution of aniline and fuchsine. The superfluous colouring matter is removed by washing the piece of cloth thus dyed several times in water. If, while it is still wet, it be placed in a saucer containing ammonia, the cotton fibres will immediately become discoloured, while those of linen will preserve a fine red colour.

COMPLETION OF THE PNEUMATIC DESPATCH RAILWAY.—A train of two trucks, containing a quantity of goods, has been driven through the pneumatic despatch tubular line of railway, from the central station at the Bull and Gate, Holborn, to the terminus on the premises of the London and North-Western Railway, at Euston-square, the carriages on their transit passing beneath the crowded thoroughfares of Holborn, Oxford-street, Tottenham-court-road, the Hampstead-road, and Drummond-street, to their destination. The time occupied in running between the two stations, a distance of about a couple of miles, was some five minutes. The line is now ready for opening between Holborn and Euston.

COAL MINE AT THE FOOT OF MOUNT OLYMPUS.As soon as the discovery of coal in the neighbourhood of this classic mountain was communicated to the Viceroy of Egypt, he gave instructions for at once exploring the seam. The works were successfully carried out; and, after having reserved all the quantity necessary for the Azizie Company's steamers, the Viceroy offered to supply all nations with the combustible at 10 francs (8s.) per English ton, a lower price than that charged by any of the coal depôts existing on the shores of the Mediterranean. As coal can be transported from Mount Olympus and put in reserve at Suez at less expense than that fuel derived from any other source of supply, it is not improbable that depôts will be made for the use of the Red Sea trade in addition to the supplies that can be furnished to all Mediterranean steamers trading with the Eastern ports.

THE WEST DERBY MAIN OUTLET SEWER, LIVERPOOL.—At a recent meeting of the West Derby Local Board, it was reported that deputations from the main sewerage committee of the West Derby Local Board and the Walton Local Board had met to consider how the expenses of the main outlet sewer should be defrayed by the respective Boards, and that the deputation from the Walton Board had made a proposition to the effect that the total cost of the whole sewer should be defrayed by the two Boards in respect to their own acreage, and that the repair and maintenance of the sewer be paid for on the same principle. Mr. Pearson Lee's tender was recommended to be accepted. It was stated that the amount which would have to be paid by the West Derby Board for the work done in that township was 9,234L., that being the estimate upon a low-level amounted to 12,760L., the difference between these sums being paid by the railway company under whose line the sewer must pass in its progress across Prescott-road and Edge-lane. The proceedings of the committee were confirmed, excepting that part relating to the portion of the sewer in which the Walton Board was concerned, and which was referred back to the committee for further consideration.

CAMBRIDGE.—The new university club-rooms are being commenced, from a design by Mr. Waterhouse. Messrs. Jackson & Shaw, of London, are the contractors. Little Casterton free-stone, a correspondent states, is to be used.

RAILWAY RETURNS.—The traffic receipts of railways in the United Kingdom amounted for the week ending the 30th of September, on 12,232 miles, to 754,508l., and for the corresponding week of last year, on 11,915 miles, to 707,240l., showing an increase of 337 miles and of 47,268l.

THE NEW COURTS OF JUSTICE.—The Commissioners of the Courts of Justice Concentration Site Act have taken possession of their official residence, at the old Insolvent Debtors' Court, in Portugal-street; and are causing notices to be served upon all persons having any interest in the proposed site for the erection of such courts. The following is the form of such notice:—"If after twenty-one days' date no claim is sent in, the Commissioners will proceed *ex parte* under the 21st and following sections to ascertain the value of such houses as may be required to be pulled down for the purpose of clearance."

THE NORWICH STRIKE.—The carpenters' and joiners' strike, at Norwich, having continued for more than a week, a meeting of the master builders was convened at the Rampant Horse Hotel. The attendance was numerous, and comprised the principal builders in the city. Mr. J. W. Lacey having been called to the chair, it was unanimously resolved that the increased rate of wages demanded by the workmen be not paid until a sufficient time has elapsed for the completing of existing contracts, but that such increased rate shall be paid from the 1st of March next.

MEETING OF WOOD-CARVERS, BIRMINGHAM.—The general wood-carvers of this town held a meeting at the Rodney Inn, Hill-street, on Monday last, for the purpose of taking into consideration the best means of promoting the interest of their trade, which, for want of unity and combination, has fallen into a serious state of decay. It was shown by several speakers that an unfair and ruinous competition existed in most of its branches, which need not be the case if a friendly communication were kept up among them. After some consideration, it was resolved to amalgamate with the Cabinet Makers' Society of this town, and contribute to their funds, but to regulate prices by a separate committee. The resolution was unanimously carried, and all present gave in their names to join the above-named society.

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

TENDERS

For additions to house at Mill's-pit, Hendon, for Mr. H. Baker. Quantities not supplied. Mr. Thos. Harris, architect:—

Barrat & Son £362 7 0
Hall 325 0 0
Howard & Sons (accepted) 315 0 0

For alteration to premises No. 136, Regent-street, W., for Mr. J. Izard, fittings not included. Architect—Mr. Snel:—

Simpson & Son £555 0 0
Longmire & Burge 932 0 0
Moultrie 832 0 0
Hall (accepted) 850 0 0

For parsonage-house for Mortlake, Surrey, to be erected at East Sheen, on land presented by the Right Hon. James Stuart Wortley, under the direction of Mr. Hudson, architect. Quantities supplied:—

Sims £2,162 0 0
Sewell & Son 2,053 0 0
Goodall 1,895 0 0
Sweet 1,880 0 0
Nicholson 1,780 0 0
Adams & Son 1,770 0 0
Bowling (accepted) 1,680 0 0

For villa residence at Eltham, Kent, for Mr. W. Theakstone. Mr. Herbert Ford, architect:—

Rawlins (accepted) £1,354 0 0

For the erection of three houses and shops, High-street, Slough, for Mr. Frederick Charsley. Mr. H. Sargeant, architect:—

Atkins £2,980 0 0
Harley 2,786 0 0
Watson 2,760 0 0
Snowball 2,642 0 0
W. Sargeant 2,640 0 0
Liddiard 2,564 0 0

For repairs, Oakfield House, Streatham-common. Mr. James Harrison, architect:—

Smith £455 0 0
Colls 302 0 0
Pross 302 0 0
Richardson 288 0 0
Bastard 140 0 0

For completion of the central buildings of the proprietary school, Tettenhall. Mr. Geo. Bidlake, architect:—

Barnsley £4,954 0 0

For the erection of the Welkin Hotel, Wellington, Shropshire. Mr. Geo. Bidlake, architect:—

Trow & Sons £3,570 0 0

For works to house No. 26, Duke-street, Portland-place, for Mr. Hal. Mr. Bull, architect. Raising present story 1 foot, and building another story and repairs:—

Burke £118 15 0
Duncanson 431 0 0
Stephens & Watson 431 0 0

For building villa residence at Finchley, for Mr. A. E. Marquason:—

Rivers £295 0 0
Howard 863 0 0
Sivil 965 0 0

For alterations and additions to two houses in French-street, Horsey-road, Holloway. Mr. D. Gylby, architect:—

Carter & Son £1,670 0 0
Kent 1,144 0 0
Magill 1,144 0 0
Gillet & Wisbey 1,045 0 0
Macfarlane 1,045 0 0
Palmer (accepted) 1,038 0 0

For various alterations and repairs to No. 15, Charles-street, Middlessex Hospital, for Mr. Samuel South. Mr. F. F. Holworth, architect. Quantities not supplied:—

Baugh & Bryant £247 0 0
Tracey & Co. 418 0 0

For alterations and additions to No. 4, Park-crescent, Regent's Park, for Mr. C. J. Allen. Mr. W. J. Trehearne, architect. Quantities supplied:—

Robinson £3,450 0 0
Sharpleton & Cole 3,333 0 0
Tracey & Co. 3,048 0 0
Longmire & Burge 2,550 0 0

For building a public house, corner of Pembroke-road, Kilburn, for Mr. J. Garrett. Messrs. New & Cumings, architects. Quantities supplied:—

Williams £2,668 0 0
Tracey & Co. 2,448 0 0
Ebbs & Son 2,400 0 0
Ferguson 2,358 0 0

For house at Acton, for Mr. W. Davis. Mr. T. J. Hill, architect:—

Keys £375 0 0
Anley 327 0 0
Webster 725 0 0
Edmann 670 0 0

For the erection of a public house at Lordship-lane, East Dulwich, for Mrs. Pamela Hudson. Quantities supplied by Messrs. Pain & Clark:—

West & Morse £2,048 0 0
Rogers 2,020 0 0
Byah 1,599 0 0
Dover 1,949 0 0
Sawyer 1,871 0 0

For the erection of a pair of villas at New Malden, for Mr. G. Himus. Quantities by Messrs. Pain & Clark:—

Wardle & Baker £1,490 0 0
Hest 1,443 0 0
Giles 1,385 0 0
Parker 1,312 0 0
Jones 1,300 0 0
Viner 1,300 0 0
West & Morse 1,278 0 0
Lamble 1,177 0 0

For the erection of house, shop, and warehouse, at Slough, for Mr. R. Griffith. Mr. H. Sargeant, architect:—

Snowball £1,919 0 0
Edwards 1,740 0 0
Watson 1,690 14 0
W. Sargeant 1,650 0 0
Harley (accepted) 1,389 0 0
Liddiard (withdrawn) 1,389 0 0

For erecting a tavern in the Albert-road, St. John's-wood, for Mr. D. Tildesley. Mr. F. G. Widdows, architect:—

Kellond (accepted) £1,800 0 0

For alterations and repairs to Bush Hill House, Edmonton, late in the occupation of the Dowager Countess of Methuen. Mr. F. G. Widdows, architect:—

Green & Son (accepted) £2,798 0 0

For erecting a gardener's cottage, Ridge-road, Enfield, for Mr. Bathgate. Mr. F. G. Widdows, architect:—

Cushing (accepted) £209 0 0

TO CORRESPONDENTS.

L. M. H.-J. R.-G. W.-W. T.-A. Bantley Inspector.—H. T. W. W. L.-A. Co.-H. S.-G. M.-W. R. C.-G. S. & Co.-W. P. F.-C. A. R.-W. B.-N.-J. E. C.-H. W.-F. & A.-H. F. M.-T.-H. L.-G. H. R.-J. H.-A. A. W.-J. W. W. A. M.-J. R. (next week).—B. R. (ditto).—J. G. B. (thanks).—Shakespeare Memorial

responsibility for assertion that the design we engraved has been selected for execution rests with the architect).—C. V. (we should prefer trade). We are compelled to decline pointing out books and giving addresses. All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender not necessarily for publication.

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TO LEARNED SOCIETIES, ARCHITECTS, AND ANTIQUARIES.—Messrs. COX & WYMAN, having had great experience in the production of every variety of work relating to Architecture, Architects, and the Fine Arts, their Establishment affords special facilities for the execution of this class of PRINTING, in the most possible manner, with promptitude, and at moderate prices.—COX & WYMAN, Fine-Art and Classical Printers, 74-76, Great Queen-street, London, W.C.

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THE EDINBURGH REVIEW, No. CCL. Is Published THIS DAY (Saturday).

I. JOURNALS AND CORRESPONDENCE OF MISS BERRY. II. LIFE IN THE CRIMINAL CLASS. III. THE HOUSE OF COMMONS. IV. LIFE OF CARL MARIA VON WEBER. V. CAMPBELL'S TROOP AND FIRE. VI. POSITIVE W. B. T. J. OF ALEXIS DETOCQUEVILLE. VII. PALGRAVE'S ARABIA. VIII. THE CHURCHMAN'S SETTLEMENT OF IRELAND. IX. SIR THOMAS WYKES' PEOLOPONESUS. X. AMERICAN PSYCHOMANCY. London: LONGMANS & CO. Edinburgh: A. & C. BLACK.

FOR ARCHITECTS, SURVEYORS, LAWYERS, AND LANDLORDS. THE DAY, Nov. 24. ON ARCHITECTURAL LIGHTS. By ROBERT KEER, Architect, Author of "The English Gentleman's House." JOHN MURRAY, Albemarle-street.

THE QUARTERLY REVIEW, No. CCXXXVI. Is Published THIS DAY.

I. ENGLISH CATHEDRALS. II. THE MADNESS OF THE FRENCH. III. STATE AND PROSPECTS OF ITALY. IV. POETRY OF PRAGUE AND LORD ROUGHTON. V. THE EDUCATION OF THE BLIND. VI. FIELD SPORTS OF THE ANCIENTS. VII. CHURCH OF THE FUTURE. VIII. ENCLOSURES OF RUSSIA IN ASIA. JOHN MURRAY, Albemarle-street.

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The Builder.

VOL. XXIII.—No. 1185.

The Prevention of Strikes.



THE relations of capital and labour, between masters and workmen in the building trades, continue disturbed or threatened throughout the country; and in some branches of the trades, notice has been given to the

masters, of a required advance of the rate of wages, to commence in the spring or summer of next year. Since our recent articles on the Prevention of Strikes appeared,* nearly every one of the numbers of the *Builder* has recorded several instances of the disturbed relations; and, now, some amount of injury to both parties is rather probable, than the speedy establishment of a position conformable with the mutual interests. In certain cases, the dispute has arisen in some claim of the men to make regulations such as would in effect tend towards the formation of a barrier to each and every career at present open to individuals of the working classes: in other cases, the claim operating indirectly, yet certainly, would tend to reduce the demand for the sort of labour immediately in question, or at least where the labour of the particular agitators was not supplanted by that of other persons. An example of the first kind of position is afforded by the strike of the masons at Huddersfield, where, as mentioned by us, the request that the masters should not have more than one apprentice to five journeymen, if made and acceded to in all trades, would have placed 3,000 youths in the town in the position of inability to learn any trade. Generally, however, an increase in the rate of wages, as by one halfpenny per hour, is claimed, and on the ground that house-rent, and the cost of all necessities of life, have risen. There have been cases of intimidation of workmen by trades-unionists; but, for the most part, physical force has not been brought into play: and there have been disputes arising from peculiar and hardly defensible customs sought to be maintained; but, again, these form the minority. In short, it is impossible not to recognise, not only an improved tone in the demands, but also truth in much of what is adduced. More, it is evident that better study of the condition and claims of those who are called the industrious classes, than has been given on the part of the section of the community who are, or are in the position of, masters, is desirable and due. On both sides, a considerable amount of ignorance still prevails; whilst, on the part of the class which comprises the capitalist and the employer of labour, the ignorance has been presumed to exist only with the other class. But the capability of working-men to explain their own case, and to appreciate the arguments based on political economy, is increasing daily; and few even of those who are thoroughly interested in the condition of the artisan, and in the question treated by Mr. Mill, the "probable futurity of the labouring classes," can listen to some of those expositions which we refer to, of the case, without being greatly advanced in the subject of study, thereby. Unfortunately, though it has been from the body

of workmen, that the greater number of those who are masters have sprung, the knowledge has not been the more accurate from the circumstance. The very kind of man who should be able to enlighten us respecting the just claims of the class to which he belonged, has too often a curious forgetfulness of everything except what concerns his new interests, or those which he views as such.

But were there at this juncture, the mutual respect or regard that we should like to see, it would not necessarily follow that the manifestation thereof should be in the form of an increase in rate of wages. We indeed desire that a greater amount of the comfort and harmless gratification that money helps to obtain, should be within reach of the working man; and, on the other hand, we can but observe that the comparison between results of the position of a skilled workman, and of that of a not better-paid clerk in an office, is often drawn correctly. Too frequently the former member of the community is badly housed, or lapses into pauperism, only because of the large proportion of his earnings that he spends on indulgences, and on amusements, costly, and not more serviceable as needful relaxation than those which are inexpensive whilst intellectually improving.

However the estimate of his necessities, the proper question for the workman must always be, whether an obtainable increase of wages is justified by circumstances of a demand for his labour. If not justified, there is absolutely no other resource except to find another pursuit, to emigrate, or change his place of residence, or to wait. Even should he plainly see the increase to be justified by the circumstances, it cannot be permitted that he should decide that it take place, unless in becoming an employer himself. These things are getting to be recognised as truisms by the working-classes themselves, to whom great credit is due for progress that is indeed being made in the comprehension as well as elucidation of the subject.

The obvious tendency of the increase,—we might say, even though prices generally of commodities had risen,—would be to diminish demand for the particular labour; and the retrograde course would be very soon commenced, were the increase to make the article produced altogether too expensive for the public purchaser, or were there immediate means of substituting new, even unskilled, labour, for the other. Now, it is exceedingly important, to themselves and the whole country, that those who are striving, with judgment or the reverse, should not leave out of consideration the possibility of a supply of both materials and labour being procured out of England. In certain handicrafts connected with building, foreign workmen have long been employed; we know that on the occasion of the most important dispute of recent years, masters in the building-trades were on the point of procuring labour from the Continent; and we have now patent to us the fact that railway companies, actuated by economy, have gone to France for locomotive engines,—as, previously, builders had gone to Belgium for cast or rolled iron girders. The London agents of Messrs. Schneider & Co., of the Crenet Works, in France, whilst offering to English firms foreign manufactured iron and machinery at less than English prices, were lately saying, as we reported, that it was obvious to every one that "by the operation of 'strikes' and 'lock-outs' alone, the great natural advantages of the English ironmasters" had been "considerably curtailed, and the carrying out of important undertakings sometimes jeopardized, and even altogether prevented." They added: "Other sources of supply, even though foreign, have therefore become a necessity of the times,"—having previously alluded to the fact of the use of foreign manufactured iron, even in the centre of the English iron districts, and to the supply of castings that

could not be made by the English founder, except with derangement of his appliances, and at greatly increased prices. The foreigners who are at present in England, as refugees, are numerous; as they have been at previous periods in our history,—the gain to art and manufactures having been considerable and permanent. Should the condition of certain parts of Europe permit many of these persons to leave us, the continuance of peace, and the progressing knowledge of countries of one another, will far more than fill the gap, and will cause the incidence of the operation of the laws of supply and demand as affecting labour like other commodities, to spread beyond boundaries of countries, and to be productive of an adjustment between the rates of country and country,—similarly to that between town and town, to which there is always a tendency; and no one anxious for progress throughout the world, would wish the circumstances to be otherwise.

Since the foregoing portion of our article was written, an illustration of one tendency to which we have alluded, has been afforded on the hearing, elsewhere mentioned, of a charge against two men, members of a trades-union, of intimidation of non-unionists. At the hearing, at the Mansion House, the Lord Mayor observed that were he a builder, he would "import a lot of foreigners." The men were sentenced to two months' imprisonment, with hard labour. It does not seem to have occurred to those who, like Professor Fawcett, have been lately stating the conditions subject to which workmen may lawfully combine,—any more than it has to speakers belonging to the working classes,—to show that there may be now this dilemma making itself felt; namely, that, whilst, on the one hand, intimidation is checked, and rightly so, by the law, or if successful in one trade tends to produce pauperism out of it; on the other hand, combination without intimidation will find itself powerless to control a rate of wages,—just as political economy would say,—and therefore may become of no use at all.

The present position of the question in the building trades is simply this. The men have given notice to the masters of a required advance: and it is assumed that this will be granted; that the masters, having been able to take the increase into account in their prices and contracts, will lose nothing, any more than the men; and that the measure is to be justified as in accordance with the rise before alluded to, in prices of all commodities,—and, we might add, with the growth of new desires that have become necessities, inclusive of some which the spread of education itself tends to produce. There is danger, however, of mistake on some of the points. The lessened price of certain things, as clothing, may have been left out of consideration; and should the cost of building be seriously augmented, it is just possible that the increased expenses thereby, for the producer of such requisites, would require the latter party to demand prices that would negative any gain to the working man. It is also possible that the proportion of work in building, to the hands requiring work, would be reduced as before suggested. There are other matters entering into the question, such as the increased cost of his own place of residence, to the building artisan; but there are so many weights to be picked up and marked with their values, and to be put into one scale or the other, that it is next to impossible for any one not a party in the question, to assume responsibility: the best must be made of the opportunities, which are not great, of the parties themselves, for predicting what will happen.

The profits of the undertakings in which a master and his men are engaged, may be regarded as a common fund, the division of which, under the now usual relations of the parties, is made by the master; and we do

* See pp. 365 & 386, *ante*.

not lose sight of the view that, in this present system of administration, one party may be getting so large a share, that reduction could be made with little injury to him deserving to be named along with the benefit to the other,—cost of the article being left unaltered. But the object should be to arrive at the adjustment without even so much of threat as is covered by the notices that have been lately given to the masters. Each master must at present feel in the position of being called upon to reduce his profits, or lessen the extent of his business and the number of his workmen, or to subject himself to a strike, only differing from hundreds of strikes that have preceded, inasmuch as moral force and *esprit de corps* may have taken the place of intimidation and violence. We leave out of the question that the master might make different use of his capital, because we are not indisposed to think with some, that too much may have been made of that line of argument. Can therefore the sort of expectancy we have alluded to, be favourable to a kindly spirit on the part of the master, and to the interests, ultimate if not immediate, of the men? The "armed truce" which has hitherto existed continuously, too nearly resembles the state of war, to ensure a due regard on either side for the welfare of the other. Not saying that the right to combine, and to strike, should be taken out of the hands of workmen, we must observe that the master will not be served to the extent of the abilities of the workmen, nor will the workman be better than a bird of passage from one establishment to another,—denied work when his strength fails, and pauperized when he should be pensioned,—so long as the attitude of the parties resembles even that which we now witness.

In recent articles we discussed, as we had long previously, the question of the means open to the workman for bettering his condition, and mentioned different examples of a combination of the principle of co-operative societies with that of a limited liability partnership of the workmen with the master. One of our French examples was taken from one of the building-trades; and after suggesting that, although it might not be possible, or to be desired, that such associations should entirely supplant the old relation of master and man, they would be valuable as well for establishing standards of wages as for the direct benefits to the members themselves of the societies, we asked whether there could be any difficulty in applying the principles that had guided several founders of these partnerships in England, to the institution of similar associations of masters and men in the building-trades. Our advertising columns will have shown that one attempt at least is making to answer the appeal. We allude to the projected company of "Frederick Braby & Co., Limited." Generally, attention to the subject has increased. At the Social Science Congress at Sheffield, a paper was read by Mr. G. F. Holyoake on the "Partnerships of Industry,"—as, by some, the concerns are called which involve the new relation that we have referred to, between capitalists and workmen-producers, and under which the latter receive in addition to their wages, a share of the extra profits they create. The best English illustration which we were able to afford in our last article, was that of the company of "Henry Briggs, Son, & Co., Limited," for working certain collieries in Yorkshire.

Materials for elucidation of the subject continue to reach us from France. There is now edited in Paris, and published there and in Brussels, an organ of the co-operative movement, somewhat resembling *The Co-operator*. It is entitled "*L'Association: Bulletin International des Sociétés Co-opératives*." In a number now before us, we find particulars by M. Talandier, of the scheme of Messrs. Briggs, in continuation of others which had been supplied before our own appeared; and in the leading article, by M. Paul Blanc, there are passages expository of principles enforced, that should calm apprehensions which in some cases exist. We read, that the workmen in partnership ought never to make use of other labourers (*Les ouvriers associés ne devront jamais exploiter les autres travailleurs*). M. Paul Blanc continues: "We are all agreed upon this point, that the object of the partnership amongst working men [*l'association ouvrière*] is to keep for the workman the remuneration due for his labour. Let us say in passing, that this single idea, well comprehended, suffices to reject the so-called system of equality of salaries; after which, every one being treated equally, no one receives a

remuneration proportional to the value of the work furnished. Thus, the partnerships of labour are organisms which have for their mission to guarantee to the labourer the full and entire enjoyment of his property, that is of his labour." Whilst contending that workmen associated in a partnership should not make use of the labour of individuals not of the association, he equally considers that such individuals should not be regarded as having any natural claim to be admitted into any particular association. And he says it would be wrong to fear competition between associations; and that it should rather be to be feared that the competition might not exist.

In the *Presse* of the 5th of this month, mention was made of a conference of English, French, German, Swiss, and Belgian workmen, as having taken place some days previously in London, preparatory to a working-men's congress to be held in Geneva in May, next year, and to the foundation of an International Association of Working-men (*Association Internationale des Travailleurs*). Although the conference contrived to hold its meetings without our knowledge, we are inclined to think that good may arise from such discussion as is proposed, of subjects that we find in a list of twenty which are set down for the congress. Amongst them are:—Labour and its Sanitary and Moral Effects, and the universal obligation to labour; Work of Women and Children, in the sanitary and moral point of view; Want of Work, and the Means of remedying it; Strikes and their Effects; Primary and Professional Education; the Relations of Labour and Capital; Foreign Competition and Treaties of Commerce; Formation of an International Mutual Loan Fund; Co-operation distinguished from Partnership; Inspection of the Hours of Work; and others. The list bears marks of controversy between the *Presse* and the *Sidèle*, and the selection from it may serve to show that if labour could be brought by capitalists from one country to another, international study of the whole subject of the relations would be going on the while. The co-operative societies of France are favoured by the Emperor; and the Minister of Agriculture, Commerce, and Public Works, has just appointed a commission charged with an investigation of all the facts and data, in that country and elsewhere, concerning such societies.

The most important suggestive material since the date of our last article, has come to us from M. Leclaire, of Paris, the founder of the combined partnership and co-operative labour association, for house-painting, of which we gave some short account from materials then in our hands. It includes printed reports up to a very recent date, or later than our article; and in one of these M. Leclaire gives a complete history of his exertions for the welfare of his workmen, observations connected therewith, and a statement of results,—the whole being just now most interesting and valuable.*

With the reports are other brochures connected with this subject, or that of the "Frauds of Painters" treated of recently by us (with mention made of M. Leclaire), or connected with both subjects; for, all the particulars of the Association, with the regulations to be observed in the workshops, and in the execution of work, show that elevation of the workman and improved execution of work are intimately connected, and to be served by the same agency. All that concerns the welfare of the workman, should interest the architect. Amongst the pamphlets of this year, which help to make manifest M. Leclaire's activity of mind, is a brochure on the Origin of Monetary Crises, and Means to be employed for Preventing them.† It preceded the presentation of a petition to the Senate.

Prices of work are given in separate pamphlets; and with them are explanations of the proceed-

ings by which greatly reduced prices are often charged, and of the deceptions by which such reduction is obtained. In another brochure, in 1863, M. Leclaire, in conjunction with M. Augustinus made certain observations and propositions relating to the tariff of prices of the city of Paris, of the previous year. It contains much useful matter as to the execution of painters' work; but, at present, we merely indicate this one of the sources of information, and say that each of the pamphlets might help somewhat in the subject that we commenced in July last, when we referred to yet another of M. Leclaire's brochures.

Although we have already supplied general information, the particulars of the gestation and growth, and the present position of the Association, are so interesting, and as we have said are just now so peculiarly important, that we shall give them at some length.

In forwarding to us, about ten weeks since, his latest report, then just published, M. Leclaire addressed to us words which, translated, merit the attention of every master in England. After referring to our articles, he said, "The question of strikes is not better understood in France than in England. There exists a law which was born with the world, and which will finish only with it,—if it ought to finish,—that law, it is the law of offer and demand. This law, so simple, taught and reproduced by the economists of all times, by the most illustrious as the most modest,—that law which all the world understands as regards what relates to buying more or less dear an article of merchandise of whatever kind, does not enter into the head of any master [*chef d'industrie*] when the matter in question is the merchandise, arm of the workman. So then those masters undergo the consequences of their ignorance; for, in place of having but a temporary augmentation, and only whilst the hands are scarce, it results that if after having resisted they are obliged to yield, the day's rate is found definitively raised; and upon which they cannot again fall back. Every increase of wages made voluntarily on the part of the employer, when hands are wanting, can always be modified when hands are abundant. This the workmen understand: this they are always ready to accept; and the proof is that they demand increase of wages only when works in progress are numerous." As we make out from M. Leclaire, however, his association has been found productive of a state of things even better than that which is here in his mind. We shall make this evident in another article.

JEWISH ART AND THE PALESTINE EXPLORATION SOCIETY.

The new society which was instituted on the 22nd of June last, for the exploration of Palestine, is one in which considerable interest will be felt by all who consider the study of ancient architecture as of any importance; for it appears to promise the discovery of the long-lost Jewish style, and the explanation and classification of those architectural fragments which are found scattered over the whole of Syria.

The first object of the society is to explore and examine those remains which are still uncovered. Of these, there exists no good summary; and the authors who have written on the subject have none of them been enabled, by a practical acquaintance of ancient art, or by the professional knowledge of architects or engineers, to give such correct and satisfactory descriptions or to make such thorough investigations as would be possible for a staff of experienced explorers supported by sufficient means.

A perfect summary of these remains, and of all that has been written concerning them, is greatly wanted; and only M. Vogüé has attempted in any manner to supply the necessity; yet, although he has described the greater part of the ruins, he has not given anything of what was before written on the subject; and it is not impossible that objects which have escaped his attention may have been observed by earlier travellers.

Again and again have the ruins of ancient Palestine, the massive foundations of Jerusalem and Hebron, and the tombs, synagogues, and temples scattered over the whole country, been described by travellers of all nations; but never before have a party of explorers whose sole aim and object is to describe, survey, and map out the whole country, started forth, supported with adequate means and practical experience.

* "Entreprise de Peinture, Dorure, Tenture, Vitrerie et Miroiterie, Rue Saint-Georges, 11, à Paris. Compte Rendu par M. Leclaire aux clients de sa maison des résultats qu'ils lui ont aidé à obtenir pour le bien-être de ses ouvriers. Société de Secours Mutuels intéressée dans une entreprise industrielle. Participation de l'ouvrier aux bénéfices du patron. Paris: Imprimerie de Madame Veuve Bouchard-Huzard, Rue de l'Éperon, 6, 1865." 8vo, pp. 31.

† "De l'Origine des Crises Monétaires et des Moyens à employer pour les prévenir." Paris. 1865. 8vo. Pp. 24.

‡ "Pétition adressée au Sénat sur l'Article 1153 du Code Napoléon par plusieurs Commerçants et Chefs d'Industrie de la Ville de Paris, pour faire cesser de plein droit l'interdit légal au Profit du Producteur ou du Vendeur qui a livré son Travail ou ses Marchandises." 5 Avril, 1865.

But even when the relics which still meet the eye of the traveller have been explored, but little will have been done; for these are so few, and generally of so late a date, that the history of Jewish architecture cannot be made out from them alone.

In order to carry out in a truly useful and perfect manner the work contemplated, it will be necessary to enter upon the untouched province of excavation. Wherever the soil has been dug, whether for the purpose of discovery or merely in the works of modern buildings, it has been found to cover an extent of ancient remains of which until lately no one had any idea.

In Jerusalem itself it has been gradually discovered that nearly the whole of the modern town stands upon mounds of rubbish which cover the ancient city, and have, until lately, made its archaeology a dark and unknown subject; and this is probably the case in the rest of Palestine. If under the modern towns excavations were made, we should perhaps become acquainted with ancient cities now as much unknown as Pompeii was before its accidental discovery. At the same time, it must be remembered that in proportion to the decline in importance, wealth, and independence of Palestine was the gradual decline of its cities, which have degenerated into the miserable villages which now cover the country; and thus such explorations must be carried beyond the modern towns, and in all directions around them there will probably be found remains of their ancient grandeur.

In the capital itself, of which more is known than of any other of the cities of Syria (although that which has been discovered of this even is but little), the shrinking in of the city boundaries is to be observed. The Russian establishment is situated at some distance from the modern city wall, and yet here portions of the ancient fortifications have been discovered; and probably, if these excavations were continued even further to the north, the whole course of these structures might be made clear. It is known that in the present town great heaps of rubbish cover up the old foundations, and the same is apparently the case without the walls; in fact, the part which was most probably that covered by the ancient fortifications is at the present day marked by mounds or ridges of earth which have long invited the attention of the explorer, and which, it is to be hoped, will be fully investigated by the present expedition.

That the remains of the cities, their walls, gates, palaces, and humbler abodes, should be thoroughly explored is most necessary. It will give us an insight into the fortifications, the military tactics, and engineering knowledge of the Jews; their domestic life may be illustrated; and, although none of the paintings or sculpture which have been found in Assyria or Egypt could be expected in a land in which no graven images were allowed, yet it is not impossible that relics of the Pagan worship of the Jews may yet be found in some of those innumerable altars and idols which were set up on every high hill and under every green tree.

But, above all, these explorations will throw light on the architecture of the Jewish race, a subject hitherto unstudied, or in which the student has been led only by the light of theory and argument. While Greece was as well known as Mediæval Europe in all the forms of its architecture, and while the buildings of Egypt and Assyria are familiar to every one, the noble piles which beautified a much richer and far more interesting country are merely the objects of desultory controversies and contradictory theories. The best books on ancient architecture can give but a short and unsatisfactory account of the works of this great nation; and, after all, the chief authorities are the venerable compilations of Lamy and Calmet, from which the general ideas have been derived, and which have been handed down with some little modifications as new discoveries.

The difficulty is that most of the relics and ruins are of a date not much earlier than that of Herod; a time when, as may be easily imagined, the greatest alterations had been made in the style of art; and when, instead of the Egyptian and Assyrian, the Roman element was brought in to modify and perhaps to revolutionize the whole. The various monuments which were fondly believed by the ancient fathers to have been the tombs of kings or patriarchs, have been proved, by their resemblance to the later Greek architecture, to be but the sepulchres of princes of the age of Herod; and except the wondrous masonry of the Haram

walls of Jerusalem and Hebron, no relics of the true old Jewish style have been found.

In various parts of the Holy Land there are, however, the ruins of synagogues, and some even perfect examples are to be found in Galilee; and it is important that these should be well and carefully examined on the present occasion, since in them, however simple their structure may be, will probably be found the elements of Jewish construction.

The general theory that the arts of Assyria and Egypt combined formed the Jewish style, is perhaps a natural one.

Before the descent of the sons of Jacob into Goshen they dwelt in tents, and do not appear to have built any more extensive stone erections than the altars erected at different places: thus it would appear that their first acquaintance with architecture would be in the land of bondage; and hence their own buildings in Palestine may be naturally supposed to have resembled the pyramidal structures which they had erected on the banks of the Nile. But when they fell into a second captivity, and even before that time, they became acquainted with the second style,—that of Assyria; and hence it is argued that as Egypt or Babylon gained ascendancy over the land, the style belonging to either nation prevailed in the combination.

This theory appears to be borne out by the ruined synagogues, for in them may be found a style which unites the semi-pyramidal form of the temples of Phylæ with the characteristics of buildings lately discovered at Birs Nimroud; but their form is so simple, and their ornamentation so free from any peculiarities, that from them alone it would be impossible to prove any theories; and to prove this, and settle the date and origin of these buildings, and to destroy, or confirm by sufficient evidence the truth of the general belief, must be the aim of the present expedition.

Such, then, will be the objects of this branch of the society, first to explore what is above ground, in which category the synagogues of the whole of Syria must be included, and of which, although until now unnoticed, they form a most important part. Secondly, to investigate, by excavation, the ruins, below the soil of which work the exploration of the great plateau to the north of Jerusalem ought to form a portion; and, thirdly, to give facilities for the classification of the different remains, referring them to the age of true Jewish architecture, or to that which may be termed the Græco-Jewish style.

In the execution of this design there is not a little difficulty.

In the first place, it has been before said to be important that the work should be entrusted to such explorers as have both a knowledge of the country and experience in all the trials of a traveller, together with a practical acquaintance with architecture and engineering. Almost the only gentleman who unites these requisites, and whose name is placed on the list of the society, is Mr. Tipping, by whose patient examination and dangerous explorations the topography of the Great Temple Hill was first made clear.

The Archbishop of York, Earl Russell, and the Deans of St. Paul's, Westminster, and Canterbury, are not likely to set out with the intention of exploring the Holy Land; and, even if they did, it is doubtful whether their united efforts would accomplish so much as has been already done by the experience of Mr. Tipping in his unaided endeavours. Yet it is of reverend and distinguished names like these that the list is principally composed.

Very few are the names belonging to men competent for the work now contemplated. Those who have examined the sacred sites and written concerning them, have paid most attention either to the geography or to the controversies, or even to the picturesque description of the country alone, and thus until the visits of Mr. Tipping, M. Vogüé, and M. Pierotti, the archaeology and architecture were greatly neglected, the first being left unexplored, and so partial a knowledge of the latter possessed by the writers, that it was impossible even to assign dates to the visible remains, or indeed to estimate their value and importance.

The second difficulty is, perhaps, more formidable; but this may also be probably overcome.

The exclusive character of the Mahometan religion, the importance attached by the Turks to the possession of the sacred sites, and the veneration in which these are held by them, which is so great that it is almost impossible for any one not of the number of the Faithful to obtain admission into any sacred precincts, are

great obstacles to the progress of science and exploration. Hardly a dozen Christians have entered the enclosure of the Haram at Jerusalem, and still fewer into that at Hebron: when these few did penetrate into the sacred edifices it was generally by artifice, and very rarely by permission. In Jerusalem there must be great difficulties in this particular, since it is very doubtful whether explorations of any kind would be permitted under either the Haram or the other sacred sites, or in any part of the city which remains under the guardianship of the Turks; and, on the other hand, when their permission was not required, the difficulties would be equal. The great quarries and rock-cut halls under the city are unknown to the Mahometans, and it is more difficult to obtain access to them, because the Jews, fearful of their discovery, are extremely unwilling to lend a guide to their hidden entrance.

In the city itself, and especially in the Jews' quarter, it is most probable that the greatest number of remains are to be found; yet how they are to be discovered is difficult to see, since however miserable may be the external appearance of the houses under which such explorations must be carried on, yet, after passing through many dark passages, the traveller finds himself in mansions of whose comfort and magnificence those without can have no idea. It will be, therefore, a matter of no small expense to carry on the work of discovery in this part.

The only remedy is to obtain, if possible, the mandate of the Sultan, or, at least, the orders of the pashas of each province; and thus to get from these, and from the whole body of the ruling nation, all possible assistance and support. By these means it will, perhaps, be possible to overcome the scruples and superstitions of the inhabitants of the spots to be investigated.

If these difficulties be overcome, and if the object of this section of the expedition be successfully carried out, the result will be most interesting and most useful.

The plan of the work is most justly considered, and the results of these explorations are to be given to the world without comment, hereby giving materials both copious and reliable to those who may wish to test their theories by newly-discovered facts; while, at the same time, all arguments, controversies and conclusions, are laid aside, and the truth allowed to speak for itself.

Since Palestine became known and interesting to Europe, there has been no effort like the present made. At first the pious pilgrims of the Middle Ages saw and described with implicit confidence the various spots which were asserted by the Church to be the true sites of sacred places. Thus the various monuments were given their date merely by tradition, and any research after truth was impossible. These were followed by later travellers, who, constructing theories of their own, made all facts subservient to them; and these have been superseded by the few and isolated explorers who have as yet endeavoured, without falling either into the errors of the pilgrims or into those of their immediate predecessors, to find by patient research facts whence they may start their theories with safety.

Now, in their turn, come the explorers of whom the rest were but the pioneers, and who, it may be hoped, will be enabled, by the means at their command, by their numbers and practical skill, to finish the great work which as yet is almost untouched.

If their objects be fulfilled, we shall be enabled to speak with as much certainty of the architecture, the masonry, and the private buildings of the Jews as can now be done regarding those of the inhabitants of Nineveh, concerning which, until a work similar to that to be done in Palestine had been accomplished, less was known and less care or interest was felt than has been the case even in Syria, until the formation of a society for its exploration.

ACCIDENT.—On Tuesday morning, a serious accident occurred near Camden-road. A large building is in course of erection in the Hildrop-road, close to the Brecknock Arms, and the entire scaffold, on which a number of men were employed, fell to the ground. The noise brought a number of persons to the spot, and the poor fellows, buried beneath a mass of timber and building material, were extricated and taken to the North London and University College Hospitals. Two of them were so much injured that no hopes were given of their recovery.

WHY PEOPLE DIE IN SHEFFIELD BEFORE THEIR TIME.

In the account of the proceedings at the last meeting of the Sheffield town council, given in the *Independent*, we find, in a report from Mr. Chapman, then read, touching the occurrence of a case of cholera, the following passages:—

"I have had my attention drawn to a remark made by Mr. George Godwin, editor of the *Builder*, stating that he had inspected White-croft, Hollis-croft, Pea-croft, &c., and had found a court in which seven houses had but one privy provided for them. This property had been brought under the notice of the health committee, and a summons ordered by them at their meeting on Monday, October 2nd, to compel the owner to remove the nuisance and provide the necessary accommodation."

I may also add, that six weeks ago Dr. P. Hunter (inspector from the Home Department) and myself went through the whole of the before-named crofts, and he admitted that there was little to be complained of in respect of nuisances or cleanliness.—R. CHAPMAN.
Sheffield, Oct. 19th, 1865.

Alderman Webster.—Does he mean that he has visited White-croft and Pea-croft?
Alderman Saunders.—Yes.
Alderman Webster.—I am sorry he has not better eyes in his head.

Well might Alderman Webster make that observation. We will gladly give Dr. Hunter the opportunity to qualify Mr. Chapman's statement if incorrect. If it be correct, we do not hesitate to assert the truth of one of two things. Either Dr. Hunter was misled, or he wants aptness for the office he fills. We invite his attention to the statement.

At the same meeting, as we find in the account quoted, a Mr. Ironside,—

"caused great amusement by the heartiness with which he denounced Mr. Godwin, the editor of the *Builder*. That gentleman had spoken of Pea-croft and White-croft, but the people of Sheffield knew that since the erection of the Catholic schools and the Ragged schools, they had necessarily attracted a great number of Irish to that locality. He had no objection to the Irish as human beings [charitable Ironside!], but they were most filthy in their habits, and that was the reason they were reduced to such a low position in the social scale. Formerly it was said they lived upon potatoes and buttermilk, but now it was sewered and sawdust. A great deal was said about privies behind their houses. The fact was, they had no such conveniences behind their mud cabins; and when they came to a civilized country they did not know what use to make of them. Mr. Godwin had said he had found a privy common to seven houses containing sixty-two people, and which was without a door. In his (Mr. Ironside's) opinion, it was much better without a door under such circumstances. He should not wonder if the Irish tenant of the nearest house had sold the door for a red herring, and then burned up the seat to make a fire to cook it with. (Great laughter)."

Very amusing, certainly. No lives at stake, no souls! The poor creatures are rude and uncultivated (small thanks to their Church or ours), therefore keep them so. Abuse them still further: smash out of them anything like a sense of propriety and of decency; prevent its growth: as they are dirty, give them no water; lower their health; force them into the public-house for stimulants and something like comfort, and then look for a cleanly, careful, grateful, and improving population! The gentleman named Ironside went on to ridicule the proceedings of the Association, and in doing so showed so little wisdom that, under ordinary circumstances, it would seem to be scarcely necessary to reply to either his denunciation or his observations. But very serious interests are here at stake. Men and women are dying by hundreds in Sheffield every year before their time, and without any real occasion; dying simply because they reside in Sheffield, and that public affairs are governed by such men as Mr. Ironside. His remarks, therefore, may not be altogether passed by. He denounced the vice-president of the Health Department for observations which had been endorsed on the instant by the chairman of the Birkenhead Health Committee, and by Dr. McAdam, of Edinburgh, and for which observations the thanks of five leading inhabitants of the town, medical men and clergymen, were afterwards spontaneously offered; he denounced him for statements the correctness of which had been actually admitted in the report of the Sheffield Health Committee, read at that very meeting.

Briefly,—What had been seen in these crofts that was thus defended by Sheffield Ironsides? What was the bad cause thus aided by an armour-plated Monitor? On one particular piece of property,—a sample of many,—consisting of seven two-roomed houses in Pea-croft, not far from Paradise-square (how pleasantly smells the bloom,—what a foretaste we get of Heaven!) there were admitted to be living sixty-two persons, for whose convenience there was one privy, which had neither seat nor door! A dozen women, several with children in their arms, and of whom evidence was taken, positively screamed with indignation in speaking of what

they had to undergo in this respect. Water could be had from a tap three days a week for a certain time; but, as they had but small means of storage,—some of them none,—the possibility of being clean was small. On Sundays there was little water to be found in any of the rooms! The pavements were broken up so as to hold decaying refuse; and the general "dust-hole," so to call it, had not been emptied to the bottom, as several of the inhabitants separately asserted, for six months. These are the conditions under which the gentleman who has "no objection to the Irish as human beings," thinks that, not the sixty-two persons in this particular spot, but hundreds of his fellow creatures in Sheffield, especially if Irish, should be permitted to dwell. The fact is, however, that many who were spoken to were not Irish, but English,—some of them, wonderful to say, yet retaining remnants of modesty and self-respect. To keep these qualities long in such places is out of the question: decency is impossible, health is impossible. Add to what has been said the condition of the drainage, the state of the River Don and the River Sheaf, and the effects of some of the trades carried on there, and who will wonder to hear Mr. Rawlinson asserting that the death-rate of Sheffield is not merely 34 in 1,000, nor 68; but that it is in parts 100 in 1,000!

We are quite willing to be denounced for making evident such a state of things; and we hope that the right-thinking portion of the men of Sheffield may feel strengthened to persevere in their endeavours to improve it.

HEALTH DEPARTMENT, SOCIAL SCIENCE ASSOCIATION.

RESUMING our notice of some of the proceedings at Sheffield in this department, we reach Monday, the 9th, when Dr. Lankester delivered his departmental address. We take some of his observations on

Sanitary Legislation.

It is the duty of the civil government, in matters of life and health, to do for the individual what he cannot do for himself; and it is the duty of individuals to do for themselves what the Government cannot be expected to do for them. If we could place our towns and cities under the governance of an enlightened despot, we should at once gain much from the application of our present knowledge of principles. Could we carry out as severe a code of sanitary laws as those which the ancient Jews submitted to as a Divine dispensation, there is no doubt that results of a most astonishing nature would follow. But we must rest satisfied with following the slow genius of our nation, and submit to the government and institutions with which we are surrounded. I cannot here enter into the details of our sanitary legislation. It has been slow, and its action has been by fits and starts, as now and then the public mind has been alarmed, and the Legislature has sympathised with it. But the fearful death-rate of many of our large towns, the neglected and unsanitary state of our villages, show that whatever our legislation may have been, it has yet failed to produce any great impression on the mass of our population. Dirt and filth, disease and death, keep pace with our activity. We no sooner improve than we go back again. My conviction is, that our Legislature wants earnestness. All our Acts of Parliament are so constituted that they may be defied with impunity. They, in fact, give the power of action or inaction to those who are either interested in maintaining sanitary abuses, or are ignorant of the dangers which arise from their toleration. The Metropolitan Management Act was, undoubtedly, the largest instalment that legislation ever made towards correcting the sanitary abuses of London, and in the creation of the office of Medical Officer of Health, has laid the foundation of future sanitary legislation. That this office has worked well in London, and has contributed to a large amount of sanitary action, there can be no doubt. But, from the fact of the medical officer of health being entirely dependent on the vestries of London for his appointment, his duties have in many districts been interfered with, and his ability to act for the public good reduced almost to a sinecure. So much has this been the case, that persons have suggested that he should be appointed by the Government, and responsible to the Government alone. The objection to this plan is, that he is at present paid

by the parishes requiring his services, and that Government appointments are not always free from the objection that Government does not monopolise all the intelligence of the country, and is not free from the charge of favouritism in its selection of officers. The great bar to sanitary action in our vestries and local Boards is their parsimony; and if they could be once made to see that disease and death are the most costly luxuries in which man can indulge, they would possibly give more scope to the action of their medical officers of health. Perhaps one of the greatest improvements that could take place in the London system would be the appointment of medical officers of health for life, and reducing their numbers, giving them larger districts to superintend, and appending salaries which would render it unnecessary that they should attend to private practice. The same system should be extended to districts beyond the metropolis. It is almost impossible under our present laws to initiate sanitary improvements in the villages and small towns of the country. The most gigantic nuisances are allowed to grow up without let or hindrance, and it is only when some terrible calamity visits a place that any action is taken. The metropolitan boundary is studded with villages that the Management Act does not reach, and which are a disgrace to our civilisation. Such a village exists at Child's Hill, in the midst of a farm belonging to the Lord President of the Privy Council. I mention this to show how defective our sanitary legislation is at the present moment, so that the representative of all sanitary authority in Her Majesty's Government is helpless to remove nuisances at his very door. It is most necessary that medical officers of health should be appointed to large districts in the country, with power to remove, and compel owners of property to remove, the most common and obvious sources of death and disease. In all great public improvements, which have for their end the health of the people, the law should act with more certainty, and the rights of property should not be allowed to interfere with the higher claims of health and life. In thus commenting on what appear to be the defects of the law, I am aware how fully the laws represent the opinions and feelings of the people of this country; and if the law is inefficient or unacted upon, it arises from the want of knowledge on the part of the people themselves. Not only does this ignorance tell upon the Legislature, but even were it possible for the Legislature to provide all the conditions of a healthy existence, this object could not be obtained unless the people were sufficiently instructed to avail themselves of the rights thus conferred upon them. I have alluded to some of the great facts upon a knowledge of which our healthy existence depends. It is in vain that the Legislature enacts a plan upon which houses shall be built to ensure ventilation, unless the inhabitants of those houses understand the worth of fresh air. In vain is fresh water brought to our doors, if, in our indolence and ignorance, we refuse to use it. There must be intelligence both in the legislator and those for whom he legislates, if we are to take advantage of our present knowledge of the laws of life to secure us from disease and death. When one sees how little is the effort made to introduce into our general systems of education a knowledge of those great laws of physics, chemistry, and physiology, on which our life depends, one is filled with dismay at the prospect before us. When the leading educationists in our country are carrying on a controversy, as to whether in our examinations the highest rates of marks shall be given to classics, mathematics, history, or modern languages, one feels that they are quarrelling over dry bones, and forgetting all that which gives life and reality to our existence. It is not till the great facts of the natural sciences shall take a proper position in the studies of our universities, where the majority of our statesmen are instructed, that we can expect them to be taught in the middle-class schools, where our vestrymen gain the elements of their education. It is only when those who instruct weekly in our pulpits, and influence the education of our lower-class schools, are themselves taught the great laws by which the Creator governs the life of the world, that we can expect our working classes to exercise that judgment and self-control with regard to their health, the want of which causes the sacrifice of holocausts of victims amongst them every year. When I consider the sacredness of human life, when I know how sacred we all regard it, I feel as if it were a bathos which I ought to avoid, to remind you how costly a thing is disease and

death. But it is true the gain of 100,000 lives annually would pay ten times over the cost of all the exertions that would arise to secure them for life and for their country. But I will not pursue the subject. I leave now the question of the public health in your hands, to work out its great problems, as amongst the most patriotic and the noblest to which the human mind can be devoted.

Quarantine and the Cholera.

Dr. Gavan Milroy read a paper on Quarantine and the Cholera, with special reference to the present epidemic in the Mediterranean, in which he showed that quarantine regulations were both cumbersome and inefficient.

Mr. Trench (Medical Officer of Health for Liverpool), after offering some introductory observations on the existence of contagion as a cause of disease, expressed his accordance with the views of Dr. Milroy as to the utter failure of the cumbersome and oppressive system of quarantine as at present practised in the Mediterranean ports. But while we acknowledge the inefficiency of quarantine, it is right for us, as practical men, to consider our own position in reference to the probable approaching visit of cholera. The Government wrote to the municipal authorities of our seaport towns that there were reasons to apprehend this approach, and called upon them to provide receptacles wherein the sick could be placed apart from the healthy. It appeared to the Health Committee of Liverpool that in the possible arrival of a vessel from the Mediterranean, having cholera patients on board, it would be better to detain the sick in the vessel, and only to allow the healthy to come on shore, and thus not to bring the plague into the town, as was done in 1848, when from a single case it spread throughout the borough with fearful intensity. The Mayor was requested to write in this spirit to the Government; but the reply was, that they saw no reason to sanction quarantine. The consequence is, that a cholera patient arriving in the Mersey will be landed in a population of 500,000 people. He was free to confess himself a contagionist, and therefore regarded this arrangement, however carefully managed, with great apprehension. He would not only separate the first cases of cholera from the healthy community, but he would advise, throughout an epidemic, the continuance, as far as practicable, of regulations to keep the sick poor from the crowded districts. He would not only separate the sick, but he would like to see established by the authorities mortuary chapels, whither the dead could be at once conveyed from those single rooms of the poor, which was also the apartment of the living.

Dr. Holland and several other gentlemen followed in the discussion, the tendency of their arguments being to show that the danger to the public was not so much from the contagious character of the cholera as from the existence of filth and other predisposing causes amongst the people to be protected.

Mr. Rawlinson remarked that a great deal had been said on both sides of the question as to the contagious or non-contagious nature of cholera. Without going into the reasons for his belief, he would say he believed it to be both contagious and, in another sense, not contagious. The seeds of the disease might be in the system, and, if they were treated in a particular way,—if the people were placed under a condition favourable to the development of that disease,—it would be produced and would spread wherever the same conditions existed. After giving his experience of the prevalence of the cholera during the Crimean campaign, he spoke of the epidemic in England in 1854, and the striking sanitary facts that were deduced from it. In that year the disease was brought into the Tyne, and it broke out in Newcastle, and in one month it swept away 2,000 persons. Now the town of North Shields was within a short railway journey of Newcastle. There was a constant communication between them; and there was no quarantine. Two months before the cholera appeared, the local authorities at Shields had thoroughly cleansed the town. They had sent out thousands of tons of refuse; distributed lime-wash and brushes to the people in the foul courts; and had forcibly lime-washed the houses of those who did not do it for themselves. The result was that there were only seven deaths in North Shields, and every case came from Newcastle. It happened that one side of a particular street belonged to the township of North Shields, whilst the other was under the superintendence of another local body. On the latter

side, which had not been cleansed, the cholera appeared in almost every house; the other side of the street was untouched. These lessons ought not to be lost upon society.

Mr. McGowen, deputy town clerk of Liverpool, said he had been anxiously waiting to hear what practical conclusion Dr. Milroy had arrived at. He was fully aware that the doctor at the outset of his remarks had said that he should chiefly confine his paper to narrative, but he had observed as he came towards the close that he had quoted the 15th resolution of the Quarantine Congress, to the effect that in countries where the quarantine regulations were strongest, and their execution most rigid, cholera had still been disseminated. Now he (Mr. McGowen) could not allow the question to stop at that point. The tyranny and folly of quarantine, as established in many parts of Europe, ought to be swept away. There was, however, another extreme equally to be avoided, and that was the absence of all restraint. No doubt much might depend on predisposing causes, such as the habits of the people where the disease might appear, but in seaport towns those causes were always in full activity, and the people must be protected. It was a very important question for the public as well as commerce. Industry should not be needlessly trammelled, but, on the other hand, people suffering under contagious disorders ought not to be allowed to come ashore without check or restraint.

The United States Sanitary Commission.

The Rev. W. H. Channing went into an elaborate statement of the origin and operations of the great voluntary organisation which is known as the United States Sanitary Commission. He showed in the outset that the American people had copied the example set by England during the Crimean war. The Sanitary Commission had sprung from the tree of life which the English people had planted. It was through the instrumentality of the British commission that the whole sanitary movement in America originated. He then went into an estimate of the various departments of the commission, showing how it succoured the wounded upon the battle-field; cared for them in the hospital; superintended their removal; provided them with every comfort that money could procure; arranged with the Government for their pay; and, finally, if they were disabled, secured to them the pensions to which they were entitled. He explained that the entire agency was supplemental to the action of the Government. As instancing the magnitude of the operations of the commission, he said that at the battle-field of Gettysburg alone they had expended 74,838 dols. (15,000*l.*). The total cost of a department of the commission for special relief was 251,100 dols., the total expenditure of the Sanitary Commission, 3,000,083 dols. There was a standard set up from which they could never fall back, and the question was how far could they widen and transform what had been an experiment into a universally established system? The whole sum expended from voluntary means was 212 millions of dollars during the civil war now happily at an end.

The Air of Towns.

Mr. J. D. Leader read an abstract of a paper on this subject by Dr. Angus Smith, there not being time to read the whole. Dr. Angus Smith gave his view of the present state of the chemical questions most obviously involved in ventilation. He brought forward experiments, showing that the oxygen in the air is diminished in such places as are considered only slightly inferior in quality of air, showing also the differences in ventilated and unventilated places or close parts of the town. He also said that observation had shown that the carbonic acid of pure places was from 300 to 340 in a million; that in towns, which seem very much polluted by smoke, it rose only to 403 as our average in the best streets, although in places manifestly impure the average obtained was 774. In workshops it rose to 3,000 or more, and in mines sometimes to 20,000 or even more in a million. Although in towns carbonic acid cannot alone be blamed, he showed that carbonic acid of itself was a gas with a very distinct effect, diminishing and weakening the beats of the pulse and quickening respiration. Three methods were given for ascertaining the amount of carbonic acid, simply applicable. He said that carbonic acid is not the only guide in all cases: for example, when the temperature rises we require increased ventilation, independently of the increase of carbonic acid. Below 55° Fah. it is probable that organic matter has little in-

fluence. Above 55° Fah. it increases rapidly in influence, and the amount arising from the person increases. For these reasons he believed that we could bear in cold weather an inferior ventilation. Many who insist on pure air forget this, although instinctively we act on it when not misled. It is well to remember that ventilation is a struggle between pure air and warmth, where both sides must be respected.

Dr. Stevenson M'Adam read some remarks on the contamination of air. After pointing out the chief causes of contamination, he said that they had a bad system of main drainage in Sheffield, where the rivers Sheaf and Don were mere open sewers running through the town, giving off gases most injurious to health. He referred to the means to be adopted to remove the evils of contamination. First, there was ventilation, and a good supply of air was no less important than a good supply of food. Corporations could do little to enforce ventilation of each man's house, but they could see to it in schools and public buildings. There should be as far as possible perfect combustion of fuel, and a speedy removal of all refuse materials, by flushing the drains and also by carrying the drainage away from towns without throwing it into the rivers. The question resolved itself into one of better air in houses, and the better supply of water to remove impurities into drains and main drains, and to arrest the deposition of foul matters in and near towns. The means of diminishing the contamination of air in towns was undoubtedly within the reach of corporations, and the question of convenience or of rates should not be allowed to interfere with any praiseworthy efforts to purify the air which are necessary to decrease the mortality.

In a discussion that ensued on a paper read by Alderman Saunders, Mr. Rawlinson said the writer had fallen into a fallacy by meddling with statistics. The alderman's statistics with regard to areas did not bear upon the facts. It was not true that there was necessarily the greatest amount of mortality where the greatest number of people were crowded upon the smallest area, but, with proper sanitary arrangements, he might almost say the converse was the truth. Take the area of a gaol. The rate of mortality there would be incomparably below that of the country around. Sanitary science had now gone so far that if any human being in Great Britain wished to enjoy the greatest amount of health he was capable of, he must get inside the four walls of a gaol. The deaths in the line were 9, in the police 9½, and in gaols 3½ in the 1,000; and in lodging-houses that were properly planned and apportioned, the mortality was not greater than in the best country districts in Great Britain. As to the mortality of Sheffield, although 34 in the 1,000 was a great deal for the whole of the borough, he could tell Mr. Saunders this, that the mortality of the worst parts of Sheffield was, not 34, nor 64, in the 1,000, but, he would undertake to prove that in some parts of the town it was, at this moment, above 100 in the 1,000. That state of things the corporation ought to attempt to remove, and they might do it at once.

Increase of Great Cities.

On the following day Mr. J. Morgan, M.D., hon. secretary of the Manchester and Salford Sanitary Association, contributed a paper on "The Danger of Deterioration of Race from the too rapid Increase of Great Cities." Dr. Morgan commenced his paper by referring to the increasing tendency on the part of the labouring classes to mass together, and either to form new centres of industry, or to swell the population of those already existing. He alluded to the influence which this migratory tendency was likely to exert on the public health, and spoke of the general want of stamina which characterises the great majority of the labouring classes in our great towns, manifesting itself either in the gait, the bearing, the voice, or the frame. He proceeded to inquire into the cause of this degeneracy, the extent to which it prevailed, and how far it was to be ascribed to the influence of a city life. The great majority of the 864,000 grown-up men and women who migrated to the capital came from the healthiest agricultural counties in England, hence they might be looked upon in the mass as picked lives. It was impossible to form a correct estimate of the relative value of life in town and country districts by calculating the rate of mortality in every 1,000 of the population. The country was robbed of a large portion of the productive population; men and women in the prime of their strength

emigrate to the towns, and thus a comparison is instituted between the places they have deserted and those to which they have removed. The result of all such calculations must prove over favourable to the towns. This source of error was, to a great extent, avoided, if the inquiry was confined to the young. Few, comparatively, leave their homes under fifteen years of age. The death-rate, instead of amounting in the four great cities to 26.1, was expressed by 40.7. It was highest in Liverpool, where the average rate for the two years was 48.5. In Manchester it was 42.5; in Birmingham, 39; and in London, 38. In Wiltshire the rate did not exceed 18; in Berkshire, Dorsetshire, and Westmoreland it was 18.5. In the whole of the agricultural counties, taken collectively, the average for the two years was 21.1. In the course of the ten years from 1851 to 1861, small towns and county districts increased at the rate of only 3.9 per cent., while populous cities added nearly 17 to every 100 of the population. Cellar dwellings should be closed up and alleys cleared out, and the sites which they occupied left open to serve the double purpose of air-shafts and playgrounds. Factories and workshops, instead of being piled up in the centre of our towns, should be scattered over the country in airy and healthy localities. If these suggestions were in any degree practicable, as the importance attached to them was not overdrawn, it would be admitted that they could not be too often or too urgently pressed on those who had the power of enforcing them.

MEAUX.

ON a fine day in May, 1865, I made an excursion from Paris to see Meaux and the cathedral of Bossuet. My day was too short for the occasion; but the morning had been curtailed by a call that it would have been a vexation to me to have missed. A fête—a *carrousel*—was over when I arrived, but the little city was still in all the excitement of a fair.

The cathedral is worthy of much more detailed attention than time permitted me to bestow upon it; but short as my time was, I carried off impressions that will remain with me as if from a lively and interesting, though over-hurried conversation. It stands high; the street rising steeply to its western and southern entrances, and has a base of numerous steps to its triple and deeply-recessed portal. Two western towers were designed; one only is finished.

The exterior is variously built up against,—why search for a less awkward phrase to express obstruction and awkwardness? The sculptures are defaced, and tracery has suffered no less; but, after every allowance has been made, on account of maltreatment, the utmost that the external aspect presents as commendable is distinctness in exhibition of the cruciform plan and symmetrical towers, with no pert interference of a forest of crowding, almost jostling pinnacles. The system of buttressing, however, has its faults, and is, or what is quite as bad, appears to be, heavier than necessary, not merely for construction, but for style; while the horizontal lines and string-courses are scarcely sufficiently subordinated to the verticalities. On the whole we have an illustration, no frequent phenomenon in early Gothic, of the marked superiority of an interior, as compared with its exterior, in ripeness of artistic power. This was in all probability due to interiors, as more urgent and important, receiving not only a disproportionate share of the resources for enrichment, but also of attention and study. The time, as well as fancy and funds, of the architect seems often to have been fully employed within, and then it is fortunate if the exterior was only neglected and not unfairly sacrificed.

In the interior at Meaux I found a great deal to admire, commend, and be thankful for. The church is but small, and its relative loftiness,—and it is even, in accordance with usual French tendencies, absolutely lofty,—gives it some effect of shortness, though this would be in some degree relieved on removal of the temporary partition that screens the progress of reparation at the east. We have, in the first place, the comfort of the spectacle, rare in England, but for ever welcome, of a Gothic interior completely and consistently vaulted throughout; of shafting and pier sections loyally respondent to vaulting, and all taking original but simple variation from varying emergencies of plan introduced without effort and without caprice; of arches of transepts, aisles, clerestory, not merely ad-

mitting windows and window-mouldings, but fairly filled and occupied by them. It must be left to imagination to complete the effect from painted glass in windows so distributed, and thence the general redemption from coldness of the bare stone of vault and wall.

The nave piers successfully exemplify the art of combining subordination with development in a very simple type.

Harmonious effect in such a combination depends on the expressive appropriateness of gradation by which the large shaft on the chief face of the pier receives due and not extravagant emphasis while the shaft for the diagonal rib is allowed to assert itself by contrast with the still smaller that run up on either side of it. Many were the experiments, and it must be said that many and conspicuous were the failures as well as the successes of the Gothic architects in adjusting these sequences; the vitality of the art in their hands depended on the resolute self-reliance with which they marked down the point of weakness in the work of a gifted predecessor, and set themselves to find the solution of the discord, as well as on the keenness with which they caught the hint of a novel and still happier combination. A close examination of authentic measurements would, I doubt not, show that they sought to help themselves more or less by a theory, in modifying dimensions and combining dimensions of grouped shafts. That it would prove to be a thoroughly satisfactory, and thence a thoroughly efficient theory, I should not expect. The main credit of their successes would thus still remain with natural taste and empiricism of the eye,—that working by "scowl of brow" which is inspiration itself as compared either with "rule of thumb" or rule of precedent.

There is fully as much scope for instructed application of proportion in Gothic as in Greek architecture, and, with such application in efficient hands, there is a field yet open for the style to surpass itself.

By the introduction of an intermediate line of pillars,—pillars, not piers,—the church acquires a double aisle throughout, both in nave and choir, excepting that, in the turn of the apse, partitions for chapels interrupt the outer aisle. In the nave the double aisles are clear, and some chapels are obtained by inclusion of inter-buttress spaces, on the system by which the original plan of Amiens was altered and extended. The aisle pillars are for the most part plain and cylindrical, and relieve the shafted piers of the nave with very lively effect. The loftiness of the aisles of the choir has a most noble effect, and is looked back to with regret when we find ourselves in Notre Dame, at Paris. At this point, again, we come upon an occasion for the application of theoretical proportion. Unfortunately, there are comparatively few Gothic buildings of which we possess measurements at once complete and accurate; but good service would be done if architects would systematically append to their notices of parts of designs that produce the sense of proportionate beauty, even approximate notes of a general dimension. Where such a feeling is not produced, the trouble may well, and indeed, had better, be spared.

This is one of the instances in which the westward termination of the aisles is happily managed; the last bays are larger and are vaulted with more elaborate consideration, and thus form a sort of internal porch or section of included narthex. The unworthy bathos so frequently encountered here in Gothic cathedrals is thus avoided, and the first impression on entering by the recessed side doors is for once a preparation for a dignified interior, not a sense of indignity at the unfulfilled promise of the façade.

A visitor with more time at command, may bestow it, with good return, in unravelling the sequence of changes in the building. The sooner he commences the better, for obliteration ever moves hand in hand with reparation, and reparation is busy throughout France. I would invite his attention especially, or rather among other points, to some peculiarities of treatment about the north-west pier of the central quadrangle, the adjacent nave, pier, and wall of aisle. Of the garden and the statue of Bossuet let the guide-books speak; I am unworthy. I opened the *Oraisons* only once, and only to close them again with the sentence of artificiality and adulation; commendations abound of such quality as to imply that the sentence should be at least revised, and revised it must be when courage revives.

Above the stalls of the choir are full-sized copies, in oil, of the cartoons of Raffaele, or

rather of the tapestries executed from them, for they follow these in duly reversing the design of the cartoons, and making right hands right. The Conversion of St. Paul, and the Stoning of Stephen are included; the latter has remarkable force. It would be premature to speculate on the influence of these pictures traceable in the genius of Bossuet, before being better assured that they were there in his time.

This opportunity may be taken for noticing that as the cartoons are now sufficiently exhibited at South Kensington, though in a room still unfortunately too narrow, it would be well that rather large mirrors on moveable stands, should be placed in the room to afford views of the groups as the painter intended them to be seen, and as no doubt he considered them while he wrought. The best copies obtainable of the missing designs of the series should also be commissioned by the nation. Would! and should! and might! and ought! Why weary oneself and the world with reclamations and contingencies? What is the condition of the Phidian marbles in the British Museum? Even what it has been, and is likely to be.

But to return to France, where some such things at least are managed better. The cathedral tower is worth ascending, for the sake of the view of the city, the winding Marne, the country round. Note the pains bestowed in moulding the newel at the very top.

The train took me back, with many a holiday-maker, to Paris. In my compartment a happy-looking dame soon revealed that it was the secret of her happiness that she was the mother of the young soldier who had carried off the honours of the *carrousel* in the morning. The compliments of the company—second-class though they, though we were,—were as cordial as they were welcome: and it was pleasant to see how gallant all submitted to the retold story of the gallant son's distinctions and decorations, and, indeed, how considerably and cleverly an opportunity was ministered for reviving it whenever a station brought in a new traveller. A mild contribution to the glorification from the Englishman,—that the mothers of such sons ought to be encouraged by a decoration also,—had remarkable success. And so, and with a wetting through by a thunderstorm at Paris, between station and great hotel, ended my excursion to the city of Bossuet.

THE NEWCASTLE MEMORIALS IN SHIREOAKS CHURCH.

THE memorials in this church to its founder (the late Duke of Newcastle) are fast approaching completion. The *reerods* is divided into three compartments, surmounted by canopies on slender pillars, richly capped. In the centre division is the Crucifixion of our Lord, in *basso relievo*, with the three Marys at the foot of the cross. In the side compartments are saints and martyrs in adoration. In the niches dividing the subjects are figures of the four Evangelists, and below, in quatrefoils, are their emblems. Over this, in perforated alabaster, is, "By Thy cross and Passion, good Lord, deliver us," and above are four angels in attitudes of praise and adoration. On the sedilia are two medallions, one representing our Lord sending forth the Apostles to preach; the other, the Laying on of Hands; while above, on pedestals, are Moses, our Lord, and Elias. The credence-table, on the north side, is of Derbyshire spar and Italian marble; the canopies and all the wall-panelling being inlaid with mosaic work in varied marbles. Round the whole of the sanctuary, inlaid in alabaster, is the inscription. Messrs. Hind & Evans, architects, designed the memorial, and it has been executed by Mr. T. Earp, sculptor. The memorial windows are now being put in—the five in the chancel; all are on the subject of the Lord's passion, death, burial, resurrection, and ascension. These are given severally by the Prince of Wales, the Chancellor of the Exchequer, Messrs. Cooke and Ouvre, and Miss Dennett, all personal friends of the late Duke of Newcastle. These windows, with the *reerods*, &c., and candlesticks, form what may be termed the "private memorial" as distinguished from the public ones, viz., a rood screen, in metal, by Messrs. Thomason & Co., erected by the parishioners and others, and the three windows in the west end of the church (subjects, — Our Lord's Advent, Birth, Flight into Egypt, and Early Life); together with a fresco painting of St. Luke, as a memorial of their late colonel, by the officers and men of the Sherwood Rangers.

SOME THINGS THAT MAKE OUR HOUSES UNBEARABLE.

In a former paper we gave an approximate list of the members of the vegetable kingdom peculiar as parasites to man and his house. In the present notice we propose to review the principal members of the animal kingdom that in this country either infest the dwelling of man, or prey upon his person; and of these, as in the vegetable kingdom, their name is legion: for the house itself, the various articles of furniture in it, and the master himself, have distinct tribes of destructive animal parasites constantly at work, ever busy, tunnelling, boring, eating, and destroying nearly every object in the house. If we leave the smaller insect tribes for a short time and take cognizance of the larger creatures that are a nuisance in our houses, the rat should have a foremost place. In London, this really dangerous animal is extremely common in our houses, living as it does in the sewers; and, so readily making its way through every obstacle, it constantly presents itself in our kitchens, and not unfrequently appears in the bed-rooms. Should the Londoner live on the outskirts, like the writer, and near brick-fields where there is a large accumulation of straw, the visits from this animal are much more common, as it either comes over the low walls, or like Mephistophiles, suddenly rises from the ground and as suddenly disappears; for in the suburban garden, when the master takes his morning walk, he will observe a hole in the ground, 2 in. or 3 in. in diameter, made by a rat during the night, who having visited the back premises, and perhaps entered the house when the family were at rest, has returned to the brickfield or sewer from whence he came, by the same subterranean passage, before morning light. If this hole be stopped up with stones and earth, another will be found a few feet off the following morning, where our persevering neighbour has changed his course. It need not be said here how much this animal is dreaded by the female members of the household, and husbands and brothers do not always feel inclined to attack it. It is essentially a fighting and carnivorous creature, and few domesticated animals dare assault it; yet it cannot be said to be without its uses in our drains and sewers, where it ravenously feeds on the putrid animal matters. It is well known, too, that it hunts and destroys the domestic mouse, which perhaps is more really destructive of the house than the rat itself. The only safe method of ridding a house of these two intruders is the trap, but so wary and cunning are they both, that, after a few are caught, others will not approach the ambush for a considerable time. The mouse far more thoroughly takes up its quarters in the house than the rat, and commonly resides between the joists or the timbers of partitions, where it breeds several times in the year. In preparing nests for the young few objects withstand the destructive instincts of this animal: the woodwork of a house is frequently rendered unsafe by its gnawings; and, having found access to the living-rooms it attacks everything in its way: wooden objects of furniture become gnawed and damaged, carpets bitten into holes, and papers, books, and clothes reduced to shreds. Where a large number are in a house they are extremely bold, coming out from their nests in the evening with little fear, and scampering about the rooms in the full light of the lamp. It is probable that if houses were more substantially built, the brickwork and cement of the foundations better, and the drains well formed, we should have fewer of these animals in our houses. A cat will often keep them comparatively down, but poisons, for many reasons, ought always to be avoided. The appended method is said to be an excellent means of destroying rats in a house, so if they may not be out of place if given here:—Oil of amber and oil-gall mixed in equal parts, added to thin oatmeal and flour sufficient to form a paste; divide into little balls and lay in the middle of the apartment infested. These balls will form an irresistibly attractive bait for the rats, who will ravenously eat them, but will immediately be seized with intense thirst. Several vessels of water must be laid close by, at which the rats will drink till they die on the spot.

We do not propose noticing here such animals as owls, bats, and some others that are locally attached to certain ancient buildings that would be much better without them, but will pass on to some of the smaller pests of our houses. After quitting the rats and mice, such an array

of smaller creatures present themselves, that it is difficult to single one out for precedence. But perhaps for loathsomeness, as well as destructibility, the horrible and offensive cockroach (sometimes erroneously called blackbeetle) should stand first. Some houses are infested by this creature, and unless strenuously kept down, most houses soon would be, so enormous are its breeding powers. Cockroaches generally take up their quarters in the basement of the house, where they exist in thousands, preying generally on the provisions, few things coming amiss to them. In many eating-houses in the city a hedgehog is kept to keep these creatures down, which they do very effectually. Cats, too, will frequently eat them, but not in sufficient numbers to thin them. Poison is said to be the only really effectual plan; but there are many ways of destroying hundreds after hundreds every night. Perhaps the best of these is the old plan of setting beer, or treacle-and-water, in a deep basin, with pieces of wood for the cockroaches to go up, which they always readily do, attracted by the odour: so, falling into the sweet but deceitful liquid, of course they never come out again alive. In the morning a little scalding water soon ends their sorrows. They are frequently found in bed-rooms and in beds; and it has been the experience of many persons to awake in the night and find one on their face or body, or on the bed-curtains. During the last few years it has been incontestably proved that the cockroach (as well as the spider) preys on the bed-bug. So numerous are the witnesses, and so indisputable the evidence, that, strange as it may appear, there is no room for doubt. Who can say that even this loathsome creature does not do some good, although the damage it does in a house is immense? When it gets into clothes-drawers and wardrobes it riddles the clothes with holes; in book-cases it serves the books and papers in the same way, and has been known to eat large holes in boots, carpets, and similar things.

A very near relation to the cockroach is the house-cricket, but far more endurable, and without the offensive odour of the former; it always makes its presence known by the curious loud chirping noise it makes, which, although cheerful music to some ears, is a disagreeable grating noise to most people, when heard in a house, however endurable it may be in the fields, from the field-cricket. They are probably as destructive as the cockroach, as papers, clothes, carpets, books, &c., are destroyed by them, without doubt, as they have been seen in the act; they also eat small insects; but it is only of late that it has been clearly proved that they prey on their neighbour, the cockroach, and that wherever the cricket exists in any numbers the cockroaches vanish. By the published accounts it would seem that the latter have an *instinctive dread* of the former, and have no chance of life when once the pursuer has caught its prey; and thus in a few lines we once more see plainly exemplified the great natural law of destruction. We know on what the bug preys, the cockroach on the bug, and the cricket on the cockroach (among other creatures); many birds would be glad to find the cricket, and many of the hawk-tribe the bird; and man, to complete the circle, is very ready, gun in hand, to bring down any rapacious birds.

Articles of apparel, as every one knows, are subject to the attacks of the destructive clothes-moth, or moths, for there are certainly more than one. It is needless to recapitulate here their propensities, and so many moths appear in houses that never touch clothes, that it is difficult to recognise the real culprit. The small caterpillars of these moths are sometimes abundant enough, and live on the clothes of man. It is difficult to mention any really good remedy, unless it be the frequent airing and brushing of the stuffs, hangings, or clothes infested.

In the house as well as out of it, how many objects are destroyed by the flies (of which there are nearly a thousand species in this country), especially delicately-painted and gilded objects in glass, wood, or metal, that get stained beyond remedy if exposed to the air and their visits. Residents in the country and outskirts are more troubled than Londoners by them (plentiful as they are here), especially if trees and shrubs grow close to the house. There are many well-known plans of ridding houses of these pests, of more or less efficacy; but the fly has many insect enemies, and in the autumn a fungus commonly attacks it, and grows between the scales of its body while still alive: the fly then dies on the window-pane, and the white powdery stain round the dead fly, so common on window-

panes in wet weather, is a mass of the seeds or spores of this fungus ready to be blown into the joints of another fly, and cause its death.

There are a large quantity of minute beetles in nearly every house (they sometimes abound in myriads in old houses): they eat through the solid substance of books in every direction, and attack the woodwork of furniture, or the timber of the house, and soon as effectually reduce all to dust as the dry-rot. Nothing valuable appears to come amiss to these things, for nearly every object, unless metal or glass, is liable to be rapidly destroyed if the beetles exist in any numbers. This includes the death-watch beetle and the so-called book-worm. They are seldom seen, as they are sly and wary in the extreme, and being minute are not noticed.

In some parts of London the house ant is very abundant; where it does abound it is a most abhorrent nuisance, as it not only destroys many objects and inserts itself into every article of food and drink, but attaches itself to the members of the household, inflicting most painful bites.

In the present notice it may be well perhaps to confine ourselves to the animal parasites of the house, and omit the animals that find a subsistence on the human occupants: the principal of these, viz.—the bug, the flea, and the louse (probably peculiar to man), will not appear where cleanliness is the rule, but they are always apt to be brought into the house in various articles purchased for use; but where order and extreme cleanliness are observed, they will never obtain a footing. Besides these creatures there are a large number of others that delight to suck the blood of the human subject, or insert themselves under his skin, or, worst of all, live in his intestines. What with parasites, vegetable and animal, outside and inside the human subject and his house, there are more than enough; what might be said of his food, of his crops, his corn, his potatoes; how many things there are at work to poison him if possible, to bring his house over his head, or make it a misery to him!

One cannot wonder that so little is left of the works of man, that every trace of him is soon removed where there are so many thousands of silent hard-workers bent on destroying everything he does. Volumes might be written on members of either kingdom, whose entire lives are absorbed in destroying either man or his handiworks; add to this wilful destruction of property, accidental destruction, sudden flooding by water, or burning up by fire, ignorant carelessness of servants, and many other causes, the wonder appears to be that there is so much left of ancient handicraft as there is; but there can be no doubt that year by year it grows less and less: fires are continually burning ancient pictures and buildings, and ancient objects of art are destroyed, lost, or stolen. W. G. S.

PUBLIC WORKS DEPARTMENT IN INDIA.

DURING the last seven years a large number of young men have entered the service of the Indian Government as civil engineers, and the Department of Public Works in that country is likely to offer an increasing field to the younger members of our profession. It will, no doubt, be interesting to many readers of the *Builder* to hear what one of the senior and more fortunate of these "Stanley Engineers," as they are called, has to say as to the present state and the future prospects of the service. It is well known, both in India and at home, that much dissatisfaction has been felt and expressed by the Stanley engineers; and it is believed that considerable distrust has arisen in the minds of young men in England, which prevents eligible candidates from coming forward. Some of the causes of dissatisfaction have been removed or mitigated; others still exist. It is the object of the present article, on the one hand, to enable intending candidates to form some opinion on the advantages and disadvantages of the service; and, on the other to point out to those in authority the reasons which have caused a marked falling off in the status and qualifications of the candidates.

Some recent changes have been made, of considerable importance, which do not appear to be widely-known in England: these it will be useful to point out in their proper place. These changes have improved the position of the civil engineers to a certain extent, and show a disposition on the part of Government to consider their claims to more liberal treatment. It is probable that, as

the requirements of the case, and the disadvantages which civilians consider as drawbacks to the service, become better understood by those in authority, further concessions will be made.

We shall first take up the question of pay. The several grades and their salaries stand, at present, as follows:—

	Per Ann.
Chief and superintending engineers	£1,200 to £1,580
Executive engineers, 1st grade	1,080
" " 2nd grade	900
" " 3rd grade	720
" " 4th grade	600
Assistant engineers, 1st grade	480
" " 2nd grade	360
" " 3rd grade	240

There is also a grade of chief engineers, first class, on a salary of 2,700l., but there are only three officers of this grade in the whole of the Bengal Presidency; and as they are invariably military men, they cannot be taken into account in estimating the prospects of a civilian.

The period of service in each grade varies greatly, according to merit, luck, and interest, but the average may be said to be, for civilians,—

Assistant engineer, 3rd grade	1½ years
" " 2nd grade	3 "
" " 1st grade	2½ "
Executive engineers, 4th grade	4 "
" " 3rd grade	3 "
" " 2nd grade	3 "
" " 1st grade	3 "
Total	20 years.

That is to say, a man may reasonably look for a salary of 1,200l. a-year after twenty years' service; he may get it much sooner, or he may have to serve much longer. It is confessedly difficult to strike an average of this kind; the reorganization of the department only dates from 1856, and the means of estimating the probable service in the higher grades are imperfect. As to the lower grades, however, some opinion can be formed from the following facts:—

The Stanley engineers of 1859 have been six years in the service; three are executive engineers of the fourth grade, and the rest are assistants of the first grade.

The batch of 1860 have been five years in the service; one is an executive engineer of the fourth grade, the rest are assistants of the first grade, excepting one, who is still in the second grade.

The batch of 1861, with four years' of service, are all assistants of the first grade, with one exception, who is still in the second grade.

The batch of 1862 have been three years in the service; three are assistants of the first grade, the rest are still in the second grade.

The average number of each batch is ten. The earlier batches only served a few months in the lowest grade.

Now, when we compare the pay obtainable after five or six years' service, with that of railway engineers, or of other departments of Government service, such as the army staff, the medical service, and still more the civil service, it will be found exceedingly small. Railway engineers usually begin with 400l. or 500l.; the medical service and the civil service commence with about the same sum; and even a lieutenant in the army, whose work and qualifications are alike remarkably small, draws 800l. a year when in India.

It cannot be too often repeated, that living in India is daily becoming dearer, and that small salaries are really equivalent to but one-third of their nominal amount at home, while large salaries are only equal to one-half at the most; that is to say, a man can live as comfortably on 100l. a year at home as he can on 3,000 rupees (300l.) in India; and he will be no better off with 1,000l. a year out here than with 500l. in England. Clerks and shopmen, who would be paid 60l. to 100l. a year in England, receive 250l. to 400l. in India; beer costs 2s. a bottle, a pair of kid gloves 8s., and other things in the same proportion.

On the other hand, the service, so long as one conforms to its rules, is pretty nearly a certain provision, and a small pension may be obtained after thirty years' service; but on the whole it must be considered as somewhat on a par with the civil service in England in point of remuneration; it is a moderate but a permanent provision, with this difference, that the work is three times as hard, and has to be done in an Indian climate.

The pay of assistant engineers has recently been raised. Their salaries formerly were lower by 60l. a year than those shown in the above table. But it is the opinion of the writer that no young man of decent abilities who can obtain

any employment in England or elsewhere, on however small a salary, would be prudent in coming out to India for less than 400 rupees per month (480l. a year). That is the lowest salary upon which any one in the position of a gentleman can live with ordinary comfort. Even this will not admit of many luxuries. If the Government would appoint the Stanley engineers as first-grade assistants upon landing, they would attract a better class of men than they can expect to get at present.

They should require two years' practical experience in all cases, and should raise the minimum age. The last two or three batches have consisted largely of very young men, from "cramping schools;" and scarcely more than one or two articulated pupils of engineers of any standing have entered of late years.

The Government have admitted the principle of allowing for past experience by bringing in several young officers of the Royal Engineers as assistants of the first grade, on the plea that they had been employed on works at home. A similar consideration should be shown to Civil Engineers. At present, civilians who have been two years at the Roorkee College (where they are educated at Government expense), and who have had no practical experience at all, are admitted on exactly the same footing as the Stanley engineers, who are required to have had three years' professional education at their own expense, and who must, according to the rules, at least, have had not less than one year's practical work.

One very grave cause of dissatisfaction among the civil members of the department is the inequality between their pay and that of the military members. In all other civil departments, and even in the semi-military police, the pay is "consolidated;" that is, soldiers and civilians are paid alike, according to their standing in the department. But in the Public Works Department, military men receive departmental pay in addition to the pay of their army rank; thus they are always paid more than,—sometimes twice as much as,—civilians holding the same appointments and doing the same duties. Nor is this all; it often happens that a subordinate officer receives more than his superior, if the latter happens to be a civilian.

The annexed table shows the pay of civilians and military men in the same grades in the department.

	Military.	Civil.
Assistant, 3rd grade (Lieut.)	Rs. 394	Rs. 270
" " 2nd " "	392	300
" " 1st " " (Capt.)	412	400
Executive, 4th " "	612	500
" " 3rd " "	792	600
" " 2nd " (Major)	1,140	750
" " 1st "	1,240	900
Superintending 2nd grade (Lt.-col.)	1,527	1,000
" " 1st "	1,627	1,200
Chief engineer	1,827	1,400

To add to the unfairness, the leave and pension rules of military men happen to be infinitely more liberal than those of civilians. The military man can claim, as a matter of right, a pension of 200l. a year after twenty years' actual service in India, while the civilian must serve thirty years, and even then cannot claim a pension at all,—it is only given as a matter of favour.

The promotion of military men is also quicker than that of civilians; so that the latter stand in a very inferior position, notwithstanding the equality theory, and the loud protestations of impartiality which the Government, with rather suspicious eagerness, are continually putting forth.

The financial commission, and even some of the military members themselves, have strongly remonstrated against this unfair system of payment, and more than one attempt to substitute "consolidated pay" has been made; but the military element has hitherto been too influential to allow it. An obvious remedy would be to raise the pay of civilians to the average of that drawn by military men in the same grades; but the wretched parsimony which has succeeded to the former extravagance of the Indian Government,—and which is alienating all servants of the State by ill-judged retrenchments from salaries already low,—apparently forbids even the suggestion of such a plan.

The question of pay has been discussed at such length because it is naturally the most important to persons about to enter the department, and it is one upon which great misconception prevails. We may now pass on to the subject of promotion.

The system of promotion may be described as one of combined seniority and selection, con-

siderably modified by luck and personal interest at head-quarters.

Recommendation-rolls are submitted every half-year by the superintending engineers to the Local Governments, and the senior officer recommended is usually promoted, unless there is something against him. The promotions are generally fair; there is a tendency,—but not more than must be expected,—to push on officers of the Royal Engineer Corps, and occasionally a job is perpetrated. Considering, however, that the Royal (Bengal) Engineers fill all the highest posts in the department, and that they not unnaturally think an officer of their own corps superior to any civilian, the preference shown is not surprising, and must be accepted as inevitable. Still it must be borne in mind by intending candidates as one of the features of the department.

The worst point is the disposition sometimes shown to break, in favour of the Royal Engineers, the very rules which are rigorously enforced against the civilian. For instance, it was formerly a rule that no officer could be made an executive engineer (or special assistant engineer) until he had passed the prescribed Hindustanee examination; and it is also a standing rule that no officer can be advanced more than one step at a time. Now, two Stanley engineers were lately promoted by the North-west Provinces Government in contravention of the first rule. Six months afterwards, the Supreme Government cancelled their promotion, as being against regulations, and compelled them to refund the additional pay they had received: a step of questionable legality. But immediately after thus harshly enforcing the rule against these two civilians, the Supreme Government itself promoted a young lieutenant of engineers who had not passed in Hindustanee, from second grade assistant to special assistant (a grade since abolished), thus superseding all the assistants of the first grade, and breaking both the rules above referred to. To be sure, the pretext was made that the promotion was only temporary; but the officer concerned was afterwards confirmed in his rank, and has since been again promoted. This is not an isolated case; other instances of partiality to Royal Engineers might be quoted, did space permit.

The Government has at length in part avowed their policy by ruling that all military officers shall be henceforth appointed to the department as assistant engineers of the second grade, while all civilians must commence at the third grade, thus giving the former one or two years' start of civilians in the race for promotion. Much less irritation would be felt if Government would honestly avow, as they did up to 1856, that the military members have a prior claim to promotion. The civilians cannot but feel indignant at seeing Royal Engineers steadily pushed ahead, and allowed to fill the best appointments, all the while that Government is persistently declaring a perfect impartiality.

All this may perhaps be inevitable, so long as nearly the whole of the Public Works secretariat, and the twenty highest posts in the department, are in the hands of the Royal Engineers; but it must be seriously considered by those about to enter the service. A military régime is very different from the service of a railway company, or of an engineer in private practice, and considerable patience is necessary in those subject to it.

It is a pity that the military members should evince so much opposition as they have lately done to the appointment of one or two civilians to be superintending engineers of the lowest grade; such a line of conduct embarrasses the Government, and gives rise to much of that ill-feeling between the two classes, which the military men are the first to deprecate in theory. Already the civilians form two-thirds of the whole Engineer establishment; and it is to be hoped that Government will soon see the necessity of allowing them a fair share of the higher appointments; but at present the whole power and influence in departmental matters lie in military hands, and civilians are debarred from participating in the management and supervision.

In connexion with the subject of promotion, it should be mentioned, that the Indian Government have recently raised the proportion of first-grade assistants from one-fourth to one-third of the total number of assistants of every grade, and have submitted to the Home Government a proposition to similarly increase the proportion of the higher grades of executives. On the other hand, unless some inducement be offered to civilians to retire after twenty years

of actual service, the decreasing number of military men in the department will sensibly decrease the rate of promotion in future; for military men seldom serve longer than twenty years, but civilians must wait, under the present rules, for thirty years before they can get a pension. Few men are worth much, mentally or bodily, after twenty years of severe work in India, and it would certainly be worth the while of Government to offer a retiring pension of 200*l.* a year after twenty-two years' service (twenty actually spent in India) with a view to quicker promotion, clear off the older hands, and insure a more frequent infusion of fresh blood into the department. Such a pension would add much to the attraction of the service, nor would the additional cost be very great; comparatively few would live to claim it, and of those who did the best men would probably find it their interest to stay longer.

There is a standing rule that all persons shall enter the Public Works Department in the lowest grade, but the Government, rather amusingly, reserve the right of breaking the rule whenever they see fit.

Promotion in the "Minor Administrations" under the Supreme Government (such as British Barmah, Oudh, the Central Provinces, Mysore, &c., &c.) is rendered needlessly uncertain by the practice of bringing in "outsiders"—railway engineers and others—as executive engineers of any grade, and as assistants of the first grade.

This is obviously unjust to all the officers in lower grades, as each such appointment loses to them a step which they have a right to expect; the men thus superseded often have longer experience and greater claims upon Government than those who are put over their heads. These appointments from without are in the gift of the Secretary to Government of India for the time being, who naturally wishes to retain such patronage; but the system causes much discontent, and should be abolished. The only excuse for it is the want of sufficient qualified officers to keep the Department supplied for the lower grades; but the remedy is obvious; let the Government but offer liberal terms, and convince the public of their good faith, and there will be no lack of qualified candidates.

I will continue my letter in another number.
Bengal. C. E.

ART IN THE COLONIES.

Our readers will be pleased to hear that art education is progressing at Cape Town, in South Africa. About three years since, an "Institution for the Intellectual Improvement of Young Men" was established under the auspices of the Lord Bishop of Cape Town, and it was soon after determined that a school of art should be started, on the plan of the schools in connexion with the Department of Science and Art in England. The services of a trained teacher from home being obtained in 1864, the school is now one of the institutions of the colony. There are in full work six evening and five morning classes, four of which are attended by ladies. With hardly any manufacturing class, the practical value of art-training was hard to demonstrate, but the school has flourished nevertheless, and, after just one year's labour, the first exhibition, consisting entirely of students' works, was held in July last, and opened by his Excellency the Governor, Sir Philip Wodehouse, who has proved himself a liberal patron of the school. The students in the various classes number over one hundred; and, amongst this number, there is a young Kaffir, who draws remarkably well, and whose enthusiasm was so great, that he actually walked from Stellenbosch, thirty-five miles by road, to see the exhibition! As the school is quite unconnected with the central authority at home, it is out of his paternal care, and also from Government assistance.

The master, Mr. F. M. Lindsay, deserves the highest commendation for the energy and spirit with which he has achieved a high standard of excellence; nor should the valuable services of the Hon. Secretary, Mr. Foster,—a name well known amongst the partisans of art and literature in London,—be overlooked. This gentleman, indeed, may be fairly described as the prop and parent of the institution. In the report now before us, we find five prizes were awarded for architectural drawings; one of two guineas for a sheet of drawings showing elevation, plans, and section of a building, coloured, to S. Walter; another, of one guinea, for drawings of details, to W. Fell; the third, also one guinea, for a like

sheet, to J. Kingston; and ditto, ditto, to G. Rose and W. Inglesby. For the best drawings of historic ornament, two guineas to R. C. Blackmore.

FOREIGN WORKS.

A DUTCH company, formed at La Haye, has just purchased six gasworks belonging to the General Society of Credit in Spain; and the shares of the new company are to be issued by the Bank of Antwerp. These establishments are in full working order at Valladolid, Xeres, Alicante, Carthage, Burgos, and Pamplona.

The Neapolitan journals announce that, in a few days, a very interesting hydraulic operation is to be carried on at Avezano, by which an outlet will be given to the waters of the Lake Fucino, so that it can be drained, and the land rendered available for agricultural purposes. The flow will take place by a magnificent aqueduct, called the Emissary of Claudius, about 4 kilometres long. This important structure formerly served to drain the lake; but, on its falling into a state of ruin, the water again took possession of the bed of the lake. The restoration of the aqueduct has been accomplished by a Neapolitan company, of which Prince Torlonia is the principal shareholder.

The French Chambers and Senate have approved of the convention passed between the Minister of War and MM. L. Fremy, governor of the Crédit Foncier of France and Algeria; Paulin Talabot, director-general of the Paris and Mediterranean and Algerian Railways; and consorts, authorizing them to procure capitals and open credits, as a company, for carrying on all agricultural, industrial, and commercial operations in Algeria. The capital of the company is to be 100,000,000 francs, or 10,000,000*l.* sterling, in 200,000 shares of 50*l.* each; and the works are to consist of public works of utility, the working of mines, the cultivation of lands and forests, the execution of weirs and canals of irrigation, the establishment of factories, &c. The convention states that,—1. The company is bound to realize, at the requisition of Government, in the proportions that it may deem necessary, either by means of calls upon the shareholders or by the emission of obligations, to the amount of 100,000,000 francs, in the delay of six years, the sums that should be employed in Algeria for the works or operations above stated. Moreover, the company engages to place at the disposition of the State another sum of 100,000,000 francs, which it is to employ in the execution of great works of public utility, consisting in roads, ports, railways, canals, weirs, irrigation, &c. Each year the programme of the works to be executed by aid of this sum shall be decided upon by the Government, by the advice of a special commission with the consent of the company. The said sum of 100 millions to be paid into the public treasury by sixths, quarterly, from year to year, the first payment being made the 1st of April, 1866. The amount of each payment shall be reimbursed by the state to the company by means of annuities calculated at the rate of interest of 5*1*/₂ per cent., and comprising a sum years. Each annuity to be payable half-yearly, the first being due 1st of April, 1867. The State for the obligations issued by the company for the execution of the works of the convention.

2. Notwithstanding, during the course of the first three years, beginning from the first payment, the Government to have the faculty of reducing to 72,000,000 francs the sum that the company should place at its disposal.

3. The state promises to sell to the company 100,000 hectares (247,114 statute acres) of land, which shall be delivered up by the Government from the State domains in Algeria. The price per hectare to be 1 franc per year, payable annually, from date of possession, during fifty years. Moreover, the State yields to the company the mines it may discover during a period of ten years.

A French engineer, M. Paulin Gay, has lately perfected a machine, on the disc principle, for sawing or cutting through the hardest rock in quarries and tunnels. Experiments have been made lately at the Conservatoire des Arts et Métiers of Paris, and the following is an extract from the report of M. Tresca, the sub-director, countersigned by General A. Morin, chief director, relative to the performance of this machine:—

"The contrivance of M. Gay depends upon the new and special application of a principle, and

consists of apparatus whereby a disc of lead penetrates vertically or horizontally into the stone, being impressed with a rapid circular motion, while powdered emery is applied to the edge of the disc by means of a small jet of water. The emery, as fast as it is applied, falls into a receiver, whence it is lifted to be replaced in the feeding hopper and used over again. The disc is mounted upon a shaft so as to move in a plane perpendicular to that axis, and is guided by friction wheels whereby its motion is steadied. The body of this disc is of wrought-iron plate 4 millimetres thick, and is pierced all round the edge with a double row of elliptic holes, to afford passage for the melted lead which is cast upon the wheel to the thickness of 6 millimetres, and a total width of 7 millimetres. This wheel is put into motion by a machine or motive power, the strength of which is regulated by the diameter, and also by the nature of the stone to be cut, and, placed upon a moveable chariot on rails, it advances into the tunnel, resting on the floor of the heading. If a block of stone be required to be cut for building or other purpose, the machine is fixed while the block is pressed against the revolving disc by a counterpoise. For tunnel work M. Paulin Gay has an enormous disc 2 metres in diameter."

MONUMENT TO DON PEDRO IV., LISBON.

In the Place du Roggio, now called Place Don Pedro IV., in Lisbon, a monument has been erected to the memory of Don Pedro IV., King of Portugal and Emperor of the Brazils. The Place is rectangular, enclosed by four streets and an alley of trees, and affords an excellent site for the structure. It consists of a surbase, pedestal, column, and statue. The surbase is formed of a block of granite, on which rests the pedestal, with an allegorical statue, in a sitting position, at each of the four angles. These represent the four cardinal virtues, Prudence, Justice, Force, and Temperance. On the surbase, uniting them, appear the arms of twenty of the principal towns of Portugal, suggestive of the patriotic co-operation of the nation. The second part of the monument, the pedestal, on which are inscribed the deeds the memory of which the structure is designed to perpetuate, contains four tablets of simple yet bold design, decorated with garlands and crowns, and surmounted by the initials of the founder of the reigning monarchy. On the base of the column are four *bass-reliefs*, joined together with garlands and crowns. The shaft is fluted, and the capital contains, on each of the four faces, the shield and arms of Pedro IV., surmounted by a royal crown, interlaced with palm-branches and symbolical flowers. Lastly, on a pedestal, supported by the capital, stands the statue of the king, in the uniform of a general officer; he holds in his right hand the constitution, and his left rests upon the hilt of his sword. It is 3m. 30c. in height, and was cast of bronze, its present gilt surface having been given by the electro-plastic process.

Altogether the monument is 27m. 50c. (90 ft. 3 in.) high. It is the work of MM. Davoud & Robert, who obtained the first prize at the public competition of designs. The other prize-gainers were,—second, M. Antonio Thomaz de Fonseca, of Portugal; third, M. F. A. Gilbert, of France; fourth, MM. Pagani & F. Baraghi, of Italy; fifth, M. A. Bezzi, of Italy.

CHETWYND, NEWPORT, SHROPSHIRE.

PREPARATIONS are being made for the erection of a new church in this parish, on a site given by Mr. Burton Borough, the present parish church being ill-arranged, having scarcely any free sittings, and being too small for the congregation.

The design for the new church, which is in the Geometrical Decorated style, has been prepared by Mr. Ferrey, architect, consists of a nave and south aisle, 33 ft. wide and 57 ft. long; chancel, 19 ft. wide and 31 ft. long; a massive tower and spire at the north-east junction of the nave and chancel, and a north porch. The exterior walls will be of the local red sandstone, in irregular random courses, with wrought quoins. The interior will be lined with white ashlar. The roofs will be covered with blue and red tiles, variously arranged. The chancel roof will be of oak; the other roofs of deal.

The church is intended to hold 250 persons: 130 sittings will be free. The height to the ridge of the nave roof will be 38 ft. In the

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tower will be placed a peal of six bells, the base of the tower forming the vestry and organ-chamber, under which will be a hot-air apparatus, the organ-chamber opening into the chancel. The height of the spire will be about 90 ft.

On a site contiguous to the church, a school, master's house, and national schools to contain seventy children, will also be built; the present schools in this parish being about a mile distant from the church and rectory. The building will consist of a schoolroom, 33 ft. by 20 ft.; a classroom, 17 ft. by 15 ft.; and a house for the master, built according to the regulations of the Council of Education. The style of the buildings will harmonize with the new rectory, which is nearly completed, and the grouping of the three will be very picturesque from the Chester road, which passes close to them on the north side.

WINSOTT, the residence of Mr. J. C. Moore Stevens, is situated at the brow of a hill, on the road between Torrington and Hatherleigh, commanding fine views to the east and south. The new house, of which we now publish illustrations, is built of stone from local quarries, with dressings of Hatherleigh stone, which is spoken of as one of the finest stones in England for building purposes. The porch is vaulted in brick, with stone ribs, and the shafts carrying the arches are monoliths of granite. The central hall is nearly 30 ft. square, open to the roof, and finished with a lantern. An arcaded gallery connects this with the porch below and above. The drawing-room and dining-room are each about 30 ft. by 20 ft. On the left at entering is the drawing-room, and next to this is the library, beyond which is a justice-room, accessible to the

back entrance and the servants' hall, and provided (through a lobby) with a W.C. and a private staircase to the dressing-room and bedroom above. Over the porch is a bowdoin, with a smoking-room above, approached by a gallery and turret staircase from the front landing. The hall is paved with Minton's tiles. The roof is covered with Delabole slates, large "ladies." The office arrangements and the sleeping accommodation, it will be seen, are extensive. The architect was Mr. William White, of London. The builder was Mr. Samuel Hooper, of Hatherleigh. The entrance-gates are of iron, exceedingly well wrought, by Tardrew, of Bideford. The cost of the building is over 7,000l.

The proprietor has likewise just rebuilt, at his own expense, his parish church; which was endowed by his father, the late Archdeacon Moore Stevens, of Exeter.

WINSOTT, NORTH DEVON.—MR. W. WHITE, ARCHITECT.



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— Section on C.D. —

THE SANITARY CONDITION OF ST. GEORGE'S, SOUTHWARK.

THE recent strictures, in the *Times* and *Builder*, on the state of certain parts of the parish of St. George's, Southwark, have excited great commotion among the vestrymen, some of whom have shown a right spirit in regard to these strictures, which, however, have also been received in the vestry much rather in the personal and *tu quoque* manner of stupid people than in the calm and deliberative interests of the public health, as they ought to have been.

Mr. Bash very properly remarked that, as sensible men, and especially after reading their own medical officer's report, they should do all they could to remedy many evils in the parish. *They were not doing so.* They had not even a sanitary inspector, although they were surrounded by so much disease and wretchedness. He believed Mr. Rendle [the grand target for the bullies of the vestry] was sincere in his purpose of improving the sanitary condition of the parish.

Mr. Beadle, a tailor, broke out in a very different strain, as to the "crude and base manner" in which they had been "calumniated," and he "threw back all such calumnies in the teeth of the calumniators." In his estimation the gentlemen who reported to the press on the state of the courts and alleys of Southwark, whether they wrote for the *Times*, the *Lancet*, or the *Builder*, were all "hungered scribblers,"—a fine idea which Mr. Beadle seems as much to delight in repeating as would any parrot who might chance to learn the words by rote. As to the naked child in Maypole-alley, which the *Builder* had sketched, it had run out of a house "for an airing" while being washed; and it was induced to stand there till sketched. Now we have heard of naked savages being induced to stand outside their wigwams to be sketched by "foreign-looking" artists; but, if manners in Maypole-alley, London, be so free and easy that children (and two were sketched, it will be remembered,—not one merely) are allowed by their parents and neighbours to stand stark naked in the street till they are sketched, this floundering member of the dirt interest does not seem to us much to mend the matter, or greatly to uphold the morality or manners of Maypole-alley by his advocacy. And what of the poor old semi-nude woman whom we saw in the alley? *She was washing,—not washed.* Again we say, would that missionaries who enter Maypole-alley would preach decency and cleanliness to the people living there. On the vestry generally, however, we are glad to note, from the *Times's* report, that our sketches of the alley seem to have produced some impression.

"The early part of the sitting," remarks the *Times*, "was taken up with parish details, with matters which on any other occasion would doubtless have caused long discussions and numerous divisions; but now these passed almost without notice, for the vestrymen were occupied in scanning an illustrated newspaper, in which appeared several cuts of wretched dwelling-places in the parish, and one depicting a nude child in a miserable court of the parish appeared to receive their deep attention."

In respect to the foul and fever-tainted dwellings of the helpless poor in this alley, our long-mouthed spokesman, Mr. Beadle, supports the landlord interest, and thinks that if such dwellings are to be "beautified and repaired" by landlords, they might as well throw up their property. To thoroughly cleanse a fever-tainted house must be—merely and very unnecessarily, no doubt,—to "beautify" it, in Mr. Beadle's view of it; and doubtless, on this principle, to cleanse a pig-sty is merely to beautify it. We had always thought it was not only the duty, but the interest, of a landlord even to "beautify and repair" his property, far less to rid it of fever-taint. How much Mr. Beadle must have pitied the poor landlords of the Jewish plague-tainted houses, when he read from Leviticus, as no doubt he has done, how mercifully the priest "beautified" them!

"And he shall cause the house to be scraped within round about, and they shall pour out the dust that they scrape off without the city into an unclean place; and they shall take other stones, and put them in the place of those stones; and he shall take other mortar, and shall plaster the wall again. And if the plague come again, and break out in the house, after that he hath taken away the stones, and after he hath scraped the house, and after it is plastered, then the priest shall come and look; and, behold, if the plague be spread in the house, it is a fretting leprosy in the house, it is unclean. And he shall break down the house, the stones of it, and the timber thereof, and all the mortar of the house; and he shall carry them forth out of the city into an unclean place."

True, it was not fever, but leprosy, to which this thoroughgoing and most excellent law of Moses related; but are not fever-tainted dwell-

ings plague-houses, and are not just such fever-traps the haunts of still worse plagues than fever?

At the vestry meeting of which we have been speaking, a report by Mr. H. Bateson, the vestry's medical officer of health, was read, in which, while fully admitting the "depraved state" of the "degenerate race" which inhabits some parts of the parish, and the filth and overcrowding, infection, disease, and misery, which have caused such degeneracy and depravity, he makes strenuous endeavours to whitewash the vestry at least, though not the filthy alleys. He says,—

"It requires the mere gift of making a noise to point out faults, whilst it requires wisdom to remedy them. The former we have had to satisfy; let us in the future have the latter."

Well may the vestry say—defend us from our friends. The very office of the press, as sanitary reformers, is "making a noise to point out faults;" and we have often ourselves talked of "dinning" such faults into the deaf ear of the public; but it is the duty of parish and other authorities—who are often still deaf to the public,—by "wisdom" to "remedy them." It would appear, however, from the report of the medical officer of the Southwark vestry, that, as a body,—though there are a small minority of willing and able sanitary reformers, such as Dr. Rendle, among them,—that vestry has not heretofore had the wisdom to remedy those faults which have been dinned into their ears by the "noise" of the *Builder*, and its coadjutors of the press; and the vestry's medical officer, can only hopefully look to "the future" for it!

"To destroy all these sources of harm and disease" (he remarks) "what a time must be required! what a change wrought! What a work done!"

Very true; but why don't they do it? why don't they begin to do it? We hope, with their medical officer, that the wisdom of the future will expiate the folly of the past.

A WORD FOR SUNDERLAND.

SIR,—Whilst I have been both amused and interested by the lively criticism on some of the material and moral aspects of this borough, contributed by a correspondent, "C. C. H.," to your journal, p. 713, I must also add that I was grieved that the value of his communication should be impaired by grave errors. It is, I heartily acknowledge, a great advantage to the inhabitants of a town, and to the authorities charged with its government, to learn what is thought of it by intelligent visitants.

The description of the High-street of Sunderland, as being upwards of a mile in length, and in part "undulating," is so far correct; but as to its being "toruous," I submit that term conveys an incorrect and unfavourable impression of its appearance.

Except for the "undulation" spoken of, which greatly adds to its beauty, you could see in a continuous line the street for more than three-quarters of a mile; and where the line is not continuous only in one part, it would be much more correct to call it a curved line than "toruous." Cobbett's description of this street, written on a visit to the town in 1832, and published in his "Northern Tour," might be put in contrast with that of your correspondent. Cobbett describes the appearance of the shops in the High-street as "equal to the finest in Regent-street or the Strand;" but although this may be true of some of the shops, we cannot take any credit for our street architecture; and had your correspondent expressed his admiration of the magnificent line of street, whilst condemning the generally mean appearance of its brick buildings, and the monstrosities perpetrated in some of its recent "improvements," he would have been warranted by facts, and have rendered a useful service. Immense improvements, however, are shown in the style of house architecture in the newly erected portions of the town, especially since the formation of the public park.

The description given by "C. C. H." of the lanes and alleys, branching out on either side of the lower part of the High-street, is too truly correct so far as relates to their contracted size, but in other respects the description in the paragraph beginning, "The freaks of the fungi," is an exaggeration of the reality. He describes some "narrow defile" called "out of respect to the builder a street," so contracted, that two persons could not pass without jostling each other; and in this lane or street apparently the

scene of his observations was laid, and he calls it "only a sample of the lot." Now, the narrowest "street" in old Sunderland, except an opening misnamed "Hodgkin-street," but properly "Little Flag-lane," is 10 ft. wide. If "Hodgkin-street," were the one your correspondent entered, there are not more than eight or ten tenemented houses in it; the remainder is occupied by the back-doors or warehouses of business premises. * * * *

The local authorities, with all the vigilance they can exercise, find it impossible wholly to prevent the nightly commission of nuisances in some of these narrow lanes; but for such places they are, on the whole, commendably clean and wholesome, and certainly exhibit a most pleasing improvement on the state of things a few years ago. Most of the houses in these lanes and streets are built back to back, with no yards; hence there is no space for ash-pits and privies; and to introduce water-closets into these tenemented houses is a work of great difficulty. Yet it has been done to an extent, and with satisfactory results, not exceeded, I believe, by any town in the kingdom.

The town has had the services of a sanitary inspector for some years; a second has just been appointed; and, as chairman of the sanitary committee, I am well aware that a town of such magnitude will require their unremitting vigilance to keep its sanitary affairs in a satisfactory condition.

Your correspondent truly acknowledges the corporation have done "a good deal;" and Mr. Rawlinson, on a recent visit, after about a dozen years' absence, publicly expressed the warmest approval of the great improvement which had been made in the appearance and sanitary condition of the town. Indeed, he said he knew of no town which had been more improved by its local authority.

"C. C. H." says "the corporation have drained a little;" but the fact is that they have done so much in this way that nothing remains to be done, except connecting the newly-erected houses with the main drainage continuously as they are built. Between 1854 and 1857 a complete system of main sewerage, of the most perfect character, was carried out; and since then nearly 10,000 houses have been connected by properly-trapped house-drains with the main sewers. The whole of the subsidiary drainage is of the best London stoneware pipes. As to urinals and water-closets, on the best principle and cleansed every day, they are so numerous that no town in the kingdom would, I think, be found better provided with these important requisites to decency, health, and comfort. On inquiry I find the number of urinals, or urinals and water-closets combined, is forty-seven, with accommodation for 164 persons. They (the corporation) have "put up some small drinking-fountains." If they are "small," they are, nevertheless, neat and unpretending, and as ample in their accommodation as those costly ones about the "inauguration" of which such a noise is made in some towns. The friends of the drinking-fountain movement might take a lesson from Sunderland, where twelve really neat fountains, with two cups to each, and some with four cups, have been erected, at an average cost of about 12l.

As to the placing of the fountains, they are, I submit, rightly placed in or close to the main thoroughfares and places of public resort; and they are not at all required in the narrow lanes, for the reason, which your correspondent appears not to have known, that every house has, or may have, an unlimited supply, and that, too, without intermission, of the inestimable blessing of pure water, at the rate of only one penny farthing per week,—and this, too, payable weekly.

The river Wear, we are told, "winds sluggishly along." Surely no one needs to be informed that the Wear at Sunderland is a tidal river close to the sea, and flows quick or slow, just as the tide flows and ebbs; but it is nowhere "coaly or black." No coals are shipped on it nearer than about one mile from its mouth, considerably west of the parish of Sunderland.

It was the late lamented Robert Stephenson—not "Stevenson"—who designed and carried out the alterations and improvements referred to by your correspondent. It was one of the last works on which he was engaged, and was rather a labour of love to preserve a structure he admired so much than a professional undertaking. The alterations cost upwards of 40,000l. The

* Simply a slip of the pen.

expenditure coming upon the town almost simultaneously with its sewerage, public and private, and an enormous expenditure annually for flagging, a toll was indispensable on waggon, carts, &c. It is very fine to talk about a liberal and enlightened policy, but there are limits to the ratepaying capacity of hundreds of poor rate-payers; and it would have been a cruel injustice upon these, with their present burdens, to have laid an additional rate of 3d. in the pound upon them that the owners of carriages, the railway company, and manufacturers and merchants, might have their heavy traffic conveyed across free of toll. It should be stated, too, that the corporation have no property from which a revenue can be derived in aid of the rate-fund. Everything has to be accomplished by rates upon the inhabitants.

No foot-toll has been levied on the present bridge since it was altered, and it is nineteen years since the foot-toll was abolished. For some years also previous to the costly alteration no carriage and traffic toll was taken. It was entirely toll-free. In a few years' time I anticipate the corporation will be both able and willing, with the consent of the inhabitants, to abolish the tolls and charge the maintenance of the bridge and the discharge of its debt on the rates. In justice to the corporation and the town, it should be stated that one of the first things done under the Improvement Act, which was obtained about a dozen years ago, was to arrange with the trustees of the turnpikes entering the borough to have all the toll-gates removed a distance from the town: hence in one direction the nearest toll-gate is three miles, another is two miles, and the nearest is a mile and a half from the town.

The health character of Sunderland, as indicated by the registrar's returns of births and deaths, and the causes of death will bear favourable comparison with the average of towns. Last year the aggregate death rate was 22·63; and the birth rate 41·64 to every 1,000 living. The birth rate is exceedingly high, and the increase of population from excess of births over deaths is much above the average of large towns. We are not all disposed, however, to rest content with the present condition of things. Those narrow courts and alleys, the cause and consequence of poverty, disease, and crime, must be gutted. These must give place to properly-formed streets and dwellings compatible with health. That is work for the future; and to the pages of the *Builder* we are accustomed to look for encouragement and counsel in all such matters.

J. W.

. We have received a statement from our correspondent, to whom the above was submitted, justifying his original remarks. Part of this we may hereafter print, though this is scarcely necessary, as the excellent Chairman's own letter shows conclusively how well-timed and loudly-called for those remarks were.—Ed.

THE SANITARY MOVEMENT IN OUR TOWNS.

London.—The City officer of health, Dr. Letheby, has reported on the health of the City for the quarter ending September last. From this report it appears that the death-rate for the last quarter is not only less than usual, and much less than that of the chief towns of England, but hardly greater than the death-rate for the whole country. As in the case of the birth-rate, however, some allowance must be made for the displacement of many of the poor. Most of the diseases of the zymotic class have been less than usually fatal. This in itself indicates a satisfactory state of the public health; and the same indication is also furnished by the sickness returns from the medical officers of the City unions. At the time of the appearance of virulent cholera among us on previous occasions, there was a large amount of zymotic disease, especially diarrhoea and dysentery; and as at present, there are none of these significant forewarnings of an approaching epidemic, the reporter is hopeful that the disease will not visit us on this occasion, especially as the route by which it has always reached us was different from what it is in the present epidemic, which may be confined to countries near the Mediterranean.

Woolwich.—The inhabitants of North Woolwich are compelled to pay sewerage rates; but owing to the peculiar situation of the town it is almost destitute of sewers. At the last meeting

of the Woolwich Local Board of Health, it was stated that the condition of the locality was disgraceful; abominable nuisances prevailed; and if cholera visited the country, it might be expected to make a clean sweep of the district.

Basingstoke.—In compliance with a requisition signed by upwards of 200 ratepayers and other inhabitants, to consider the sanitary condition of the town with the view of adopting the Local Government Act, the corporation have held a special meeting on the subject, and after some discussion the motion to adopt the Act was rejected, the majority in favour of it being only nine, while the minority was five; and by the Act two-thirds of the members present must vote in favour of it before it can be carried.

Oxford.—At a recent meeting of the local board a letter from Sir Benjamin Brodie, on the condition of the river by Magdalen Bridge, was read. Sir Benjamin remarked that it was little satisfaction to the residents in the vicinity to be promised a complete system of drainage hereafter if they were to be poisoned in the meanwhile; and he hoped something would be done to mitigate the temporary evil. The deposit, he was informed, was largely increased, owing to the new workhouse drain, and he suggested that it should be removed as far as possible. The matter was referred to the surveyor, with instructions to do all that could be done.

Warwick.—At the last meeting of the town-council, two rather disagreeable letters were read. One was from the agent of Mr. Staunton, of Longbridge, stating that, unless assurance was given that the present system of draining into the river Avon would be abandoned, application would be immediately made to the Court of Chancery. The other was from Mr. Jeremiah Mathews, of Edgbaston, who, as agent for Miss Ryland, complained that, from the discharge of Warwick sewage into the Avon, the smell and nuisance at Barford had become so intolerable that Miss Ryland's house was no longer fit for habitation. What is called a "suitable reply" was sent to each party, stating that attention would be at once given to the subject of complaint, but the Board seems really to have no idea of a remedy for the evils which are now created. Drainage into the Avon, though attended with consequences equal to the maintenance of two Chancery suits, is apparently the only outlet for sewage which the town-councillors of Warwick can devise.

Woodliff.—Typhus and typhoid fever have again been raging in this village. A pond which was considered to have been a cause of fever last year has been cleared out, but still appears to be in an unwholesome state. It had for years been getting worse and worse. On another marshy spot in the same locality there are open drains along the front of the cottages; and in these dwellings there is great overcrowding.

Norwich.—Mr. Bazalgette's report on the city drainage has been received, and is now under consideration. It recommends extensive works, at an estimated cost of 80,000l.

Newcastle and Gateshead.—No one who has perused carefully the exhaustive report of Dr. Embleton, the medical officer for the Newcastle Fever Hospital for the past year, says the *Gateshead Observer*, but must be struck with the fact that this borough and Newcastle are, as shown by the number of cases sent to the hospital, in anything but a favourable sanitary condition. Frequently, in the columns of this journal, have we called the attention of the public to the disgraceful state of many of our lanes, courts, and alleys; but nothing gets done. Some "old man of the sea" sits on the back of improvement, and things just remain as they were. But this must not be any longer. The health of our town requires that the "how-not-to-do-it" system should not longer continue.

In the report itself, which we have perused, Dr. Embleton says:—

"From various inquiries and observations that have been made, there can be little doubt that the great cause of the continuance and spread of the typhus has been the overcrowding of human beings and the uncleanness of their dwellings. The rooms in which labourers in many cases live are situated in confined and unwholesome yards and courts, and for space, light, air, and cleanliness, are models of insufficiency and unsalubrity, and a disgrace to any civilised community; in them, men, women, and children lie at night, huddled together; and as regards the men, the night-shift succeed the day-shift, and the day-shift the night-shift, in unbroken series for some time together, the beds having scarcely time to cool, the whole house badly supplied with water, and worse, with privies, dirty, unventilated, and pestiferous. In such conditions of domestic arrangements, to say nothing of the uncontrollable dietary irregularities of the people, we cannot marvel that the blood becomes deranged, that typhus is nursed, becomes

intensified, and is rendered epidemic; the wonder is that disease and death are not more prevalent than they have been. And I trust that I am not overstepping the limits of propriety when I say that the municipal authorities are much to blame, and have much to answer for, in allowing such hot-beds of disease as those which have from year to year been distinctly indicated, to exist in the midst of our industrial population. A few weeks, or at most months, ought to suffice for the extinction of typhus, if those in power would or could adopt and enforce the proper means for securing that desirable end; and yet this is the second year during which the fever has gone on rapidly gaining ground, until it has exceeded nearly all previous experience, and the foundations are being certainly laid for a much more serious epidemic in the winter and spring ensuing, than even that of the past year."

THE CHAPEL OF ST. JOHN'S COLLEGE, HURSTPIERPOINT, SUSSEX.

The new chapel was commenced in 1851, and on the 17th day of September in that year, the north-east corner stone was laid by the Provost of St. Nicholas' College, Lancing. The original designs for the chapel had been prepared in 1851, by the late Mr. C. Carpenter, the architect of the other buildings of the college, but up to the present time the crypt of the dining-hall has been temporarily used for service. The position of the new chapel is on the north side of the upper quadrangle, adjoining the east wall of the dining-hall, and extending eastwards beyond the wing.

The portion at present built under the direction of Mr. W. Slater, and Mr. R. H. Carpenter, the architects to St. Nicholas College, with which St. John's is in connexion, is the choir; the antechapel and tower situated between the choir and dining-hall are not yet commenced, but will form, when completed, important features in the design. Before entering into details of the building, a few general dimensions should be given of the choir, that a right idea of its grand proportions may be entertained.

The length inside the walls is 121 ft.; the width, 37 ft.; the height to cornice, 40 ft., and to the ridge, 72 ft.; the antechapel and transepts will be 85 ft. wide; and the tower, 120 ft. high. The material used for the external facing is flint, and the windows, dressings to buttresses, &c., are of Caen stone. The whole length is divided into seven bays, in each of which (except where the wing of the college abuts against the south wall), is a large and lofty window of three lights, the tracery of which is in geometrical forms, and varied in its design. The internal arches are richly moulded, and supported by shafts, with carved capitals and bases. Between each window, and on line with the springing of the arch, is a moulded stone corbel bearing a wooden octagonal column, also with a carved capital, from which springs one of the moulded arched ribs of the roof. The east window is of seven lights, with moulded external and internal arches and elaborate geometrical tracery.

The site is placed 20 ft. from the ground floor level. Between each of the side windows, and against the east wall, are massive buttresses; and the roof is of a high pitch, covered with brown tiles, with an ornamental cresting. The accommodation is for about 420 persons, the seats being ranged facing north and south, leaving a 10-ft. passage between, and occupying the four western bays: each row of seats rises a step above the other, and on the upper platform will be the stalls for the fellows; the return stalls against the west wall will be for the provost, vice-provost, head master, chaplain, and fellows of St. Nicholas' College. The Bishop of Chichester will take his stall as visitor at the east end, on the south side. At present the floors only are laid with some temporary deal seats and stalls, but it is intended to replace these with carved stalls of oak. The three eastern bays are occupied with the ascent to the altar, which is of three flights, of five steps each, the upper five returning against the east wall on each side of the altar. Very much remains still to be done in completing the furnishing and ornamenting of the interior, viz., stalls, tiled floor, stained glass, ornamenting the roof and walls with colour, the organ, gas-fittings, &c.; the reredos is already partly executed, and erected by Messrs. Poole, from the architect's designs. The intention is ultimately to cover the lower part of the side and east walls of the sanctuary, with an architectural composition containing life-size sculpture, representing the principal events in the life of St. John from his calling to his Revelation in Patmos. The portion at present undertaken is that immediately behind and on each side of the altar, and consists of three large cusped and pedimented

arches, resting on columns of various coloured marbles, and flanked by lofty pinnacles and niches, which also rest on marble columns. The arches each inclose one of the pieces of sculpture, the Crucifixion (in the centre), the Agony in the Garden, and St. John at the Sepulchre of our Lord. In the niches of the pinnacles will be figures of the apostles, and on the centre canopy or pediment the four Evangelists, with a sitting figure of our Lord in majesty. The lower part of the reredos will have on each side of the altar four niches, with figures of the four greater prophets, and Moses, David, Solomon, and Ezra. The sculpture will be in Caen stone. The material of the other portions of the reredos is alabaster, with columns and inlays of various rich marbles. The central sculpture is not at present finished. These, with the other sculpture and figures, will be the work of Forsyth, of London. The total cost of the reredos is estimated at upwards of 1,200l. The organ is intended to be placed against the blank bays on the south side, and is to be of very large size. The present temporary organ has been altered and rebuilt by Mr. Walker, of London. The pulpit, gasfittings, &c., are merely temporary, and intended hereafter to be replaced by others of a more fitting character. The builders employed were Messrs. Jackson & Shaw, of London, for the foundations; Mr. J. Fabian, of Brighton, for the carcases; the floors, fittings, &c., are by Mr. Bushby, of Littlehampton, Mr. Holland and Messrs. Palmer & Green, of Brighton; Mr. Knight being the architect's clerk of the works.

The chapel was opened by licence on the 17th inst.; the consecration being, for technical reasons, at present postponed for a short time.

PUBLIC IMPROVEMENTS IN OXFORD.

THE usual *résumé* of the improvements carried out during the past season in the University and city is given in the local *Journal*. This year has not been specially remarkable for the number of undertakings which have been commenced, but works of considerable importance and magnitude have been continued or completed.

The new buildings at Christ Church, which were commenced in 1862, are now on the eve of completion. They occupy the site of the Chaplain's Quadrangle and Fell's Buildings, and present an imposing façade of 330 ft. The style is Venetian Gothic, and the architect is Mr. T. N. Deane, of Dublin. The work has been executed by Mr. Symm, under the supervision of Mr. W. C. C. Bramwell, resident architect.

The spacious hall of New College has been re-roofed, the work being executed by Mr. Franklin, of Deddington.

The Gothic tower of Brasenose College was restored two years ago, and it has now been beautified by the addition of the armorial bearings of the college, which are distributed in the niches. The work was executed by Mr. Nutt, of St. Ebbe's-street.

Extensive improvements are being made in the organ at Queen's College Chapel. The front will be entirely new. The work is entrusted to Mr. Walker, of London.

Further restorations and additions have been made at St. Alban Hall, and, when completed, as intended by the new plans, there will be accommodation for between thirty and forty students. The works have been executed by Mr. C. Selby, from designs and under the superintendence of Mr. John Gibbs, architect, of this city, and the cost is borne by the Rev. W. C. Salter, the principal of the Hall.

A painted east window has been inserted in the chapel of St. Edmund Hall, in memory of the late principal, the Rev. J. Branthwaite. The centre light has been filled in with a representation of the Crucifixion, and the minor compartments are devoted to other Scripture subjects. The work was executed by Messrs. Clayton & Bell, of London.

At other colleges minor reparations have been carried out.

Church improvements are being actively carried on, the most important this year being the restoration of All Saints', which was erected in 1699, the original structure having fallen down.

Amongst works of a secular and more general character, prominence is due to the Randolph Hotel, which is now approaching completion. It was commenced in April, 1864, the design being by Mr. Wilkinson, architect, and the contractors being Messrs. Kirk & Parry, of London. The

building has been designed with a view of making it a first-class hotel, and every new appliance will be introduced to render it as complete as possible.

The Shakespeare Hotel is now nearly completed. Mr. T. Wyatt (one of the proprietors) was the architect; and the masonry was executed by Mr. G. Yateman, of Handborough.

The Post-office has undergone great improvements, under the direction of the Government Board of Works.

The infirmary in connexion with the Workhouse is in course of erection.

In St. Aldate's new parochial school-rooms are being built. Mr. Selby has taken the contract at 1,590l., exclusive of gas and other fittings.

Improvements are every year being made in the shops and private residences in the city; and in the suburbs building operations have been actively carried on. At the eastern extremity of the city new streets are rapidly being made, and the recent incorporation of this district with the Oxford Local Board will furnish it with lighting, paving, and other conveniences.

In Christ Church Meadow great improvements are being made.

The Street Commissioners have been suspended by the adoption of the Local Government Act, under which the local Board will have the fullest powers of dealing with drainage and any other matters affecting the health and convenience of the inhabitants.

RESTORATION OF HORSHAM CHURCH.

THE committee appointed to assist the vicar and churchwardens in this work have now exhausted all the funds (6,100l.) hitherto entrusted to them, and it is found that 1,600l. further will be required to complete the undertaking. It was impossible, in so large and decayed a building, to determine with precision the amount of repairs required, or to foresee the various contingencies that have unavoidably arisen. The committee again appeal to the public for the means necessary for its completion. Donations will be received by the Rev. J. F. Hodgson, vicar of Horsham, or may be paid into the London and County Bank.

The money has been expended thus:—

Amount of original contract	£5,328
Extras originally contemplated, including lighting, warming, legal and architect's charges	1,000
Further outlay found necessary during the progress of the work	1,872
Total	7,700
Subscriptions included in the first list, including Society's grants, and 1,000l. raised by the parish	6,100
Further sum required	1,600
	£7,700

The following donations have been already promised:—The Vicar of Horsham, 200l.; Mr. R. H. Hurst, M.P., 100l.; Messrs. Lintott & Friends, 100l.; Major Aldridge, 50l.; Mr. John S. Bostock, 50l.; Mr. P. Medwin, 10l.; Mrs. Gilbert, 10l.; Canon Swainson, 5l.; Rev. H. W. Hodgson, 5l.; Mr. G. S. Rendell, 5l.; Rev. W. Hampshire, 5l.; Mr. Mitchell, surveyor to the highways, 1l. Thus between five and six hundred pounds of the deficiency have already been subscribed.

RAILWAY MATTERS.

THE City Branch of the London and North-Western and North London Railways has been inspected. Its terminus in Liverpool-street, City, and the stations upon the route, showed that the permanent way and general works are in such an advanced state as to allow of the almost immediate opening of the line. The City terminus occupies the site of Broad-street Buildings, near the Roman Catholic Chapel, Moorfields. By means of this junction, passengers will be enabled to proceed from the City station in Liverpool-street (hardly five minutes' walk from the Bank of England), either to Kingsland, Hackney, Bow, Stratford, and Fenchurch-street, or to Euston-square, and all stations upon the London and North-Western system. The new line, which is about 2½ miles in length, with an average width of 36 ft., has, in fact, given direct means of communication between the City and the populous north, north-eastern, and north-western districts of the metropolis, as well as with the railways throughout the country.

The Midland Company have already swept away, somewhere, the bulk of the wretched population of Agar-town. That was for the uses of their great goods station. But the company is not content to remain so far from the heart of the city of London as Agar-town, for it would be next to impossible for them to command passenger traffic if their passenger trains had to be delivered at that point; and, accordingly, they purchased the site for a terminus in Somers-town. It is in Euston-road, about midway between Euston-square and King's-cross. The property in question extends on the front in the Euston-road, from St. Pancras-road to Skinner-street, and runs inwards in a wedge-like form. The booking and other offices and the station behind them, according to the *Railway News*, will, together with the carriageways on each side, occupy an oblong rectangular block of vast dimensions. The station-front to Euston-road will be about 340 ft. long, and the length backwards to the end of the platforms about 750 ft. The spare land on the Skinner-street side will be occupied by a large hotel, for which competing designs will be invited. The station itself will be 240 ft. wide, and will be covered by an iron girder roof in one span, wider than any yet existing. The arch will be peculiar, inasmuch as it will be neither a semicircle, nor a segment, nor an ellipse, but a compound curve, consisting of two segments, which will raise its pich slightly above that of a semicircle. The station has been designed by Mr. W. H. Barlow, engineer-in-chief, and the works will be carried out under the personal superintendence of Mr. Frederick Campion, resident engineer. The Great Eastern will probably obtain access to this station when their northern extensions and alliances have been completed and settled.

The Central Wales line of railway has been opened from Knighton to Llandrindod. The accomplishment of this piece of work has opened up about twenty miles more of that direct communication between Milford Haven and the manufacturing districts of the north of England, which it was the original object of the promoters to establish. The piece of line from Knighton to Llandrindod has been five or six years in course of construction, and the engineering difficulties that have had to be encountered were very great—so much so, indeed, that at one time it was feared the work would have to be suspended. The country through which the line passes is a succession of mountains and valleys, affording some of the most romantic and beautiful scenery anywhere to be met with. A viaduct of local stone has been thrown across the Heyop Valley, having thirteen arches of 36 ft. span, and reaching at its highest point an altitude of 75 ft. The trains will have to pass through two tunnels, one at Llwynoch, which is 700 yards in length, and the other at Penyclont, 400 yards in length. The courses of the line is very winding, and the curves in some places are very sharp. The gradients, at some parts, are rather stiff. The construction of the line has been carried out by Messrs. Hattersley & Morton, the contractors.

The engineer-in-chief of the Stockton and Darlington Railway, Mr. John Dixon, C.E., has died at his residence, Bella Vue, Darlington, aged 76. Mr. Dixon was a pupil of the late George Stephenson, and was appointed engineer-in-chief to the Stockton and Darlington Railway soon after its commencement, and has held the appointment up to his death.

A new railway axle-box, in which water is used instead of grease or oil, is in use in the north of England. It is thus described:—On the axle, which, as well as the sides of the box, receives the thinnest possible coating of grease when the parts are fitted up, rests a socket, made of gun-metal, greased in the same manner, and provided with a groove lengthwise. At the end, towards the nave of the wheel, a kind of shad is attached to the socket, bent in the form of a horse-shoe, and running in a groove in the axle, to prevent the water from being ejected out of the box at that side of the bearing. The box is then placed over the socket, and an iron disc is fastened on the fore end of the axle: on this disc, and at the top of the box, there rests a small metal spout in the form of an inverted L, which is kept in a vertical position by means of the upright branch of the L being guided in a groove at the top of the box, which is fastened up by two plates at the back and the front, made water-tight by means of india-rubber washers, &c. The water is then poured in through the orifice of a cup attached to the box outside, and communicating with the inside; the level of the

water in the box not standing quite as high as the lowest point of the axle. As soon as the carriage is put in motion, the disc, of course, moves along with it, and, as it touches nearly the bottom of the box, it carries up the water, by means of the centrifugal force, to the top of the box, where it is caught by the spout 1, and forced down into the socket, falls through the groove of the latter on the axle, lubricates it, falls to the bottom of the box, is caught up again by the disc; and this action, of course, being continuous, the lubrication is, of course, equally constant, and perfect in the extreme, on account of the absolute fluidity of the water. The lubrication increases in the same ratio as the velocity is augmented, and consequently the danger of heating the axles is entirely avoided.

The traffic receipts of railways in the United Kingdom amounted for the week ending the 7th of October, on 12,284 miles, to 754,264l.; and for the corresponding week of last year, on 11,925 miles, to 696,282l., showing an increase of 359 miles, and of 57,982l.

THE WAGES QUESTION.

Notwich.—The committee of the operative carpenters and joiners, now on strike for an advance of wages, put out a placard stating that, as they had not been communicated with by the masters as to the result of a meeting reported to have been held by them, when they determined to give the advance asked for after March next, on their present contracts being completed, the strike would still continue. About 130 men were, however, at work at the advanced rate; and owing to the number that left the city, only about 130 hands remained out, several of whom expressed their determination to seek employment elsewhere. Another meeting of the master-builders was afterwards held, when it was unanimously resolved to adhere to their former resolution, namely, that the increased rate of wages demanded by the workmen be not paid until a sufficient time has elapsed for the completing of existing contracts; but that such increased rate shall be paid from the 1st of March next.

Hartlepool.—The whole of the "bondmen," as they are termed, who work in the timber-yards at West Hartlepool have turned out for an advance of wages. They have been receiving 21s. and 22s. per week, and they now demand 24s., which, it is stated, is being paid to many bricklayers' labourers. The masters refused to give the advance, and the consequence is that about 300 men are still out of employment.

Carlisle.—Another strike of stone-masons has occurred at Carlisle, about sixty stone-masons in the employment of Messrs. C. & J. Armstrong having turned out. A deputation of two men had waited upon Messrs. Armstrong, and stated that those gentlemen had a man working for them who was not a member of the "Society," and requested that he should be dismissed. Messrs. Armstrong replied that the man was about sixty years of age and did not wish to have any connexion with the Society; and, besides, the request made was contrary to the last agreement made between masters and men, and they were not disposed to dismiss the old man. The deputation retired, and the whole of the masons employed by the firm in Carlisle turned out on strike. By this movement the building of the Church of St. John the Evangelist is again at a stand-still.

London.—At the Mansion House, on the 14th inst., two masons, Thomas Glenover and Charles Lawson, were charged with intimidating and endeavouring to prevent certain workmen in the employ of Mr. Pritchard, a builder, from continuing their work. Mr. Pritchard, it was stated, had two men in his employ named Crombie and Ford, and on the 31st ult. the prisoners came to him and insisted on these men being discharged, because they did not belong to the Masons' Society. The demand was refused, and the prisoners and a number of other men left his service at once, and he was compelled to employ others. Since then the prisoners had watched the men as they went out for their meals, and threatened and intimidated them. These facts having been reported, the Lord Mayor said the conduct of the prisoners had been most illegal and improper. The only object of these trades-unions was to enable bad workmen to get the same wages as good workmen. If this conduct were repeated they would receive most severe punishment. He would now order them to be imprisoned with

hard labour for two months.—A meeting of journeymen cabinetmakers was held at the Alliance Hall, Old-street-road, on the 11th, to consider what steps should be taken towards obtaining a general rise of 10 per cent. on the rate of wages. There was a crowded attendance, numbers being unable to obtain admission. Mr. Brown, journeyman cabinetmaker, was voted to the chair. He impressed on all present the necessity of joint action in the matter, but at the same time to try to obtain their end by fair argument with their employers, showing them the increased cost of provisions, rent, &c. Letters were read from some employers expressing their desire to grant any reasonable demand made. After a discussion as to the means of attaining their end, it was resolved that each shop represented at the meeting should appoint a delegate to report the feeling of the men as to the organization that should be decided on.

Sheffield.—At the meeting of working men held in Sheffield during the session of the Social Science Association, Mr. Thomas Hughes, M.P., spoke in a very pointed manner respecting the charges of trade outrages which were made against Sheffield workmen. The question which Mr. Hughes put to the workmen then present was, "Were they guilty of the charges?" Since that meeting several workmen have come forward to defend themselves from the imputation, and this week the members of the file trade invited Professor Fawcett, M.P., to a conference, which was held in the Temperance-hall. The gathering was the ordinary trade assembly, and not open to the public; but we are informed that the men as a body disclaimed the outrages, but admitted their dislike to file machinery and their refusal to finish work partly done by it. They had no desire, however, to interfere with those employed at the machines, who "were the scum" of their class. It is sometimes said that men in a body will do disgraceful things, which, as individuals, they would not have done; but here we are glad to see we have men who repudiate as a body the dastardly deeds by which individuals amongst them have given Sheffield evil notoriety.

A GIFT HOUSE.

On the 9th of October, the foundation stone was laid of a new mansion, at Catsfield. It is within four miles of Battle, in Sussex, and beautifully situated in about 1,000 acres of park-like grounds, with extensive views of the sea and surrounding country. The house is intended as a present from Mr. Thomas Brassey, of London, to his eldest son.

The house, with offices attached, will have upwards of 200 ft. frontage, and will be built entirely of blue local stone and Portland stone dressings. The style will be French, of the period of Francis I. The house has an octagonal tower 20 ft. in diameter, rising from the south-west angle of it to the height of 80 ft.; and a large conservatory is attached also to this end.

The stone was laid by Mr. and Mrs. Brassey, jun., in the presence of their friends. Under the stone was deposited a bottle containing the *Times* of the day, with photographs of them and their two children, some coins, and an illuminated record of the event on parchment. A silver trowel was presented to Mr. and Mrs. Brassey by the builders, Messrs. Lucas, Brothers. Messrs. E. Habershon, Spalding, & Brock are the architects. The cost of the building (the house, offices, stables, and lodges), will be about 30,000l. Certainly a very pretty present.

CONCRETE.

SIR.—There is a note on this material in the last *Builder*, by "John Mason," which alludes to the concrete vaulting at Bishopstowe, the seat of the Bishop of Exeter, near Torquay, in which Mr. Mason's memory seems in some measure to have failed him. The vaulting and ribs of the corridor did not merely receive the floor above, but the floor was formed in the same material by one operation; and the cellar vaulting was not groined, but that of the library (not mentioned by your correspondent) was groined, and was the only portion of concrete vaulting where the walls were more than the 13 ft. apart, which seems to be the chief reason for alluding to it at all. I am happy to say that the whole has stood extremely well.

THE ARCHITECT.

DISEASES OF GLASS CUTTERS.

In a recent impression of the *Builder*, you say, and justly, that glass-making is more healthy than glass-cutting. Will you allow me, as an old workman (glass-cutter) to explain what I think is the cause or causes of its being unhealthy, leaving ventilation out, as a masters' question, which they will do as they please about, without consulting their workmen's health.

Glass-cutters suffer principally from chest diseases; consumption is common among them, dropped hands, lead complaints, with all their horrible sufferings; constipation of the bowels; from these complaints many live a living martyrdom, and die an early death.

Our society has, at its own expense, sent men afflicted with lead disease to a professor in London to have the benefit of the medico-chirurgical baths: the expense was very heavy, but of no avail; the men returned to the country only to die.

The first cause of our sufferings and early death, I consider to be the placing of lads, at very tender ages, at the frames to feed up to the workmen. It is a fact beyond dispute, that from the moment that a lad takes the brush to feed either to the putty wood, or, what is a hundred times worse, the putty brush wheel, he is on the road to disease and death: these wheels revolve with great rapidity; the lad stands in the very face of the wheel, which is turning towards him: in an hour or two the doomed lad looks like a dirty miller's boy; in a short time his face becomes aslough, the lead is doing its deadly work, and is slowly but surely drawing him to a painful and premature grave.

This, sir, is in my opinion the first and principal cause of our ill health. Other causes are the stooping posture, the cramping of the chest, positions that preclude all possibility of the expansion of the lungs; the constant inhaling of fine dust that the revolving wheels keep floating in the air we breathe; add to this the sloppy nature of our work: can it be wondered at that, as a class, we are unhealthy?

Some years ago, a physician of one of the hospitals of Birmingham was so impressed with the sufferings and early death of our workmen, that he endeavoured to find out the cause; but that was treading on forbidden ground, and the matter, like many other good intentions, fell to the ground, and was heard of no more.

At the time the medical gentleman spoken of wished for information, my opinion then was that no lad should be put to the frame before fifteen years of age, and not to feed to any other work than his own; and after many years' experience I think so still. It would be a most happy thing for the Factory Act to be applied to our trade, as sweaters are starting in every town, employing nearly all lads, in ill-built and non-ventilated shops, getting an easy and luxurious living out of the lives of young children.

J. OHLSON.

CHURCH BELL-RINGING.

I AM convinced church bell-ringing might be rendered a very agreeable recreation as well as conducive to the health of some of our over-fed too stout gentlemen, who require some other exercise to keep their fat within healthy bounds besides a short walk, and considering the action and position required in the arms and body in ringing a peal of changes (so strengthening to the muscular parts of the former), what could be better than for a party of gentlemen to engage a ringer to advance them in the art sufficiently to enable them to ring a peal of eight hundred or two thousand changes, and afterwards for them to meet once or twice during the week at some church in the evening and enjoy the pleasure to themselves.

The art of ringing changes on church bells having been practised (with some few exceptions), by men of the lower class, has occasioned it to be looked upon with contempt. Could this prejudice be overcome, and a few gentlemen induced to make a trial, they and others would perhaps be obliged for the hint here thrown out. While on bell-ringing, I will add a suggestion of an alteration connected with the church-steeple that, if carried out, would be an improvement. Instead of the heavy-looking stone or wood louvres in the windows, round the place where the bells are hung, I recommend pieces of glass, of the usual shape and thickness, to cross the opening in the wall of each of the four sides of

the tower.* This substitute for the old material would expose to the view of passers-by in the open air the bells as they hang on the frame, as well as the manner in which they act when raised and rung on the balance, when each bell swings round, hanging by the stock to which it is suspended, when to each blow of the clapper it makes a circle. Glass being favourable to sound, the tone of the bells would be improved.

HAYN WILSON.

KAMPTULICON.

SIR,—There has recently come under my notice a decayed floor, in a house in the City, and the only apparent way its condition can be accounted for is, that kamptulicon was laid down upon it three years ago. It is the upper surface of the boards which is affected, although in one or two spots the board is decayed quite through. It is on the second-floor that this has occurred; and I should mention that the building, which has been erected a number of years, is in all respects a sound and substantial structure, even the boards affected being quite sound on the under side. Perhaps you will consider the matter of sufficient interest to allow me to ask your readers if they have met with any instance of kamptulicon affecting a floor injuriously?

WILLIAM BURNETT.

HOW UTILIZE SEWAGE?

SIR,—A portion of the sewage of a small town in my district has hitherto been discharged into a pond, the water of which has become deteriorated in consequence. I wish to cut off the sewer from the pond, and receive its contents in a reservoir, in order to apply it to the grass land adjoining. I shall be very glad if some of your correspondents will kindly give me a few suggestions as to the best means to effect my object.

A SANITARY INSPECTOR.

FLIES AND ANTS.

In one of your numbers, about the month of June, a remedy was suggested for the plague of flies, namely, placing about the rooms a strong solution of chloride of lime. With what effect this was tried in England I know not; my experience of its effects in Italy proved that there it was inefficacious. I doubled the quantity of lime prescribed; left it in all parts of the rooms, and the flies heeded it not; in fact, I frequently saw them perch on the edge of the large-mouthed bottle containing the lime, and the smell, to many almost overpowering, had no preventive qualities to them. Any remedy this summer would have been a veritable boon; they were equally trying as the heat; they swarmed so thickly on ceilings and walls as to defy every attempt to destroy them; spoilt any garment hanging up in wardrobes not all but air-tight. The "tre-mouche" papers were tried, but the dead bodies of the flies attracted instantly swarms of ants, who travelled in long regular lines, divested the flies of their wings, and carried off the trunks of the bodies. Upon the ants the chloride of lime had no effect. That which alone can be done with the ant is to trace its nest, pour down boiling water, and then stop up the hole with cement. If the nest be not entirely destroyed, the survivors will manage to carry away the cement in time, when the same operation must be repeated.

F. C.

ARCHITECTS' CHARGES.

SIR,—Will you permit me to call attention to a practice of some London architects, and to request some of your experienced professional readers to state their opinion thereupon?

I have now before me a copy of the "Professional Practice and Charges of Architects." Article 1 states that "the usual remuneration for an architect's services is a commission of 5 per cent. on the total cost of the works executed from his designs." Now, the course adopted by one London architect (and I am assured that some others act in a similar manner) is to charge 5 per cent. upon the average of the tenders sent in for the work proposed to be done. To me this seems an unjust mode of assessment, and one which is calculated to lead to great irregularity, to use no stronger term; for, an unprincipled architect might easily arrange with an accommodating builder to deliver an estimate of double, or even treble, the value of the work, so as to swell the total of the added tenders, and thereby considerably increase the amount of commission; or a builder might make a mistake, as frequently happens, in pricing his quantities, or in casting up the totals, and produce a like result to the architect. I am in a position to prove a case where an architect, through such a mistake on the part of one of three builders tendering for a small job, was able to add some 25*l.* to the amount of commission he would have been entitled to receive on the accepted tender.

As this is a matter of some importance to the profession, and as doubt exists in the minds of many clients respecting the proper and legitimate mode of calculating the architect's commission of 5 per cent., I venture to hope you will deem it worthy of notice in an early impression of the *Builder*.

X. Y. Z.

* Glass has been so used.—Ed.

THE OUTBREAK OF CHOLERA NEAR EPPING.

THE outbreak of cholera at Epping, of which our readers must have heard, seems to have subsided. Among the measures taken by the local authorities, two railway truck-loads of quicklime have been thrown into cesspools and upon the dunghills near the houses in danger of infection. A strict supervision of the labourers' cottages is also being made; and at a meeting of the Board of guardians on Friday, it was ordered that a house-to-house visitation should be made; and Dr. Clegg was duly invested with power to see that the instructions of the General Board of Health are properly carried out under the orders of the magistrates.

When Dr. Clegg was called in to see one of the suffering families, he discovered that there was a communication between the water-closet and the well from which the family drank, and he at once put a stop to their using it. The connexion of cholera with impure water has long been known, and it may be that its tendency to take a course along rivers has been owing to the defilement of such rivers, and their use nevertheless in water supply.

THE PROPOSED MACCLESFIELD INFIRMARY.

At a meeting of the general committee of the intended infirmity, for the purpose of devising the best means of determining upon the plans and designs on view in the Town-hall, for the inspection of the subscribers and the public, only a brief discussion took place, for the meeting felt the difficulty of undertaking, without professional guidance, the important and responsible task of making a selection from the three sets of plans and designs sent in by Mr. Stevens, Mr. Waterhouse, and Mr. Lee. Mr. Hakewill, of London, also sent in a design, not so much for competition as for the inspection of the committee. It was unanimously agreed that the chairman should place himself in communication with Mr. Currey, the architect of the new St. Thomas's Hospital, London, putting him in full possession of all the details, and inviting him to examine the plans and report upon them.

FROM SCOTLAND.

Edinburgh.—There has been exhibited in the council chambers a model, designed by Mr. Coyne, civil engineer, of a new fruit and vegetable market, tunnel, and railway goods stations, at the Grassmarket. According to the model, says the *Scotsman*, it is proposed to place the fruit and vegetable markets on the area of ground occupied by a lot of old houses, immediately to the west of the old corn-market, bounded by the west port on the south, and by King's Stables on the north. The proposed fruit and vegetable market is to be covered in, having a glass roof, and a semi-circular front to Grassmarket. The old corn-market is to be removed. It is intended to approach Grassmarket and the new markets by a tunnel, which is to branch off from the west side of the mound, opposite the lower end of the National Gallery, keeping above and clear of the mouth of the tunnel that goes under the galleries. The length of the tunnel is 270 yards, and its width is to be 50 ft., having two side pavements of 8 ft. wide, each for foot-passengers, and clear carriageway of 34 ft. Mr. Coyne also proposes to occupy as a railway goods station, for the North British and Edinburgh and Glasgow railways, the area of ground partially covered by houses, stable, and tanneries, west from the proposed markets.—The new Water of Leith drainage works are being actively pushed forward. They were commenced some months ago. The pipe-track commences a little to the west of Colbridge, and terminates near the Black Rocks at Leith Sands. The works, when fully completed, will consist of one main conduit and ten branches. The great sewer is to follow as nearly as possible the course of the stream, but will only occasionally lie within the bed of the river itself. Where such is the case, it is composed of cast-iron pipes, not exceeding at any point 3*ft.* in diameter. When the course lies along the banks, brick culverts or tunnels are substituted for the pipe, as being much cheaper and equally good. The total length of the main sewer is upwards of 5 miles, and the branches are equal to other 2 miles.

Dundee.—A very large organ, by Messrs. Foster & Andrews, of Hull, has been erected in the Music-hall, which has been altered for the purpose. The main features of the design are simply the massing of the pipes into four towers, with curtains of pipes between. The two centre towers are at each side of the keyboard; then the case recedes diagonally at each side towards the other towers, from which it recedes diagonally to the wall. In the two centre towers are the large 16-ft. pipes of the diapason of the pedal organ; and in the flanking towers are the pipes of the pedal principal. In the front between the towers are the pipes of the violin diapason of the great organ. Between the centre and flank towers are the pipes of the large open diapason of the great organ. At the sides are the pipes of the large pedal opera diapason. The pipes have all been decorated by Mr. Blackmore, of Euston-road, London. They are in various colours, but gilding predominates.

CHURCH-BUILDING NEWS.

Shipton Moyn.—The parish church has been re-opened. With the exception of the north porch and a small chapel on the south side, the whole has been rebuilt, and enlarged by the addition of a south aisle. It is built in the Decorated style, with a chancel, nave, north and south aisles, porch, and vestry. The roof is of high pitch, open in the interior to the ridge-piece, and painted ultramarine blue between the rafters. The whole of the interior is lined with ashlar. The north and south windows are double lights, filled with stained glass, in patterns. The whole of the glass, with the exception of the east window, was provided by Messrs. Powell & Son, of Whitefriars. The east window is of three lights of stained glass, by Messrs. Lavers & Barrard, of London, and is the joint gift of the Right Hon. T. H. Sotheron Estcourt, the Rev. T. G. Golightly, and the architect, and represents the Ascension of our Lord. Immediately under the west window, which is of three lights, filled with stained glass in patterns, is the baptistery, which contains a font in Caen stone, executed by Mr. Earp. The tower and western porch are the gift of Lady Estcourt. The tower contains six bells; and the north-east corner is surmounted by a turret. All the seats are open, and of stained pine. The chancel is paved with encaustic tiles, from Messrs. Simpson's, of London, after a design by the architect, Mr. Wyatt was the architect, and Mr. Brown, the builder.

Grittleton.—The parish church of Grittleton, near Chippenham, has been re-opened, after a partial restoration, at the cost of Sir John Neeld, bart., under Mr. Blomfield, architect. The chancel has been rebuilt. There is a reredos of mosaic, under the east window.

Warminster.—The chapel of St. John the Evangelist, at Boreham, has been consecrated. The site was given by Mr. W. Temple and Mr. George Temple, of Bishopstow. The church was designed by Mr. G. E. Street. Mr. Strong, of Warminster, was the builder; and Mr. Loxley, the clerk of the works. It is built of Hismley stone, with Bath stone dressings, and will seat about 350 persons. All the seats are free and unappropriated. It is in the Early English style of architecture, and consists of a nave and north aisle, and chancel, with organ chamber and vestry on the north side.

Tenbury.—The Nash church, in the rectory of Burford third portion, has been re-opened. The edifice under notice stands in a lawn-like field, a very short distance from the residence of Mr. G. Pardee, by whom the restorations, additions, and repairs have been effected. Before it came under the hands of the restorer, the building was, plain in the extreme, with the usual west-end gallery, in plain ceiling, and the usual west-end gallery, in which was the organ. The general style is the Early English, with a specimen of an Anglo-Norman arch over one of the windows; and the structure, before the restorations were begun, was without choir or aisles. In the building there is no chancel arch to part the choir from the nave; but a screen effects this object. All the windows on the south side, which have been preserved, are in the Early English style. In the nave they are glazed in diamond quarries with tinted borders. Two windows on the same side in the chancel are filled with stained glass. The east window is of enamelled flowered glass, with a coloured border. The aisle is separated from the nave by an arcade, springing from plain

columns, moulded bases, and carved capitals. At the east end of the north aisle is the organ chamber, and beyond that is the vestry. The roof of the nave and chancel is of open timber work, the lines of the curves being in unison with the general style of the building. Low open pews of old oak, arranged in three rows, will give ample room to the parishioners attending this church. The glazing of the north aisle is in single and double quarry with a cathedral-green border.

Rosberron (Somerset).—St. Michael's Church, Rosberron, has been re-opened after undergoing considerable restoration. The architect, Mr. Norton, of London, being desirous of exercising a conservative principle in the restoration of the edifice, which belongs to the fourteenth and fifteenth centuries, purposed merely repairing the walls and roof; but so dilapidated had the former become, and so rotten the latter, that rebuilding was indispensable. The builder employed was Mr. John Palmer, of Weston.

Roulesstone.—The church of Roulesstone, in the diocese of Hereford, has been re-opened. The work of restoration has been to strip the whole of the roofs and to re-cover them with stone tiles and red tile cresting, except the tower, which is covered with Broseley tiles. The whitewash has been removed from the walls throughout the church. The south wall of the nave, which was bulged, has been rebuilt; the Perpendicular window has been taken out, remodelled, and restored, and various other restorations have been effected. The church now contains 120 sittings, all free. The mosaic tiles are from the manufactory of Mr. Godwin, of Lugwardine; and the ornamental iron-work of the doorway, porch, cross, &c., was supplied by Mr. John Cornell, of Cheltenham. The work has been performed by Messrs. King & Godwin, of Gloucester, builders, from the designs and under the superintendence of Mr. G. C. Haddon, of the firm of Messrs. Elmslie, & Francy, of Hereford, Great Malvern, and London, architects. About 400l. have been expended on the work of restoration.

Balsall Heath (Birmingham).—The chief stone of the new aisle and chancel to St. Paul's Church has been laid. Mr. Holmes is the architect.

Riccall.—After a lapse of nearly three years, says the *Doncaster Gazette*, the Parish Church of Riccall has again been opened for divine worship. The church, which has been restored, by the contractors, Messrs. Lilly & Cawthorne, of Retford, under the superintendence of Mr. Pearson, of London, architect, is built of stone, and consists of a chancel, nave, and south aisles. It has open oak seats, and will accommodate 300 persons. The pulpit is made of Caen stone, and is carved. The Norman tower contains three bells, and has a new clock, presented by the rector. The cost of the restoration has been £3,000, of which sum Lord Wenlock, the principal landowner, contributed 700l., and the rector of 1 Esrick 570l.

Donwton (Doncaster).—All Saints' Church, Donwton, has been re-opened after completion of a series of restorations, &c., extending over the last four years. The improvements and alterations were carried out from the designs and under the superintendence of Mr. Teale, architect, Doncaster. The wood-work has been done by Mr. Clarke, and the mason's work by Mr. Athron, of Doncaster; the plumbing and glazing by Mr. Jubb, of Campsall. The cost has been considerable, and the sum subscribed falls short of the actual outlay.

Brigham (Carlisle).—Brigham Church has been re-opened, after being restored. The nave, tower, and aisle have been restored, according to plans prepared by Mr. Butterfield, architect. The repairs of the chancel were left to some future time. The expenses (1,800l., including a heating apparatus) are nearly liquidated. The work was executed, by day-labour, by the parishioners. From long-continent neglect, and injudicious repairs and alterations, the edifice had gradually fallen into a very dilapidated and discreditable condition; the original Gothic roof had given place to nighty barn-like structures, with flat lath-and-plaster ceilings; the tracery of the south windows had been destroyed, and wooden frames substituted; from want of drainage the foundations had sunk; the walls were rent and out of perpendicular; and a few more years would probably have sufficed to complete the work of ruin. The architecture of the exterior has been interfered with as little as possible, the original style being adhered to. As regards the interior, the ancient sculptures and carvings have been preserved by being fixed in the masonry of the walls. The floor has been

newly tiled, and the roof ornamented with Gothic woodwork. The pews are also new, of stained pine. Among the additions are three stained-glass windows. The principal one has been presented by Mrs. Harris, Greyguthen, and represents, in the centre, the Nativity; at each side, the Adoration of the Shepherds, and that of the Wise Men of the East; above these is a figure of our Saviour sitting in glory, surmounted by the heavenly choir; the whole being surrounded by figures of the Apostles. The eastern of the other two windows represents the Annunciation; and the western, the Temptation and Expulsion of our first parents from the garden of Eden: these two last windows have been the gift of the workmen employed in the restoration of the church. The total cost of these windows, including fitting, was 320l.; and they were manufactured by Mr. Gibbs, of London.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Liverpool.—The new church of St. Michael has been opened for divine service, by the Roman Catholic Bishop of Liverpool. The design was by Mr. E. Welby Pugin. The style is Continental Gothic. The principal front or gable end faces the West Derby-road, but is set back a few feet from the road, the small space of ground which intervenes being inclosed by railings. The gable end forms the front. It is divided by two buttresses, surmounted by figures of angels bearing crosses, and between the buttresses is an arched recess. Inclosed by the arch is a large circular tracery window, some 15 ft. in diameter, and below is an arcading with stone arches and pillars. The doorway is recessed and moulded, and above the arch of the door is a carving, representing a group of angels, with St. Michael, to whom the church is dedicated, and carved panels display the arms of the bishop of the diocese. The gable, like the buttresses, is ornamented with figures of angels, and immediately below is an arched recess for the bell. The extreme height of the front gable end from the ground to the top of the cross is 76 ft., and the extreme breadth 53 ft. The sides of the building are parallel to a new street branching off from the West Derby road, and at the side next this street is an aisle without windows, but having sculptured panels, and divided by buttresses. Above is the large clerestory, with coupled lancet windows, about 13 ft. in height, which are continued round the apsidal end of the chancel. Of these windows, there are altogether thirty-six in the clerestory. The interior dimensions of the building are 106 ft. in length, and 50 ft. in breadth. The aisle opens into the nave by six arches, carved on clustered columns, and on the side next the town are a number of confessionals, and two sacristies. Over the principal entrance is the organ-loft, and at the opposite side to the sacristies is a Lady Chapel. The church is built of patent red brick, with bands of blue brick, and dressings of Stourton stone. The entire cost of completion will be close on 5,000l. The contractor is Mr. George Glaister, of Liverpool.

STAINED GLASS.

St. Mary's, Southampton.—The east window of the chancel of this church has been filled with stained glass. This has been done at the expense of Capt. H. G. Ayscough, R.N., and is intended to commemorate the late Admiral Ayscough and his wife, the father and mother of Captain Ayscough. The style is Perpendicular. The window is divided vertically into five principal openings: these are crossed by a transom, which thus forms ten divisions, in each of which is set a picture, enclosed and framed by worked canopies. The pictures in the five upper divisions are devoted to the memory of Mrs. Ayscough, and are intended to illustrate the life and resurrection of a person whose career was one of Christian charity. The lower divisions are appropriated to the commemoration of the virtues and public services of Admiral Ayscough. With the exception of a picture of the nativity of our Saviour, in the centre opening, the illustrations are those of events which took place on, or in connexion with, the sea; such as our Saviour with Andrew and Simon, James and John, the miraculous draught of fishes, &c. The glass is by Messrs. Edmundson & Son, of Manchester.

Aldridge Church, Walsall.—The east window of the chancel of this church has very recently been filled with stained glass from the manufactory of Messrs. Ward & Hughes, of Fritch-street, Soho-square, London. The window has three lights, with tracery in the upper portion, and the scene represented is the Crucifixion of our Lord. In the centre light Christ hangs on the cross, at the foot of which is the Magdalene kneeling; and in the two side lights are the figures of the Virgin (to whom the church is dedicated) and St. John, the beloved disciple. In the background are the walls and towers of Jerusalem. The tracery above is filled with angels and emblems. The cost was defrayed by subscriptions from land-owners, residents, and others connected with the parish, and so successful was this movement that funds sufficient were raised to fill a second window with stained glass—one of those in the south aisle having two lights; and there is yet a balance in hand for the further decoration of the church. The window in the south aisle has been filled with "Powell's Quarries" and two medallions, in one of which our Lord is represented walking on the sea, and in the other St. Peter sinking in the waves. This village church, restored and enlarged in 1853, has now seven stained glass windows.

St. Mary's (R. C.) Chapel, Halifax.—Three windows have been placed in this chapel. They each comprise two lights, and are Perpendicular in style. One window, which is a memorial, to the Rev. Father Kavanagh, is occupied by a life-size figure of St. Matthew, in one light; in the other a likeness of the deceased clergyman, of corresponding size, in his priestly vestments. At the base of the window is the dedicatory inscription, recording the birth and demise of the gentleman to whose memory it is erected. The second window of the series is a memorial to the Rev. Joseph Fanclough, of Halifax, and in each light is a full-sized figure, respectively of the Virgin Mary and the Archangel Gabriel, representing the Annunciation. The whole of the figures are surmounted by canopies of a severe though elaborate design, and are inclosed within a border of plain but quaint leadwork. The third window is completely devoid of colour or any pictorial adornment, and is entirely composed of ornamental leadwork, enclosed within a border of the same description as the others. Messrs. Edmundson & Son executed all the three windows.

Durham Cathedral.—A stained-glass window has been placed in the nine altars, in what was formerly the chapel of St. Peter and St. Paul, in the cathedral. The window was by Mr. Bell, of Bristol, and is erected by the Rev. John Nane, in memory of Michelangelo Taylor, for many years member for Durham, and uncle of the late Marchioness of Londonderry. The window is 26 ft. by 5 ft. In the centre are two figures, each about 5 ft. high, of St. Peter and St. Paul, with their emblems; while above and below each of these two figures are four circles, two large and two small. The small ones are filled with figures and angels bearing scrolls, while the large circles, commencing from the top, have the following subjects:—1. "St. Peter walking on the Sea;" 2. "Feed my Lambs;" 3. "The Conversion of St. Paul;" 4. "St. Paul before King Agrippa." The whole window is in the style of the thirteenth century, the spandrels and borders being occupied with the foliage of the period. The window is seen on entering the north doorway of the cathedral.

St. Peter's, Newcastle-upon-Tyne.—Two new memorial windows have been added to St. Peter's church, and all the windows in the chancel are now of that character. Some time ago, a stained glass design was placed in one of the north-east windows, by Mr. I. G. Brown, solicitor, of this town, as a memorial of his late wife; and that gentleman has just had the other portion of the window filled in a similar manner. The subjects represented are, Christ offering the Holy Eucharist, and Christ blessing St. Peter and St. Andrew. On the opposite side of the chancel, another window has been erected at the cost of Miss Dobson, to the memory of Mr. John Dobson, of this town, architect, and her brother, Alex. Dobson. The upper part is a representation of the building of Solomon's Temple, and the lower the fall of the Tower of Babel.

Maiden Church (Gwent).—A window (the east) has been erected at St. John the Evangelist's Church, Maiden, in memory of the late Mr. James Rennie, of Maiden Park. The principal subject is the Ascension of our Lord, which occupies the centre lights. The side lights con-

tain the Evangelists, with their emblems; and underneath, the passage, "And he led them out as far as to Bethany, and he lifted up his hands, and blessed them. And it came to pass, while he blessed them, he was parted from them, and carried up to heaven."—Luke xxiv., 50 and 51. The tracery (at the top of the window) consists of our Lord, seated on the throne, in the act of opening the seven seals, surrounded by adoring seraphim and cherubim, angels and elders casting their crowns before him. The seven angels are proceeding from the throne. In other parts of the tracery are angels bearing texts. The base represents the three principal mysteries of the Gospel, viz., the Birth, Crucifixion, and Resurrection. It also contains shields, on which are emblazoned the arms of the deceased to whose memory the window is erected. At the bottom is the inscription. It was executed by Messrs. Chance, Brothers, & Co., Birmingham, at a cost of upwards of 300l.

SCHOOL-BUILDING NEWS.

Shenfield.—The new national schools erected near Shenfield Church have been opened. The new building has been erected by Mr. J. Cross, of Hatton, from designs by Mr. Bartlett, of Brentwood. It is in the Gothic style. There are at present 185 boys and girls attending the schools.

Birmingham.—The foundation stone of a new lecture-room and schools, for the use of the Baptist congregation worshipping in Cannon-street, has been laid in the rear of the chapel, and fronting to Little Cannon-street, on a considerable piece of ground, which in the earlier days of its history was used as a burial-ground. The plans of Mr. Holmes, of Birmingham, architect, were accepted. The new buildings will consist of a school-room on the ground-floor, 29 ft. long, 27 ft. 6 in. wide, by 14 ft. high, and lighted by four wide windows from Little Cannon-street, the entrance being on the right to the school. There will also be an entrance on the left, leading to the lecture-room, which will be on the floor above the school, and be 37 ft. long, 34 ft. wide, and 20 ft. high. At one end of the room will be a raised platform for speakers, the front of which will be of an ornamental character, and surrounded by an ornamental railing of iron. The room will also be lighted from Little Cannon-street, by means of a bay window in the centre, and other four windows, two on each side of the large window. Two iron columns in the lecture-room will assist in carrying the floor and roof, and will have ornamental capitals, bases, and bands. The style of architecture is founded on the Early Pointed period of English architecture, and the walls will be of brick. In the front elevation facing Little Cannon-street, blue and moulded bricks will be introduced, the more prominent parts being of Bath stone. The ceiling of the school and the roof of the lecture-room will be strengthened by ornamental deal beams, which, with the other timbers of the floors and roof, will be stained and varnished, and the ornamental iron-work will be picked out in colours. The roof will be covered with slates, and surmounted by an ornamental ridge. The present school-room, in the rear of the chapel, will be divided into vestries. The contractors for the building are Messrs. Jeffreys & Pritchard.

Sheffield.—The chief stone of a building, which will be used as a Sunday and day school, in connexion with the Independent denomination, at Brightside, has been laid by the mayor of Sheffield. The site of the building closely adjoins the railway, near to the Station Inn. The large works over which the mayor presides employ a great number of hands; and there are others of importance in the immediate neighbourhood in rapid progress towards completion, which will necessarily add largely to the population of the district. The new building will occupy the same site as the old one: it will be of dressed stone, and will accommodate 250 scholars in one large room, besides which there are two class-rooms for senior scholars, and provision is made for a gallery. There is a vault beneath, and a gill-stove for warming is included in the contract. A system of ventilation is also provided for all the rooms. The windows are large, and those in the gables will have geometric quarry glazing. The outside is comparatively plain, but the interior will have some simple decoration. The works are let by contract for 432l. Mr. C. J. Innocent, of Sheffield, is the architect.

Books Received.

Illustrated Guide to the Great Eastern Railway; Colchester Line.—*Illustrated Guide to the Great Eastern Railway; Cambridge Line.* By GEO. MEASON. Griffin & Co. London.

These books, published under the authority of the directors of the Great Eastern Railway, contain a very large number of illustrative engravings, and a pleasant chaty account of the principal places on the line, including, in the case of the first of these, a dive into Holland, led up to by the fact that steamers start for that country from Harwich. For anything more, however, than what we have pointed to, it is of no use looking to these volumes. Turning to the volume devoted to the Cambridge Line, we open it at *Ely*, to learn what is said of the painted ceiling in the Cathedral nave: it is not even mentioned. We turn to *Standon*, to see what is thought of the interesting church there, recently restored: no intimation is given that the parish has a church; and so we might go on from one end of the book to the other. Suffice it: they contain some useful maps, and the wood engravings, to which we have already alluded, are worth more than the small cost of the books.

VARIORUM.

THE Bombay Builder, a new illustrated venture, published monthly, at 30 rupees per annum, contains a lithograph view of Lady Frere's Temple, in the Victoria Gardens, Bombay. This is a version of the Choriag monument, 35 ft. high, in stone, and serves as a canopy for the bust of Lady Frere, by Noble. It was commenced under Mr. W. Tracy, and completed under Messrs. Scott & McClelland, to whom all the buildings in the gardens were confided upon the death of Mr. Tracy.—*Fraser's Magazine* for October (Longmans & Co.) contains a graphic and amusing paper by Miss Cobbe on Ireland and her Exhibition in 1865. It closes with some rather startling statistics; but as the author is afraid that some "agrarian reviewer, shooting at her from behind the shelter of his journal, may do her to death with the famous remark that nothing is so false as figures except facts," we shall refrain from passing any remark whatever on them, as we do not wish her to class us among those rude literary ribbonmen who could fire away from behind his hedge at a lady's statistics.—"Poultry Breeding in a Commercial Point of View, as carried out by the National Poultry Company (limited), Bromley, Kent. By George Kennedy Geyelin, C.E. London: Simpkin & Marshall." The multiplication and cheapening of the food of the people is an important subject in which we always feel interested. Mr. Geyelin's system contemplates the natural and artificial hatching, rearing, and fattening of poultry on new and scientific principles; and the author here gives all the necessary plans, elevations, sections, and details, together with a notice of the poultry establishments in France.—"The New Path" (Miller, New York), gives a description of a fine-art school, of size and character, now in course of erection for Yale College, at the sole cost of Mr. Augustus Russell Street, a citizen of New Haven. The building will provide for both instruction and exhibition.

Miscellaneous.

CRYSTAL PALACE SCHOOL OF ART, SCIENCE, AND LITERATURE.—This institution is about to enter upon its sixth annual session. The various classes are established on the collegiate system, which embraces a liberal and finished education at a reasonable cost, each subject being supervised by an experienced professor. During the last session nearly 200 ladies availed themselves of the advantages thus afforded.

WORKING MEN'S COLLEGE.—The first term of the twelfth year will commence on Monday next, the 23rd, when the usual classes will be formed in art, mathematics, languages, history, geography, and physical science. Special courses of lectures will be delivered during the ensuing session on "The Constitutional History of England," by Mr. Thos. Randall Bennett, M.A.; on "The General History of Europe," by the Principal, the Rev. F. D. Maurice, M.A.; and special classes will be formed for the study of chemistry, geology, and botany.

THE SURVEYORSHIP OF PENRITH.—There were the large number of forty-five applicants; and, after a careful investigation of the claims of each, nineteen have been selected for further consideration.

METROPOLITAN BOARD OF WORKS: SALARIES OF THE ENGINEERS.—It has been resolved, by a large majority of votes, to raise the salary of the chief engineer, Mr. Bazalgette, from 1,500l. to 2,000l. a year, with 200l. a year for incidental and travelling expenses as heretofore; and the salaries of the other engineers, Messrs. Lovick, Grant, and Cooper, from 500l. to 800l. a year each, with 200l. a year for expenses as heretofore.

CITY IMPROVEMENTS.—The City Sewers Commission have agreed to the following resolution—"That a special committee, to consist of five members, be appointed to consider and report relative to improvements now in hand or contemplated, also generally, or any needed in the judgment of such committee, and upon the powers of the commission to provide means for improvements, and any recommendations such committee may see fit to make thereon." This may be valuable.

IPSWICH SCHOOL OF ART.—The report of the Committee of the Ipswich School of Art, for the year ending January 31st last, has just been issued. The committee state that they feel happy to have it in their power to congratulate the patrons and supporters of the school on the continued success of its operations, which is in a great measure due to the exertions of the master, Mr. W. T. Griffiths. There is a small balance against the school, occasioned principally by a larger sum than usual having been expended in the purchase of models. The financial statement shows the receipts to have been,—Students' fees (central school), 176l. 5s. 11d.; fees from public schools, 70l. 17s. 6d.; balance of last year's account, 3l. 8s. 8d.—total, 250l. 12s. 1d. The expenditure amounted to 263l. 2s. 8d. and, therefore, there is a balance of 12l. 10s. 7d. against the school.

MANCHESTER SCHOOL OF ART.—The annual report of this school by the head master, Mr. W. J. Mückley, states that "at the national competition which took place in May, 1864, seven awards were made, and three of the works were purchased by the Department as examples for the use of other schools, and three designs were also purchased for paperhangings by the manufacturers themselves. Two hundred and four works were forwarded to London in March last for competition, and at the examination which has taken place very recently, still greater success has attended Manchester, as shown by the fact that thirty-five local medals have been awarded to the students of this school, being the greatest number that has ever been given to it at one examination," as thirty medals was the highest number received by a school at one time. Among the prizes awarded for 1865 are also eight national medallions and nineteen books, besides thirty-two certificates. Of the House of Commons Committee, the report of the Local Committee at Manchester says: "The decision of that Committee is now well known; and notwithstanding its adverse character, it is so far satisfactory to know that the matter is at length decisively settled. It is decided that each school shall provide for its own pecuniary support; and all assistance from Government has almost entirely ceased, as far as general outlay is concerned."

NOVEL NAVAL ARCHITECTURE.—The cigar-ship will, as at present arranged, be launched from the premises of her builders, Messrs. Hepworth, Millwall, on the 19th instant. An experimental vessel on an entirely new principle is about to be laid down by an eminent ship-building firm for the projectors, who have patented the invention. It is described as the light-draught roller ship, or water chariot. This invention consists in supporting a car or vessel, above the water-level, on axles or shafts passing through rotary hollow drums or cylinders, which are made to revolve on their axles by steam or other motive power. This car or vessel, constructed to carry passengers and freight, is supported by the buoyancy of the drums, and kept suspended above the water-level. The advantages of the invention are said to consist in increased speed at a much less expenditure of motive power and fuel, and from the light draught of water, greater safety from shoals, rocks, &c. It would be highly useful for the navigation of shallow creeks and rivers.

HASTINGS AND ST. LEONARDS.—Mr. Andrews, the surveyor to the local board, has submitted a plan of sewerage for Hastings and St. Leonards, and it is intended to secure the joint services of the Bazalgette in carrying out the sewerage of both places.

FALL OF THREE HOUSES.—On Tuesday morning the front of the house No. 171, Eastfield-street, Limehouse-fields, a short distance from Popney Old Church, fell into the street, carrying with it the front wall and roofs of the two adjoining houses—170 and 172. The ruins fell on and killed a child named George Reed, aged six years, who was passing. The occupants of the houses had been forewarned, and were in the lower rooms. They escaped without injury.

ANOTHER NEW GUNPOWDER.—Near Potsdam, Prussia, gunpowder is being manufactured from wood on something like the gun-cotton principle. It is now some years since we first heard of the conversion of sawdust into an explosive by means of acids on the gun-cotton principle; but Captain Schultze, of Potsdam, appears to have carried out the invention into a practical manufacture. By machinery he cross-cuts beech and other timber into very thin veneers, which he easily crumbled into a coarse-grained powder of sawdust, which is then exposed to the action of acids, probably in much the same way that cotton is to form gun-cotton. The grains are thus reduced in size, and rendered explosive when dried, without yielding either smoke or smell in the combustion, but giving a brilliant light suitable for pyrotechnic displays.

THE METROPOLITAN AND PROVINCIAL WORKING-CLASS INDUSTRIAL EXHIBITION.—As we anticipated, those interested in industrial exhibitions are beginning to find that the local system has been overdone, as, indeed, the failure of some of them latterly in a financial point of view, in itself clearly shows. It has, therefore, been resolved to open a general exhibition of the works of the industrial classes of both town and country, in the autumn of next year, at the Agricultural Hall, Islington. The special features of the exhibition will be the encouragement of skilled workmanship, amateur productions, facilities for the sale of articles, machinery in motion, musical gatherings, lectures on popular objects, manufacturing processes in operation, power shows, conversation of masters and workmen, free admission of schools, free reading-rooms, prizes for overgreens, &c., in pots, and a small garden.

NORTHERN ARCHITECTURAL ASSOCIATION.—At the first meeting of the session, held at the Old Castle, Newcastle, Mr. J. Green presiding, Mr. D. Birkett read a paper "On the Ornamental Construction of Windows in Domestic Buildings." After giving a short sketch of glass-making, Mr. Birkett showed that the window-opening had always depended upon the progress of glass-making. He then proceeded to describe the best form of a modern window to fulfil the required conditions of a sitting-room for showing the prospect, and for obtaining the proper admission of light. He considered that the best size for a window was to have the opening about one-sixth or one-eighth of the area of the floor. The best form of a window-opening was, in his view, two or three windows with the space between them so wide to form a mullion. The paper closed with a description of exterior ornamentation. An arrangement was made for giving architectural assistants a half-holiday on Saturdays.

THE GATESHEAD TOWNHALL SCHEME.—The town council have adopted a report by the town hall committee, recommending a curtailment of the plans, as follows:—"The portions of the original design which the committee recommend to be altogether omitted are as under:—Fireproof arches, 760*l*.; attic-story, 750*l*.; carcass of upper rooms, 595*l*.; finishing of ditto, 480*l*.; erection of roads, palisading, and green, 580*l*.; twenty-court, 3,180*l*.; less half West-street theatre, 700*l*.; portion of furniture, 55*l*.—total, 7,000*l*. The annexed statement will show that the figures in this report agree with a total of 22,300*l*. specified in the original report of the town surveyor:—Works now recommended to be executed, 9,800*l*.; works recommended to be entirely omitted, 5,700*l*.; public-hall and central block, 6,850*l*.; Swing-bridge-place-road and High-street flagging, 710*l*.; total, 23,060*l*. Original estimate, 22,300*l*.; cost of quarrying, 840*l*.; add money spent, 1,000*l*.—total, as above, 23,060*l*."

FALL OF A GRAND STAND.—Prior to starting the first event at the Leek races, a noise was heard, and the grand stand came down, carrying with it a good many people, and burying in the debris a number of ladies. One gentleman had all his teeth in the upper jaw knocked out. The ladies were got out with some difficulty.

THE CHESTER NEW TOWN-HALL.—Messrs. Clarke & Son, the contractors for this building, in view of the laying of the chief stone on the 25th instant, sent a large force of workmen to pull down the buildings resting on the site to be occupied by the new Town-hall. The stone for the new structure is being prepared. An accident has happened to some of the men engaged in pulling down the old buildings. They were occupied in taking the inside materials from an old house, portions of the extensive walls of which were standing, when all that remained of the building came down. The debris fell towards the workmen, one of whom was so completely covered with it that twenty minutes elapsed before he could be extricated, whilst others were injured by the falling mass.

ART-WORKMEN'S ASSOCIATION FOR MANCHESTER.—A meeting of gentlemen interested in the establishment of this Association, has been held in the town-hall, when the report of the committee, which described the object of the Association, was read. The object was the encouragement of art and manufacture amongst the working men of Manchester and district. Mr. Robertson said that a little jealousy which had existed among employers had been removed by their having been invited to join the Association as honorary members, and the employers had cordially acceded to the request. A room had, within a month after the formation of the Association, been conceded to them in the Royal Institution for holding their meetings, and they might hope for rooms in the same institution in time to hold their show. A guarantee fund of 1,000*l*. was proposed, and several gentlemen offered to subscribe 50*l*. each towards it.

WALL PAINTING IN ST. MARTIN'S-ON-THE-HILL, SCARBOROUGH.—The painting on the eastern wall of this church, which has been so long in progress, is now completed. The central object of the decoration is a representation of the Adoration of the Eastern Kings. In the background, are angels adoring, and in the upper part of this panel, are the quaint red tiles of the roof of the stable, with the doves hovering over it. On each side of the central panel, are three small figures of angels with musical instruments in their hands, worshipping the infant Redeemer. The four outer panels contain figures of the four archangels. All these are on a background of gold, toned down by flowers and foliage. The whole wall is covered by a diaper pattern: in this pattern is worked the letter M, standing for St. Martin, in whose name the church is dedicated, with the abbreviated Latin inscription,—"In mem. ater. erit justus." "The righteous shall be had in everlasting remembrance." The painting is Miss Mary Craven's additional gift to the church. It was executed by Messrs. Morris, Marshall, Falkner, & Co., of Red Lion-square, London.

PRIMROSE HILL.—On Primrose-hill, which is under the same management as Regent's Park—namely, that of Mr. Edwards—a new walk has been finished within the last few weeks, from near the waterworks reservoir, in a southeasterly direction, to Albert-terrace, Albert-road. It is about 700 or 800 yards in length. A couple of those iron works that one sees occasionally near cab-stands in the streets would not be out of place on Primrose-hill. On the south side of the hill there is a fine open air gymnasium, which is more frequented than any other in London. It is a great pity that some attempt is not made, before it is too late, to connect Regent's Park with Hampstead Heath, by means of a carriage-drive which might be brought round the lower parts of road, with the fine old trees on either side of it—from Belsize Park to Haverstock-hill, and so on to Hampstead. A rather novel suggestion has been made as to Primrose-hill, which is neither more nor less than that a *donkey* Rotten-row, with model asses and equipments, and well-dressed, respectable attendants, should be established there. And there is little doubt that if women and children only were allowed to ride, the innovation would be highly appreciated by the majority of the frequenters of Primrose-hill.—*Times*.

THE GREENWICH EXHIBITION.—The South-Eastern Industrial Exhibition in Greenwich Hospital is to be opened on (this) Friday, the 20th, by Viscount Sydney, lord-lieutenant of the county.

LOUGHTON.—The committee of the Loughton National Schools are now carrying out additions thereto, under the direction of Mr. T. H. Watson, their architect, who designed the original work, previously to his going on the Continent as travelling student of the Royal Academy of Arts.

THE DUBLIN O'CONNELL STATUE.—At a meeting of the committee, on the 4th instant, it was resolved to give the commission to Mr. Foley. At a meeting on the 11th, however, according to the *Dublin Builder*, notice was given of a motion for the following meeting to rescind that resolution, and nominate a resident Irish architect.

DISCOVERY IN BEFOTON CHURCH.—This church is closed for extensive alterations, restorations, &c. While the workmen were engaged removing an arched recess, there was discovered on it a wall painting in excellent preservation, representing "The Last Judgment." Photographs of it have been taken, to be sold for the benefit of the church restoration fund.

MURAL PAINTING.—BUNBURY CHURCH.—In the course of the restoration of Bunbury Church, on removing some of the whitewash in the Crews Chapel the remains of an old mural painting were observed immediately over where the altar stood. The subject is the "Resurrection." The picture is of small dimensions, and simple in treatment. Our Lord is represented as rising from the tomb: on each side one of the Marys is standing, behind whom is the figure of a bishop.

SOUTHWARK BRIDGE.—The Court of Common Council have resolved, on the motion of Alderman Salomons, that Southwark Bridge shall be kept open for other twelve months, with the option of purchasing the bridge altogether. The motion was strenuously opposed, not from any doubt as to the convenience afforded by the bridge being free, for that was admitted on all hands, but because the motion pointed to the chance of the corporation purchasing it altogether, for which it was said that there were no funds forthcoming.

THE CONSERVATIVE LAND SOCIETY.—The report of the committee presented on Tuesday, the 10th inst., states that the receipts for the year ending September 30, 1865, were 80,260*l*. 2*s*. 1*d*., one of the largest ever received by the society. The reserve fund was 11,471*l*. 6*s*. 4*d*. The total amount paid into the society since its formation was 826,649*l*. 15*s*. 11*d*. The 50*l*. shares issued were 22,925, representing 1,146,250*l*. The use made of the society as a savings and deposit bank is indicated by the withdrawals which, since September, 1862, reach 266,906*l*. 14*s*. 4*d*. This society has acquired sixty estates in twenty-six counties, and the sale of land to Michaelmas was 415,550*l*. 16*s*. 4*d*. The sales on the old and new properties had been unusually great in the year, especially in the suburban districts. Five new estates at Stafford, Hereford, New Ferry (opposite Liverpool), St. Austell (Cornwall), and Putney, are to be allotted this year.

MANCHESTER ARTISTS AND THE ROYAL INSTITUTION.—A correspondent of the *Bolton Chronicle*, writing from Manchester, discusses the causes of the indifferent collections of modern pictures obtained for the annual exhibition at the Royal Institution, and arrives at the conclusion that the result is mainly, if not solely, due to a want of encouragement of local artists by connoisseurs and picture-buyers. The writer says:—"Those works which have already met with purchasers are very small pictures, varying in price from one guinea up to forty guineas, and the whole number of works disposed of is twenty-nine, amounting to the value of 873*l*. 9*s*. This is the result after a fortnight's display; whilst the sales at the Liverpool Academy, on the private view day alone, generally approach 2,000*l*. Does this speak well for the encouragement of art and artists in Manchester? There are good names on the council of the Royal Manchester Institution; a few of them are purchasers of works of art, but very rarely from the walls of the Royal Manchester Institution. Not so in Liverpool. If a young artist there display talent, he is taken by the hand, his works are bought, and commissions given. Several Manchester artists have won for themselves honourable positions in London."

ARCHITECTURAL ASSOCIATION.—The conversation of the Association will be held at the House, in Conduit-street, Regent-street, on Friday next, at 8 p.m.

THE PROPOSED NEW CORN EXCHANGE FOR DORCHESTER.—At the last council meeting, the tender of Mr. Wellspring, of Dorchester, who agrees to complete the work for 2,135*l.*, was accepted by a large majority, and it was resolved that the work should be immediately carried out. The only other tender was that of Mr. Monday, for 2,189*l.*

REFUSAL OF LICENCE TO A DEFECTIVE THEATRE. Application was lately made to the Darlington magistrates, by the proprietor of the local theatre, for a licence. Mr. Dickinson, the engineer to the Local Board of Health, and on their behalf, opposed the application, on the ground that the building could not safely be used for such purposes as proposed, owing to the make of the walls. Several persons were examined *pro* and *con.*, and ultimately the magistrates declined granting a licence until the walls, &c., were strengthened to the satisfaction of the Local Board of Health's representative.

AGRICULTURAL PROGRESS.—A new means of increasing the fertility of land has been invented, and, it is said, successfully tried at Annaberg, near Bonn. The object of the new invention is to extend the generation of humus to the lower strata, by introducing air into the earth. To this end pipes, very similar to the ordinary drains, but riddled by narrow apertures, are laid down at a depth of from 3 ft. to 6 ft. Instead of a central drain, they lead to a hearth, where a fire rarefying the air causes a constant draught to pervade the pipes. The atmosphere, says the description, thus freely entering and issuing from the pipes, preserves the normal condition underground, and through the numerous apertures approaches the strata which contains the roots: thus the soil is loosened, and penetrated by oxygen so effectually, that though the air from above may be shut out from the hearth, the fire will continue to burn all the same. The invention, or rather the experiment, which may be destined to mark a useful progress in agriculture, was suggested by Herr Noenenbrück, and executed under the superintendence of Dr. Hardstein, both attached to the Agricultural Academy connected with the University of Bonn. The supply of heat, though perhaps not specially of air, to the soil, by somewhat similar means, has been before suggested.

NEW WAREHOUSE AT SUNDERLAND DOCK.—The new grain warehouse, erected by the local Commissioners at the South Dock, is ready for the reception of grain. The warehouse is a brick building, of six stories in height, 137 ft. in length, 65 ft. in breadth, 63 ft. 9 in. to the eaves of the roof, and 73 ft. to the apex of the roof. The lower story is 14 ft. in height, the four immediately above are 9 ft. each, and the upper flat 9 ft. to the level of the roof, which is open. The walls are of varying thicknesses, from 4 ft. to 24 in. The foundations are excavated to 10 ft. to the solid rock, upon which a bed of concrete 4 ft. thick is laid, and upon this are raised columns of ashlar masonry, on which rest cast-iron columns supporting the interior of the warehouse. The girders supporting the floors pass through openings in the top of each column. These girders are continuous, each one being 14 in. thick, and running the entire length of the building, 135 ft., without break. The continuity has the advantage, it is estimated, of adding 25 per cent. to the strength. The breaking strain of each girder in the centre is 40 tons, but the weight has been distributed so as not to exceed 20 tons. The roof is double ridged, and supported in the centre by timber framing resting upon the girders. There are two tiers of hatchways from the top to the bottom—one over the lower floor, and the other on a line of railway running right through the centre of the warehouse, so that grain can be placed upon trucks under cover. The building is erected to contain 12,000 quarters of grain. A stone fire-proof staircase, with iron doors to each loft, runs up the north-west side of the building. A water-main runs up to each floor, to which hose can be attached. The floor is air and water-tight, iron silvers being introduced between each batten for that purpose. The contractor for the building was Mr. Walter Scott, of Newcastle. The plans, &c., were prepared by Mr. Thomas Meik, the engineer to the Commission, and the estimated cost is 10,000*l.*

PARISIAN MIDDLE-CLASS ASYLUM.—A retreat for the aged has just been opened at Auteuil, near the Bois de Boulogne: it was established by the Administration of Public Assistance, with funds given by a gentleman and lady named Chardon-Lagache. The new asylum receives married couples as well as single.

WOLVERHAMPTON NEW TOWN HALL BUILDINGS.—The committee appointed to take steps for the erection of new public buildings in Wolverhampton have met for the purpose of inspecting the nineteen plans which have been sent in by architects in accordance with the committee's advertisement, and have selected eight for further consideration. The selected designs are hung in the Council chamber. We understand that the borough surveyor has instructions to report upon the plans.

THE NEW POLICE COURT, NORTH SHIELDS.—The new police court for the borough of Tyne-mouth has been completed. It is situated at the corner of Saville-street and Norfolk-street, and consequently is at right angles with the old police court, the end of the two courts adjoining each other. The new court is the more spacious of the two, being 51 ft. long by 27 ft. broad, whilst the old court is only 44 ft. by 20 ft. The height is 14 ft. The courts are on the same floor, and there is a ready communication between the two, with adjoining apartments common to both. The borough surveyor, Mr. Robson, planned the arrangements. Adjoining the new court-house, and in Norfolk-street, is a new stone building, where the fire-engines are kept. The upper portions of the building form the residences of the inspector and another officer of the fire brigade. The old court will be retained for the sittings of the town council.

TENDERS

For the erection of a villa at Kingston-on-Thames, for Dr. Jackson Kent. Mr. W. P. Griffith, architect. Quantities not supplied:—

Dunkley	21,478 0 0
Wholesale	1,300 0 0
Dismalade	1,390 0 0
Boxall	1,374 0 0
Ebbage (accepted)	1,280 0 0

For alterations to 88 and 89, Borough, for Mr. Sheppard. Mr. W. P. Griffith, architect:—

Ebbage	2,069 9 0
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For two shops, in High-street, Hereford, for Mr. Bouillon. Messrs. Emslie, Francy, & Haddon, architects:—

Lewis & Day (accepted)	2,740 0 0
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For new shop, in High-street, Hereford, for Mr. R. P. Morris. Messrs. Emslie, Francy, & Haddon, architects:—

Freeman (accepted)	2,555 0 0
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For building four houses, in Renfrew-road, Kennington, for Mr. Miles:—

Nightingale	21,250 0 0
Wootton & Land	1,235 0 0
Brown	1,215 0 0
Cranch	1,200 0 0
Surridge	1,075 0 0
Hogel	1,050 0 0
Hales	1,050 0 0
Neale (accepted)	1,009 0 0

For new floor to warehouse, No. 34, Milk-street, Chesham. Mr. Robert W. Edis, architect:—

Scrivenor & White	824 0 0
Conder	736 0 0
Hardiman & Sandon (accepted)	648 0 0

Accepted, for two shops and buildings, for Co-operative Society's store, Limited, Chithrope, Mr. Edward Fritsch, architect. Quantities supplied:—

Mason's Bricklayer's, and Excavator's Work.	
Perry	2,245 0 0

Joiner's Work.	
Grimshaw	559 9 8

Slater's and Plasterer's Work.	
Tomlinson & Shaw	78 13 0

Plumber's Work.	
Hodgkinson	133 10 0

Ironfounder's Work.	
Cockshott & Co.	30 10 0

For first part of new warehouses, in Kingsland-road, for Mr. John Carter. Mr. E. Roberts, architect. Quantities supplied by Mr. D. C. Nicholls:—

Messrs. Nicholson	2,980 0 0
Alston	680 0 0
Wells	675 0 0
Scrivenor & White (accepted)	668 0 0

For alterations at 173, Blackfriars-road. Mr. E. Tress, architect:—

Fowler	2,980 0 0
Browne & Robinson	950 0 0
King & Son	939 0 0
Downes	893 0 0
Patrick & Son	846 0 0
Newman & Mann	785 0 0

For pulling down and rebuilding Nos. 41 and 42, Monkwell-street, for Mr. C. B. Wilson. Mr. B. Tabberer, architect:—

Bostel (accepted)	2,720 0 0
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For proposed additions and alterations, with new stabling, &c., at the residence of Mr. Charles Lyall, Stoke-green, Bucks. Mr. Wm. Sun, architect. Quantities supplied:—

Fish	23,768 0 0
Elliot	2,698 0 0
Passmore & Son	2,338 0 0
Harding	2,277 0 0
Sargeant	1,981 0 0

For pulling down premises at rear of house, and erecting new ditto, at No. 13, Finsbury-pavement, for Mr. F. Beard. Mr. Hammond, architect:—

Woodward	275 0 0
Chesnum	275 0 0
Bostel (accepted)	274 0 0

For new malt-office, in Hesthorpe-road, Doncaster, for Mr. George May. Mr. Charles Baily, architect:—

Mackenzie	21,350 0 0
Lane	1,805 0 0
Fretwell (accepted)	1,279 0 0

For new gate-lodge, carriage-house, stables, &c., for Mr. J. C. Bambridge, Newark-upon-Trent. Mr. Charles Baily, architect:—

Mackenzie	2,608 0 0
Lane	696 18 0
Fretwell (accepted)	693 10 0

For new cottage, stables, carriage-house, &c., for Mr. Smith, Newark-upon-Trent. Mr. Charles Baily, architect:—

Lane	2,585 0 0
Chippendale	877 0 0
Fretwell	670 0 0
Mackenzie (accepted)	670 0 0

For new Song School master's house, for the trustees of the estates of the late Rev. Thomas Magnus, Newark-upon-Trent. Mr. Charles Baily, architect:—

Common Front Brick	2,049 10 0
Back Facing	2,049 10 0
Lane	2,049 10 0
Mackenzie	864 0 0
Fretwell	867 0 0
Accepted.	864 0 0

For taking down and rebuilding the Old Rose public house, Russell-street, Bermondsey. Mr. Charles Sewell, architect:—

Clemence	21,975 0 0
Fish	1,830 0 0
Wills	1,444 0 0
Wells	1,370 0 0
Roffey (accepted)	1,193 0 0

TO CORRESPONDENTS.

Messrs. C. W. S. R. W. E. A. H. R. T. C. R. J. W. H. W. J. W. W. W. E. R. J. G. W. J. G. C. C. H. J. R. W. T. P. G. progress) A. T. W. T. (a wash of milk answers very well). A. E. W. (Buckel) W. T. (see our making inquiries). We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, on papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent Garden. All other Communications should be addressed to the "Editor," and NOT to the "Publisher."

[ADVERTISEMENT.]

CHURCH, TURRET, AND STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees of Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 83 & 84 Ludgate-hill; E.C. Established 1749.

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FOR ARCHITECTS, SURVEYORS, LAWYERS, AND LANDLORDS. **ON ANCIENT LIGHTS.** The Day, No. 31. By ROBERT KER, Architect, Author of "The English Landowner's House." JOHN MURRAY, Albemarle-street.

The Builder.

VOL. XXIII.—No. 1186.

Obstruction of Ancient Lights.



OUR readers do not now require to be told of the difficulties that arise in dealing with "ancient lights," and the little certainty that can be entertained as to the result of any law proceedings in connexion with the questions to which they give rise. "As the value of house property has increased, disputes of this class have become more common than ever, more difficult of settlement, and more expensive. Serious complaints are made in all quarters,—on the one hand, that vexatious litigants are permitted by frivolous technicalities to hamper improvement where improvement ought most to be encouraged; on the other, that bold speculators

are able to override the rights of less wealthy and more timid neighbours, the very class who most require protection. Demands are made for legislative interference; and even Chancery judges confess themselves bewildered in the subtleties of pleading, and the conflict of interests equally entitled, not merely to legal respect, but to personal sympathy."

Professor Kerr, in a pamphlet on the subject he has just now published,* thinks that the fault lies in the defective nature of surveyor's evidence, and not in the law at all; and asking, "What is surveyor's evidence?" replies, "In all litigation the basis of judgment must be what are called 'the facts.' If the facts are misrepresented, the judge cannot be responsible for his decision, and the law cannot be responsible for its justice. Lawyers will supply the reasoning, but they must be supplied with the facts. The facts of light cases, then, are supplied by the surveyors. It is upon their statements alone that the law is capable of being applied. They make oath and declare, as experts, that certain lighting will be 'materially diminished;' or that it will not be so; and, in reality, these statements have to do duty for 'the facts.' And when half-a-dozen surveyors on one side swear one thing, and another half-dozen on the other side swear quite another thing, and all in the most empirical and dogmatic way, not only not assigning reasons, but positively withholding reasons by prudential rule, can it be wondered at that on such a basis of 'facts' the law should find itself at a loss?"

Opinions of this kind, he thinks, ought to be matter of intelligible proof,—ought not to be ventured upon unless arrived at by such proof. The object of his pamphlet is to give what he thinks will afford the means of proof, so that their opinions may be both definite and intelligible; and he ventures to think that, if surveyor's evidence can be made all it might be in these respects, the public will find little to complain of in the state of the law.

The treatise is divided into three parts, namely,—

I. The rationale of the law of ancient lights.
II. The employment of window-lighting, and the classification of lights.

III. The measurement of window-light, and the proof of its diminution and damage.

It is this third part that possesses novelty, and is proposed as the solution of the difficulty. He gives in it tables of valuation for the measurement of window-light, and suggestions for their employment in practice. Admitting that there may, perhaps, be differences of opinion respecting the data on which these tables are based, he maintains, that if such tables can be accepted, they must go a great way towards providing surveyors with those means of proof, the want of which at present renders their evidence so unsatisfactory "as facts."

The term for which the light has been enjoyed that gives a right is, as every one now knows, twenty years. The term was at one time doubtful; but by the Act 2 and 3 William IV., cap. 71, called the Prescription Act, it was determined that in future certain definite terms of years should be accepted,—in cases of house-light, twenty years. The practical bearing of this usually is, that if a window can be proved to have received light over a neighbouring property for the last twenty years, the owner of the neighbouring property must not deprive it of any necessary part of its light by his operations on his own property, no matter what his own necessities may be. The words of the Act are,— "When the access and use of light to and for any dwelling-house, workshop, or other building, shall have been actually enjoyed therewith for the full period of twenty years, without interruption, the right thereto shall be deemed absolute and indefeasible, any local usage or custom to the contrary notwithstanding,* unless it shall appear that the same was enjoyed by some consent or agreement expressly made or given for that purpose by deed or writing" (in which case, obviously, the agreement would explain itself).

To define precisely what is the right of lighting here involved, the author gives the following as rules to be remembered:—

1. It must be lighting "actually enjoyed,"—really made use of beneficially as a necessary—the loss of which would be a tangible deprivation to the building; that is to say, the window in question must be necessary to the house, and the particular lighting in question necessary to the window. The law will not enforce any restriction upon the servient property except for a tangible and essential benefit to the dominant.
2. The privilege must have been enjoyed for twenty continuous years immediately past, without any abandonment except for a temporary purpose.
3. It is the necessary, the "actually enjoyed" amount of lighting, which must not be diminished; any unnecessary or unenjoyed surplus may be obstructed without wrong.
4. The diminution must be of such extent as to be sensibly appreciable by ordinary persons; not speculative or theoretical, but practically apparent both in kind and degree—what the law calls "a material," or "substantial," or "considerable" obstruction, not even recognizing any personal peculiarity, far less any eccentricity or caprice, of the complainant, but looking strictly to ordinary uses and purposes of the particular kind in question judged by the standard of ordinary apprehension.
5. The enjoyment of the lighting is limited by the precise purpose served by the window; for instance, whether to light a cellar, where but little illumination is needed,—or to show delicate goods in a sale-room, where the requirements may be extremely fastidious.
6. The particular purpose for which the lighting is claimed must be limited to that purpose, or its equivalent, for which the twenty years' enjoyment has been con-

tinuously possessed; for instance, an apartment used originally as a dwelling-room, and converted into a sale-room within twenty years, is only entitled to sufficient light for a dwelling-room.

7. The bias of the law leans towards the servient property, so that the dominant proprietor is expected to be reasonable and considerate in the enforcement of his privilege. Indeed, to a certain extent, the courts will take into account the comparative importance of the conflicting claims,—on the servient side, perhaps, a great commercial enterprise, and on the dominant side possibly a purpose of little real value.

An interruption of the right acquiesced in for one year would seem to be sufficient, it should be mentioned, to destroy it. Moreover, the owner of a light may sacrifice his right to it by injudicious alterations of his own: "If he pulls down his old house, and within reasonable time builds a new one which contains the accustomed lights in precisely their accustomed form, or in an equivalent form in every respect, or in a form less oppressive than before—position as an essential point being unaltered, and size not increased—he has but reinstated that which was his own. But if he takes the opportunity to make a further encroachment, in whatever shape, this additional easement becomes entirely separated in the eye of the law from the former privilege, and it has no protection till sanctified by its own twenty years of enjoyment. If, again, he extinguishes the old easement, and thinks to transfer his title to an equivalent in another position, he loses the old without gaining the new: the servient neighbour has but to wait the prescribed year, and he may obstruct the new with impunity, when it has become too late to reclaim the old." Lastly, if old and new should have been so confused together as to be undistinguishable, the servient possessor is not to be prevented thereby from protecting himself by obstructing the new, and the undistinguishable old must take its chance.

Now let us see how a question arises. A building is increased, either in extent laterally or in height vertically, and so is considered to intercept the access of light of day to a neighbour's window, to his consequent damage. "The neighbour in effect pleads thus:—By that window I have hitherto received into my house from the atmosphere an amount of lighting which may be called say 100 measures of lighting; of this quantity I have always used (in a definite way to be accounted for) say seventy measures to my benefit, so that the enjoyment of seventy measures has become an essential necessary of the occupation of my house, and is therefore by law my property; but the defendant obstructs (or intends to obstruct) the access of such lighting materially, for I shall receive but say fifty measures; and thus I am to be by him permanently deprived of any twenty measures of lighting, which is my property; and I claim the preservation of this twenty measures of lighting to my use, or compensation for its loss, as the case may be." The right being established, the law has little more to do than to ascertain whether, by reason of the cause assigned, the amount of lighting hitherto used in the manner accounted for is, or is to be, so much lessened as to involve a substantial deprivation to the complainant; if so, the obstruction is a nuisance.

Approaching Mr. Kerr's scheme for the measurement of window-light and the proof of its diminution and damage, we must give up the idea of explaining it to our readers. Even set forth with diagrams and at full length, it is not very clear, and such notice as we can take of it must be understood as simply referring our readers to the pamphlet itself; for though, as we are forced to say after full consideration, we cannot find in it the hoped-for solution of existing difficulties, it will certainly be found useful by all who are concerned in such questions. Broadly, the author constructs one diagram by forming a quadrant against "the horizontal plan of a common wall-window" (with its centre in the middle of the window), and, dividing this quadrant into four, puts, by means set forth, a

* On Ancient Lights, and the Evidence of Surveyors thereon. With Tables for the Measurement of Obstructions. By Robert Kerr, Architect, Professor of the Arts of Construction in King's College, London. London: John Murray. 1865.

* "The ancient custom of the City of London, for example," says Mr. Kerr, "permitted a new wall to be carried up to any excess of height, provided it stood on the old foundation, and provided there was no agreement in writing to the contrary. This custom, however, is obviously now set aside."

comparative value upon each division as regards the amount of light received from it. A similar diagram is constructed on the vertical section of the same wall-window, and gives the same comparative values to the divisions there. The results are then modified by certain obvious considerations (considerations not quite so obvious being left out of the question altogether), and these values of elevation are multiplied systematically into the values of plan, and a table is produced, which, according to the author, makes "the measurement of lighting power simple and reliable." It then becomes necessary to consider what has to be done in order to apply this to any given case of the lighting of a certain space within. "In a word," says the author, "we must look into the question of the proper proportion which window space ought to bear to the size of the apartment lighted. Or, to put the matter once more, and in special relation to ensembles, by what means is the surveyor to determine, in any particular case, not how much light is obstructed (because this is not the point at issue), but how much the lighting power has been reduced below the necessities of the Easement?"

Much has been assumed to accomplish the first stage; but, arrived at the second, the author candidly admits that it would be vain to attempt the establishment of rules to apply to all cases; the surveyor must judge for himself, according to the circumstances of the Easement, what are its necessities; but it is argued that principles may be laid down "for his consideration, so that his judgment may be founded on an intelligent and intelligible reckoning." To this end, "a standard minimum of necessary lighting" is laid down, and a scale of widths of window space, with corresponding dimensions of rooms suggested. With this and the previous table, the ascertainment of the exact amount of injury to any Ancient Light is thought to be "easy enough."

The "exact amount" of injury is seldom the question: it is not, as Mr. Kerr has put it, "how much the lighting power has been reduced below the necessities of the Easement," but has the lighting power been reduced below what the possessor has heretofore enjoyed and still requires for his purposes. Evidence founded on the diagram, a diagram of hypothesis, to the effect that the light had not been reduced below the necessities of the Easement, would weigh but little with either judge or jury as against plain testimony that there was less light to the room than there was before the erection of the obstruction, and not enough for its accustomed uses. We doubt even whether the latter testimony would be considered as materially strengthened by evidence from a diagram founded on the same bases; as, besides the original assumptions in making the tables, there would be so many influencing things to consider, such as aspect, the position of the window, especially with reference to the ceiling, the nearness or farness of existing obstructions or permanent reflecting surfaces, and several other points, that agreement as to their several values on the part of different minds would be, we fear, as unlikely as in opinions arrived at from simply viewing and studying the place and exercising the judgment. The scheme, we need scarcely say, is worked out with much ingenuity and acuteness, and may prove suggestive to professional witnesses, and so far valuable.

THE PREVENTION OF STRIKES.*

The exposition already referred to, of the train of thought which led M. Leclaire to the foundation of his association, is preceded by some observations concerning a common lot of the workman. In the case of a concern, or the "good-will" of a business, passing to a new proprietor, he says that the new master will keep the recognized good workmen, and those whose appearance does not betoken age, but will dismiss without pity those whose appearance discloses a decrease of strength. Each successor in the concern does the same: evidently he has not any motive to act otherwise. A dismissal of this kind gives a terrible blow to the workman.

"So far, he had not thought of his years: his ardour in work in the business establishment that he had accustomed himself to consider as his own, was making him forget them."

But dating from this fatal day, he acquires the sad conviction that everywhere where he may go and demand

work, they will judge at first sight, from his countenance and his bearing, that he is too old to well acquit himself of it.

Then what become those intelligent men who lately formed the élite, the novel of the establishment—that sacred battalion that upon a word, upon a sign even, understood the wish of the master? . . .

What become those fellow-labourers whose devotion allowed of the doing of the most difficult tasks, and whose example, forced to activity the workmen who were working at the establishment only temporarily? . . .

What would one be able to do for those noble remnants of the workshop, that are repulsed on all sides, like tools become unfit for any service? . . .

What would one be able to do for those men who have been the élite of the works, whom the clients were personally acquainted with, whom they called by their name, whom in a multitude of cases they preferred to the master? . . .

For those men to whom one accorded as much confidence as to the most faithful servants, when they were working in the interior of the habitation? . . .

For those men who were happy, honoured in receiving the orders of clients; and who, with all the politeness, all the respect possible, were eager to fulfil all the exigencies, sometimes even the caprices, of those who loved to command them? . . .

For those men, in fine, that rarely one allowed to go out of one's house without giving them a proof of one's satisfaction, and one's munificence, and even in asking of them news of their family? For one meets with clients who extend good-will and amenity even to interesting themselves to that extent.

Is it that like workmen, by these different vouchers, would not have acquired some rights in the value of the connexion of the establishment? for, in short, it is with their co-operation that it was formed, preserved, and increased."

Such, says M. Leclaire, was the delicate question that he proposed to himself; and after giving some particulars of himself, on the one hand, and of workmen on the other, the class, he proceeds to show how he answered the question without neglecting his own interests.

We may here say, there is perhaps something in what has been said above, and in what has to be said, respecting the workman, that may be considered as of exact application only in France. That may be so; but the correction required for difference of race and manners, is not greater than the English reader can supply, leaving the argument, after all, not very different from the position in which it is put for the French reader.

M. Leclaire's early associations with the class with which his career has been, in one way or another, bound up, were precisely such as have counterparts in England, in cases to which we have alluded. Only, M. Leclaire knew how to make the most of his experience.

The story of his life is worth the telling. His father was a poor village-shoemaker. The son was obliged to earn his own living from the age of twelve. When seventeen years of age he came to Paris; and there he learned the business of house-painting. He was in the position to hear what was said, good and bad, concerning masters; and he speaks of subversive doctrines, but of good sentiments animating the mass. Referring to one point, he says:—

"People do not sufficiently know the workman, nor his susceptibility on the side of honour: to know him, it is necessary to have been the workman oneself, and especially to have the recollection thereof; for, in the case of many, from the day after they are no longer, they believe themselves kneaded of another dough than their old companions of the workshop."

M. Leclaire confesses to have himself once participated in a feeling that those having wealth, concern themselves little about the workman. He observes that such a thought profoundly wounds the workman, since the latter really attaches importance to the esteem and consideration of those above him. His susceptibility is such that a mere mistake about a salutation may be the cause of his humility and respect being transformed into the opposites; and M. Leclaire says, matters of this sort, trifling though they appear, contribute more than one might think, to nourish antipathy of one class to another.

He then refers to the loss of days in idleness, and to the habit of frequenting the *cabaret*, or what may be taken as equivalent to the public-house. On the latter matter, his words would apply with more force, indeed far more, to the case of London than that of Paris. He says, it does not depend always upon the workman not to go to the *cabaret*: his work does not lay near his dwelling: he cannot take his repast at home; he is forced to go to eat at the wine-merchant's; and once there, he must have great force of will to consume only what is necessary, especially as there will be comrades who force even the most reasonable workman to act like them, or succeed by taunts in inducing him. Even misery will drive the workman to frequent the public-house. Perhaps he has not anything but his working-coat for holiday-times; so, preferring not to join his friends going into the country, he gets to where he can make himself drunk, even alone. Misery also causes turmoil in a man's home; and that tends him to drink.

We have read much in the French journals about drunkenness, and its increase in France; but observation would have led us to say that in Paris at least, there was little of it compared with what there is in London. Sad effects however are attributed to *absinthe*. One advantage, the French workman has over the English one. He is not absolutely compelled to go to the *cabaret*, or the wine-merchant's shop. He can find in any street, even of the suburbs, of most of the towns, (as of course he can in Paris,) comfortable *cafés*; where he need take nothing stronger than a cup of coffee, or chocolate, or even a glass of sugared water. The dirty dens in London, that are called coffee-houses, where a nasty liquid styled coffee is to be had, are as inferior to the commonest workmen's *cafés* of Paris, as all our arrangements for the preparation and service of food for those compelled to get their meals from home are to such things in France, and as are our penny reading-rooms to the Parisian *cabinets-de-lecture*. It would be fortunate for the working classes here, were all the French appliances that we refer to, to be found; or were at least the *café* as general in London and its suburbs, as the public-house, and inviting in its appearance. M. Frégier, quoted by M. Leclaire, said in his important work on the Dangerous Classes in Towns ("Des Classes Dangereuses de la Population dans les Grandes Villes") that the habit of going to the *cabaret* was less connected with ill-regulated habits on the part of workmen, than with caprices, influencing their conduct only by reason of the masters not occupying themselves sufficiently with the interior discipline of their shops. Immediately afterwards the same writer speaks of the origin of excess, in feebleness of character, or pride; but further on he says (the words being translated from the quotation given by M. Leclaire):—

"The case is the same with the pleasures of the Monday as with the ordinary frequenting of the *cabaret*. It is an usage due only to the contagion of bad habits, and that it would not be difficult to destroy, if the undertakers of works were better able to appreciate the advantages of a good discipline, and by the facility that they would have to maintain it among their workmen in bringing into their relations with them an exact justice, a continued good will, and a calm firmness."

It is scarcely necessary to point out the intimate connexion of all that has been said, with the subject of this article.

When he had become a master, M. Leclaire recollected the different facts that had been before his attention as a workman, inclusive of those of the privations that even the man in receipt of wages has to undergo, to meet his daily wants, and the consequences of illness and of being out of work. He recollected, he says, that with a daily salary, it was impossible for a workman, who had almost always children or old parents at his charge, to make the least saving for his old age. He says:—

"I suffered this impression,—that the day when I might retire, the steady workmen who would have remained attached to me, would not be able to do as much, and that my successor would do with them that which you know."

I then thought that I should not enjoy a complete happiness in remembering the lot that those would necessarily have, who would have contributed to enable me to carry into effect my wish to glide along my old days happily."

After 1830, an idea of the necessity of augmenting the well-being of the industrious classes, "not in impoverishing the rich, but in enriching the poor," as it was expressed by François Arago, seems to have prevailed in France. In 1838, M. Leclaire founded a Provident and Mutual Aid Society which served to bind together a novel, (*noveau*), or staff, of good workmen. About the same time he framed regulations to be observed in his workshops, which perhaps differed little from some that are before us, dated 1864, and to which we shall return.

About this time, M. Frégier, collecting materials for his work, came to M. Leclaire. They were led to discuss the question of the relations between master and workman. M. Leclaire spoke of the difficulty of terminating the antagonism. M. Frégier suggested, as the only solution, participation of the workman in the gains of the master. For some time, the thing seemed quite impracticable; but at last M. Leclaire discovered the way to apply the idea of M. Frégier,—serving his own interests, and being useful to the workmen and employees who might attach themselves to him. This was in 1840.

We have just mentioned that there was already a Provident and Mutual Aid Society for the workmen of M. Leclaire's establishment. It was entitled, "Société de Prévoyance et de Secours

* See p. 737, ante.

Mutuels pour les Ouvriers Peintres de la Maison Leclaire, à Paris." It received the authorization of the Minister of the Interior in September, 1838. This society was originally formed for fifteen years' duration, the period however being capable of being extended by a majority of two-thirds of the votes of the members in general assembly. The society was actually reconstituted in 1863; and we can conveniently refer to its rules when we come to that period of our narrative. But we may here mention, that whilst the society was mainly intended to be for the benefit of the workmen of the "Maison Leclaire," men ceasing to work for that concern were at liberty to continue their membership. This society having helped to bind together a staff of good workmen in the establishment, and a code of regulations to be observed in the workshops being already in existence, the further steps were facilitated.

For the more important ends contemplated from 1840, a wider base of organisation became indispensable; and M. Leclaire says he felt himself "dominated by this presentment," that he was founding a useful institution that might be expected to last beyond his own life.

An essential condition for the attainment of the object, in his mind, was that the greatest rectitude ought to exist in all possible relations with whomsoever might address himself to the concern; and, in order that it might not come into the thought of any workman and employed to swerve from these principles of honesty, M. Leclaire took measures for unveiling the frauds commonly practised in work. He published his "Collection of Notes on the Abuses introduced in the Painter's Work in Buildings, and Glazier's Work," which we mentioned in a note to our article on the "Frauds of Painters,"* when we more especially referred to his "Dialogues on Competition without Limits," &c. About the same date appeared his "Some Ameliorations that it would be possible to introduce into the Lot of the Operative House-painters." Exposure of the frauds seemed the more necessary, since it would not fail to be hawked about that the workmen employed being interested in his profits, the uprightness of one and the other could not be anything else but matter for suspicion. At different times since, M. Leclaire has issued particulars having the same object. They were alluded to in our last. One of the brochures is a little hand-pamphlet, of twelve pages, five of them given to prices of work, whilst the remainder relate to abatements that are made, and to the means of preventing or recognizing fraud.†

All the arrangements being made towards progress of the affairs of the concern, without alteration by deaths, resignations, and other events, M. Leclaire, at the end of 1841, brought all the men working for him at the time, together, in a place which he had constructed for the object (and which still preserves a similar use), and made them acquainted with his measures and intentions. He says,—

"I insisted upon this important point: that often we should be met with a disloyal opposition; and that to combat it, we should never be bound to have recourse to the fraudulent arts that it employs; that our activity, our energy, ought to make up for it, and suffice to conquer it."

"That we ought to inscribe upon our flag this motto:—*To execute works cheaply, well, and quickly.*"

He announced to them that, starting with 1842, the working day would be reduced from eleven hours to ten, and that the most deserving would receive each year, "*après l'inventaire*," (as says the "Compte Rendu" before us), a share in the gains. The consequence of this proposal was real emulation on the part of all: M. Leclaire's task became easy; and his establishment was in a position for developing itself to the extent which it has at this moment attained. The efforts met with some opposition; and

M. Leclaire alludes to a democratic journal which excited suspicion on the part of workmen that his measures had for their object, in a given time, the reduction of salaries; but in the establishment itself, everything went on without strike,—without demand for increase of pay,—and that even in 1848, the year of the revolution. On the 24th of February, and the 24th of June, in that year, all M. Leclaire's men were at work. In February, when the Orleans railway workmen were so troublesome that the railway and its administration had to be sequestered by the republican government, some forty of M. Leclaire's men engaged in painting the carriages, never left their work; and on the 24th of June, when the College of France, where M. Leclaire had work in hand, was entered by the insurgents, the demeanor of his workmen was of a similar kind, and produced a letter of congratulation to M. Leclaire from the architect, M. Danjou. It is scarcely possible that the importance of such facts can be entirely appreciated without more intimate knowledge of the revolution of 1848 than is possessed, after the lapse of seventeen years, by the majority of English readers. Even in 1850, one lady, Madame la Baronne Denois, for whom a house had been built, near Honfleur, had suffered so much vexation from the workmen of the country, that she had no heart to proceed to the finishing, and feared to have workmen in the house. Reassured by a letter testifying to the good conduct of men of M. Leclaire's, who were working at the house of the Comte Du Barry de Merval in February 1848, she allowed the works at her house to be commenced; and on their completion she wrote to M. Leclaire in terms such as these, speaking of the workmen:—

"Their conduct as regards employment of time, conscientious care in the work, their good bearing, their politeness towards everybody, and between themselves, has been as a compensation for all that I had had to suffer from others. Not the least bad word has come from the mouth of any: thus have they made an excellent impression in the country; and our neighbourhood cites as example the workmen of M. Leclaire."

Since the events that we were already then foreseeing, how many times have we thought that if each head of an establishment would generously apply himself to mortifying his workmen as you have yours, there would be much less evil to deplore in the present and to dread for the future."

Mr. Mill has lately said, in his "Utilitarianism," that the deplorable state in which education and social organization are at this moment, is the only real obstacle to happiness being within the reach of nearly every man; and the chapter to which we have more than once alluded, in his "Principles of Political Economy," shows that the hopeful view of the future in store for the working-classes is not the mere dream of enthusiasts and theorists in France, that each revolution has allowed to speak.

Another article will enable us to mention a comprehensive scheme of M. Leclaire's, of the measures required for this faculty, and will lead us directly to our contemplated presentation of particulars of the actual organization and working of his association.

THE LONDON RESIDENCES OF LORD PALMERSTON, &c.

"To show that Englishmen have learned to honour those who best deserve their gratitude."

HENRY JOHN TEMPLE, VISCOUNT PALMERSTON, third Viscount Palmerston in the peerage of Ireland, K.G. (and the only commoner Queen Victoria so invested)—above all, Prime Minister of Great Britain when he died,—will be buried this Friday, 27th, in the north transept of Westminster Abbey, close to the graves of two English statesmen who knew him well, in and out of the House of Commons,—Lord Castlereagh and Mr. Canning. It was his wish to have been buried at Romsey, in Hampshire; but, at the desire of his Sovereign, and with the express approval of Lady Palmerston, Westminster Abbey will hold his remains. And rightly too; for there—as in Pope's imaginary "Temple of Fame,"—

"Heroes in animated marble frown,
And legislators seem to think in stone."

Pope wrote some verses "On one who would not be buried in Westminster Abbey." When Sir Godfrey Kneller was asked where he would be buried, he replied, "Not in Westminster

Abbey—they do bury fools there." When Quin, the actor, was asked where he would be buried, "Anywhere" was his reply;—"anywhere but in Westminster Abbey."

Lord Palmerston died at Brockett Hall, in Hertfordshire, and desired to be buried,—not where he fell, with his friend Prime Minister Melbourne, in the church of the parish (Hatfield) in which Brockett lies,—Prime Minister Palmerston desired to be buried where he was born, at Romsey, in Hampshire, in the parish church of Broadlands,—a favourite retreat with the great Prime Minister of England. "Victory or Westminster Abbey" were among the last words of Nelson. The great Vice-Admiral gained the victory he sought, and his burial, not in Westminster Abbey, as he had wished, but in St. Paul's. Lord Palmerston's wish to be buried at Romsey was not fulfilled. Westminster Abbey is to cover all that is mortal of Henry John Temple, Prime Minister of England, and something more.

Prime Minister Lord Palmerston was in heart a thorough Londoner,—not a Cockney, but a John Bull,—a combination of the sterling qualities of her Majesty's three kingdoms. Above all, he was true to his country.

As a Londoner alone, we purpose here to treat of him—as of a man thoroughly well known, particularly when on horseback, to every person of cultivated observation in our crowded streets.

Three-and-sixty years ago the great Prime Minister whose loss we lament succeeded his father, and became Viscount Palmerston. He was then just of age, fresh from Harrow School, the University of Edinburgh, and the University of Cambridge,—a combination of advantages that was in no manner of way lost upon him.

When the Hon. Henry John Temple was a Harrow boy, his father lived at No. 20, Hanover-square, in London; at East Sheen, in Surrey; and Broadlands, near Romsey, Hants. Sir William Temple lived at East Sheen, and there Swift was taught by King William III. to cut asparagus in the Dutch manner. At No. 20, Lord Palmerston's father had as next-door neighbours the Marchioness of Downshire and Lord Mendip.

When (1806) first M.P. for the University of Cambridge, Palmerston lived at No. 1, North Audley-street.

In April, 1807 (then in his 23rd year), the Premier that was to be was still living at No. 1, North Audley-street, whence he removed to No. 24, Hanover-square,—his father's old house with, we presume, a new number. Street-door numbers in London were frequently altering. In Boyle's "Court Guide" for January, 1810, Lord Palmerston's Hanover-square residence is numbered 23.

From Hanover-square Lord Palmerston fitted in 1810-11 to 53, Lower Grosvenor-street, with the Earl of Radnor as his next-door neighbour on one side, and Earl Temple on the other.

In three years' time (1814) he "fitted" once more, removing from Lower Grosvenor-street, Grosvenor-square, to No. 9, Great Stanhope-street, Mayfair, next door to the Earl of Conyngham, at No. 8, and to Bamber Gascoigne, at No. 10. Here Lord Palmerston lived for many years. He was there when (1820), in the drawing-room of No. 12, the late Sir Robert Peel was married to Miss Floyd.

In 1843, Lord Palmerston removed his papers, despatch-boxes, and household deities from Great Stanhope-street, to No. 5, Carlton House-terrace, where he had the Duke of Leicester for his neighbour on one side, and Bunsen, the Prussian prime minister, on the other.

From Carlton House-terrace he removed at the death (1850) of the late Duke of Cambridge to what has been called Cambridge House, Piccadilly. Hither his body was removed from Brockett, where he died, and thence it will be taken to Westminster Abbey.

Funerals, of late years, have been very rare in Westminster Abbey. We can call to mind four; and at all these we were present. We were at the funeral in the Abbey, and near to the grave, of Thomas Campbell, the poet of "The Pleasures of Hope," and of other exquisite works. The chieftain of his race, the Duke of Argyll, was a pall-bearer; and Ronilliac's fine monument to the Duke of Argyll was, to all appearance, still more animated marble than it is. We were present at the funeral of Lord Macaulay, and saw the coffin of the great historian and essayist laid at the foot of Addison's statue; and we were close to the grave, in the nave of Westminster Abbey, when Stephenson, of the Tubular Bridge, was laid by Telford, of the

* See p. 614, ante.

† "Maison Leclaire et Co. Entreprise de Peinture, de Dorure, et de Vitre, Rue Saint-Georges, 11, Paris.—Tarif de Peinture, Dorure, et Vitre.—Des Rabais qui ont lieu sur les Prix des Travaux dans ces Entreprises; et des Moyens à employer pour prévenir et reconnaître la Fraude qu'on y fait. 1855."

Much information on the same subject, as well as prices, may be obtained from a more important brochure alluded to, which is entitled:—"*Peinture, Dorure, Vitre, et Vitre.—Observations et Propositions ayant rapport Année 1862, soumise à la haute appréciation de Monsieur le Préfet du Département de la Seine, suivies de Sous-Détails en vue d'obtenir des Modifications pour la Maison-Dorure et des Modifications par Leclaire et Augustin, Entrepreneurs de Peinture, Paris, Imprimerie de Madame Veuve Bouchard-Huzard, Rue de l'Ecluse, 5, 1863.*" 4^{to}, pp. 88.

* From Lord Brougham's Westminster Abbey inscription on James Watt,—the word "mankind" altered as above.

Menai Bridge; and when Barry, of the Houses of Parliament, was laid by Stephenson.

"On let me range those gloomy aisles alone,
Sad luxury! to vulgar minds unknown,
Along the walls where speaking marbles show,
What worthies form the hollow'd mould below;
Fond names who once the reins of empire held;
In arms who triumph'd, or in arts excell'd;
Chiefs graced with scars, and prodigals of blood;
Stern patriots, who for sacred freedom stood;
Just men by whom impartial laws were given,
And saints who taught and led the way to heaven."

Lord Palmerston's London residences will be long remembered—Cambridge House in particular. Parliament, too, will remember his services—pay for his dean and chapter burial fees (no slight sum), and erect a monument to his memory near to his grave. But who will be the Roubilliac, or Banks, or Bacon, or Nollekens, or Flaxman, or Westmacott, or Chantrey, entrusted with the Government commission, it is wholly idle to speculate upon at this moment.

EXPLOSIONS OF GUNPOWDER STORES.

DURING the concluding week of September, three more explosions of gunpowder occurred to continue the alarm in the mind of the public, caused by those which have so lately happened.

When the awful catastrophe took place at Erith last year, many besides myself looked forward to the probable causes of such explosions being ascertained either during the course of the coroner's inquest, or during an inquiry arising out of it. But finding that the questions raised tended rather to discover what person might have been in fault, I took up the inquiry and tried to satisfy myself as to what would cause explosions of gunpowder irrespective of a spark, a flame, or actual heat of some intensity. With this object in view, various publications were perused treating popularly on gunpowder; but all of them, with one exception, and that one only in a somewhat cursory manner, have overlooked the question. Mentioning the inquiry to one or two friends practically acquainted with the material, it appeared that with them the subject was also ignored. Continuing my labours, they were at last eased by an accidental reference to a work, the observations in which appeared to be so much to the purpose that, placing all my notes in a condensed form, I forward them for publicity, believing that if attention be gained to the subject, the frightful results which generally attend an explosion would be modified if not prevented, and the damage be confined to the building in which the primary calamity might occur.

I shall not touch upon the causes of explosions arising in the grinding and other mills, except to inquire if the invention of James Monk, of Tonbridge, for "diminishing the hazard both to the workmen and machinery in case of an explosion taking place during the grinding and mixture of the materials for gunpowder" is still employed during that dangerous operation. He was rewarded with a silver medal and twenty guineas, by the Society of Arts, &c., in 1819, when the invention was stated to have "hitherto been confined to a single manufacturing establishment, and appears already to have saved eight mills, and probably several lives."

But this first explosion having occurred, why should another, and another, and perhaps even others follow it? The public are generally led to believe that flames have reached the barrels of powder contained in the buildings, or that the building has been blown down and sparks or embers have reached the barrels burst open by the fallen materials. Others have suggested that friction might have occurred; but they have not entertained that forcible form of friction which will be more readily understood as "concussion."

Amongst my notes is one collected from the *Courier* newspaper, relating that "a sad accident happened this afternoon (July 15, 1812), at Portsmouth, in removing the powder out of the *Queen* transport, when several barrels blew up in the magazine and wounded a number of soldiers." This reads as if it were a parallel case to that of Erith. Another and well ascertained case of damage caused during the removal of gunpowder, is related by Colonel W. Anderson, in his interesting work, entitled "Sketch of the Mode of Manufacturing Gunpowder at the Ishapore Mills in Bengal," edited by Lieut.-Colonel Farly, and published in London.

* On the death of Addison, and his burial in Westminster Abbey.

don, 1862, 8vo. It is the only publication in which I observed satisfactory information. Anderson's account is thus stated (p. 241):—"At Allahabad, in 1823, a long string of men was carrying barrels of powder to the drying-terrace; it was supposed that one man let a barrel fall, and that the whole quantity of powder exploded, killing some men, and all the others were much burnt." May we not surmise that, at Portsmouth as well as at Erith, a barrel unfortunately dropped, and hence the true cause of the explosion; not that at the latter place, the caddy fire was slight, or that any of the men were smoking. In support of this view of the case, the following paragraphs from the reports of the inquiry are important. Mr. H. A. Howe, the manager at Messrs. Curtis & Harvey's magazine, stated that "some of the barrels were 'handed' in, and some 'thrown' in, from the barges to the people on the jetty, according to their weight. The closer the magazines are to the barges the better, because the powder has not to be carried so far." To the question put by the coroner, "Is it possible for an explosion to take place by the falling of powder barrels or by droppings from [?] dropping of] the casks?" he replied, "It is very seldom any drops, but I think not." Mr. W. Monk, who had been upwards of forty years in the employment of Messrs. Hall at Faversham, said that "the powder casks were handed from one man to the other with the greatest care. No one stood on the ground while the powder was being unloaded, as one man stood in the cart and another on the barge,"—my inference being that a barrel dropped from the cart into the barge. The coroner in his summing up, stated that "it was perfectly clear that [the explosion] must have been caused in the barge by some loose powder on which a spark must have fallen." The verdict, however, was nearer the statement of the facts, when it was declared that "how this explosion was caused this jury have no evidence to show."

It will be seen that my views of the cause of such explosions is "concussion." If some persons will continue to maintain that blows will not explode gunpowder, they must be referred to the valuable pages of Col. Anderson's work above quoted, a practical authority. "The explosion," he relates, "constantly, of either the mixing barrels or mills, excited my curiosity, and I attempted to examine the cause. This had been identified by several agents with friction, with bits of wood, of stone, or copper; with wilful neglect or intention on the part of the workmen; and to any cause but the correct one, of concussion. Though disallowed by all, I found it was facile in the extreme, with a very slight blow, to ignite gunpowder placed between different substances. To a committee sent up to Ishapore by Government, I proved that, with gunpowder placed as follows, the results, with a hammer of about four pounds in weight, were:—

Iron upon iron.....	45 explosions,	5 misses.
Brass upon iron.....	47 "	3 "
Iron upon brass.....	41 "	9 "
Brass upon brass.....	30 "	20 "

"I had previously tabulated all the mill explosions I could find recorded, and had traced them to this cause of concussion on heated dry composition. This cause also accounts for the firing of the mixing barrels in the direct impingement of one brass ball on another" (pp. 241-3). "It is this concussion," he also adds, "that the men fear so much by any sudden contact between the raised edges of the cylinders and the high edge of the bed of the mill." Anderson's work also contains an extract from the *Mechanics' Magazine*, explaining the cause of "the explosion of a cylinder mill at Hounslow, from a cricket-ball having been struck from a distance and falling into the trough of the runners or cylinders as they were moving." He, however, does not give the date on which this occurred. In the list at the end of this notice will be seen the death of an officer and his men, by the explosion of a shell which, having himself filled it with powder, he was engaged boring to fix the fuse in a better position. In making fireworks, a wooden rammer and mallet is used to beat down the powder in the cases; and in boring the cases it is recommended always to use a copper bit or tool, and never anything made of iron or steel. Shells are made of iron. Was the officer using a steel bit?

Amongst other works which attracted my attention, that by Col. E. M. Boxer, a high authority, entitled "Treatise on Artillery, &c.," 8vo. London, 1855, states that "gunpowder may be ignited by percussion; and it appears

from experiments made in France in 1825, that it can be accomplished by the percussion of copper against copper, copper against iron, lead against lead, and even lead against wood, when the shock is very great, such as would be given by a ball fired from a musket. It was also found to be more difficult to ignite gunpowder between copper and bronze, or bronze and wood, than between the other substances. Again, out of ten samples which were wrapt in paper, and struck upon an anvil with a heavy hammer, seven of grained powder exploded and nine of meal powder. These are most important points, the knowledge of which cannot but be of great service in the art of gunnery, for various effects which otherwise would be unintelligible can by their means be accounted for" (page 16).

I am led to believe that this Indian Government committee's inspection of Anderson's trials, and the French experiments (are there no English experiments to have quoted?), can be but very little known even in the army, as nothing of the sort is referred to, either in the papers of the corps of Royal Engineers, or in the *Aide Mémoire* of the same body; both of which works I opened in the first instance.

Amongst the popular works, the writer of the article "Gunpowder," in the *Encyclopædia Britannica*, appears to be the only one whose attention has been called to this point. He states that "it is a great mistake to suppose that the absolute hardness of any metal is indispensable to the production of explosion in gunpowder. A blow sufficiently powerful, or friction caused by sufficient weight and rapidly, will compensate for the absence of this, in any soft metals, as well as in many other substances which do not readily give fire. The softness even of the purest limestones is no defence, as the friction between these is still more capable of setting fire to gunpowder than that of iron." He then recommends that the workmen should labour barefooted, as the "heavy leather slippers in common use are far from safe; as, from not fitting well, they are frequently dragged along, in which way they may easily entangle particles of sand. It ought to be known to all powder-makers, that the breaking of a fragment of quartz, or the sufficient friction of two grains between copper, or even wood, is capable of igniting gunpowder. This is more particularly the case when the finer charcoals are used; as it is this which is the susceptible ingredient."

Col. Anderson relates that in India, "before powder is carried to any distance, the barrels are done up in wax cloth and in gunny (a coarse canvas), also well lashed with rope. In our longest campaigns the gunpowder was never found to be injured." This was probably done not only to keep out damp, but in case of a barrel falling, the ropes would break the force of the blow to a very great extent.

Supposing that we may now have arrived at correct ideas of the causes of explosions under circumstances which have been hitherto considered unaccountable, I will give a few notes upon the results of explosions to other portions of the premises. From the few detailed accounts of the explosions of mills which I have been able to collect,—few, indeed; for descriptions of them did not get into the papers in any detail,—I find that the buildings in England explode one after another at about only one, two, or three seconds of time. Those that exploded at Hounslow in 1850 were about 70 yards to 190 yards apart; but the quantity of powder in each of the six buildings was not mentioned. The interval of time between the explosions is of some importance as leading to the discovery of the causes of them, and the absence of evidence prevents a detailed inquiry into the subject.

On this point as well, I would refer to Colonel Anderson's work, for the subject did not escape his observation. He says the buildings "should be beyond the range of the quantities contained in each house. The range of powder forced by resistance into one direction is as the quantity; but, when left unconfined, will perhaps be as the square root of the quantity. The distance between the Ishapore Mills, say 60 yards, is proved by experience to be well calculated for about 80 lb. or 100 lb. of powder, and may be assumed as the unit. Hence, for the press-houses, and corning-houses, containing upwards of 400 lb. of powder, the interval should be double, at least. From the flight of burning beams or splinters lies the great secondary danger from explosion" (page 147). It may be as well to add that powder may be heated in a copper pan to about 400° Fahr.: at 500° the sulphur begins

to evolve; and at 600° exactly the powder explodes.

With all this valuable and little known evidence of gunpowder exploding by "concussion," and with other concurrent circumstances which it is needless here to add, I would fain hope that the subject may not yet be considered exhausted, but that further inquiries and experiments would be made. I know not whether the commissioners lately appointed by the Government to consider as to storing and removal of powder, have yet sent in their report: if it has been submitted, it has not met with much attention from the press. That the Americans are not better informed than ourselves is evidenced, as it appears to me, by the fact of the thorough failure of their attempt to injure Fort Fisher, at Wilmington, by firing a vessel filled with, it was stated, 215 tons of powder. It is not "concussion of the air," I would maintain, that causes the explosions; but "concussion of the earth" disturbing the powder or barrels of powder. It must be remembered that these barrels are not completely filled, but have a space of one inch, or more,—quite enough for an effect to result from concussion, which is friction of one sort. Thus, powder in a 100 lb. barrel, lifted 1 inch, would fall with a slightly-increased weight; and the explosion of one barrel in a storehouse would do all the mischief by breaking up the others. Grains of unburnt powder were found at a distance from the scene of the disaster at Erit, as noticed in your pages at the time: this may be explained by some of the barrels, especially the upper ones, not exploding, but being blown into the air and bursting, and the grains distributed by the wind, as occurs with an overcharge of powder from a cannon. At Wilmington the naval authorities anchored the vessel about 500 yards from the fort, and left it floating, though that part of the story is not very clearly stated. If so, not only was the vessel too far distant for its quantity of powder, but the effective power of the explosion would be lost in the water. The Federals, however, after they obtained possession of the fort, managed to blow up the magazine, along with, as stated, about 200 of their comrades!

We have this year been informed that a German has discovered a new gunpowder three times the explosive force of that now in use, and one-half cheaper; and moreover, that the substances can be kept separate until required. Still later, we learn that the works of the Safety Powder Company, at Plymouth, were burnt down nearly entirely, loose powder and all! but that from the nature of the patent its explosion was harmless to the neighbourhood. The papers have lately stated that Government has been considering this latter (or a somewhat similar) apparently harmless invention.

These notes and observations have been condensed as much as possible. As may be observed, I have refrained from tending comments on some of the passages, in order that your pages should not be too far trespassed upon: possibly the force of these remarks will have induced your readers to agree in the view with which I started in my researches, and which, I submit, have been so well supported by the extracts now laid more prominently before the public for the first time. The view taken by me is, that "concussion" causes the explosion of a barrel; and that "concussion" propagated through the ground will be found to be the true reason of the explosions of adjoining storehouses and factories placed too close to one another; that if the buildings were erected at sufficient distances apart, as herein detailed, such results would not ensue, even if the buildings fell in from any concussion of the air. Something might be said, too, on the question whether gunpowder stores should be built in valleys, level plains, or on hills; but I refrain from that inquiry, seeing that round London at least, there are no hills of which to boast.

As to the construction of the buildings, I beg to append a short extract on that subject in respect of earthquakes, which appears to me to be a kindred effect to that of explosion. The method described is somewhat similar to that recommended for the Mauritius as necessary against hurricanes, where everything should be tied together; the buildings, if of wood, should be secured to the ground; substantial partitions placed at intervals, or inside buttresses erected; joists for verandahs are not to be let into the walls, as tending to upset it; if the building be arched like a gunpowder magazine, it has been uninjured; parapet walls assist to protect the roof, which if flat

is better. This abridged description will be found in the "Papers of the Corps of Royal Engineers, new Series, 8vo. London, 1851," vol. i., pp. 120-1; which also gives, page 12, the following memorandum. It would be difficult, I confess, to combine the two principles; but they are each adaptable according to the concussion that might be expected,—that of the air, or of the ground.

"Memorandum transmitted by Colonel R. Jones, Commanding Royal Engineer, Malta, Nov., 1849, on Precautions adopted in new Buildings in Sicily, with a view to neutralize the Effects of Shocks of Earthquakes, collected from the best information he could obtain from some intelligent and experienced Sicilians then at Malta.—The difficulty of successfully combating even minor effects of earthquake, by one fixed principle of construction, is apparent when the various motions given to the ground so acted upon are taken into consideration, earthquakes being known to act by, 1, horizontal or undulating motion; 2, perpendicular, saltatory, or vibratory motion; and 3, verticose, or whirling motion. The securest plan for detached buildings is that they should be of wood, and the several pieces of timber composing the roof and sides so united and firmly connected together as to form one mass, which mass should have no foundation inserted in the ground, but be placed either on a prepared surface of the natural rock, or on a paved space of greater extent than the area of the building, having a gentle inclination from the centre outwards. The height of such a building should never exceed its length or breadth, but should rather be under these dimensions. By these precautions the centre of gravity would always remain within the area of the base. The vibrations of an ordinary shock of earthquake might cause a tremulous motion, but could not destroy or overturn a building so constructed."

Buildings on mountains, hills, or elevated grounds have been found less subject to the influence of ordinary shocks than those situated in valleys or low grounds. . . . Though no precaution has been found hitherto completely successful against the various and uncertain actions of elementary convulsions, yet certain principles have been found by experience greatly to qualify the destructive effects of an ordinary shock. These are:—1. To give little elevation to the building. 2. To build substantial walls, with a batter; and, when practicable, to strengthen the angles by pilasters of pyramidal shape. 3. Cellars, tombs, and excavations round a building have been found advantageous. 4. When the best cement has been plentifully used, and blocks of stone carefully laid in a rough state and bonded, and all interstices filled in so as to leave no void in any part, walls have been found to stand like monoliths; while the best constructed walls of squared masonry in the immediate neighbourhood have been found to separate and fall. 5. Stone arches or groined roofs are not to be used in upper floors. 6. The ends of beams are not inserted into the walls, but are left free to oscillate with the motion of the earth; they rest on a projecting ledge of the interior wall, and are supported by strong transverse beams similarly laid, the ends of which rest in the strong angular piers. In some instances, the heads of beams have been passed completely through the walls, and the latter braced together externally by iron braces; but the openings have been found to weaken the masonry, and the practice has not become general."

My observations now close with a list of several explosions of various sorts, which have met my attention in the course of these researches. They are appended for the benefit of future inquiries into this subject, and the list could, no doubt, be much extended, for it is reported that "during the last twelve years, upwards of fifteen serious explosions have been recorded in the public journals, by which more than 600 persons have been killed."

1649. January 4. Tower-street, London.—Caused by twenty-seven barrels exploding in a shop, at eight o'clock at night; described in a pamphlet of eight pages.
1810. January 18. Faversham.—The third within seven years; five men, a boy, and two horses killed. September 24. Dartford.—Two men killed.
1811. November 27. Waltham Abbey.—Seven men killed; two distinct explosions, at an interval of little more than a second.
1812. July 4. Hounslow.—Two men hurt. July 14. Rodin, N.B.—Two men killed and one hurt.
1813. August 21. Hounslow.—Two explosions. Three men killed.
1814. September. Battle.—Three men blown to atoms.

1843. April 13. Waltham Abbey.—Seven men killed, four buildings destroyed within a few seconds and a minute or so of each other.
1850. About March. Hounslow.
1850. Hounslow.
1854. October 1. Erit Marshes.—Two barges and two storehouses exploded. Two persons killed.
- December 6. Bhoctan.—Officer and men destroyed by boring a shell filled with powder.
- December 9. Buenos Ayres.—160 soldiers killed; store exploded.
- December 18. Liverpool.—Powder vessel blew up. December 24. Wilmington.—Powder vessel exploded. No damage.
1865. May 24. Mobile.—About 300 persons, &c., destroyed; ordnance-stores being removed.
- March 29. Faversham.—Green chaise ignited; two persons injured.
- April 11. Suffolk-street, Southwark.—Shop caught fire, and four or five barrels, or 100 or 125 lb. of powder, exploded.
- September 21. Manchester.—Firework Manufactory.
- September 25. Ewell.—Two men killed; press-house destroyed.
- September 28. Bristol.—Firework Manufactory.
- October 8. Chatham.—110-pounder shell burst, the fuse being driven too far down.

WYATT PAPWORTH.

SANITARY REPORT ON ST. MARY'S, ISLINGTON.

The report, for 1864, of Dr. Ballard, the medical officer of health for this parish, has been printed. It contains some interesting statistics.

It is remarkable that more than half the adult population of Islington are from the country, or were not born in London. Probably the comparative elevation of the locality above sea level, and its general repute for wholesomeness, have something to do with its selection by provincials. The principal influx of male provincials takes place between the ages of 20 and 25 years. The influx between these ages appears to be nearly four times as large as that into London generally. The influx of female provincials is altogether very much larger than of males, and takes place chiefly between the ages of 15 and 20 years. There are more males than females entering from outside between 20 and 25 years.

The extent to which certain trades and occupations are carried on in a district affects its healthiness and its death-rate. "To trace out the influences of occupation upon our death-rate completely," says Dr. Ballard, "would be an almost endless task; I have, however, taken out from among the occupations followed by males, sixteen, for comparison of their death-rate with that of the rest of our adult male population. Out of these sixteen there are eleven which with us predominate over London in the number of those which follow them. We have among us thus an excess of law clerks, commercial clerks, schoolmasters, printers, goldsmiths, jewellers, watchmakers, butchers, carpenters and joiners, bricklayers, plasterers, and brickmakers. In the remaining five we stand more or less below London generally as to number, namely, publicans, bakers, tailors, shoemakers, and labourers. In the case of the females we have a slight excess of schoolmistresses, dressmakers and milliners, washerwomen, and domestic servants. The class of needlewomen (a poverty-stricken and most heterogeneous class of persons) is with us a comparatively small one. These five classes include 593 out of the 1,000 of bread-earning women. The domestic servants alone form 391 per 1,000 of them. Thus more than half of our occupied women appear devoted to ministering to the necessities of the wealthier part of our people."

The following class statistics are condensed from the report:—

1. *Publicans, Beerhouse-keepers, &c.*, stand highest with us in their rate of mortality. For the seven years it was 1,575 per 10,000; or 225 per 1,000 per annum. It is one of the most fatal occupations with us, as it is throughout the kingdom. I find that at 20 years of age their expectation of life with us is 26 years. The expectation of life at 20 years of males generally, according to the English life table, is 40 years. In this respect they stand fourth in our list for short lives.
2. *Labourers* stand second on our list for high death-rate, viz., 1,280 per 10,000 for seven years, or 185 per annum. In early death they stand sixth, their expectation of life at 20 years old being 38 years. For England generally, the death-rate in 1851 was 216.5. Working mostly in the open air, they would doubtless live longer if they were more wholesomely lodged and spent less of their time at the public-house. The unwholesomeness of their habitations is shown by the enormous proportion of their deaths from the miasmatic diseases. Heart diseases, apoplexy and paralysis, chronic bronchitic affections, inflammatory chest diseases and phthisis, with kidney disease, as leading causes of death, testify to the unfavourable conditions under which they live and labour. *Bricklayers and builders' labourers* seem especially prone to die from phthisis; 20 out of 44 deaths of such persons on my returns, or 45.4 per cent., were from this disease. Probably the dusty atmosphere they breathe is the main

cause of this large proportion. Their expectation of life is 27 years. I find on my list four deaths of *sewer labourers*. All died comparatively young—two aged 32 years, one aged 48, and one aged 40, the mean age of death being 40 years. Two died of bronchitis, one of phthisis, and one of disease of the heart.

3. *Brickmakers* stand third. Their death-rate is 1,237 per 10,000 for seven years, or 176 per annum. Their expectation of life is 23 years; that is, they appear to come close upon the average for England generally. This discrepancy may be accounted for. The brickmakers usually commence their occupation as "brickfield labourers." Most of the latter rise no higher, but the more intelligent and teachable rise in time to work under the sheds, but usually not much before the age of 30 years. Good brickmakers, I am informed, are difficult to obtain. I distinguish between brickmakers and brickfield labourers. The latter commence as boys, and at 25 years of age have, with us, an expectation of life of 30 years. Brickmakers obtain good wages, but are very improvident; more than half the deaths on my table took place in the workhouse. They suffer from their customary habits, much as labourers do; and acute chest diseases carried off a large proportion. On the other hand, their working in places open to the air and with materials moist, and in not giving off dust, gives them a remarkable immunity from phthisis. Were these people habitually temperate and provident, their trade would prove, I am convinced, one of the most salubrious of those followed in their rank of life.

4. *Law Clerks*, including *law-writers*, rank next. Their seven years' death-rate was 1,147 per 10,000, or 163 per annum. Their expectation of life with us at 20 is 25 years. They have a high mortality from the miasmatic diseases and phthisis. As a class, I am informed, to which, of course, there are numerous exceptions, they are not remarkable for leading steady lives.

5. *Shoemakers* exhibit with us a death-rate of 931 per 10,000 in seven years, or of 133 per annum. In England generally, in 1851, it was 161 per 10,000. Their expectation of life at 20 is 34 years. They exhibit a high mortality from apoplexy, paralysis, and other diseases of the nervous system, probably in a measure due to their sedentary mode of life and the posture in which they work, and perhaps also to irregular habits.

6. *Bakers*.—Their expectation of life at 20, calculated on our seven years' experience, is 24 years. The unnatural life of bakers leads to a sufficient familiarity to you. The fatal diseases to which such a life, the extremes of temperature to which they are exposed, and the heavy weights they sometimes have to lift and carry, all predispose them to bronchitis and miasmatic diseases (including emphysema of the lungs), heart disease, apoplexy, paralysis, &c. The deaths from bronchitis constitute about one-third of the total, or 24 per cent., that is to say, half the deaths of bakers arise from these two diseases directly, and another fourth from heart disease, paralysis, &c. The remedy for all this is obvious.

7. *Carpenters and Joiners* have with us together a seven years' death-rate of 832 per 10,000, or 121 per annum. For England generally it is stated at 194. Their expectation of life is 31 years at 20 years of age. They seem to suffer considerably from fatal miasmatic diseases, probably the result, in the case of journeymen, of unwholesome dwellings. They suffer equally with bakers from phthisis, but less than they from bronchitis and heart diseases, although their bronchitic mortality is still considerable. They show a considerable mortality from apoplexy, paralysis, and other diseases of the nervous system, which, as their mortality from heart disease is not large, is probably associated with other causes. Carpenters are in excess in this parish, being employed about new buildings, where they are exposed to draughts of cold air, and have sometimes to raise heavy weights. It is important to note that the joiners who work in close dusty workshops, differ in many respects from the carpenters, for their expectation of life is much shorter; it does not exceed 24 years at 20. They suffer less from fatal bronchitis (147 per cent.); but their mortality from consumption is very high, 44 out of every 100 deaths being from this cause. They have a lower mortality from heart disease (38), and a higher one from kidney diseases (88). They would live longer if their workshops were well ventilated and kept free from accumulated wood-dust, some means being taken also to lay the dust during working hours.

8. *Tailors*.—The seven years' death-rate of our tailors is 837 per 10,000, or 119 per annum. In England, in 1851, it was 109 per 10,000. The great difference probably arises from our tailors not working in large crowded establishments like some of those in the City and at the west end of London. Their expectation of life is 33 years, a little lower only than that of our shoemakers. They exhibit a high mortality from bronchitic affections and phthisis.

9. *Watch and Clockmakers* exhibit a seven years' death-rate of 834 per 10,000, equal to 119 per annum. Their expectation of life is 23 years. Their largest mortality is from paralysis, next from apoplexy and other diseases of the nervous system.

10. *Hatters* show a seven years' death-rate of 926 per 10,000, or 118 per annum. Their expectation of life at 20, so far as our limited experience goes, is 20 years. Their principal mortality was from phthisis (85 per cent.) and paralysis, with disease of the brain and epilepsy, altogether 25 per cent. The latter is due apparently to some other causes than those which operate in producing heart disease. Some light seems thrown upon the cause in finding 74 per cent. of deaths from gout and dropsy. I do not know enough of the special habits of this class of persons to speculate further upon the subject.

11. *Butchers* have, with us, a seven years' death-rate of 793 per 10,000, or 117 per annum. This is lower, for the death-rate of butchers in all England for 1851 was 213. The more favourable position in which our butchers stand is probably due to the more wholesome circumstances in which they live and work. Their expectation of life at 20 years is however short, being only 25 years. The largest proportion die between 40 and 60. As causes of high mortality among butchers, the Registrar-General suggests a diet into which too much animal food and too little fruit and vegetables enter, drinking to excess, exposure to heat and cold, and, as probably the most powerful cause, the elements of decaying matter by which butchers are surrounded in the slaughterhouse and its vicinity. I think other causes might be suggested, as the damp and wet to which they are constantly exposed out of doors and in the slaughterhouses, the fatigues they have to endure, and the heavy weights they have often to raise and carry.

12. *Printers*.—We have twice our proper share of these living in Slough. Their seven years' death-rate is 769 per 10,000, or 107 per annum. Their expectation of life is very low—only 24 years. Our printers seem to have suf-

fered disproportionately from fatal fevers and from that class of diseases to which erysipelas belongs, as it, indeed, their work-places exposed them, in some way that I cannot understand, to putrid miasmata; but it may be that their degraded health renders them more liable to the causes to suffer from miasmata, to which they are exposed elsewhere. They have a high mortality from acute inflammation of the chest, probably from sudden alterations of temperature; and they show nearly the largest proportion of deaths from heart disease, very likely the result, through rheumatic fever, of the same cause. Printers, according to Dr. Edward Smith, are considerably liable to take cold. They stand, probably high, also, in the fatal diseases of the liver and kidney, and nearly a third of the deaths are from phthisis.

13. *Commercial Clerks*.—Our table tells a sad tale respecting them. The death-rate cannot be relied upon; but it is very evident that if young men entering upon the life of a commercial clerk, as they do on leaving school, continue in it and rise no higher, they have at the age of 20 a reasonable expectation of only living 18 years. Looking at the causes of death of these persons, we must be struck with the fact of 46 per cent. or nearly half the deaths, being produced by consumption. The deaths from syphilis, delirium tremens, and kidney diseases, point to disordered habits of life. But to what is this high fatality from consumption due? I believe mainly to two causes, which it is for employers to remove, if the high pressure at which business is carried on now-a-days will permit of it. In the case of clerks employed all day, tied down at the desk, to their sedentary life, in close, gas-lighted, unventilated counting-houses, and often to the case of other young clerks, to intense bodily fatigue.

14. *Goldsmiths, Silversmiths, and Jewellers*. Altogether their deaths from phthisis, apoplexy, and paralysis are high, and they suffer disproportionately from disease of the kidney and liver diseases.

15. *Bricklayers* come vastly better off than the labourers who assist them; they are less exposed than the latter to some of the diseases to which they are liable, as phthisis. They show a seven years' death-rate of 675 per 10,000, or 96 per annum. Their expectation of life is 34 years. They seem chiefly to die from acute and chronic diseases of the chest (excluding phthisis), the result of exposure, and from miasmatic diseases, probably derived from their residences. They exhibit a high proportion of fatal liver disease. The high proportion of heart disease is probably the result, through rheumatism or bronchitis, of exposure to cold and wet.

16. *Schoolmasters*.—Only a small proportion of these die; but the expectation of life, from our limited experience, being 34 years.

The rate of mortality of females following industrial occupations cannot be estimated, nor yet, fairly, the average age at death, in consequence of the imperfection of the mortuary returns, which in the instance of married women do not in all cases specify the occupation followed.

Dressmakers and Milliners appear to die to a large extent from consumption, 48 per cent. of the deaths being attributable to this cause. There is no difficulty in associating this with the damage inflicted upon the health from excessive and late hours of work in close, crowded, and unventilated rooms, together with deficient bodily exercise. The large proportion of young persons following these occupations, who at a later period of life are lost sight of in consequence of marriage, will also, as in the case of commercial clerks, readily account for the high death-rate from phthisis. They seem unusually exposed to suffer from fever and other miasmatic diseases.

Needlewomen suffer more from poverty, intemperate food, misery, and drink. Their occupations, as returned, both in the census tables and the mortuary schedules, is in numerous instances probably only ostensible.

Domestic Servants die to the extent of one-fourth from phthisis, especially in the earlier ages; at later periods of life, from bronchitis. The deaths from diseases of the nervous system other than apoplexy, that is from paralysis and diseases of the brain and spinal cord, are high; and they also seem to suffer severely from disorders of the digestive system. The explanation lies in the hard life they commonly lead, hard work, daily fatigues, insufficient rest, unhealthy sleeping-rooms (a room, or even a garret, or underground, or an unventilated garret, and commonly the worst room in the house, being allotted to the maid-of-all-work), and not always a very liberal diet, completing in their case what the heat and your of their cramped and unfavourable sanitary conditions had left unfinished. Domestic servants suffer largely from "enteric fever," from their disproportionate exposure to brain emanations from the close proximity of the houses in which they live. In the kitchens, even of good houses, are properly trapped, and the servants are the first to suffer from the neglect. An inefficient bell-trap is usually all that is provided. Where houses are built upon rubbish, filling in the site of former excavations, another source of malaria and specific poison is provided for the denizens of the kitchen. We all know what this rubbish consists of. *Laundresses* seem to suffer to about the same extent from fever, probably partly due to their residences and partly to the clothing of fever patients which they come into contact with, their most remarkable mortality, however, is from chronic bronchitis and heart disease, the direct result of their business. The deaths of our *Schoolmistresses* are too few to comment upon.

It is satisfactory to learn from this report that during the past year the inspectors have found less overcrowding than heretofore. The medical officer had occasion to interfere in one instance where a number of girls were crowded into two small rooms to work at flower-making, on account of typhus fever spreading among them. On the occasion of the annual licensing, all the slaughter-houses and cowsheds in the parish were personally inspected by himself, and those that he objected to by the sanitary committee also. The number of slaughter-houses licensed was 108, and the number of cowsheds 71. Licences were refused to seven slaughter-houses. Several cow-keepers, whose sheds and yards had during the year been frequently subject to complaints of uncleanness, although their licences were granted, were warned that if similar complaints arose a

* There ought always to be a "syphon-trap" at the junction between the pipe descending from the sink and the drain.

second time, the licence would be withdrawn. In one instance a licence was withdrawn in consequence of refusal to make the necessary amendments. The magistrates thus strengthen the hands of the sanitary authorities of the parish.

SHEFFIELD AND THE HOME OFFICE INSPECTOR.

We have pretty good authority for saying, that but for the ordinary rules of the service, Dr. Hunter would, in accepting our invitation to reply, have given a somewhat different opinion to that ascribed to him. As we understand, his inquiry there was limited to certain defined evils, of which few instances were presented to him; but we happen to know, on the other hand, that in other respects, he saw in Sheffield greater nuisances and want of cleanliness than he had ever seen elsewhere, all circumstances being considered.

We do most earnestly exhort the inhabitants of Sheffield, now that the municipal elections are taking place, not to be led to support men simply because they profess a desire to save the ratepayers' money, as shown by opposing every scheme for the improvement of the town. That would seem to be a saving thus effected, usually proves to be an extravagance. "There is that giveth and yet increaseth; and there is that withholdeth more than he meet, but it tendeth to poverty."

We offer our hearty thanks to the conductors of the local press, the *Independent* and the *Telegraph*, for the frankness with which they have at once made known to their fellow townsmen the observations we have been compelled to make, and for their own able and energetic efforts in the same direction.

ST. MICHAEL'S, IN ST. ALBAN'S.

You were good enough, for the sake of a good cause, to insert in the *Builder* of the 3rd of June last, a letter bearing my name, headed "A Plea for St. Michael's Church, in St. Alban's" now in course of *restoration or revolution* (Charles II. or King James II.) under the eye of Mr. Scott.

Your readers will doubtless like to hear how the work is going on; and, as I sit in the churchyard of the church after a painstaking survey, and a talk with the intelligent contractor touching what can be done, and done well, with the money we have got, and an after-chit with our well-versed architectural vicar on the same subject, I can safely state that, with a better balance at our banker's, we might effect more than we are likely to effect,—spiritually and in the spirit of the Church itself.

If all goes on well, we (in St. Alban's) shall be able to boast, not only of our having one of the most early and interesting little churches in England,—betraying, in mingled confusion, Roman, Saxon, Norman, and Perpendicular periods of style,—patched and reconstructed, filled in and then half opened with every caprice of churchwarden necessity or taste, but one of the best fitted little churches in England for the purposes of the Protestant religion.

Our fireplace-and-poker-and-long pews, lined with purple cloth or green baize, and edged with brass nails, are all out of the church for ever. We were to have open deal seats of a pattern that Pugin would have liked, for they are copied from a solitary and tasteful example of a real Tudor bench or form, with a good back to it, left by accident or want of funds in the church; but happily, with true spirit, Mr. Tomlin, of Chilwickbury, in the parish of St. Michael, has stepped to the rescue, and by his wand or pen over cheques upon bankers, has transfigured (I mean no pun) stems from *fir* into trunks from *oak*. Lord Verulam, it is possible, will fill, if needed, a few ancestral oaks from Gorbamury, and thus add an extra association to the church.

The burial-register of St. Michael's in which Lord Bacon's burial was entered by the vicar of 1626, does not (unhappily) exist; but, in the earliest volume of "births, marriages, and deaths" preserved in the vestry there, we read that the well-known family of "the Gapes" were settled in the finely-situated house the family still continues in strict descent to inhabit, on the banks of the Ver. We trust we are not betraying any secret, but only lending proper publicity to an act of good taste, when we an-

nounce (for the first time of telling in print) that the Misses Gape have consented,—voluntarily rather,—to fill, at their own "proper cost," three windows in the church with glass, in what I shall attempt to describe, in brief, as the best Clayton & Bell style.

Then the partial opening of the tower at the west end into the church is to be so contrived that more seats—

"More room for sitting, mis-called sitting-room,"

can be had (for St. Michael's is a fertile parish), and an open screen of wood will be set up to serve all the purposes of use and decoration that it may be required to serve.

Then our organ, or another and better organ, is to be placed where, like to the harp of Æolus, it can be heard, not seen. So that this displacement, or concealment, will perhaps bring over to the Church of England from the Kirk of Scotland the few Caledonians who live on literature, law, or oatmeal in St. Alban's.

The roof of the nave—of timber—and described by the architect as "remarkably good," is now to be seen, and fully deserves all that he foresaw—with what the great Lord Chatham called "the prophetic eye of Taste"—that it would.

The removal of the old Jacobean-Bacon door in the south channel caused me a pang the other day; but I feel its removal the less, because it is so happily replaced, not stone, but with a friilled doorway which the ladies of St. Alban's will be sure to admire. I may say with the poet Gray, when lamenting the loss of his young friend Richard West (Gray's "Lucyida"),

"I weep the more—because I weep in vain."

Bacon's doorway at St. Michael's has gone, like Inigo's gate on the Thames at Hungerford.

"With line and rule

Works many a fool—

Good morning to you, Master Bricklayer,"

exclaimed a frail fair one to Ben Jonson when working on the walls of Lincoln's Inn; but while quoting the lines, I at the same time must unfeignedly admit that I do not apply them to Mr. Scott, for whose skill in his art I have the highest admiration—wishing, however, that his reverence for antiquity and "associations" was more reverential than it is, and his hand more sparing than it seems at times most needlessly to be.

P. C.

THE CORN EXCHANGE AND PUBLIC MARKETS AT AYLESBURY.

THE new Corn Exchange and Covered Markets for the sale of meats, poultry, vegetables, &c., which were begun in the spring of last year, from the designs of Mr. David Brandon, have been completed, and the occasion of opening them for public use was inaugurated on the 11th inst. by a dinner, Lord Carlington, the Lord Lieutenant of the county, presiding, supported by the members for the county and borough, and about 300 ladies and gentlemen of the neighbourhood.

The edifice is built in the late Elizabethan style, of red brick with stone facings. The front of the edifice adjoining the County Hall, consists of three archways, one for carriages, 18 ft. wide; the other two for foot passengers, each 7 ft. wide, the centre arch being 20 ft. high. On each side of the centre archway is a head of Pomona and Flora, carved in high relief in a sunk panel, 2 ft. 6 in. in diameter. These archways lead into the new road, forming a junction with the new street known as Exchange-street, leading from the North Western to the Great Western Railway stations. Above the archways which we have described, are two handsome rooms, separated by folding doors, and, when thrown open into one, forming an assembly-room, 44 ft. by 33 ft., with retiring-rooms, and other conveniences. This part of the building is entered by a detached staircase on the left-hand of the archway, surmounted by a high-pitched roof, with a weather-vane and ornamental cresting. The staircase also communicates with the gallery in the Corn Exchange. This building is placed in a parallel line with the front of the County Hall. It is approached by three stone steps on the left-hand side of the archway by recessed folding-doors, 6 ft. wide, surmounted by carved stonework in a semicircle enclosing figures of boys supporting cornucopias, and an inscription in the centre. The building is 90 ft. by 45 ft. in the clear, the roof being supported by semicircular iron ribs upon carved

stone corbels, the spandrels filled with tracery. The carving of each corbel is emblematical of architectural produce. The height in the centre is 33 ft. Light is afforded to the whole building by a skylight extending for 70 ft. along the centre of the roof, as well as by the clerestory windows. The space between the buttresses designed to resist the thrust of so large a roof is enclosed to form private offices for business, to the number of twenty. At the opposite end of the Exchange there is a gallery, approached by a back entrance and a suitable staircase; and it is intended to place in this an organ adequate to the dimensions of the building. Ample provision has been made for ventilation and warming. There are two open fireplaces, and flues have been provided for any heating apparatus that may be desirable. The building is lighted with gas sun-lights at the top of the roof, and the effect has already been ascertained to be remarkably brilliant. There is, also, provision for ventilation by means of the skylight. Under a portion of the building is a store to be used for the forms and tables required when the hall is used for public occasions, or for storing samples.

Between the Corn Exchange and the general market are a kitchen, scullery, and butler's pantry, for use on the occasion of public dinners. There is also an office let with the wine-cellars under the market, and a tap for the sale of beer, &c. The general market, in the rear of the building, extends 112 ft. by 61 ft., and is covered in with slate and glass. The roof, consisting of three spans, is supported by iron columns 14 ft. high, with ornamental brackets, the clear height being 22 ft. Three pairs of ornamental iron gates afford an entrance from the road. Under the general market, spacious vaults have been constructed, all of which are let. Should the requirements of the market extend beyond what is at present contemplated, it would be easy, by lengthening the building, to provide additional accommodation.

The cost of the works has been between 9,000l. and 10,000l.; and they have been carried out by Mr. Conder, of Baltic Wharf, Kingsland; Mr. French being the clerk of the works. The stone carving was executed by Mr. Jackson, of Maidenhill.

THE LIVERPOOL SCHOOL OF ART.

THE annual presentation of national medals, or Queen's prizes, local medals, &c., to the pupils of the Government School of Art, Mount-street, Liverpool, was made in the theatre of the Liverpool Institute, on Monday evening before last, by Lord Houghton, D.C.L. On the motion of Mr. Wright, the president of the Institute, Lord Houghton was voted into the chair.

Mr. Fennie, the head-master, having made a statement as to the present condition of the art-portion of the school,—

The Chairman addressed the meeting, and in the course of his very able speech, he said:—I am old enough to remember the commencement of the schools of design in this country, which were appropriated solely for the purpose of assisting the deficiencies that were supposed to exist in some of our manufactures. The schools which were founded for that purpose did not quite maintain that position. They deviated into a general rule. It was so difficult to keep the pupil who had a real taste for design from going somewhat further than the design which was before him. It was so difficult to prevent the master, who saw the nascent talent in that boy or that girl, not only desiring to cultivate that talent, and to raise, as it were, the designer to the position of the artist; and therefore this condition, which was almost a necessary one, is now in some degree accepted. And I think we may say that it is clearly understood that these schools of art, though intended primarily and simply to assist in giving the power and beauty of art to the manufactures of this country, nevertheless do not exclude, or desire to exclude, the cultivation of the pure artistic talent. I think it well it is so, because I know of no history, no point in art in the world, in which the arts of design have attained any great eminence perfectly and entirely separated from the general notion of art. It is, no doubt, quite true that the study of art,—the study of design itself,—is extremely interesting; much more interesting than would seem to persons from the outside. His lordship then proceeded to illustrate the truth of this assertion, and showed how, by the development of the artistic spirit, and

the philosophical and literary spirit, in the little kingdom of Greece, which was like an atom on the face of the globe, those great flames of light were spread which now almost embraced the whole world; how, through the want of the true artistic spirit, the people of Switzerland were utterly unconscious of the beauties and glories of their own country; and noticed the fact that many cultivated people of 100 years ago, such, for instance, as the greatly cultured and classical writer Addison, had no pleasure whatever in beautiful scenes of nature. The first object of this Institution is, that you should learn to make yourselves masters of the art of design in each of the businesses and professions to which you each will belong. In this country of ours we never lose sight of the power of making money by what we can do. Money means something more than the mere coin it represents: money means health, wealth, and liberty. These are things for which it is well for men to strive; these are things which it becomes men to consider. Therefore, I say, do not let any of you be led away from the use of a faculty which he can usefully and practically employ, such as the faculty which will make man a good architect or a good designer,—a designer in any form, from the mere ideal object of making himself a good artist. There will be some of you, however,—there may, at least, be some of you,—in whom the desire for art is so strong, so overpowering, so overmastering the considerations of prudence itself, that it were hard to say to that boy or to that girl, Stick to your design, and give up your higher art. But these cases will be very rare indeed; and it becomes you to consider whether you are ready to encounter all the consequences of that position.

"OLD MEETING," LUTON, BEDS.

EVERYTHING connected with the life and times of John Bunyan must be of interest, not only to Dissenters, but to men in general. The "Old Meeting" of Luton is about to be pulled down; and very shortly the strange "octagon barn" of red brick, which for ages has been the resort of the Nonconformists of the neighbourhood, will have been replaced by a chapel of modern design. The present structure dates back to the times of Bunyan, whose exertions were the means of its erection. It is stated that he actually preached in it; at any rate, one of its first ministers was his companion and fellow-prisoner in Bedford jail.

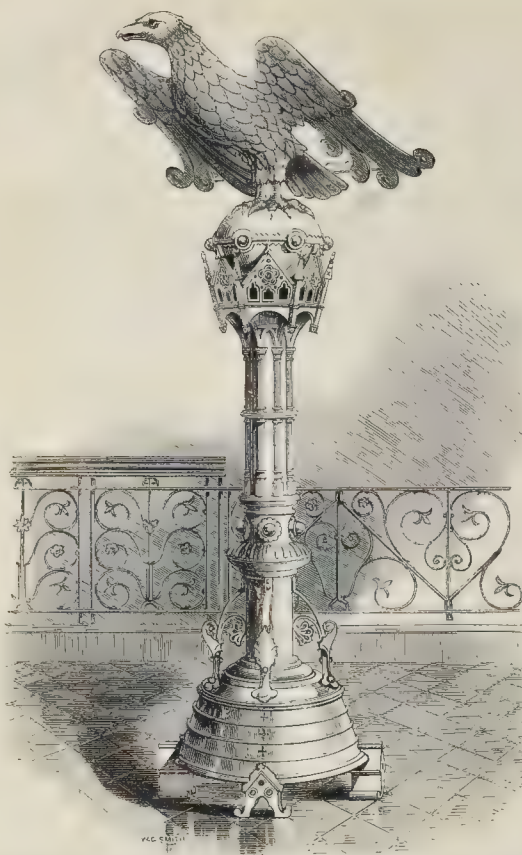
If any are curious to look upon this peculiar relic of the past, they will find it at the bottom of a pretty avenue of trees, leading out of the principal street of Luton. The new chapel is being built in the rear of the "Old Meeting," from the designs of Mr. F. Warburton Stent, of London.

THE CHURCH OF ST. CROSS HOSPITAL, WINCHESTER.

THE Church of St. Cross Hospital was reopened, after somewhat extensive restorations, by the Bishop of Winchester, on the 19th inst. In the view of the interior looking east, which we now present to our readers, the architectural student, and, indeed, every one acquainted with the general aspect of the place a few years since, will detect a considerable change, an effort having been made to bring it to its original form and outline.

The two lowest windows, closed so long, have been re-opened, and richly glazed; and the four narrow lights above them have, by an interesting discovery, been brought back to precisely their original shape and size, and also filled with appropriate glass. The two uppermost windows which had never been tampered with, remain in outline the same as before.

It may prove not altogether uninteresting to place on record what has been done in this interesting old church during the last few years, and the way in which it has been effected; first reminding readers that the church was founded in the year 1136 by Henry de Blois, Bishop of Winchester, and brother of King Stephen, and is one of the finest existing specimens of transition Norman architecture to be found in our country. After extensive repairs by John de Campden, the friend of Wykeham, in the fourteenth century, it was in the fifteenth selected by Cardinal Beaufort as the chapel for his new foundation "the Almshouse of Noble



BRASS LECTERN AND ALTAR-RAIL: CHURCH OF ST. CROSS, WINCHESTER.

Poverty." Although the hospital buildings in general had been placed in a state of substantial repair, on the resignation of the late Master (Earl of Guilford), in 1854-5, the church internally was in a most deplorable condition—the walls, piers, Purbeck columns, and stone groined roofs were all coated with whitewash and plaster; the woodwork was painted and affected with dry-rot; and the pavement (though rich in monumental slabs, brasses, and encaustic tiles), in the most confused, uneven, and miserable state. Under such circumstances, the present Master (the Rev. L. M. Humbert) expressed a hope, in a lecture given by him on the Hospital of St. Cross, in 1856, a little more than a year after his institution, that he might live to undo the work of some of his predecessors,—quoting from the burial register of one of them—"This church was whitewashed by the said Master, and finished about three weeks before he expired, in the year 1728."

Mr. Humbert's wish has been, to a great extent gratified; but not without difficulties and interruptions. As early as July, 1857, a committee of the newly appointed trustees reported that "the removal of the whitewash, and necessary repairs of the church adapted to the character of the building, should form one of the earliest subjects to which the attention of an architect should be directed." In the following January, Mr. Butterfield was appointed architect to the hospital. After several delays, owing to the want of funds, which were quite inadequate to undertaking work of a really permanent character, it was resolved, in the summer of 1860, at all hazards to commence with the nave and western portion of the church: this was

well cleansed from the repeated coats of whitewash: the floor was relaid on brick piers free from the earth, and ready to receive the encaustic tiles (which have now at last been laid down); new doors were made after the old patterns; and altogether a sum of about 650*l.* was expended. But at this point the work was abruptly checked in consequence of the pressure of remaining Chancery costs then unpaid, and a total want of means. This interruption must have continued to the present day,—except such scraping as was within reach of the Master himself and one or two of his friends, assisted by an aged member of the fraternity, *Brother King*, an old mason, who well deserves honorable mention,—but for the munificent offer of 500*l.* towards continuing the work, made by an entirely unknown benefactor, "*Z. O.*," in August, 1863. This donation was specially given for the choir and east end of the church; but the Master, by persevering exertions, has raised among his friends and neighbours (with the encouragement and support of the bishop of the diocese) a sum sufficient to include the transepts, choir-aisles, and lantern, and so to attempt, with more or less completeness as funds allow, the general restoration of the whole building; a work which, although not complete, and leaving ample scope for further liberality, still renders the building fit for the purposes of worship, and conveys a fair notion of its former appearance prior to the era of whitewash. The contract for the stone-work has been most conscientiously fulfilled by Messrs. Newman & Son, Winchester: the Brothers' stalls and fittings (as far as funds allow) are by Steddy, of London; but a new pulpit is sadly needed. The new tiles (where necessary)

are by Minton. The six principal windows at the east end are by Wailes, and represent the Annunciation, Nativity, Epiphany, Resurrection, Ascension, and Descent of the Holy Ghost. Two windows, by Alex. Gibbs, in the north transept, represent the Healing of the Impotent Man at Bethesda, and the Agony at Gethsemane.

The polychrome enrichments at the east end are, as far as they go at present, the gift of Mr. Melville Portal, from designs by Mr. Butterfield, executed by Mr. Fisher, of London. There are the evident remains of colour throughout the choir and in other parts of the church; and Mr. Portal hopes that other county gentlemen may be induced to continue the work which he has started. The elaborate metal and gilt communion rails are the gift of Major and Mrs. South, who have in many other ways contributed largely to the work. The brass eagle lectern is the gift of Mrs. Waddington, of Twyford Lodge, as a memorial of her late lamented husband, Mr. J. T. Waddington, a trustee of the hospital.

The capitals, where painted, have a background of red colour, the foliage being partially gilt. The upper fillet of the abacus is deep red, the bead underneath white, the hollow under this pale bluish slate, then another line of white. The prevailing colours are Indian red; pale carnation, approaching flesh-colour; bluish grey, somewhat resembling Purbeck marble; pale subdued green; and a very small quantity of black and gold.

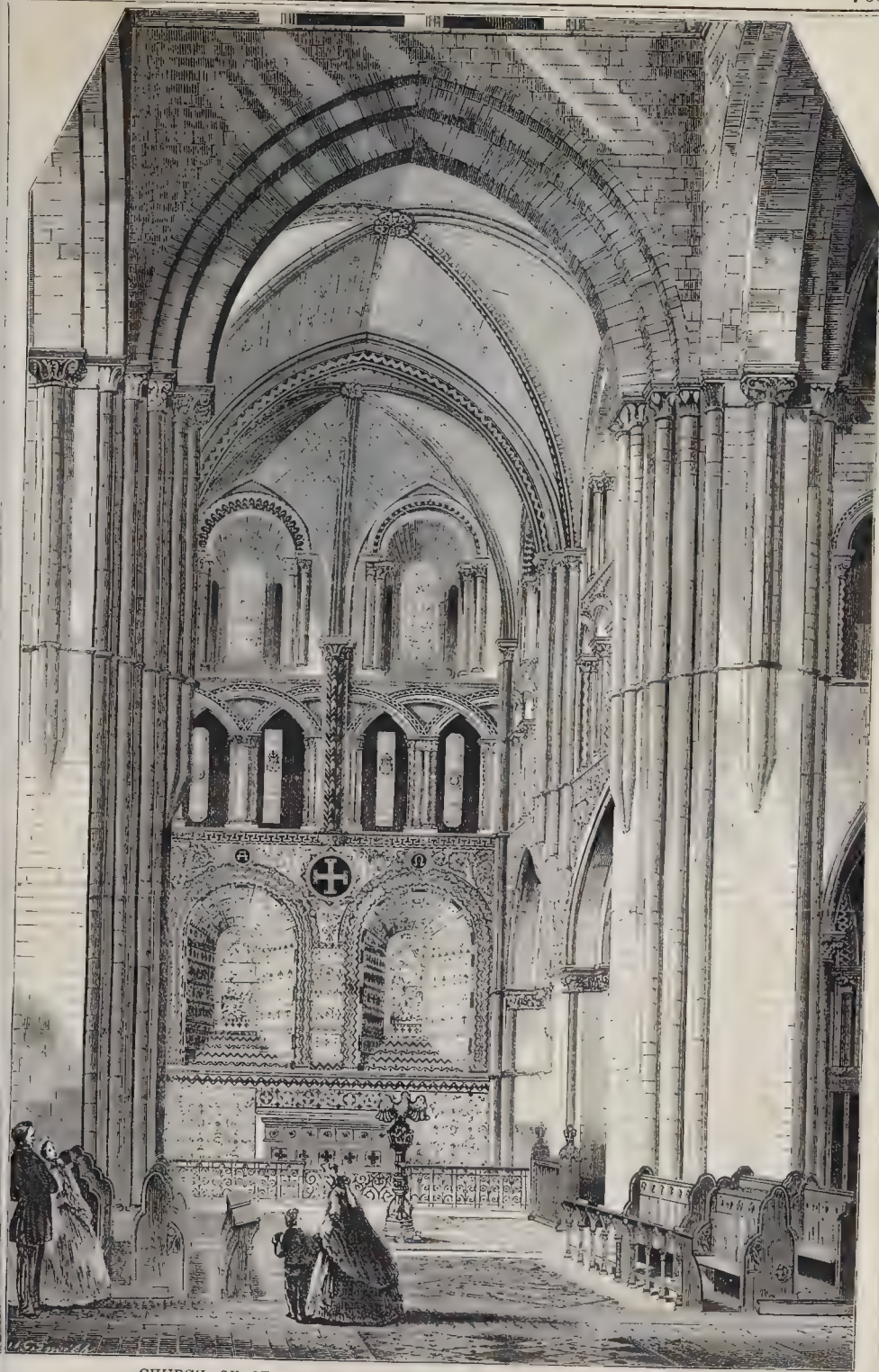
The stone zig-zag work of the right-hand lower window is different in design and more acute than the left, which gives the two windows a different appearance. It consists of four reeds in the left-hand window, the two innermost and the outermost being painted, the remaining reed left unpainted; in the right-hand window there are only three reeds, the middle one being unpainted. Each wedge of the painted zig-zag is varied with salmon colour and grey.

The two bosses of the groining of the choir are partly gilt, with red backgrounds; and the bosses of the roof of the nave retain traces of the ancient painting. The cross between the windows is of white marble, inserted in a background of Sienna marble. The scroll work, rosettes, &c., are in some instances painted the above colours on the naked stone; in others, a black composition is filled into incised lines. The altar-railing, lectern, &c., are executed by Messrs. Hart & Son, from Mr. Butterfield's designs. The former is of wrought iron, painted black and picked out with gold: the latter, which reflects great credit on the above firm, is an elaborate piece of work in brass, of which we give a separate illustration.

The church, though small in dimensions,—being internally 124 ft. in length from east to west, 115 ft. broad at the transepts, and 57 ft. high to the vaulting, which is stone-groined throughout,—is quite a little cathedral in its plan and proportions, and, when fully restored, will be one of the most complete works of its kind that we have.

Very extensive remains of wall-painting have been found beneath the limewash. One fine Descent from the Cross, on a large scale, covering the whole end wall of the south transept, is in a very fair state of preservation. But we have said enough. We recommend our readers to go and see for themselves, partake of the dole of bread and beer at the lodge, and then leave the Master some substantial aid, to enable him to carry forward without stint the work in which he is engaged. When he has finished the inside, he will still have work to do on the outside of his noble church.*

* The Rev. L. M. Humbert writes to us as follows:—"Will you permit me, through the medium of your widely circulated columns, to make known a most liberal offer in furtherance of the restoration of the grand old Church of St. Cross, which I sincerely trust may be duly responded to. It was conveyed to me, after the solemn re-opening of the church last Thursday, in the following terms:—"A native of Hampshire, pleased with what has been already done at St. Cross, offers a donation of 50*l.* towards the decoration of the church, on condition that nine other persons will contribute a like sum for the same purpose during the next month. A friend, not a native of Hampshire, but holding a curacy in the county, had previously offered me 50*l.* the same morning, without special conditions; and now a third friend (already a handsome contributor to the church), writes to me:—"And I shall be happy to be one of the nine contributors of 50*l.* each towards his fund." Thus encouraged, I am led to hope that the proposal of the Hampshire native need not to be more widely known to secure within the given time the required number of contributors. It will be observed that there is no limitation to natives or residents within the county; for, as one of my three friends says, "surely the restoration of St. Cross Church, so well carried out thus far, ought to be a national work, and not restricted to the county of Hants."



CHURCH OF ST. CROSS, WINCHESTER. INTERIOR, LOOKING EAST.
RESTORED UNDER THE DIRECTION OF MR. BUTTERFIELD.

I still think and repeat that the impost of a toll on Sunderland bridge is indefensible, and altogether out of character with the improvement of the times and the rapidly-extending manufacturing capacity and commercial importance of the port.

I shall not now lift the veil from the night side of Sunderland, and picture her great "social evil" and her other dark spots of criminal dye. Of drunkenness, also, I could say not a little of the town, where beershops are as plentiful as blackberries. My purpose was not to scandalize, but to draw attention to evils that could be cured and that should not be endured.

I should be happy to stand corrected, but I could not brook to be charged with misstating facts which I personally witnessed and practically examined before writing of. If anything was wanting to convince me of the rectitude of my statements, it is the admission of the chairman in the concluding sentences of his letter. Out of his own mouth—out of the mouth of a resident "now nearly fifty years," of Sunderland—the moral and social condition of the town is complained of and condemned.

To the work which the chairman says the corporation are prepared to undertake in the future, let me add that of the erection of slaughter-houses. At present every butcher's shop is a shambles, where one may see the regular execution of cows, sheep, and pigs going on, even in the front streets. The erection of a few proper slaughter-houses, however, is not a work for the future, but one for the present; and another summer should not find Sunderland without them. C. C. H.

THE CONDITION OF NEWCASTLE AND GATESHEAD.

At a recent meeting of the Northumberland and Durham Medical Society, held in Newcastle Infirmary, a resolution was adopted to the effect that a memorial be presented to the local governing bodies in Newcastle and Gateshead on the subject of the serious prevalence of typhus fever in the two towns, with a view to taking the necessary steps for the removal of some of the fruitful causes of this and kindred diseases. On Thursday week there were twenty-nine cases entered on the books of the Fever Hospital in Newcastle. The local *Chronicle*, in a leading article on epidemics, points attention to the fact that epidemics in Newcastle and Gateshead, and in particular the cholera, always break out in "the old places," or in new places equally bad as the old in sanitary respects. Sandgate, "the greater part of it not fit to be inhabited," is "the old place" in Newcastle, and Pipewellgate in Gateshead. It was from such vile centres that the epidemic spread, until it involved less and less unhealthy localities in its deadly circle. And as it declined, in 1831, it gradually shrunk back into "the old place," where it finally was extinguished. Facts such as these ought not to be forgotten.

"Not to timorous counsellors," remarks the *Chronicle*, "but to the faithful men who portray what is amiss, and who report to us what wretchedness and misery, what fevers and epidemics, what diseases and mortality, have their birth and their home in 'the old places' and the new, should we respectfully and thankfully listen; and the wise admonitions which they bestow we should gratefully and gladly obey. Their prescriptions may be summed up in the one word—*cleanliness*. Our towns are to be *wholly* made like the outside of the platter when royal personages come, 'sweet and clean.' Overcrowding is to be curbed, and the air purged of its foulness; and the public health guards left open for their entrance. Do what we can, disease and death must come, for men are frail and mortal; but we may lessen and minimize their power, and not invite them to their conquests. To death we must submit, but to preventable causes of death no submission is due. We should give them no quarter, but in the land which has been given to us for our inheritance."

A lecture on "The Night Side of Newcastle, or a Saturday Night's Ramble in some of the Back Streets and Lodging-houses," has been delivered by the Rev. J. C. Street, in which some of the dark parts of the town are flashed for a moment into the light. In reference to the state of the lodging-houses, Mr. Street says:—

"I have seen no lodging-house here which ought to be tolerated. It is all very well to regulate and supervise—that is, doing the best with a bad thing; but places like these ought not to exist. I saw the operations of Dr. Hunter, the Government medical inspector, in a letter quoted in the *Newcastle Daily Journal* the other day, where he said, 'I cannot, seeing the natural difficulties of a town of single-room tenements, speak too highly of the management of the common lodgings.' But my inspection was for social and moral, not merely medical purposes. I wanted to ascertain how moral pestilences

were generated, as well as physical pestilences. Dr. Hunter may be right in what he says, and yet not invalidate one word of what I say. But his remarks have great qualifications. He speaks of 'natural difficulties' and 'single-room tenements.' Against these lies the gravamen of my charge. I dare say that the houses which are under inspection are as well managed as such houses can be. But, in the nature of things, all belonging to such places must be bad; and no one can see the small rooms, with their numerous occupants, without feeling this. Interest and selfishness are banded together for the maintenance of these places. It is time that philanthropy interfered and fought them on their own ground. So long as there is a fluctuating population—tramps, pedlars, and strangers coming and going—so long there should be made clean, decent, and well-regulated temporary homes for them; homes where they can and must be washed; where cooking can be properly done; where some slight means of recreation are provided; where there shall be separate sleeping accommodation for separate families; and where order and sobriety shall be enforced."

After the lecture, a number of gentlemen formed themselves into a provisional committee, with Mr. John Mawson as chairman, for the purpose of giving practical effect to the suggestions of the lecturer, and of endeavouring to initiate some scheme to remedy the evils complained of, and generally of attempting to improve the moral and social condition of the migratory population. The first meeting of this committee was held in the Working Men's Club, Nelson-street, Newcastle, when it was resolved that the committee be called "A provisional committee for the purpose of devising means for supplying improved common lodging-house accommodation in Newcastle-on-Tyne and Gateshead." Mr. Thomas Humphrey was appointed treasurer, and Mr. Robert Fisher hon. secretary. The chairman said he was glad to announce several subscriptions towards the preliminary expenses. It was resolved that 500 copies of the lecture be sent to the clergy and ministers of all denominations, and to the magistrates and others holding official positions in the town, with a circular inviting their perusal of the pamphlet, and asking their co-operation.

NUISANCE IN THE HACKNEY-ROAD.

SIR,—A few days since I had occasion to make a survey in a street adjoining the Hackney-road; and, on my way from the property in a narrow street scarcely 20 ft. in width, I was suddenly sickened with the most horrible smell; and, on inquiring of a man who stood at his door as to its cause, I was told that "over the way, under the gateway, there was a large hole, in which they kept fish refuse." There evidently existed a hole covered with a flap at least 10 ft. by 7 ft., and used for some such purpose.

What can the vestry of Bethnal-green be dreaming of to permit such a thing to exist at the present critical time? AN ARCHITECT.

SOUTH EASTERN INDUSTRIAL EXHIBITION.

SIR,—Permit me to correct a statement that has been made very generally. I refer to the opening of the South Eastern Industrial Exhibition, which will take place on Saturday, the 28th inst.,—not, as stated, on the 24th inst. The inaugural ceremony will be performed in the celebrated Painted Hall, Greenwich Hospital, by permission of the Admiralty; and, as you informed your readers, under the presidency of Viscount Sydney.

I trust the promoters of this movement will be favoured with the same valuable support which you have at all times rendered to projects advancing the social interests and moral culture of the artisan.

Yours, &c.,
Surveyor to the South-Eastern Industrial Exhibition.

THE SHAKSPEARE MONUMENT, STRATFORD-UPON-AVON.

SIR,—Myself and other members of the Terecentenary Committee were much surprised to see in the *Builder*, of the 7th proximo, an engraving of a "Selected Design for a Monument to Shakspeare, in Stratford-upon-Avon," and in the description of it you say, subscriptions are being made to defray the cost of its erection, and that the design will certainly be carried out.

I have made inquiries of many members of the committee and subscribers to the Monumental Fund, all of whom say they have never seen or heard of a design, and Mr. Gibbs is unknown to them.

I am aware the responsibility for the assertion that the design has been selected rests with the architect; and as the statement is now reported in the newspapers throughout the length and breadth of the land, perhaps Mr. Gibbs will kindly inform the public when and to whom he submitted his design, and who selected it.

S. A.
* * We received the assurance of the designer, before inserting the view, that his design was to be carried out forthwith.

FALL OF RAILWAY ARCHES IN BATTERSEA FIELDS.

On Sunday night last the inhabitants of Battersea and Wandsworth were aroused by a great noise. Near Battersea Bridge, and close to the London, Chatham, and Dover Railway, the contractors for the extension of the Brighton line have been turning large brick arches, in order to form the supports of the permanent way, and from some cause, five of these fell, one after another, and produced the noise in question. Fortunately, it being Sunday, none of the men were at work, consequently no one was injured. Without any wish to prejudice parties concerned, we feel bound to say that the spectral character of these arches, and of some others close by, had struck us more than once in passing.

RESTORATION OF WINCHESTER HIGH CROSS.

THE PASTORAL STAFF.

NOTWITHSTANDING the remarks of Mr. Buckler, published in the *Builder* (Oct. 14th), I think Mr. Scott was justified in placing the pastoral staff (not crozier, as that was peculiar to archbishops) in the right hand of William of Wykeham.

An altarpiece in the Louvre, representing the "Coronation of the Virgin Mary by her Son the Redeemer," the work of Fra Angelico Pisicole (born 1387, died 1455), has a bishop with pastoral staff in the right hand.* I have an impression of a seal of Thomas (Tysbet?), abbot of Tilney Abbey, Essex. The figure has the hands clasped in prayer, and the staff resting on the right shoulder. In "Dugdale's Monasticon," are drawings of the seals of Battle Abbey, St. Werburgh, Chester, John Multon, abbot of Thorney, and John Saulscot, abbot of Hyde, all holding the pastoral staff in the right hand.

In the *Catalogus Benefactorum* of St. Alban's Abbey is a drawing of a Benedictine abbot carrying it in the same manner; and, in the brass of Elizabeth Herwy, abbess at Elston, Beds, c. 1530, her staff rests on the right shoulder.

In the recumbent effigies of Andrew, abbot of Peterborough, 1199, in Peterborough Cathedral, and one of the early abbots of Westminster, in the Cloisters, Westminster Abbey, the pastoral staff is held by the right hand. So in the figure of St. Augustine, at the door of the chapter-house, Rochester Cathedral.†

In the east window of the choir of Winchester Cathedral, St. Swithin, and William of Wykeham himself, vested in *chasuble*, hold their staves in the right hand.

At Welbeck Priory, Notts, is a stone of the eleventh century, with a pastoral staff of very curious form, grasped by a right hand.‡

J. P.

FATAL FALL OF HOUSES AT LIMEHOUSE.

MR. JOHN HUMPHREYS, Middlesex coroner, has held an investigation at the London Hospital, into the cause of the fall of houses in Eastfield-street, Limehouse, by which a boy, who was passing at the time, was killed.

Edward Reul, the father of the deceased child, said that there was a terrific crash in the street, and witness ran out, and saw that the whole front of 171, Eastfield-street, had fallen into the roadway, bringing with it part of the front and roofs of the houses on either side of it. Witness had no idea that anything had happened to his son, and he got a rafter to hold over his head while he entered the house to rescue those who might be in it. He found no one there, however. When he came out his wife met him and told him that the deceased had been buried by the bricks in the street. Witness took him to the hospital, but he died before admission. Witness had carefully examined the premises. He could judge of their condition, for he was a bricklayer himself. The catastrophe was occasioned by the bad construction of the premises. There was no partition, the mouth-pieces of the rafters were merely nailed, they were not tied in any way. The result was that the front and back of the house were not bound together, and the span roof being placed on them, without a tie, pressed them outwards, and the wall was the result. The brick-work and the mortar were good. Witness admitted that partitions were not uncommonly neglected in such houses, but he said that was so much the worse for the public; they ought to be used in all houses, and it was improper to omit them.

Mr. James Edmeston, architect, and other witnesses, having been examined, the jury returned a verdict, "That deceased was killed by the front of the house, No. 171, Eastfield-street, falling over him, and the jury say that the landlord of the said house had received sufficient warning of the dangerous state of the house, and ought to have shored it up."

* Mr. Jameson's "Early Italian Painters," p. 75.

† Knight's "Old England."

‡ Cutt's "Sepulchral Slabs."

with the figures of SS. Michael and Gabriel, executed by Messrs. Heaton & Butler. Another parishioner has given painted glass for the north window of the chancel, with the subject of St. Thomas addressing our Lord. The tracery of the east window has been filled with painted glass, the work and gift of Mr. E. M. Smith, of Wisbech, and other tracery has been filled by the family of the incumbent.

Pidley-cum-Fenton.—The new church here, erected on the old site, has been opened for divine service. It is in the Gothic style, and consists of a tower and tiled spire, a nave, chancel, vestry, and porch. It is very plain. The total cost has been 1,050*l.* It is situated about midway between Pidley and Fenton. The work was commenced by Messrs. Cook & Jenkins, who shortly after failed, and it was then carried on and completed by Mr. Saint, of St. Ives, and Mr. George Richardson, of Huntingdon; the former doing the brick and stone work, and the latter the woodwork, from designs by and under the superintendence of Mr. W. M. Fawcett, of Cambridge, architect. The exterior of the tower, nave, and chancel is of stone and rubble work, and the spire is covered with red tiles. The height of the spire from the ground is 70 ft. The entire length of the church is 95 ft. In the interior, the chancel-roof is of a wagon-head form, panelled, and made of oak. The floor is laid with encaustic tiles, in patterns. The fittings of the chancel are in oak. The altar is made of oak, and over it is an ornamental reredos of alabaster. The nave roof is open-timbered and panelled, and the woodwork is stencilled. The walls are lined with brick, with rows of black bricks and stone. The floor is laid with square red floor tiles, and the seats are of deal, stained. In the tower is placed a square stone font. The tower also contains three bells.

DISSENTING CHURCH-BUILDING NEWS.

Southampton.—The Baptist Chapel in Lake-road has been opened for divine service. It is a Classic building, 88 ft. long by 61 ft. 6 in. wide, internal dimensions; and is built of bricks with Bath stone dressing up to the entablature. The façade is surmounted with a pediment extending nearly two-thirds of the width of the whole front, supported on attics or pilasters of Bath stone, with capitals and entablature of the Roman Corinthian order, executed in Portland cement; but the cornice is divested of medallions, dentils, and other enrichments. The whole of the windows and door dressings are executed in Bath stone. The floors and pews, with their aisles, in the body of the chapel, are on an inclined plane from the pulpit or platform. The gallery front is formed of open ironwork, with circular corners. It is supported on iron columns, extending upwards and supporting the roof, which is so constructed that the whole of the space up to the collar of the principals (a height of about 13 ft.) is occupied by the large cove of the ceiling, extending from end to end, and therefore thrown into the chapel. The cove of the ceiling springs from the architrave or cornice, supported by elliptic arches turned from column to column, transversely and longitudinally, round the chapel, the soffits of which are panelled and moulded. On the west side of the chapel is a large school-room, nearly complete, built of brick, with Bath stone dressings, and in the same style of architecture, the internal dimensions being 80 ft. long by 28 ft. wide, and 26 ft. high to the apex of the ceiling. The ceiling is formed by lath and plastering to the under-side of the rafters. The school has a gallery at the front end, covering two close rooms, which are divided from the school-room by sliding doors or partitions. The whole of the buildings have been erected by Mr. Thomas Backhurst, of Landport, builder, from designs prepared by and under the superintendence of Messrs. Rawlins & Son, of Southsea and London. The new organ was made by Messrs. Gray & Davidson. It contains fifteen stops and about 800 pipes, having a trumpet stop throughout in the great organ, and 16 ft. open pedal-pipes. The organ is inclosed in a Grecian case to correspond with the building. The cost of the buildings will be upwards of 5,000*l.*, of which upwards of 2,000*l.* have been obtained.

Keighley.—The Baptist new chapel has been opened for divine service. The building occupies a plot of land at the corner of Albert-street and Scott-street, and adjoining the site of the intended new town-hall. In general form the

edifice is rectangular, and it is covered with a roof of single span. A school-room extends underneath the whole of the chapel: the floor of the chapel is, therefore, kept up several feet above the front street, and this has necessitated a flight of steps to each front entrance. All the external walls are built of local stone, faced with pitch-faced wall-stones: the quoins at the angles and other features are of hewn or ashlar stone. In point of style, the character is Lombardic. The vestries are under the organ floor, and communicate with the baptistery platform by doorways on each side of the pulpit. In addition to the school-room below the chapel there is a lecture-room connected with the former by folding doors, also five class-rooms and a tea-room. Below the tea-room is a chamber for the hot-water apparatus. Two stone staircases communicate between the school-room floor and the chapel floor and galleries. Two external entrances are provided to the school-room, approached by steps from Scott-street. The general internal dimensions of the building are as follow, viz.:—Chapel, 45 ft. wide; 81 ft. long (inclusive of organ recess); and 34 ft. greatest height. School-room, 42 ft. wide, 45 ft. long, and 14 ft. high. Lecture-room, 27 ft. by 23 ft., and 12 ft. high. Class-rooms and vestries vary from 14 ft. by 12 ft. to 13 ft. by 9 ft. The entire outlay has been about 8,800*l.* The chapel seats 750 persons. The contractors for the whole of the works were Messrs Gibson & Maude, of Keighley. The heating apparatus has been supplied by Messrs. Clapham, Brothers, of Keighley, who have also executed all the constructive and ornamental ironwork in the building. The gas fittings were by Mr. Brawn, of Birmingham; and the gas-piping was laid by Mr. Holmes, of Keighley. The architects, under whose superintendence all has been done, were Messrs. Paull & Ayliffe, of Manchester.

Brampton.—The new chapel here has been opened for Divine service. The building, which has cost 767*l.*, is in the Gothic style. It is nearly in the form of a parallelogram, the sides in the middle being some feet wider than at the ends. It is 27 ft. long and 24 ft. broad. The walls are of brick and stone, with ornamental red and black bricks in the exterior, and a tracery window in the front elevation, ornamental buttresses and pinnacles. The windows are glazed with cathedral glass, with white borders. In the interior, the roof is open-timbered and plastered between the principals, the floor boarded, and the seats are open, made of deal and stained for varnishing. In the centre, on a platform about 2 ft. high, is the reading-desk, with an ornamental iron rail and tracery on each side. It is lighted with petroleum lamps suspended from the roof. The work has been carried out by Messrs. Maile & Richardson, of Huntingdon, under the superintendence of Mr. Hutchinson, architect.

SCHOOL-BUILDING NEWS.

Knighton.—The national school in the parish of Heyop, situated about four miles from the town of Knighton, has been opened. The site was given by Mr. R. G. Price, together with a large donation. The building is of native stone, with Bath stone facings, from a design by Mr. Nicholson, of Hereford; the former material was supplied by Messrs. Morton, the contractors for the Central Wales Railway.

Levenshulme.—The foundation stone of a new school to be erected in connexion with the Methodist Free Church, Levenshulme, has been laid by Mr. Albert Whitworth, at whose expense the building is to be constructed. The school will be built upon a plot of land fronting the Stockport-road, and adjoining the chapel recently erected, and will have accommodation for 250 children, with class-room, infants'-room, and gallery above them. It will be constructed of white burnt common bricks, with polychrome decoration, and have an open-timbered roof. Warm-water apparatus will be used for the heating. Messrs. Whyatt & Redford, of Manchester and Heywood, are the architects. The contract has been undertaken by Mr. J. Davison, at a cost of 500*l.*

Sunderland.—The foundation stone of a new day and Sunday school, about to be built by the Wesleyan Methodist body, in King-street, Bishopwearmouth, has been laid. The school will be a stone-fronted two-story building, designed by Mr. Tillman, architect, with two large school-rooms upon the lower and upper stories, the first for young children, and the other for

those of older years. The total cost of the building, the ground, &c., will be between 1,200*l.* and 1,300*l.*, and the contract has been let to Mr. C. Stoneyfield, builder.

Lindley, near Huddersfield.—National schools have been opened here. The building comprises a boys' school-room, 63 ft. by 20 ft. and 16 ft. high to the ceiling, with class-room attached, 18 ft. by 17 ft.; a girls' school-room, 65 ft. by 20 ft.; and infants' room, 23 ft. by 20 ft. There is also a schoolmaster's house, detached, with the usual accommodation. The cost of the whole, including boundary walls, &c., complete, has been 1,250*l.* Mr. James N. Crofts, of Cook-street, Liverpool, was the architect.

ROYAL ENGLISH OPERA.

AIDED with the scenery and appointments prepared by Mr. Gye, last season, the Covent Garden Opera Company have produced Meyerbeer's "Africaine" with great splendour and completeness. The first scene, a noble Byzantine interior, decorated with mosaics and gilding, is a picture worth preservation. Miss Louisa Pyne, Madame Sherrington, and Mr. Charles Adams sing the music admirably, and Mr. Mellon's orchestra is irreplicable. Mr. Kenney, too, has shown more than ordinary skill in the execution of the English libretto. As an acting opera the "Africaine," which ought to have been called the "Indian," will probably never take the same hold on the world as "The Huguenots" and "The Prophet" have done, wanting, as it is, in dramatic interest, compared with them; but admiration for the music is growing with the English public, so that the English version of it, as set forth at Covent Garden, can scarcely fail to be popular. We have a word to say to the directors of the company. On the first night, some of the representatives of the Press, invited to be present, were not well treated: in fact, on the ground that the paying public were filling all the seats, they were refused admittance to the house. This was a great mistake, and very stupid. Mr. William Harrison on some occasions committed the same error, and was damaged by it. If a journal be invited to send a representative to give that publicity (with fair and honest criticism) without which no undertaking needing the public can prosper, those representatives, so far from being permitted to remain in the vestibule kicking their heels until a proper person can be found to tell them, politely done as it may be, that they cannot be allowed to pass on that particular occasion, should under any circumstances be admitted and accommodated. They are there at the request of the management, and for the advantage of the public, not for their own pleasure; and it is perfectly preposterous to put them in the position of beggars for a favour. A new ballet was presented on Wednesday night, but having heard of the difficulties on the first night of "L'Africaine," we sent no representative, and can say nothing as to its goodness or otherwise. At this of course the directors of the company can afford to smile. It is of little consequence to them, they may think, whether or not the *Builder* has been enabled to say the scenery is good, and the effects are artistic; it is of still less consequence to us; and we speak solely with reference to their own success, and the position of the Press generally. The want of common sense that would be shown by discourtesy in that direction would be quite sufficient to bring about a very different result to their undertaking to that which we anticipate for it, and very sincerely wish it may have.

Books Received.

A Descriptive Handbook for the National Pictures in the Westminster Palace. By T. J. GULLICK. London: Bradbury & Evans, and at the Palace, 1865.

This Handbook will very much increase the pleasure and advantage of a visit to the forty pictures, by modern artists, in fresco and the water-glass process, now to be found in the Houses of Parliament and adjacent galleries. Mr. Gullick has not confined himself to a description of the paintings, but has sought to point out the significance of their subjects, and the principal association they should call forth.

In describing one of Mr. Dyce's works, by the

way, "The Vision of Sir Galahad and his Company" derived from the romance of the St. Grail, he says,—

"We need only remind the reader that, according to the water-romance (which appears to be derived from the apocryphal gospel of Nicodemus), the St. Grail is the holy vessel, or 'hamp,' from which Christ drank and gave of the wine to his disciples at the Last Supper, and which is said to have been afterwards used by Joseph of Arimathea, to collect the blood which flowed from the wounds of the Saviour."

[This seems scarcely to convey the story. The "true blood" was the *Sang-réal*, and it was the search for this in the vessel described, brought over and hidden, as was supposed, somewhere in Britain, that was the grand object of the institution of the Round Table.

Mr. Gullick has executed his task well, and has produced a little book equally agreeable to read either before the pictures or at home.

Gullick's Travels into several Remote Regions of the World. By DEAN SWIFT. A new edition, with Life of the Author, by JOHN FRANCIS WALKER, LL.D. Illustrated by T. MORTON. London: Cassell, Potter, & Galpin.

This is a very nice edition of Swift's universally known satire and libel, and will aid in keeping up the wonderful popularity of the book. The illustrations by Mr. Morton, though sketches rather than drawings, are very spirited and effective; those in Lilliput, as he is termed, being the most satisfactory. The difficulty of making Gullick, when in Brobdingnag, look like an ordinary man amongst enormous giants was not been overcome: he is rather a manikin amongst men. One of the illustrations of the "Mahoes" (p. 308) will strike the reader as being adapted from well-known works by Hogarth, notably "The Rake's Levée." This is so obvious, indeed, that we must conclude the artist chose to take his Yahoos from a known source rather than create them. The volume forms a capital present-book for the coming season. Swift himself is a problem and mystery never yet solved.

VARIORUM.

THE current *Quarterly* has an article on the "Cathedrals of England," based on Mr. Murray's series of Handbooks to the Cathedrals. It has a special motive or result, but introduces them all agreeably. We quote a passage referring to early work:—

"Of the period before the Conquest, there are few actual remains. In many instances, of course, the site of the existing cathedral is the same that was occupied by the pre-conquest church, and it is possible that some fragments of the walls or of piers, though we suspect not many, may be left from the early part of the eleventh century. The most important relics exist in the North. For although the West Saxon and Mercian kingdoms, as the latter had at great resting-places of the faith in England, embracing within their walls the actual ground covered by the lowly tabernacle given by Eusebius to Augustine, she can boast of no such tangible witness of antiquity as the remains of the crypt of York Minster, which, if it is not, as every well may be, a portion of the church erected by the monks of Northumbria at the place of his baptism by Augustine (A.D. 627), is at least not later than the time of Archbishop Alcuin, who came to the see in the year 767, and who is recorded by Alcuin as the builder of a 'most magnificent basilica' in his metropolitan city. On this, therefore, we gaze with veneration; but if we desire to be fairly carried back to these remote centuries, we must pass from York to the sister cathedral of Ripon, erected, not on the site of the famous monastery built by Wilfrid, but on that of a second church, which there is no doubt was also founded by him. Under the central tower of Ripon Minster, the construction of which must have greatly influenced, the remarkable crypt known as 'St. Wilfrid's Needle,' a small subterranean chamber, the strong Roman character of which at once betrays the antiquity. It is, in truth, a surviving sample (and not a solitary one, since there is another, but not closely resembling this below the church of St. Andrew, at Hexham, also a recorded foundation of Wilfrid) of that mode of building which Wilfrid is expressly stated to have brought from Rome; and as we pass through the dark, narrow passages that lead to it, we find ourselves as in a labyrinth of rude walls, pierced by small niches, bearing the marks of more than a thousand years, we feel—so completely are we removed from all modern associations, almost brought face to face with the most memorable and venerable 'apocryphal' of the British Church, by whose care the crypt was constructed in the latter half of the seventh century. Its original purpose seems little understood,* but, more than any of the later and lighter crypts, it recalls the martyr's tomb, the type of which is to be sought in the Roman catacombs. It may have been used as a place of prayer for the faithful, or as a repository, from which the host, or it may have served for the occasional exhibition of relics. But, in truth, it belongs to a period so remote, and suggests a condition so different from that even of the Middle Ages, that we can do little more than guess its uses and meaning."

* See on "Cells, Sanctuaries, and Crypts" in *Builder* of July, 1862.

* Two papers on this remarkable crypt, by Mr. J. R. Bray, of Ripon, who was the first to point out its site, will be found in the *Journal of the Archaeological Institute*.

Messrs. De la Rue & Co. are early in the field with their "Indelible Diaries" and "Red Letter Diaries" for the coming year, of all sizes and conditions, edited as usual by Mr. Glaisher, F.R.S. That same red letter, by the way, though giving variety of aspect, is seldom pleasant to read. The information given is of the soundest and solidest character, and the illustration in each case is a copy of a portion of a photograph of the moon, 38 in. in diameter, showing the remarkable craters, if such they be, that cover parts of its surface.

Miscellanea.

DINNER OF THE BUILDERS' BENEVOLENT INSTITUTION.—The annual dinner of this valuable institution took place at the London Tavern on Thursday evening last. We shall report the proceedings in our next.

THE LEEDS NEW DISPENSARY.—The foundation-stone of this new building has been laid by the mayor with some ceremonial. The architect is Mr. Hill, of Leeds. The building is estimated to cost 3,500l. The contractors are:—Bricklayers, Messrs. Lax & Moody; mason, Mr. H. Smith; joiners, Messrs. Thomas Hall & Co.; plumbers, Messrs. T. & W. Storey; plasterer, Mr. Branton; painters, Messrs. Wood & Son; and slaters, Messrs. Hill & Sutcliffe, Bradford.

THE BIRMINGHAM WORKMEN'S INDUSTRIAL EXHIBITION.—Nearly 100,000 persons have visited Bingley Hall while open for the Workmen's Exhibition. In a financial sense, therefore, it has been a decided success, as well as in the object aimed at by its originators and supporters. The workman has come forward and been identified with the work of his leisure hours, and he has seen what his fellow-workmen can do in theirs. Nevertheless, as the local *Daily Gazette* remarks, the collection was full of encouragement rather on account of its promise as to what may be done in the future, than because of anything that has yet been accomplished. Another Working Men's Industrial Exhibition in Birmingham must be better than the one now closed, or else the local public will be likely to disregard it; for workmen will be expected to improve by their experience of the past two months.

ST. HELEN'S, BISHOPSGATE.—We very much regret to learn that the necessary funds for the restoration of this fine old City church, of which we spoke recently, are not at present forthcoming. This is the more unfortunate because the necessary repairs will swallow up much more money than the parishioners, most of whom are non-resident, can provide. In such a dilapidated state, indeed, is the entire roof discovered to be, that the architects, Messrs. Wadmore & Baker, have been compelled to report that it will be positively dangerous to re-open the church for Divine service until all the beams are replaced. Instead of doing the work properly at former periods, those who had the contract contented themselves with pasting brown paper over the worm-eaten timbers, the result of which is now apparent in rottenness from one end of the church to the other.

ASSOCIATED ARTS INSTITUTE.—The first meeting of the season 1865-66 of this Institute, the objects of which are to deliver addresses and hold debates on questions connected with the fine arts, to exhibit sketches, and by its meetings to promote social intercourse among young artists, was held last Saturday evening, at 9, Conduit-street, Regent-street; Professor Westmacott, R.A., in the chair. After some introductory remarks by the chairman, Mr. A. H. Wall, a member of the committee of the Institute, delivered an address on "The Importance of General Mental Culture to the Artist." In the course of it, Mr. Wall proceeded to say that the Association had been formed since January, 1863, and had been growing from that date. Remembering that they learned nothing so perfectly as that which they taught, they assembled to impart to each other freely and unhesitatingly the knowledge and experience they possessed. Believing that each of them might, as Carlyle says, have copied a little sentence or two faithfully from the inspired volume of nature, they came here to put those sentences together, and then compare them or read what they said when thus combined. A discussion followed.

THE WEDGWOOD INSTITUTE.—The Art Exhibition of Alton Towers closed last week. A sufficient sum has been realised to enable the committee to proceed with the complete erection of the Wedgwood Institute. The supplementary bazaar, held in Burslem, which closed on the evening of Friday week, realised nearly 400l., making the total gross receipts at the two bazaars about 1,400l.

NATIONAL AND PROVINCIAL BANK OF ENGLAND WORCESTER.—On the 12th inst. the foundation-stone was laid by Mr. R. Davy, manager, and a party of friends, after which lunch was partaken of, &c., at the manager's residence; and in the evening a supper was provided for the men, to the number of about forty. The style of the building is Italian with Hollington stone and stock brick front. Mr. John Gibson, of London, is the architect; Mr. Glover, clerk of works; and Mr. James Davis, of Malvern Wells, the builder. It is expected that the building will be completed by April next.

GREENS PROHIBITED IN ROME.—The Special Board of Health of Rome has followed up its recent prohibition against the importation into the Papal States of sulphuric and hydro-chloric acids, as containing arsenic, by also prohibiting as well the importation as the manufacture and sale of green-colored paperhangings, as containing preparations of copper and arsenic, commonly called "verdetto," "Schweinfurte's green," and "life green," by means of which arsenical poisons are easily introduced into the human frame, with more or less prejudice to health.

THE ASSEMBLY-ROOM, CHELTENHAM.—The walls of the Assembly-room have been newly papered with a paper manufactured for the purpose. The pilasters are marbled, as before, the Corinthian capitals being pure white, with narrow gilt banding. The skirting is in imitation of green marble. The ceiling has been decorated. The cornices are coloured, and have been relieved by gilt banding. The open floor devices from which the glass chandeliers hang, and which act also as ventilators, have been renewed. Mr. Buckman has added several new ventilators, some of ornamental design. The front of the gallery has been relieved by the use of two tints, instead of one, as heretofore. The ante-rooms, &c., have also been re-decorated.

MONUMENTAL.—The sculptor, Mr. Foley, is now actively engaged on the statue to be erected at Birmingham in memory of the Prince Consort. The model is completed, and he is now at work on the marble. The statue will be of life size, and the Prince will be represented wearing the robes of a Knight of the Garter. The sculptor, while working at his statue of Sir James Outram, slipped and sprained his foot. He is now recovered, and the Albert Memorial may be expected to be finished in about a year.—A statue to the memory of the late Earl of Eglington, the work of Mr. Noble, of London, has been inaugurated at Ayr with masonic ceremonial.—The inauguration of Buffon's statue took place at Montbard on the 9th. Montbard, the birthplace of Buffon, is a town of 2,600 inhabitants on the Paris and Lyons Railway, between Tonnere and Dijon.—The four bronze statues under the dome of the Invalides, in Paris, representing Peace, Justice, Prudence, and Charity, which were melted and sold in 1793, are to be replaced by four statues representing the four Evangelists, each of which is to be 12 ft. high.

THE RUSSIAN AND AMERICAN TELEGRAPH.—The *New York Herald* says:—"A telegram has been received from Port St. James, on Fraser River, stating that the Russian-American telegraph has been built from New Westminster to that point by Assistant-Engineer Conway, who was progressing still further with great success. Captain Conway's party will undoubtedly reach Stuart's Lake before the close of the season, where Captain Carlin is preparing bateaux to cross supplies for the passage of Lake Babine. Messrs. Henley & Co., of London, are manufacturing wire for the main line of the company, and 1,400 miles will soon reach Colonel Bulkley at Sitka. This is in addition to 1,200 miles of wire previously sent from New York. The cable which is to cross the Straits has been ordered in England. The whole enterprise, according to latest advices from official sources on the Pacific, bids fair to be most successfully and triumphantly carried out to final completion at a much earlier day than has heretofore been anticipated by its most sanguine friends."

WORCESTERSHIRE ARCHITECTURAL SOCIETY.—The annual meeting of this society has been held, in the council-room of the Natural History Society. The chair was taken by Mr. G. J. A. Walker. The report, which was a satisfactory one, was read and adopted. It gave a lengthened account of church building and restoration carried on in the county during the last year. The election of office-bearers, and other business, then occupied the meeting.

STEAM ROLLER FOR ROADS.—Steam scavengers and "macadamizers" having been found to answer their purpose extremely well in the streets of Paris, there is now in daily operation a steam roller for crushing the stones and levelling and consolidating the roads. This powerful machine is being worked with the utmost facility on the Pont Royal, making the ascents and descents without the least difficulty. Two men,—an engine-driver and stoker,—are sufficient to work the engine.

A ROMAN VILLA NEAR BATH.—Further evidence of Roman occupation in the neighbourhood of Bath has lately come to light. In a field in Wick parish, a considerable portion of an extensive Roman villa has just been uncovered, and the plan of two hypocausts, and the foundation walls of several rooms taken. From the extent and massiveness of some of the main walls, it appears to have been a villa of considerable importance. A great quantity of roofing tiles, made of "pennant" stone, broken pieces of pottery, and many other objects of interest, have been found, all of which will be deposited at the Literary Institution.

THE SOCIETY OF SAW GRINDERS AND MACHINERY, SHEFFIELD.—We have been requested to say that, at a general meeting of the Society of Saw Grinders, held at the Royal George Hotel, Carver-street, on Tuesday, a vote of thanks was unanimously passed to Mr. William Broadhead, the secretary, for the very able and correct manner in which he had represented the views of this society at the Social Science Congress, in answer to Alderman Jackson's question on the subject of trades-union opposition to the introduction of machinery. The resolution goes on to say:—"This society trusts that its sincerity will be tested by the employers giving its members a fair opportunity of working the machines, instead of driving them to other towns for that purpose."

ACCIDENTS.—A shocking accident, by which a well-sinker lost his life, has occurred at the Birkenhead Waterworks. A new well is being sunk, and the deceased went to work under the influence of drink. He overbalanced himself, and fell to the bottom, a distance of 73 ft., and was fearfully mangled, death being instantaneous. He had in his pocket a bottle containing rum; but though he was literally smashed, the bottle was found to be uninjured. At the quarry of the South Devon Slate Company, Ivybridge, a mass of rock and stones, estimated at three tons weight, fell upon a man, from a height of about 40 ft. He was completely buried, and killed. A man has also been killed, and four injured, at the Gullett Quarry, Hawksworth-wood, Kirkstall. The blocks of stone were raised from the quarry by means of a traversing crane, erected at about 40 ft. from the ground. A heavy block of stone was attached to the crane, when the props supporting the tramway gave way, and the men, the railroad, and the crane were precipitated to the foot of the quarry.

GREAT CASTING OF BESSEMER'S STEEL.—The operation of casting a cubic block of steel, of the weight of 100 tons, has been successfully accomplished at the new works of Messrs. Bessemer & Sons, at East Greenwich. At Bolton, in Lancashire, a block of steel weighing 250 tons was cast, by the aid of Messrs. Ireland & Sons' patent upper-twyer cupola furnace. The cupola furnace lent by Messrs. Ireland & Son for reducing the Bessemer steel to a liquid condition melts at the rate of thirteen tons in an hour, and is charged with 3 cwt. of coke to 50 cwt. of metal. It seems that there are about 500 of these furnaces in operation in many parts of the world. The large mass which has been cast at Greenwich will take about six weeks to cool. The liquid metal was poured into the sunken mould.—a large square hole, like a tan-pit,—in quantities of about four tons every twenty minutes, and the entire operation was accomplished between light and dark. This, and another block weighing 57 tons, are to serve as anvils for steel hammers in the new works of Messrs. Bessemer.

DRAWING CLASSES, KING'S COLLEGE, LONDON. The authorities of King's College, London, have this session doubled the duration of the drawing-class on each evening of its meeting, while they leave the fees unchanged. The class seems to recommend itself to the notice of young members of the profession who have inclination to improve themselves in that very necessary part of their education and practice.

A CHURCH STRUCK BY LIGHTNING.—Nottingham has been visited by a thunder storm. On the north-west side of the town, on an elevated spot, stands the church of All Saints, in connexion with which a parsonage-house is in course of erection. After the first vivid flash of lightning, the men at work put up their tools, and hastened from the scaffold, expecting, as they state, that it would be struck. Shortly afterwards, it was found that the church had been struck by the lightning, which passed down the conductor placed against the tower, until within about eight feet of the ground, when, some masonry obstructing its course, it passed through the stone wall, shattering it and making a large hole.

THE CONDITION OF BETHNAL-GREEN.—An inquest has been held on the body of one of five children of a labourer and his wife, lately living in Union-place, Shoreditch. On Saturday week the family removed to No. 3, Nelson-place, Bethnal-green, one of ten houses which the jurors stated had been in a disgracefully insanitary state for the last eight years. The girl, who had fractured a rib, immediately got much worse. On the Tuesday following Dr. Chambers was called in, and she died on Thursday. Dr. Chambers stated that the girl might have recovered; but that the removal to Nelson-place was most injurious, owing to the foul emanations and effluvia from the houses, the dust-heaps, &c. The houses consisted of two rooms each, and the rent paid was 5s. per house per week. He had a case of smallpox in one of them, which he believed arose from poison in the houses, for it had not come on like ordinary smallpox. The effluvia from the premises affected his throat for hours after he visited the court. The jury returned a verdict to the effect that the deceased died from the injuries caused by a fracture of a rib, adding that the conduct of Mr. Christie, the inspector of nuisances, is reprehensible for neglect of duty, and that the landlord of the premises is highly culpable for allowing them to remain in such a disgraceful condition. The jury also requested the coroner to write to the vestry complaining of the manner of the inspector before the court. It was stated in the inquest-room that it was in consequence of directions Mr. Christie had received that he only inspected such nuisances as might be brought specially under his notice.

TENDERS

For the erection of a public-house, in Hosier-street, Reading, for the Berkshire Brewery Company (limited). Messrs. W. & J. T. Brown, architects:—

Barnicoat	£510 0 0
Searle	486 0 0
Matthews	462 0 0
Sheppard	477 0 0
Ilbery	469 0 0
Willott	453 0 0
Carter (accepted)	436 10 0

For the erection of a public-house, in Colsey-street, Reading, for the Berkshire Brewery Company (limited). Messrs. W. & J. T. Brown, architects:—

Searle	£437 0 0
Sheppard	434 0 0
Matthews	419 0 0
Strong	411 0 0
Willott	368 0 0
Barnicoat (accepted)	389 0 0

For building seven houses, in carcases, in the Junction-road, Holloway. Mr. W. F. Hooper, architect:—

Evans	£1,600 0 0
Carter & Son	1,600 0 0
Rowley (accepted)	1,600 0 0

For finishing two houses in the same road. Mr. W. Hay, architect:—

Rowley (accepted)	£1,016 0 0
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For repairs and alterations, Creek-road, Deptford. Mr. T. Dawid, surveyor:—

Ford	£237 0 0
Walsh	420 0 0
Disney	121 0 0
Jarrait	418 0 0
Canham (accepted)	411 0 0

For residence, at Halling Park, Croydon, for R. C. Cradock, esq. Mr. J. Berney, architect:—

Nacey	£2,900 0 0
Hill & Reddie	2,831 0 0
Colls & Son	2,894 0 0
Sharpton & Cole	2,857 0 0
Nicholson	2,800 0 0

For the erection of a villa, for Mr. George Davis, Caterham, Surrey. Messrs. Dyer & Fuller, architects:—

Mansbridge	£1,800 0 0
Ward	1,650 0 0
Baldwin	1,482 0 0
	1,045 0 0

For British schools, Portland-street. Mr. J. C. Clarke, architect:—

Holland & Hannen	£5,841 0 0
Patman & Fotheringham	5,780 0 0
Mansfield & Son	5,660 0 0
T'Anson	5,690 0 0
Colls & Son	5,468 0 0
Hack & Son	5,397 0 0
Corder	5,290 0 0
Pritchard	5,264 0 0
Browne & Robinson	5,075 0 0
Scrivenor & White	4,960 0 0

For two warehouses and tavern, in Cow Cross-street, for Mr. D. Grant. Mr. H. Dawson, architect:—

Pritchard & Son	£5,735 0 0
Colls & Son	5,534 0 0
Ashby & Horner	5,465 0 0
Browne & Robinson	5,280 0 0
Corder	5,173 0 0
Piper & Wheeler	5,031 0 0

For alterations and additions to a house and premises, at Cold Ash, near Reading. Mr. W. Harvey, architect. Quantities supplied by Messrs. Pain & Clark. Allowed for Old Materials.

Wheeler	£1,307
Elliot	1,250
	60

TO CORRESPONDENTS.

PUBLIC WORKS DEPARTMENT IN INDIA.—We are forced, by pressure of matter, to postpone the completion of this communication until next week.

T. D.—R. H. R. P.—W. C.—J. G. R.—H. R. P.—Rev. Mr. H.—J. R. J.—E. W. R.—D. & Y. H.—Messrs. M. G. S.—R. P. P.—W. R.—Dr. H.—C. C. H. (omissions in the letter were made by mistake). T. H. (short answer).—D. J. H. (little)—F. F. (we know nothing to present).—J. F.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent Garden. All other Communications should be addressed to the "Editor," and NOT to the "Publisher."

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

ADVERTISEMENTS.

TO AMATEUR AUTHORS, &c.—Messrs. COX & WYMAN, agents every description of PRINTING in the best manner, with promptness and punctuality, and at moderate charges.—COX & WYMAN, Oriental, Classical, Fine-Art, and General Printers, 7, 175, Great Queen-street, Lincoln's-Inn-fields, W.C.

THE QUARTERLY REVIEW. No. CCXXXVI. is published THIS DAY.

CONTENTS.
I. ENGLISH CATHEDRALS.
II. THE MAKING OF COMPASS.
III. STATE AND PRO-PEACE OF ITALY.
IV. POETRY OF PEACE AND LORD BOUNTY.
V. THE EDUCATION OF THE BLIND.
VI. FIELD SPORTS OF THE ANCIENTS.
VII. THE GALLICAN CHURCH.
VIII. ENCOURAGEMENTS OF RUSSIA IN ASIA.
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Price 2s. to Subscribers, whose names are sent to the Author by the 1st of November next, when the subscription list will be positively closed, and the price permanently raised to 2l. 10s.

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The Builder.

VOL. XXIII.—No. 1187.

The Buildings on Mount Moriah.



WE were informed that, in order to see the noble inclosure of Mount Moriah,—which embraces the site of the Temple of Solomon, and contains the Dome of the Rock, the Mosque el Aksah, and the Golden Gate,—we must make application to our Consul the day before that of our intended visit, in order that he might give notice to the Scheikh of the Mosque to clear the Court of the Haram of all devout dervishes, Bokharian pilgrims, and all such fanatical individuals, lest any of the half-crazy

creatures, scandalised at the profanation of their holy place by the foot of the infidel, should run amuck at the party of visitors, or manifest their zeal by in any way molesting or reviling them.

Fifty years ago it would have been death, and twenty years ago it would have been dangerous, for a Christian to be found within the precincts of the Mosque. It is a sign of brighter times that an Englishman can now enter even the most holy places in the East,—as Mr. Fergusson entered the Mosque at Hebron,—through the intervention of his Consul and by a judicious use of the golden key. We accordingly went to consult our Consul, who considerably gave us information about the mode of proceeding, the amount of *baksheesh* to be distributed, and its proper division between the scheikh or the mollahs, and the bekjeos or police of the Haram; and arranged that his dragoman should call at our hotel on the following morning to conduct us to the Mosque.

We started at an early hour. Our road lay through the deserted streets which skirted the sacred inclosure. Entering through a gate at the north-west corner, we found ourselves in an oblong area, extending from north to south about 1,500 ft., and from east to west about 1,000 ft. The boundaries on the north and west sides were formed chiefly by the pasha's palace and other houses; on the east by a long line of wall, above which was seen the Mount of Olives; and on the south chiefly by the Mosque el Aksah and its adjuncts. Near the centre was a flagged platform, about 500 ft. square, raised some 5 ft. or 6 ft. above the general level of the ground, and approached by steps at the sides. In the middle of the platform rose the octagonal Mosque Es Sakhrah, or the Dome of the Rock.

Beyond the edge of the platform the ground is covered with turf or gravel, through which the rock may be seen cropping up. The enclosure boasts a few trees, chiefly cypress, none of them remarkable for their size. Here and there are placed small *koubbetts*, or places of prayer, usually tenanted by devotees. Two mollahs, sallow of complexion, with short-cut beards, and

wearing green turbans, to signify their descent from the Prophet, met us at the gate, whence they at once conducted us to the steps leading to the platform. Here we all had to take off our shoes; and as no slippers were allowed, our progress hence was, owing to the numerous small pebbles, worse than a pilgrimage to Loretto with peas unboiled, especially to the two ladies of our party; and we were all thankful to reach the smoother pavement of the mosque.

The exterior of the building presents no very striking architectural features, as the details are on a small scale. Four sides of the octagon have doorways in them; the other four have seven windows each. A low sloping roof runs all round, and from the centre springs the dome, which is so conspicuous a feature in all views of the Holy City. The exterior is inlaid with tiles, covered with rich patterns, in which purple and green are the prevailing colours. These, together with the copper-covered dome, impart to the entire building, when seen from a distance, that peculiar blueish green colour resembling the "patin" on a bronze or coin, which characterises the edifice.

As soon as the threshold is passed, the "motif" and object of the building become evident, in a huge mass of rough rock, which occupies the entire space beneath the dome. This irregular lump of stone, which stands 4 ft. or 5 ft. above the level of the pavement, is manifestly the jewel over which this exquisitely beautiful case has been constructed, for the purpose of preserving it, and hiding it from profane gaze. This rock, and the double passage or aisle round it, in fact, occupy the whole of the interior of the mosque. The dome, which is 65 ft. in diameter, and of a tilted form, is supported by four massive piers and twelve intervening columns. A wooden railing, elaborately painted and gilt, placed between these columns, guards the holy rock. Between this row and the outer wall there is a second row of eight piers and sixteen columns (two between two piers), which support arches, either semicircular or almost imperceptibly pointed, and wall above, upon which rest the timbers of the roof. The columns, which are of verde antique and other rich marbles, stand upon plinths, and have capitals like Corinthian, with architrave blocks, upon which rest beams moulded in imitation of a classical frieze and cornice. These beams extend from pier to pier, tying the arches together at their springing. The soffits of the arches and the interior of the dome are adorned with rich mosaic work. The woodwork in the aisles is elaborately painted; the windows are filled with the jewel-like glass, in small pieces, peculiar to Eastern buildings. All this colour, together with that of the draperies of intricate pattern, which hang over the holy rock, gives the interior that richness for which this building is unsurpassed. Universal testimony proclaims this to be for colour the finest interior in the world. While conducting us hurriedly round the rock our guides showed us a rude indentation on the upper surface of the rock, which they said was the impression of the footstep of the Lord Eessa (Jesus Christ).

At the south-east corner of the rock there is a small door which leads, by a flight of steps, into a cavern beneath the rock, measuring about 30 ft. by 20 ft. This cave has a small opening at the top. At the sides of it there are elegant niches pointed out by the mollahs as the praying places of Abraham, Solomon, David, and St. George,—quite a catholic assemblage. Their prophet was accustomed to sustain the superincumbent rock upon his shoulders during his devotions. This appeared to us quite a work of supererogation, as it seemed to rest firmly enough upon its base,—though the Moslem believes, contrary to the evidence of his senses, that it is in reality suspended in the air over the entrance to the infernal regions. Beneath

this first cave is a second, which has subterranean passages connected with it, one of which leads to the Pool of Siloam, and others conduct into rock-cut cisterns. It is about this rock and the surrounding building that the great controversy is raging. One party affirms that the rock is the original thrashing-floor of Araunah the Jebusite, and the site of the altar of the temple; and that the caverns and passages beneath it, were for the reception and conveyance of the blood of the victims to the King's Gardens, near the Pool of Siloam. Another party asserts that the temple could never have covered this spot. Mr. Fergusson, who is the originator of this opinion, and the representative of the party, has clearly explained his views, in a small volume, lately published, containing the lectures delivered at the Royal Institution. He divides his evidence into historical and architectural, and shows that the temple, as rebuilt by Herod, occupied only a square of 602 ft. at the south-west angle of the inclosure, and that consequently the rock was some 160 ft. from the outer wall of the temple. He advances that the character of the outer row of columns, with the architrave blocks and cornice, is of about the period of Constantine, and that therefore it may reasonably be alleged that the Dome of the Rock is the Anastasis which Constantine raised over the spot which he believed to be the sepulchre of Christ. The extracts from the writings of early travellers which he gives are strikingly confirmatory of his opinions. In support of both these views architectural evidence is adduced; but, to settle the question beyond dispute, we consider that further information is required, such as correct drawings of the columns in the Dome of the Rock, for there is considerable difference between Arundale's and De Vogüé's drawings of the capitals;—as far as we can trust our recollection, the latter are the more correct;—profiles and elevations of the cornice, carved on the beam above; an elevation of the west wall of the subterranean chamber adjoining El Aksah; and plan of section of the Golden Gate, besides various sections through the Haram, showing the nature of the ground, and where the rock terminates. All these we hope the Palestine Exploring Expedition will be enabled to supply; and until that shall be the case, we prudently reserve our own opinions upon this momentous question.

What is certain about the Mosque is that, in the time of the Crusaders, it was a church known as Templum Domini, and that it gave a title to the most renowned order of Knights that has ever existed, the Knights Templars. Mandeville says of it,—“That is a fair house, and it is all round and right high, and covered with lead; and it is well paved with white marble. The Saracens will suffer no Christians nor Jews to come therein, but I was suffered to go in, for I had letters of the Soidan. And in this Templum Domini were wont to be canons regular and an abbot.”

On the east side of the Dome of the Rock is a smaller edifice, called the Koubbet el Berareh, or Dome of the Judgment, as it is believed that here will be suspended the balance when the Judgment shall take place in the Valley of Jehoshaphat. It is more modern than the Dome of the Rock, and is entirely a Mahometan structure.

At the southern extremity of the platform is another praying-place, or more probably a preaching-place, as it consists of an elegant minber or pulpit, which, if it were found elsewhere, might almost pass for Gothic of the best period. In the neighbourhood of the pulpit there are several cypress and olive trees, forming a sort of avenue, which leads up to an arcade of seven pointed arches, which form the north portal of the Mosque El Aksah. The three in the centre are the work of the Crusaders, as they have Gothic mouldings. Those at the sides are probably imitations of the Moslem period.

This building, as it at present stands, has all the appearance of having been erected for a mosque, since it has seven divisions running longitudinally from north to south, or, as we should say if speaking of a church, a nave and six aisles; and we know of no ecclesiastical edifice built on such a plan. Again, the monolithic marble columns and piers which form these divisions, though they have for the most part basketwork capitals of Byzantine workmanship, are surmounted by stilted Saracenic arches. In its length there are seven bays, terminated by a sort of crossing, over the central part of which there is a dome. Though the numerous columns, piers, and arches give a degree of intricacy to the interior, it has on the whole a bald effect for want of mosaic and other wall decoration. This is especially striking after coming into it direct from the glowing Konbket es Sakhrash. Our guides took us to a spot in the crossing where two columns stand near to one another, and requested us to pass between them, telling us that the virtuous only can effect a passage, but that the wicked stuck fast in the middle. This ordeal, like the St. Wilfrid's needle in Ripon Minster, and, if we recollect rightly, a similar passage in Carcassonne Cathedral, would seem to prove that fatness is synonymous with vice, and leanness with virtue. Thus, that fat was an evil would appear to have been a doctrine long before the time of the teaching of Banting. As the columns are in places worn into concavities by the frequent passage of anxious obese believers, we contrived, by judicious management, to pass through safely, and thus clear our characters in the eyes of the Moslem. The only part of the interior which we noticed in our cursory survey as presenting marks of the occupation of the Crusaders who used this building as a residence, was a gable in the east side, which had a wheel window, apparently the work of Christian builders.

This window is a large quatrefoil, with smaller intervening foliations. The quatrefoils spring from colonettes, which meet in the centre. Below this is a round arched window, of a single light, the inner arch of which is built of small stones. It is slightly stilted, and rests upon shallow architraves, which surmount dwarf pilasters with rude capitals, like Corinthian, and regular bases. The round window was unlike any Saracenic work we have ever seen. The lower window resembles Byzantine work, but it is possible that it may have been constructed by Arab masons with fragments from an older building.

Leaving the Mosque by the north porch, we descended by a flight of steps to a subterranean passage, which runs the whole length of the building: parallel to it is a second similar passage, divided from the former by a row of piers and arches. Before reaching the end of the passage, which is formed by the southern wall of the Haram, the division ceases, and a chamber is left, almost square, having in the centre a monolithic column. The architecture of this part is so remarkable, that we give a detailed description of it, refreshing our memory by a rough sketch which we had an opportunity of making on the spot:—Four flat segmental arches, springing from a single central column, divide the roof of the chamber into four squares. Each of these arches has two sunk panels on the sffit. The one on the south side rests on a corbel in the outer wall of the Haram; those on the west and north sides rest upon half-columns engaged in the wall. The columns and half-columns are, as far as we can recollect, about 12 ft. high, circular, and without bands. The column has a symmetrical bell-shaped capital, ornamented with long strips of foliage, like palm-leaves, placed side by side perpendicularly, and in low relief. Each of the four divisions thus found was covered by a very flat domical vault, formed of two concentric rings of large stones, very carefully worked and jointed, with a circular key; the spandrels are enriched with radiating lines, in an scallop-shell pattern. There had been doorways in each of the southern divisions, opening on to Mount Ophel, as the narrow ridge lying between the Mount Moriah and Siloam was called. The position of the westernmost doorway is marked by two columns. Externally one half of the other doorway is visible; it goes by the name of that of the Prophetess Hulda. Mr. Fergusson considers it to be the work of Julian, when he attempted to rebuild the Temple, A.D. 363. This may be the date of the chamber and passages within, as the character of the work is earlier than that of the time of Justinian as exhibited in St. Sophia,

at Constantinople, and at Salonica. Had they been erected in the time of Herod, the capital would doubtless have foliage more closely resembling the Corinthian, that being the order employed by him in the Stoa Basilica, which stood above the chamber.

While we were in the upper building, the two mollahs who acted as our guides had intimated pretty plainly that they would like their bakshesh then and there. They did not delicately approach the subject by throwing out hints: a Turk generally asks for what he wants curtly, and sometimes peremptorily. They said, in short, "*Ver para*," which may be interpreted "Give us the farthings" (if the word "*mite*" represented a coin of appreciable sterling value, it might be used to render the word *para*, which is in reality the twentieth part of a penny). It is remarkable how, when men speak of money, they do so in a depreciatory manner. A Frenchman calls gold silver; we call it tin or brass, in vulgar parlance; a Turk calls it mites. We naturally declined to pay our mite until we had seen the whole show; for, knowing well the duplicity of the Oriental character, we thought it probable that if we did so we should see nothing more.

When we were in the darkest part of the vaults their demand was repeated, and this time backed by the dragoman. This appeared to us so much like an attempt at intimidation, that one of our party, vexed at the pertinacity of the dragoman, seconded his refusal by a slight push; whereat that gentleman became exceedingly irate, and said that if the aggressor had not been a British subject, he would have excited the Turks against him. That we had acted prudently in refusing to accede to their request, was subsequently manifested, for the guides were about to take us to the Golden Gate without showing us the extensive vaults which occupy the whole south-east angle of the inclosure, and which we insisted upon seeing before paying our bakshesh.

The descent into the vaults is difficult. They are reached through an aperture in the roof by clambering down the wall, assisted by projecting stones and by shrubs growing in the crevices. We found that they consisted of a series of arcades running from north to south, supported by piers irregularly built of courses of large single stones, rebated at the edges. The vaults above the arches were barrel-shaped, and constructed of smaller stones. The passages thus formed appear to be about 20 ft. wide and 40 ft. high in the highest part; but the surface of the ground was very unequal: in some places there were immense heaps of rubbish, and in others pools of water. A careful examination of these vaults will be necessary in order to determine whether they are of Justinian's time or of an earlier period. They extend fully 300 ft. on the south side, and about half that distance towards the north in the longest part; on this side the boundary is very irregular, probably because it is formed by natural rock. If it were possible to cut through the western boundary wall, there would be no difficulty in ascertaining whether it really concealed the eastern boundary of the Temple. A compartment of the vault at the south-east angle is walled off from the rest, and approached by a staircase. This is generally shown to visitors, as it contains a hollow stone which they are informed is the cradle of the Lord Eesa (Jesus).

We next proceeded to the Golden Gateway, which is situated in the east wall of the Haram, about three-quarters of its whole length from the south corner. It is in reality an oblong porch, divided down the middle by two Ionic columns of rude character, with Corinthian pilasters ranging with them at the sides, and half columns at the ends. (In plan both this gateway and that under the Aksah, seem to have followed the colonnades of the Temple itself, which we are expressly told were double,—that is to say, divided longitudinally by a row of columns. The aisle of the Dome of the Rock is also double.) From the columns spring segmental (not semicircular, as shown in Catherwood's drawing) arches. In the two eastern compartments are regular domes with pendentives; in the other, flat domical coverings, not unlike those under the Aksah. The bases of the columns stand upon plinths, and are rude imitations of the Attic base. Both the external faces of the gateway have pilasters at the side, with foliated caps resembling Corinthian, with elaborately enriched architraves carried in flat segments over the walled-up openings, and thus corresponding with the

arched passages within. At the north and south sides there are pilasters with capitals in the block supporting architraves, which do not range with those on the front. Within the Haram the ground has risen on both sides, so as to bury the building to one-half its height. On the south side of the interior is a small arched doorway, reached by a few steps. The mollahs were particularly jealous of our approaching this doorway, as the Mahometans believe that the city will one day be taken by a Christian conqueror, who will enter by this gateway. The mere proximity of any Christian to it seems to rouse their bile. There is a tradition that this is the gate through which our Lord made his triumphal entrance into Jerusalem. Sir John Mandeville says, "In the vale of Jehoshaphat, without the city, is the church of St. Stephen, where he was stoned to death; and thereby is a gate builded that may not be opened. Through this gate our Lord entered on Palm Sunday upon an ass, and the gate opened unto him when he would go to the Temple." Upon emerging into the open, we discovered the real reason why our mollahs had been anxious to pocket their mite at an early period, in the presence of the sheikh of the Mosque,—a fine old man, who, as far as stature and commanding presence go, might have been own brother to the great Chang. This majestic grey-beard strode up to us, staff in hand; and, after saluting us with a *Salut al khor*—which means Good morning, but which sounds like a preparation to exhortation—held out his hand for the gold which was his due. As the dragoman understood as well as we did the proper amounts to be distributed between the sheikh and the bekjes, we left him to act as paymaster; but he, afraid probably to resist, allowed the great man to take the lion's share, i.e., the whole. Now, we have an Englishman's natural horror of injustice, especially when it is perpetrated by a minister of religion, whether he wear the episcopal lawn, the plain cassock, or the green turban; so, mustering our best Turkish, we called after the sheikh, who had walked off with his booty, and talked to him in a paternal manner about the impropriety of his conduct in defrauding the bekjes. After a while, he seemed to see the justice of our argument, and refunded; and we left the holy precinct congratulating ourselves upon the improved signs of the times. Whereas, a few years ago, no Christian dared venture within this holy place, now a Frank could actually call to account El sheikh El Haram, and, what was more, induce him to give up his ill-gotten gains. We look upon it as the duty of every traveller to resist extortion for the sake of his successors; and, in this case, our Consul's instructions were precise upon the subject. Our guides had evidently been accustomed to similar proceedings on the part of the superior, and had timed their demands accordingly.

Altogether, the day of our visit to the site of the temple was one of the white days of our existence. This is, or ought to be, one of the most interesting spots in the world, when it is remembered that a careful investigation of the buildings on it—such is the advanced state of acquaintance with architecture evidenced—will determine whether the whole Christian world has for ages been mistaken or not about the spots upon which the touching scenes in the great scheme of man's Redemption were enacted. Who can be indifferent on such a matter, especially when he has the power of himself forming a judgment from these evidences; and who, being thus interested, can refuse help, to the utmost of his ability, in the furtherance of any project necessary to bring about such a desirable investigation?

THE PREVENTION OF STRIKES.*

Efforts for the Prevention of Strikes mingle, or run parallel, with some that aim at results far beyond what the title we have adopted would necessarily suggest the idea of; and M. Leclair is one whose hopeful views are not limited to a mere realization of terminated strife between masters and workmen. In 1850, he gave to the world a pamphlet "On Misery and the Means to be employed for its Cessation." We should say,

* See pp. 737, 758, ante.

+ "De la Misère et des Moyens à employer pour la faire cesser," par Leclair, Entrepreneur de Peinture. "Il n'y a pas d'effet sans cause." "Tout, dans la Nature, a sa raison d'être." Paris, Imprimerie de Mme. V. Bouchard-Huzard, Rue de l'Éperon, 5, 1850. 8vo., pp. 93.

in parenthesis, that it is difficult to fix upon an exact English equivalent for the French words *misère* and *miserable*; as the reader of Victor Hugo's "*Les Misérables*" may have discovered. The pamphlet is perhaps the best exposition of the views of its author at the period of the establishment of his Society. It was written at a time when the future, and the means of escape from the embarrassment entailed by the revolution of 1848, were the subject of deep thought in France. It begins by mentioning the opportunities, to which we have already referred, that the author individually had had of judging of the position of both master and workman. Having mentioned that he was born in the country, that he knows how people are there brought up, and what education is received, and how they live and work there; that he has inhabited the great city, laboured there as a workman, and lived the life of one; that he knows all the privations which must be self-imposed in order to make the least saving; and that he knows also the opinion, more or less favourable, that workmen have of their master, and of those who possess wealth, and how they appreciate the institutions tending to amelioration of their lot, M. Leclaire thus continues:—

"During more than twenty years we have lived in Paris, the life of a master [*chef d'industrie*]; we know all the preoccupations that are experienced in that condition, to arrive at making what is called one's way; we know all the difficulties, the agency of affairs of business occasions, and all the vexations that sometimes those which demand attention cause; we know all the fears that a man of right feeling experiences about failing of his engagements; we know all the activity that it is necessary to display, and all the energy that must be used in order to resist this frightful torrent, this competition of limits, which swallows up so many operations of contrivance in spite of the care that these bring to the direction of their bark that it be not upset.

Finally, we know, after a courageous struggle, after having come ashore, how difficult it is to preserve the fruits obtained by long and hard labour; and we have seen enough of violent revolutions to know all the disorder that they cast into the material and moral existence of families, and to desire more than ever to see a new one.

But what we know also are the physical and moral privations that generally workmen undergo when the unhealthiness of their avocations disorders their health; when maladies, infirmities, reach them, especially when they have the expenses of a family to support, and in short everything that awaits them when they can work no more."

The position of the workman is illustrated by particulars of that of each one of fifty-five individuals of M. Leclaire's own establishment, who had scarcely ever been in want of work; and annexed to the statement are the statutes of the original, or temporary, society "*de Secours Mutuels*," which we have referred to.

The body of the pamphlet commences with an enumeration of some of the marks of the "profound evil," the "frightful evil,"—what the author designates *la misère*, that affects society. M. Leclaire traces to it selfishness, division of families, and the extinction of the most pure and generous sentiments that the Creator has placed in men's hearts. He says, it degrades the man in his own eyes, and engenders a multitude of crimes, which he specifies. All are agreed that it is indispensable to aim at the extinction of misery, or the diminution of its worst effects. Those whose labour is their means of existence, ask to be occupied constantly, and to be remunerated, so that they and their families may live honourably. Those who have wealth recognise the existence of suffering, and the importance of finding a remedy. On the one side, it is thought that to arrive at the object, it is necessary to have recourse to new means; on the other hand, known means are believed sufficient. The author shares entirely the latter opinion, seeing that in his point of view it is sufficient to develop these means, and to co-ordinate them, to obtain the result that each one desires. Any difference then, he says, as to the means of suppressing misery, is to be attributed rather to grievous misunderstanding than to any other cause.

There being accordance upon the main points, nothing is easier between men of feeling, according to M. Leclaire, than to come to an understanding; but he argues that the agreement in a matter of social reform, must not be by way of concessions, any more than in a mathematical question. He says,—

"We are all agreed that every being that is born, by the very fact that it comes into the world, has the right to live;

We are agreed, in fine, that everything in Nature has its reason for existing;

But, to be consequent, we must admit that God in his divine creation has not desired that any being should suffer hunger on earth, and that if that is produced, we must attribute the effects only to causes that escape our observation, to our improvidence."

After saying that man has been created for

life in the family, and in society, he proceeds to argue that the individual man is rather destined for an agricultural life, and a continued residence in the place of his birth, than condemned to undergo the industrial disorder in which he only vegetates. Without entering into the discussion of some of these views, we may mention that the author concludes that the solution of the social problem is the finding the bond of the man to the soil where he was born, and that such bond is "the organization of the commune, conformably to the intentions of creation."

But the English reader will please not necessarily to associate the word *commune* with what is called *Communism*, and is sometimes so called with little knowledge of what "*Communism*" is or was intended to be. Whatever may be the view taken of the one of M. Leclaire's propositions just now alluded to, there is little in that which he proposes relative to the organization of what is merely a portion of territory (like *parish*, *township*, or *hundred*), that need not be adopted in England. He himself says:—

"Let not people frighten themselves in the least at this proposition of organizing the commune. The question is not of constructing a phalanstery."

The object being to reunite and coördinate things already possessed, he proceeds to state what these materials of the organization would be. He shows that each district, or, in France, *commune*, would require:—

1. A minister of religion;
2. A Society for Mutual Aid and for Retiring Pensions;
3. A public nursing institution [*crèche*];
4. An infants' school [*école d'asile*];
5. A school for older children [*école*];
6. An office for registering the workmen without work;
7. A method of wages-remuneration, especially for what has relation to agricultural work;
8. Associations agricultural and industrial;
9. Prizes in connection with agriculture;
10. A public balcon [*four communal*];
11. A supply of water [*fontaine d'eau*];
12. A service of firemen;
13. A public washhouse and baths;
14. A library;
15. Arrangements for companionship in working at night during winter;
16. A festival of the patron-saint;
17. Public promenades;
18. A hall of amusements;
19. A society for festivals and games;
20. A council of "*Prud'hommes*";
21. Highway and building regulations.

Lastly, as complement, some modifications in existing legislation."

There is scarcely more than one of these institutions that we need except, as peculiarly adapted to France, in saying that they comprise what should be found at or near to every centre of industry. Indeed, provident societies, schools, registration-offices in substitution for the present "houses of call," "statutes," or other agencies for hiring; adequate water-supply, baths and wash-houses, public libraries, promenades and places of amusement, and courts of arbitration, are so many things that have been steadily projected, or have been set on foot, by the friends of the working-classes in this country; and some of them aimed at in our workmen's benefit-societies. But what district is there in England, that yet is adequately provided with such essentials to comfort of its labouring population?

We cannot but call to mind that on the occasion of one of the disputes of late years, in the building trades, when masters were anxious to put down the adverse proceedings of the trade-unions, the masters expressly reserved for after-consideration the organization of substitutes for the benefit-societies, and that since, they have shown no sign of movement in that matter. We think that, with advantage to themselves, they might interest themselves in a multitude of things in the comfort of those whom they employ; and it is on this account that we are going to notice at length, one example that has been set them.

Concerning the Mutual Aid Society, M. Leclaire observes that the help accorded to the members has the advantage of not wounding the sentiments or dignity of the recipients; and that the society is a powerful moralizer; as also that, because of the required submission of its members to rules, it is a living course of lessons in public law. The Mutual Aid Society is the mother, so to speak, of the Annuity Funds, or *Caisse de Retraite*. Amongst suggested arrangements for the society, M. Leclaire mentions those,—that each individual, without distinction of sex or rank, should form part of the society from the time of birth,—provision however being made for new-comers, after a certain period of their residence in the locality or *commune*.

What is said of the public nursing-institution, would deserve to be brought to the particular notice of philanthropists in this country; where when it is understood what the meaning is of

the word *crèche*, there is always fear lest an imitation of the institution should involve neglect of the maternal duties and weakening of the affection. M. Leclaire gives satisfactory statements to the contrary of these suppositions; and we can corroborate the statements from our own observation and inquiries. He adduces arguments to show that the temporary separations involve gain in every respect, for both mother and child. As regards the infants' school, or *salle d'asile*, it is observed, that to have an exact idea of the services rendered by such an institution, the details given by Mr. Frégier in the work entitled "*Des Classes Dangereuses*" (which has been already referred to), should be read. As to the superior schools, we need only mention that the author's scheme of instruction,—even, it would seem, as for the schools of *communes* in agricultural districts,—would include linear-drawing, and a certain amount of practical geometry, and also vocal music, besides the rudiments of trades and callings connected with building, as masonry, carpentry, roof-covering work, cabinetmaker's work, smith's work, &c. Of the need of a registration-office for men out of work, the author of the pamphlet before us had spoken in 1842, in a previous brochure, that we have mentioned.* He now alludes to the frequent loss to those who come long distances, attracted to works announced or known of as in hand. And he says, referring to the workmen who may be found at certain spots in Paris, waiting till they are sought for:—

"If we go within doors of the wine-merchants', the dealers in *liqueurs*, that spring up around those places, we shall see the workmen hired, pay for a glass of wine for the workman-hirer, in sign of gratitude; we shall see others of them paying for this glass as under colour of anticipation; at length, we shall observe some of them who, pushed to despair by want of work, drown their vexation in strong liquors."

Numbers of our readers know that a trifling alteration in these particulars would make them applicable to London; where, indeed, in some respects, the case is, as we have said, worse.

In a section treating of the mode of remunerating work, the author adduces arguments in favour, in some cases, of a payment "in kind," as enabling both parties in the labour-transaction to be deriving benefit at times when otherwise neither would be doing anything for himself. But much more would need to be said critically on each suggestion, than we have here opportunity for; and M. Leclaire has not noticed "the truck-system," from which his method,—though perhaps suggested chiefly for agricultural districts,—would seem not to differ materially.

Without mentioning further some of the objects or institutions suggested, we will give more at length his views on two of the matters which are most immediately connected with our subject as stated in the heading of these articles. First, of association, or partnership. As to this he thus speaks:—

"The division of forces, it is the division of interests; division of interests, it is envy, asperion of other people; it is calamity; it is a terrible strife that the chief of industry give themselves up to amongst themselves; it is despotism; it is slavery and idleness at once; it is competition without limits; it is the crushing down of the feeble by the strong; it is the general *eu-qui-peut*; it is to whom shall be mistaken, the better; it is fraud, it is deceit, it is anarchy; it is the misery, in short, that we undergo."

Division of interests, it is the annihilation of property by its indefinite breaking up into bits; it is the oppression of every range so useful for the health of the cattle, and the quality of the meat from them. It is the impoverishment of the soil; it is confusion; it is chaos.

The re-union of interests, it is the contrary of all that precedes.

It is the concord of the interests of those having means, with the interests of those who live by their work; all cause of division ceasing, it is the respect for others and for their welfare; it is the liberty of each one arresting itself where the liberty of others is touched. It is emulation; it is order; it is peace; it is the reign of truth; it is happiness upon earth."

This may appear very enthusiastic; but there are in England those who have particularly studied the subject of co-operation, who might be expected to speak substantially to the like effect; and, indeed, they have done so,—as references in our preceding articles may testify.

M. Leclaire says that partnership is easier of organization in agriculture, than in the description of affairs that he calls *industry*. About the latter we shall further see. As to the former, he gives different forms of association.

But he points to the suggested institutions together, as comprising what would prevent strikes of workmen, and frightful scenes to

* "Améliorations à apporter dans le Sort des Ouvriers Peintres," &c.

which he alludes, and would take away all pretext for revolutions.

The particulars given of the condition of fifty-five individuals attached to M. Leclaire, show clearly the difficulty of the position of the workman, especially of one who has grown old. As for the position of the man who has not been attached to a particular establishment, he says an opinion may be formed of what it would be, by noticing that even he who has remained attached long in an establishment, finds at the age of fifty no more work. More would such be the case with the wandering workman, who had been tossed all his life from place to place.

"For, the latter, who has been obliged to bend to all exigencies, to all the caprices of so many foremen of workshops, ceases to be himself; he exercises his calling with disgust, without courage, without intelligence. He acts like a true machine; he is stupefied; he is morally dead! And what become then those beings who have no more the sentiment of their dignity, who are repulsed on all sides? What they become it is easy to understand: as they are no longer capable of doing anything, the little contributors are obliged to provide for their subsistence, and even to pay up to the expenses of internment, according as those unfortunates succumb."

Witness of so many miseries, M. Leclaire sought to lessen them by the original institution, in 1838, of the Provident and Mutual Aid Society.

In a future article we shall give particulars of the Society that now exists, and of the entire organization and present position of the partnership which M. Leclaire has formed between himself and his workmen. The information that we have, is full and precise; it could not but be interesting at any time; and it is particularly so now. We could not feel satisfied to give these particulars without preceding them with an ample account of what led to the existing position: for, whilst there may be relations of masters and workmen in the two countries which are differently affected,—as by differing circumstances in habits and character,—there are many more in which the words of description will be recognised as applicable, or most suggestive, for the relations that concern us at home.

A LOUNGE IN LIVERPOOL.

THERE are several piles of handsome new buildings in course of construction in Liverpool at the present moment. Indeed, visitors cannot but be amazed by the number of these evidences of prosperity and progress; for an impression of merchant-princely opulence is diffused in their neighbourhood that at once strikes the eye and sets trains of thought in motion. The new Corporation-buildings and the Exchange, now both showing well through the scaffolding, are, at first sight, just the vast temples one would expect a merchant community, already committed to the Classic style by St. George's Hall and the Free Library, to rear. And we cannot but admit as we gaze, that Commerce is justified of her children in the extent and magnificence of the fane they have reared in her service, and for the convenience of the administration of that order without which industry cannot be transmuted into wealth. When these buildings and the numerous blocks of handsome offices we are about to mention are finished, Liverpool may well be proud, although it has no Belgravia, no cathedral, no blue blood, and no mellow masonry.

The handsome Exchange is now built up as high as the windows over the principal floor. We have said that at first sight it fulfils the conditions we should assume requisite in a building devoted by merchant princes to commercial transactions. When we have examined it more minutely, viewed its large area and vast scheme, we begin to feel sorry for some of the details. The mouldings of the architraves and windows, and the pilasters, especially, appear somewhat pinched in their proportions, as though price had been the first consideration. No niggardness should be perceptible on such a building. It is impossible to be in the neighbourhood of the Free Library without feeling that the Liverpool merchants know how to give right regally; and consequently we note with the more regret any shortcoming. Nevertheless, the Exchange buildings will be a great ornament to the town. The courtyard of the edifice is now occupied by a brick building temporarily raised for the convenience of merchants.

The Corporation-buildings are also on a very large scale. They occupy an enormous block site in Dale-street, stretching from Crosshall-street to St. Thomas's buildings, the façade being, roughly paced, some 250 ft. long. The principal

front consists of a centre, with two advancing wings, and is now as high as the top of the first story. It is faced with stone, and lined with brick, and the doorways are of granite. The caps of the Corinthian columns are ornamented with fern leaves instead of those of the acanthus; and considerable spirit and merit are apparent in the general design.

A marked feature in the Liverpool streets is the variety in the way in which the corner houses are treated. There are but few corner houses that are not splayed at the angle, or carved, or partly one or the other, with the projecting part supported on brackets; and few that do not display cunning devices to make the most of the position. Some observations in these pages a few years ago on the treatment of angles in foreign towns may have had effect. A new example, in the Gothic style, at the corner of Charles-street and Whitechapel, presents considerable liveliness of treatment. It is a public-house, or gin-palace, three stories in height, built in red and white, and the local bricks, in bands. It is ornamented with carvings in stone, and a Gothic railing over the cornice of the shop, and is capped with a Gothic cornice of stone. The entrance is in the splayed angle, and over it is a circular window on the principal floor. The only mistake is that the capitals and carvings are so ecclesiastical in character, they might have been copied from a church. The sanitary condition of the crowded neighbourhood in which this house is situated, requires supervision, we perceive.

Of the many groups or blocks of new business-offices, we would especially mention a huge corner pile of building, called Oriel Close. This consists of a four-storied building, every window in which is an oriel. Altogether there are more than fifty oriels in it, all of which are exactly alike, and arranged in straight tiers. Between each oriel there are moulded pilasters, or buttresses, reaching in one continuous line from basement to parapet, which are profusely decorated with Early English dog-tooth ornament. The principal rooms are lighted by three oriels, and their ceilings, owing to the exigence of the fireproof floors, are arched; each arch corresponding with an oriel, or three arches in each room. The fireproof floors are made of brick, each apartment being thus rendered independent of the accidents that may happen to others. Rigby's buildings are a series of shops with offices above. These are in course of being refronted above the shops, in cement, and ornamented with sculpture to meet the requirement of the day we might call eye-worthiness. In this respect they are in advance of some adjacent buildings, which would be the better for some such expenditure of enterprise: the old-fashioned George Hotel, for example, and the Royal Hotel, at the corner of Moorfields, coming first to mind.

It is this mixture of wealth with penury in buildings that is another distinctive feature in Liverpool. In the metropolis a fine site is usually occupied with houses of corresponding and nearly uniform appearance. But the Trafalgar-square of Liverpool, though having many points in common with that of London, has a strong dash of Tottenham-court-road thrown into it by the existence of a few shabby unworthy houses among the buildings surrounding it. Standing under the terraced portico of the Free Library, and looking upon St. George's Hall and the railway station, as one might look upon St. Martin's Church and Northumberland House from the entrance to the National Gallery, the resemblance of the two sites is striking, even to the street opening out of it in a similar position to that occupied by Parliament-street. But here the resemblance ceases. The houses in this street are small and dirty, and should make way for better ones. Their chimney-pots occupy the position that should be occupied by the drawing-room floors of a handsomer class of buildings. Although one side of the square is sumptuous with the enormous American hotel, another side has an ugly eyesore in a shabby group composed of an American and Canadian kerosine and petroleum oil depot, a cigar-shop, a frail bazaar, an eating-house, the turning into a narrow dingy street called Livesley-place, two or three old public-houses,—the Warriors' Rest and the Angel, to wit,—and Bentley's book store, most of which specimens of the domestic and commercial architecture of the last age are made still more garish by enormous announcements of the wares dealt in by their proprietors permanently painted upon them in huge black letters. A few masterly touches, such as the removal of inadequate objects occupying conspicuous sites, and Liver-

pool would be more like the cities of the ancient Classic world than anything we have. Incessant attention, however, is required to keep even first-class arrangements in order. We were forcibly reminded of this fact beneath the portico of the Free Library, where some of the paving slabs had sunk, and the rain lay in shallow pools many feet long. And here, perhaps, we may give agreeable information to many, when we say that, turning into the reading-room of the Free Library, we saw 200 readers sitting so silently over their respective books that the fall of a pin would have been audible if it had occurred anywhere off the india-rubber pathways between them. Most of them appeared to be clerks and steady working men; but there were some in actual tatters, the slow movement of whose heads as they read from the beginning to the end of a line, told their poor scholarship and their scanty opportunity of study. That the most ragged beggar is free to walk into a good room, and sit down and read any book that he can ask for till he is tired, is another fact that Liverpool may rejoice over. The Museums of Natural History were also well attended, as well as a Gallery of French Engravings, to which we have referred before.

Fire-proof flooring is much in esteem in Liverpool. It comes, perhaps, of a community of merchants that chances should be calculated to a nicety, and that all risk should be reduced to the minimum as far as expenditure can insure that desirability. In the court of the block of offices called the Temple (distinguished as the Lunar Temple), there are huge piles of offices in course of erection in white and red bricks, with iron girders, to carry the floors and iron mullions to the window openings. This precaution is being taken in many other cases, but, curiously, not in that of the Exchange. This building has plate beams to carry ordinary floors.

The Alexandra Buildings are a group that promise to be further ornament to this fine landing-stage to Old England from the New World. And near the Exchange Railway-station, at the corner of Tithebarn-street, there are three groups side-by-side, all building, that are remarkably striking in their effect. A narrow street intervenes between two of them, and another flanks the third, thus affording return frontages to all three. Two of them, each four stories high, but one much more advanced towards completion than the other, are built of stone, and might be compared to Italian palaces. The principal front of the loftier of the two has four tiers of nine windows, or thirty-six in all, with a handsome parapet above them, with a large piece of sculpture in the centre of it. The second is not so far finished as to admit of description. The third consists of a series of segmental arches in three tiers, with eight straight-headed windows in each, with brick jambs and stone arches, and tympanums and iron columns for mullions. In the return are some thirty windows of the same kind as those in the principal façade. Besides the numerous buildings yet veiled in scaffolding, there are many from which it has been removed long enough for the weather to have toned down the appearance of extreme newness, but which absentees from Liverpool will find to have sprung up within the last few months. The gymnasium, with its novel façade, composed of a low centre and wing, with a tall mansard tower at both ends, is one of these instances, as well as the little colony of chapels and churches grouped in its neighbourhood. Of the latter, Hope-street Church and School-buildings would be creditable to any community, both in design and workmanship. The materials, however, are not quite faultless, the choice of wooden gates having entailed early dilapidations.

Across the full glittering bosom of the Mersey, bared to as noble a merchant and passenger fleet as the sun can shine on, there is more work going on close to the water's edge. New hotels and extensions of railway stations mark the great increase of traffic of the present day, as well as the national daintiness and nicety in the requirement of clean, comfortable, and commodious quarters.

ADVANCE IN THE PRICE OF COPPER.—In consequence of a further advance of 5l. per ton in the price of copper, the principal firms yesterday raised the price of brass and copper wire and tubing a halfpenny per lb., and yellow metals a farthing per lb.—*Birmingham Gazette.*

THE PUBLIC WORKS DEPARTMENT IN INDIA.*

The next point to be discussed is the "Leave and Pension Rules."

About two years ago the Government attempted to force upon the covenanted engineers a new set of rules, considerably less favourable than the not very liberal ones originally held out as the condition of their appointment. The attempt appeared scandalously unjust and dishonourable, and its legality was very questionable. Great indignation was excited among the Stanley engineers, who fought for two years against the imposition, and have at length been successful in obtaining the option between the New and the Old rules. The effects of the breach of faith, however, remain. The manner in which the Government treated the first remonstrances made to them,—by ignoring altogether the existence of a covenant equally binding upon Government as upon the other side, and by treating the covenanted engineers as entirely without rights or claims on the score of their agreement,—gave rise to deep and widespread distrust. Counsel's opinion was taken upon the covenant, and the result was not favourable to the good faith of the Government. It was found that, while professing to secure to the engineers certain rights, privileges, and benefits, as the conditions of their appointment, the deed was ingeniously worded so as to bind the Government to *nothing*, and the other side to *everything*—in fact, to place the engineer, who believed he had a charter of rights, entirely at the mercy of his employers. It is most important to candidates to be aware that their agreement, so far from securing them any rights, is worth little more than waste paper; and although the Government have hitherto, except in the instance of the new Pension Rules, used their power with forbearance, it is possible that when certain officers, who openly avow their hostility to civil engineers, come to the top of the Department, as in the natural course of things they must soon do, these powers may be used greatly to the disadvantage of the civilians. Already it sometimes happens that a civil engineer under covenant, who has been guaranteed in his deed of agreement "an adequate travelling allowance," and "all articles necessary to the due performance of his public duties," is compelled to keep, out of his own pocket, two or three horses, solely for the public work, without receiving one penny of allowance.

As all engineers who now enter the service are subject to the new (uncovenanted) leave and pension rules, which were promulgated in July, 1863, it is unnecessary to refer any more to the old rules, or to point out wherein the two sets differ. But a short résumé of the rules now in force may perhaps be useful. They are as follows:—

1. *Leave*.—One month in each year, on full pay, and, counting for service, may be granted at the discretion of the chief engineer, provided no inconvenience or expense to the State is caused. One year's furlough after ten years' service in India, and a second after eighteen years in India, on from one-sixth to one-fourth of the full pay of appointment; or, instead of furlough, six months' leave, on private affairs, once every six years, on half-pay of appointment.

Leave without pay, up to one year, may be granted once during service, at discretion of local Governments. Sick-leave is allowed to the extent of three years during the whole period of service, on half-pay for the first fifteen months, and one-fourth for the remainder of the leave.

Neither sick-leave, furlough, nor leave on private affairs counts for pensions.

2. *Pension*.—No pension is a matter of right; it is entirely optional with the Government to grant the full pension allowed by the rules, or a part, or none at all. Sir Charles Wood has recently directed that the full pension is not to be given except in cases of special merit.

A pension not exceeding 400*l.* a year,—if the average salary for the last five years is under 12,200*l.* a year, or not exceeding 500*l.* a year, if over that amount,—may be given to officers who have completed thirty years' actual service in India. (This is only to be given in full to particularly meritorious servants.)

A pension of similar amount may be given to a sub-officer after twenty-five years' service in India, if he be certified by a medical board to be utterly worn out, and totally unfit for further service.

A pension not exceeding 200*l.* a year for salaries averaging, for five years preceding, less than 1,200*l.* a year, and not exceeding 300*l.* for salaries averaging over that amount, may be given to officers obliged to leave the country under a similar medical certificate, after fifteen years' of actual service in India.

Officers whose health may fail before they have completed fifteen years' service, receive no pension or gratuity whatever, but are entitled to a free passage back to England.

As before observed, the above rules are less favourable than those formerly in force, although even they presented but small attractions. In estimating their advantages, it must be borne in mind that sick-leave and furlough do not count for pension: so that about five years must be added to the above periods of actual service on this account; and further, that service before the twenty-second birthday likewise does not count towards pension. On the other hand, three years of sick-leave and two years of furlough give a large allowance of leave to England to those who can afford to avail themselves of the privilege; married men, with children, seldom can do so, as the expense is too great. Indeed, a man cannot prudently marry on his pay alone, unless he makes up his mind to stay all his life in India. The uncertainty of his own pension, the absence of any provision for the widows and orphans of those who die in the service, and the impossibility of a man with a family saving out of his pay, are grave reasons against marrying without private means.

The pension rules are perhaps the greatest drawback to the service. If a pension is given at all, it should be absolutely certain; and not unnecessarily deferred, however small in amount. Government can dismiss a servant who is found to be inefficient or careless; but the man who is thought worthy to serve half a life-time, is also worthy of his reward. The pension, in fact, has been justly earned, for it is part of the consideration for which service has been rendered. If the amount of pension, or the obtaining of a pension at all, is to depend on "merit," which often comes to mean the chance favour or disfavour of the head of the department, the prospect is too uncertain to have any real value. It must be inexpressibly galling to a man of independent spirit to have to restrain himself from expressing any opinion distasteful to "the authorities," lest he should endanger the only provision he has to look to for his old age.

About two years ago efforts were made to obtain better pension rules for civil engineers. The present rules were originally intended for natives of India in inferior positions, such as moonshies, office-keepers, head constables, &c. A petition was therefore addressed to Sir Charles Wood, and forwarded, it is understood, with a strong recommendation from the Government of India, praying that civil engineers, as professional men who have had previous experience and a special education, might be placed on an equality with the natives in the legal, educational, and judicial departments; who, although serving in their own country, and able to live much more cheaply than Europeans, are allowed much more liberal terms of pension. Sir Charles, characteristically ignoring the merits of the case, replied that as plenty of civil engineers could be got on the present terms, he saw no necessity for improving them. We are glad to see, however, that the younger members of the profession are beginning to appreciate the appointments offered them at their true value; and that at the last examination there were only six qualified candidates for ten vacancies. So Sir Charles has reckoned without his host.

The rules as to examinations in the native languages and in professional knowledge have been considerably altered of late, and now stand as follows:—

The first standard in Hindustani, and a professional examination, must be passed, the latter within a year of arrival in India, the former before promotion to assistant engineer, first grade.

The second standard in Hindustani must be passed in order to qualify for the rank of executive engineer, fourth grade.

The professional examination is conducted by a committee of three officers of the department. Its scope is rather vague, but it is intended to test the aspirant's knowledge of the materials and resources of the district and the local peculiarities of work. It is not an ordeal to be feared by any one of ordinary good sense.

The Hindustani standards are more serious affairs. The first requires a fair colloquial

knowledge of Oordoo, and the power of translating from tolerably easy books in the Persian and Nāgarī characters. The former is used for the Oordoo, and the latter for the Hindee dialect of the composite *lingua-franca* known as Hindustani. A little industry will enable the student to achieve the first standard in two years after arrival.

The second standard comprises translation from more difficult books in Oordoo and Hindu, reading and translating Persian and Nāgarī manuscripts, and writing exercises from English in both the characters and dialects before mentioned.

This standard is considerably more difficult than the old one, which used to be called the P. H.; and, as comparatively few of the Stanley engineers succeeded in passing even that, it is thought that the new standard will prove a serious difficulty. The Government have made an excellent rule, allowing assistants three months' leave on full pay to study the languages. This concession was granted, it is believed, in consequence of the strong remonstrances and complaints of the Stanley engineers; and is encouraging as a proof that Government are not deaf to their representations, when patiently and perseveringly pressed upon them.

The writer could have wished to give his readers some idea of the varied and extensive duties which devolve on a Government engineer in this country; but the length of this communication warns him to defer that subject to some other time. A few words, however, must be said upon one important branch of his duties which causes the engineer much trouble and money,—I mean the accounts. As responsible contractors scarcely exist beyond the presidency towns, the engineer has to carry out his own works by petty jobwork, or even by daily labour. The system of accounts is complicated, lumbering, and useless to a degree; and, moreover, it is revolutionized about once in three months, to say nothing of petty changes every week. The Government, with that foolish shortsightedness which somehow inevitably clings to official proceedings, will not allow the engineer proper assistance in the way of time-keepers, clerks, and accountants, because they have set up a bugbear called "percentage of establishment,"—the meaning of which is, that they cut down the supervision and establishment, until the work alone becomes costly and bad, and then rejoice that they have reduced the cost of spending a shilling from fourpence to threepence; forgetting that if they now get for fifteenpence only half what they formerly got for sixteenpence, the arrangement on the whole is not economical. The engineer is called on to spend half his time in mere mechanical work, compiling accounts, drafting returns, &c., which might just as well be done by a clerk on one-fourth of his salary.

But there is worse than this in the system: under recent recent orders (*vide* chap. xx., New Code) every item of expenditure, however proper or however unauthorized by higher officers, to which the controller chooses to object,* if not recovered within three months (which may be quite out of the power of the engineer), is to be summarily retrenched from his pay; and further, if the accounts are delayed beyond a certain date (which again may be entirely beyond the control of the engineer), half his salary is to be forfeited for that month. If it is replied that these orders are not meant to be enforced, it will be found, on referring to the New Code, that the controller is bound to enforce them; and a friend of the writer's actually was fined a month's pay for not sending in a return which he had never been ordered to submit. He recovered the money by threatening legal proceedings, but destroyed his prospects in the Department by his contumacy. These rules are perfectly illegal, at least as regards covenanted engineers; but any one who ventures to object to them must expect to become a marked man, and to lose all chance of promotion, even if he escapes being dismissed under some pretext of "insubordination." Those, however, who choose to enter the service, knowing the existence of these rules, cannot complain if they are enforced against them.

It will be gathered from the description above given, that the writer, in common, he believes, with the great majority of his *confrères*, cannot at present recommend the service to young engineers looking out for employment. At the same time it has undoubted advantages; and

* See p. 743, *ante*.

* That is, every item which he chooses to place under the heads "Inefficient" and "Corrections."

under altered conditions may yet offer them a good field, and a reasonably attractive career.

Society in India is very pleasant and friendly to those who take a little pains to cultivate it. Every one's position is so well known, that there is little of the reserve and exclusiveness which foreigners complain of in England. All members of the department, civil and military, have a strong fellow feeling; they all know each other more or less, and wherever you go, you are sure to find kind and hospitable friends. The Bengal engineers and the civil servants, with whom civil engineers are chiefly brought in contact, are fine fellows, generally clever, well-informed, agreeable companions, whom it is a pleasure to know and to work with. Even bigwigs, who seem sometimes in their official capacity, seen through a fog of of foolscap, the enemies of mankind, turn out on a personal acquaintance, frank, unaffected fellows, whom you have not the heart to abuse any more. By the way, it is astonishing to a stranger to find how every one in India hates everybody else, till he discovers that it is all talk. Anglo-Indians abuse each other, their superiors, their friends, their predecessors in office, and especially the Government, from morning till night. But there is no ill-nature in it, all the renown of which Anglo-Indians are capable being reserved for one person, whom it is unnecessary to name.

The work is hard and trying to health and temper; but it is interesting and satisfactory. In assisting to "develop the resources" the engineer feels that he is taking a part in one of the most beneficial functions of Government: and his works remain after him, permanent monuments of his labour. Pecuniary anxiety need not trouble him after the first few years, if he is prudent enough to remain a bachelor; and if he can reconcile himself to exile, natives, prickly heat, mosquitoes, and so forth, he may be tolerably happy. But sooner or later the "English fever" will seize him; a maddening hatred of India and all it contains, a wild desire to get "home" if he has to sweep a crossing for a living, takes possession of his whole being. Happy for him if, when he seeks for the friends of his youth, he finds not an empty solitude! Many a man, after rushing to England to enjoy the fruits of twenty years' anticipation, has found his place filled up, and returned, broken-hearted, to lay his bones in the land of his exile.

The writer has described, as fairly as he is able, the career which is likely to open itself to more and more of our young engineers. A scheme is now under the consideration of Government, for raising and spending, in the next ten years, twenty millions sterling upon irrigation works. To carry out this plan some 250 civil engineers will be required from England. The result of the last examination shows that higher terms must be offered to obtain them. It is hoped that this paper will assist intending candidates in estimating the advantages which may be offered. With the salary on entrance raised to Rs. 400 a month; with pay and promotion equalised to those of military men; with the higher posts thrown open to civilians in practice as well as in theory; with equitable leave and pension rules; and a certain retiring allowance after a reasonable period, the Department would offer a very fair career to young men without interest at home, who may prefer a modest competence in an honourable and useful position, to the chances of fortune in struggling for the glittering prizes of ambition. Let us hope that the Government will give Lord Stanley's experiment a fair chance of success, by granting the reasonable concessions above pointed out.

C. E.

Bengal.

SEWAGE UTILIZATION AT PRESTON.

A REPORT by Mr. J. Newton, C.E., on this subject, has been presented to the Corporation, and printed by their order. Mr. Newton's plan is to appropriate the sewage at Marsh-end, near the junction of the two mains which drain the whole town into the Ribble, and from this point to force the sewage, by means of a forty-horse power engine, through iron pipes, of 20 in. in diameter, on to the marsh lands purchased for the purpose. The cost he estimates at 73,000*l.*, including the purchase of 865 acres of Clifton-marsh, and the annual expenses at 5,043*l.*, or 5,168*l.* an acre. He anticipates from the working of the scheme a revenue of 7,500*l.* per annum, clear of all expenses.

THE WINTER EXHIBITIONS OF PICTURES AND DRAWINGS.

THE thirteenth annual display of pictures painted by British artists shows evidence of the same taste and judgment which has secured for its precursors a good name in its local habitation, 120, Pall Mall. The success attending these minor but very interesting exhibitions has naturally led to an extension of the system; the Society of Water Colour Painters adopted it; and now, in addition to those already established, one on a greater scale of magnitude, embracing oil and water-colour performances, with a section representing French, Flemish, and female practice in particular as a special adjunct, has been arranged and opened by Mr. Wallis at the Suffolk-street Gallery.

Any pleasant relief that may be offered for shortening the long short days of this gloomy period of the year must be acceptable indeed; even to those whose chief complaint is that they are not long enough; and any one who may assist in providing it has some claim to consideration as a public benefactor. Even the most philosophic must at times find it necessary to be reminded that spring, summer, autumn, and winter are pretty equally divided, after all; that their succession is alike valuable and indispensable; for some are apt to overlook ungratefully the advantages of all seasons but those that really are not to be sneezed at, and to doubt if they ever get a fair share of what they may like best.

The parent of these institutions,—that which has so agreeably helped to sustain a public belief in the existence of art and artists, in all kinds of weather, for the last dozen years,—welcomes the visitor as gracefully as ever to her select "at home." No better occupation of the picture's leisure could be recommended: the pictures are just sufficient in number to satisfy without fatiguing; the fastidious will find their inspection repaid by much that is clever, and more that is pleasing; and those who see good in everything, but are content with a glance at it, may calculate on having whatever portion of that time remains to them, absorbed in following the rather vexatious order of catalogue employed.

However, the catalogue may almost be dispensed with altogether, where it is so easy to identify the painter with his work, as is the case with Mr. J. C. Hook, R.A., and his forcible representation of Britanny peasants overtaken by "The fast-flowing Tide" (55), whilst carting seaweed for agricultural purposes: he has never rendered more truthfully open daylight effect, clear sky, and moving water: the bullocks that so stubbornly insist on going the wrong way appear even small for Britanny cattle, but it may be an objection engendered by apprehensions of the dreadful *rinderpest* that everybody knows everything about, unless he happen to be veterinary, and an excusable desire to see all available bees left, as large as possible. Fortunately there was no such occasion as this for deprecating the consumption of veal in Dr Johnson's epoch, since we have Boswell's authority for knowing his partiality to it made patent by Mr. E. M. Ward, R.A., who illustrates the great lexicographer's susceptibility to the polite attention of Mr. Wilkes at their first interview (105), when that gentleman appears to have been so assiduous at dinner in his attempts to find the metaphorical short passage to the heart down the throat to some purpose, for "he gained upon him insensibly. No man ate more heartily than Johnson, or loved better what was nice and delicate." The choice morsel of fine veal,—a little of the brown, some fat,—a little of the stuffing and some gravy, with a square of lemon, were the so many assaults to which the doctor's fortification of reserve at last succumbed. "Sir, sir, I am obliged to you, sir," cried Dr. Johnson, "bowing and turning his head to him with a look for some time of surly virtue, but in a short while, of complacency." Mr. Ward excels in delineating character and making perspicuous any amount of story he undertakes to relate; and however comically this episode reflects on the actors, the scene is admirably painted.

Mr. Calderon, A.R.A., contributes a very cleverly executed work; but he has had to contend with a great difficulty necessarily. In the "Attempted Escape of Mary Stuart from Lochleven Castle" (14), the disguise of the queen in the clothes of her laundress is so perfect as to render it too improbable that she should not have escaped. The exception may be nearly as nice as the picture otherwise is; but, with so many

valuable qualities, it is a great pity that a little more dramatic licence has not been taken to elucidate the subject. The figures of the shivering laundress and the waiting-woman are excellent. Mr. F. Goodall's "Iver House, in the Time of Charles I." (44), is charmingly pretty, with its group of children feeding snow-white swans, whose home is in the most, overgrown with water-lilies and sword-flags. Mr. F. B. Pickersgill, R.A., has found a new *pose* for the eternal two of larger growth, which is both natural and elegant, as, reaching from a bank to gather—

"The sweet forget-me-nots
That grow for happy lovers" (78),—

the cavalier is assisted by the fair one of his choice, who is certainly very lovely, and looks of a nature to be trusted; which is more than can be said of the sparkling little *brunette* Mr. A. Elmore, R.A., has confided to the surveillance of "The Guardian" (31), who may be pardoned some of the anstere gravity with which he expresses his sense of such a responsibility in an age, as their seventeenth century costume would indicate, when the care of such a light charge was heavy enough. As a specimen of Mr. Elmore's exquisite method of painting, this is very covetable, and there the intentions of the author are fulfilled. Similar works of similar purport are furnished by Mr. W. P. Frith, R.A., in (41) "His Likeness," and (42) "The Fancy Fair," also by 33, wherein a buxom damsel is "taking an opportunity" of writing a love-letter, and of visibly mentioning Mr. T. Faed, R.A.

Mr. G. F. Watts always bears witness to what great effect an inherent feeling for art and didactic knowledge will prevail, and how valuable as a chastening influence these possessions are, compared even with the most extraordinary acquirement of manual power uncontrolled by them. His "Portrait of a Lady" (109), and of "Mr. Hanbury" (107), though with nothing inconsistent in their emulation of Venetian antecedent to lessen their value as representations of contemporary existence, are removed out of all class with the usual production of present days.

Mr. F. Leighton, A.R.A., is also a follower of precept, but of more modern theory. His "Lady with Azaleas" (65) is very fascinating and very French, painted with a combined vigour and refinement that few possess in common with him. The damasked and gold-embroidered drapery is not its least best point.

Mr. Millais, R.A., sends two small studies that are amongst notable items, (76) "Little Red Riding Hood" and a young lady having her "Attention diverted" from her pianoforte practice (77). Mr. F. Sandys's female heads are remarkable for the precise finish with which they are executed, but appear rather flat and at times out of drawing, or as if they were drawn from an elongated concave mirror; "The Flower" (83), for instance.

"Die Hen Magd" (26), by Mr. W. C. T. Dobson; "Boulogne Fish Market" (49), by Mr. J. Hayllar; "The Casket" (59), by Mr. A. Hughes; "The Grassy Walk" (66), by Mr. G. D. Leslie; "Petitioners to the Young Heir" (74), by Mr. H. S. Marks; and "The Stepping-stones" (113), by Mr. W. F. Yeames, deserve more than a passing comment, though they need no direction to attention.

"The Eve of the Deluge" (96), by Mr. W. B. Scott, is one of this artist's best works, and distinguished by earnestness and many signs of research and study, wins acknowledgment even from those who admire it the least and are the most likely to question its particulars and peculiarities.

Messrs. Yeames, Hodgson, Leslie, Story, Marks, and Wynfield have co-operated in making a series of designs for a dining-room screen, depicting the preparations for a banquet; and its integral success is likely to encourage those who adopt decoration in their dwelling-houses to secure the best means of indulging in so laudable a taste. It is to be wondered at that the plan now introduced (doubtlessly suggested by the South Kensington precedent) has not been called into earlier requisition, and that these painters, and others as capable and ready, should not have employed their off time in improving the style of ornament now so generally obtaining in superior residences.

Mr. J. D. Watson's single figure in fourteenth-century costume, "Preparing a Cudgel" (112), will associate him with those from whom better things may be expected. It is very cleverly drawn and coloured. We break off only for a

ARCHITECTURE: A REVIEW OF THE POSITION.*

Of new buildings that have been completed in the past six months in London, none rank so high as, or are of more importance than, the giant hotels which have reared their lofty heads above the surrounding, comparatively speaking, pigmy houses; and the new hotels of Charing Cross and Langham-place, and the one now just completing in Holborn for the Inns of Court Company, are certainly great improvements upon the plaster palaces which have been before erected, and are more especially noticeable for the almost total avoidance of sham materials. Whether we like or dislike them in an art-point, is simply a question of individual taste; but they are certainly imposing, and free in a great measure from rococo ornament and plaster imitation; and anything in the way of example that may be set for the lessening of the evil of Portland cement, is certainly deserving of all praise, not only from an æsthetic point of view, but also because cement for external work in London seems to be of all material the worst, as can be exemplified by the smoky and abominably dirty appearance of most of the buildings in which it has been used; and it is only after successive and constant coatings of paint that the material in any way is made to look decent at all; and I should imagine that the triennial painting of these plaster palaces must be no small expense to their proprietors. The introduction of terra-cotta work in the Charing Cross Hotel is especially worthy of our study and imitation.

Tastes differ as regards forms and styles and examples to be imitated; and it is to be hoped that we may never entirely agree, for I cannot but believe that it is this difference of opinion that calls up the constant competition and aim to excel and improve. But the more we seek to insert in our designs, in place of the sham materials which even now hold so much sway, good and true materials, the higher will be the standard of our nineteenth-century architecture, and the more shall we call forth the thoughts and designs of the potter and other art-workmen, and open up and revive much that has been latent in materials and art-manufacture; and, by endeavouring to design our buildings so that their decoration shall not only be constructional and real, but adapted for means that we may have at our disposal, instead of seeking for bad and unreal ornament, we may hope that we shall get manufacturers and others to compete in reviving the old, or in inventing new and better materials for our use; and so form a kind of fellowship with art-manufacturers which shall be of advantage to us as well as to themselves.

To combine with good, skilful, and artistic handicraftsmen must be our aim; and by so doing, I think we may yet hope to have the ancient decorations of the potter in all our buildings, and obtain, at the same time, something that shall not only give colour and effect, and by its plasticity be easily worked to our design, but also an inexpensive material, which in these days of cheapness and competition will be no small matter. Let us hope that the architects of our day may be different from those of the days of that great potter master, Josiah Wedgwood, and that instead of snubbing his suggestions for the use of terra-cotta ornaments and bas-reliefs in the façades and decorations of their buildings, we may take advantage of his suggestions, and not only seek to realise his day-dreams, but also take example by our Mediæval and Saxon forefathers, and make use of this and other materials, which their wonderful artistic and manipulative skill, as exemplified by hosts of examples still remaining to us, has converted into so much decorative and practical use.

Let us seek to do our best in all we do, and, to use the words of the able biographer of the life of Wedgwood,—"Even as the men of science purify the atmosphere of our cities and towns, as assuredly they will, let our public buildings become, in the best sense of the word, palaces of art, and the interior of our houses shrines of simple taste in ornament and colour. Wall-linings of terra cotta would do away with the barbarous taste of the paperhanger and upholsterer, and floors of exquisite tilework would serve to border the warm embracing carpet. Here would be work enough for the potter and the artist; and in the chastity of colour and the purity of design we

might rival antiquity, whilst true to the spirit of our generation."

I do not believe that this is any romantically conceived idea. Much lies before us, and if we will only earnestly strive to use all that God and nature have given us, and to work in fellowship and brotherhood with our fellow men, we may yet have in our day and generation some national—not, mind, a new—style of architecture, appropriate to modern requirements, which shall save us from the shame of being mere copyists of other men's work. Pray do not think that I ask you in any way to listen to any of the empty and idiotic talk about a new style, for, as has been written by an eminent art-writer, "the essence of a style, properly so called, is that it should be practised for ages, and applied to all purposes;" but our aim should be, while studying the grand examples of ancient work that are left to us, to seek to design our work so that it may be not a mere pseudo imitation of Mediævalism, but in accordance with present requirements and modern inventions. I think we may, however, fairly congratulate ourselves upon having made some considerable progress in architectural design in the last few years, if in this great city we look at the buildings, both ecclesiastical and civil, that have recently been erected, and compare them with those of twenty years ago. Amongst churches lately built, there is one to which I would especially draw your attention, as being one of the best, if not the best, of them all, and one which exemplifies in an exceedingly good and beautiful manner how much can be done with plain honest brick,—I mean the church of St. Peter, at Vauxhall, by Mr. Pearson.

You will see in this church that everything that has been done, has been done thoroughly; there has been no scamping,—and, moreover, the architect has evidently in a way been bound down by the narrowness of worldly means, and has yet so designed his building, that hereafter, from time to time, may be added such decoration in the way of fresco painting, &c., as means may permit. There has been a careful avoidance of all attempt after "bizarre" ornament, and overflowing of paint and cement inlays. Everything is simple and honest; no nothings, no chameleons, but all is substantial and good.

One great feature in this church, and one worthy of our study and imitation, is the brick-vaulted roof; and another, the large wall spaces or panels that are left, to be filled up hereafter, when means permit, with that best of all art-decoration, figure subjects in fresco; and I cannot but think that we should be right in seeking to imitate this modern example set before us, and in saving the means at our disposal for figure subjects, as proposed here, rather than spending them in unmeaning conventional decoration, and lines, and zigzags, and dots, painted, or inlaid in cement, all over walls and roofs. Surely the purer and simpler the decoration is, the more it will be understood and appreciated.

There are many other notable churches lately erected in and around London, in all of which there is much to be studied and thought of, but amongst so many good ones it would be invidious to particularise.

Again, in the City, and in our streets, surely we must admit that great strides have been made towards improvement in the warehouses, public offices, and shops, that have lately been erected; I will not presume to individualize any one of these, but a walk through Lombard-street, Cornhill, Fleet-street, and others of the more crowded streets of London, will surely convince you that there has been "some shaking amongst the bones." Even our engineers are now calling in the aid of architects to design their stations, and in part their bridges; and I think that with the new stations at Charing-cross and Blackfriars, and those now building in Cannon-street and Broad-street buildings, we shall have some reason to consider that our art is taking higher ground.

Even now in this great day of capital and wealth, the great public companies, as well as private enterprises, are boring through, as it were, and destroying many of the slums of this great city, threatening their way with quiet, progressive steps through old, narrow, and dirty byways, demolishing much that is ugly and inconvenient, and opening out new streets and new ways, which, so soon as time shall have enabled them to rebuild, will do something, I hope, to overthrow that criticism of our neighbours across the Channel, and convince them that we, in good old England, are not quite so destitute of taste as they would fondly imagine.

The new street through Blackfriars to the

Mansion House that the Metropolitan Board of Works are about making, and the improvements at Pimlico on the Marquis of Westminster's estate, are all steps in the right direction; and some of us may yet live to see handsome streets of honest good buildings, and see them also free from the film of smoke and mist that at present are part and parcel of this great city; for I am sanguine enough to believe that improved skill and science will enable, not only public furnaces, but also private grates, to consume their own smoke, and thereby render us free from this curse and trouble, that makes our city show out so unfavourably compared with Paris and other modern continental towns.

Of course, we may find fault with something, if so disposed; and it is not to be expected that, at once and entirely, we shall shake off the teaching of long years of bad taste; and in much of the new work it may be that there is too much striving after show and effect, rather than simplicity; too much copying of "bizarre" ornament and overlaying of decoration; but I cannot but think that, in due course, all this will rectify itself, and that, as our art-education increases, and our range of examples becomes wider,—and, thanks to the iron way, which modern skill and modern science have interlaced half over the world, and are still interlacing, we are able each year, if we will, to increase our store of Mediæval study, and to see each year more of the art and art-work of our forefathers,—so much the more will our ideas tone down and be simplified; and, also, so much the more will the public, who by the same means can see all that we see, insist on a truer and better kind of art-work, and be satisfied with less ornament and more reality.

Not only in architecture proper, but in all its accessories, must we hope to see continual and increasing progress; and that, by diligently perusing our manufacturers and jewellers, upholsterers and brass and iron workers, and all other trades which more or less have something to do with art-work,—or, rather, should have; for, at present we cannot say much for the art or the work that these gentlemen turn out,—to either obtain the aid of artists to design for them, or, at all events, to employ a designer who shall have been more or less educated by his work, we may hope to get more taste and art design in everything around us.

Within the last few years the art of stained glass in England has been making rapid progress, and the works of many of the manufacturers of the present day may, I think, even bear comparison with some of the best old work. And why we should not be always able to do good glass now-a-days, after all the great improvements that have taken place, and the infinitely greater facility for obtaining materials of all kinds, is a thing much to be marvelled at; but until true artists,—men who not only can draw the figure well and properly, but who also know how to colour,—are employed to design and colour the cartoons, we can hardly expect much improvement in stained-glass design. Some manufacturers have availed themselves of this aid, and in the cartoons of Mr. Holliday for the windows of Worcester College Chapel, at Oxford, which have been ably worked out by Messrs. Lavers & Barrard, we see the great desideratum of employing artists to design. But inasmuch as the artist soon rises above cartoon designing, and as soon as he gets name and fame by some lucky Academy hit, no longer is willing to work at mere decorative work of this kind, so much the more does it become a necessity that our art designers should be educated in figure-drawing and colour to a much greater extent than at present; and by the aid of our Governmental schools (about the only good thing Government has done for art for a long time has been the establishing of these schools), let us hope that a better class of designers and art-workmen may be formed. So much for the design of the glass; and for the glass itself we must trust that manufacturers will eventually be able to give their glass somewhat more of the old texture and colour. Doubtless the glass of Charles Cathedral windows, and all the other old stained glass, owes much to the hallowing and sobering influence of time, which has toned it down; but let us hope that, ere long, we shall get that exquisite jewel-like appearance and thoroughness, if I may use the word, of colour which the old glass has, instead of the vulgarity, and gaudiness, and crudeness of colour which pertain to so much of our modern stained glass; and from what has been done by several manufacturers, we may fairly hope that we are in the right way to have in our

* From address read by Mr. Robt. W. Edis, at conventions of the Architectural Association, elsewhere mentioned.

day stained glass equal to that of the thirteenth century; and yet see the churches of our time "blazoning with the radiance of jewelled and gem-like arabesques" and coloured crystal, instead of vulgar copies of bad foreign glass, and the still more vulgar commingling of crude and vulgar colours.

Again, with regard to metal work, and the work of the silversmith and the goldsmith, how abominably bad most of it is. We either have heavy unmeaning masses of cast brass ornament, or else flimsy cut brass leafage and scroll-work, with just so much design as the ability of the manufacturer is able to insert. Why must everything we have around us be necessarily ugly? What can be more atrocious than the Brummagen cast bronze, or imitation bronze work, that hangs as gaseliers from our ceilings, or intrudes itself in endless form throughout our public and private buildings and our streets? Is it necessary that work with any design in it shall be dear? Or is our day and time a day of ugliness, that we cannot get design anywhere, and must put up with vulgarity?

In the times of the Greek and the Roman, and in the Mediæval days of Gothicism, cheap things were not ugly things. You may take up the commonest and most homely vessel, and you will find that its form is good. If you will look at the examples which have been preserved to us and now find homes in our museums and private collections, you will find the commonest things were beautiful and in good taste. It is not that good art then was any cheaper than it might be now: it was because the appreciation of good detail and lovely form was innate with the people of those times: and they were so accustomed to see everything around them lovely and in good taste, that their art-education was self-taught; and thus each man became, as it were, an artist, and, as such, artistic workmen also.

I know that designed furniture costs no more than other work, when once you have taught your workmen how to make it; and the mould and making for a good design is no more expensive than that for a bad one. There is no necessity that cheap things should be ugly, or decoration vulgar: these things all become a question solely of design, which again, in a great measure, turns upon art-education.

This brings me to speak of a matter that has been engaging the earnest attention of this Association for some time, and one which we shall have to consider and take action upon in some way, I hope, in the coming session. I mean that of "Architectural Examination."

It is now, I believe, some ten years back since this Association determined to take steps to establish a system of architectural examination, whereby a more definite professional status for architects might be obtained, so that, if possible, our profession should cease to be one in which any man, no matter how ignorant or how unqualified, could, if he so pleased, enter. Starting on the broad basis of endeavouring to work some general benefit for the profession at large,—for such we must consider a recognised system of examination would of necessity be,—we were desirous of obtaining for ourselves as architects a similar system of examination, and consequent professional recognition, as that which is necessary for all the other professions.

About a year after this, our Association, I believe, memorialized the higher powers above, the Institute, and after much consideration and talking, the matter was taken up by them, and architectural examinations were inaugurated; but beyond the mere examinations, we have at present got no further, and are practically in the same position as we were ten years back, except that those gentlemen who like to learn a certain number of lessons, and get the examiners of the Institute to hear them, and desire to pass an examination for their sole gratification and pleasure, can, if the numbers be sufficient, do so. Further than this they cannot go: at present, the examination scheme, if I may be allowed to call it so, is a farce, always excepting that there is a certain amount of honour and credit due to the man who passes successfully the somewhat stiff examination; otherwise there is no use in it; we still remain where we were. Any one may now have his name engraved on a plate, and set up as an architect; and the most ignorant and incompetent may still practise as such, and as such must of necessity militate to the detriment, not only of the cause of art and of educated architects themselves, but also to the imposition of the public, for they, the public, must of neces-

sity judge of our art by the work itself; and when we see the result of some of the work of these gentlemen, who have thrown down the hod and taken up the pencil, we may well say that it is time that architectural examinations shall take place. I firmly believe that we shall have the good wishes and assistance of all well-wishers of architecture; but, on the other hand, it must not be expected that the young men of the present day,—who, whether in practice for themselves, or working as clerks or pupils for others, have very often but little time to spare for any ephemeral undertakings,—will devote long months of toil for reading and study to enable them to go up for the examination, simply, as I have said before, to pass it, or mayhap, as last year, to be rejected, not on their merits or demerits, but because the number arbitrarily fixed by the Institute as the smallest quantum to make an examination had not been made up. But let the Institute offer some tangible inducement, and there will not, I believe, be any lack of competitors.

That the Institute, as a body, will give this all-important matter their best and serious reconsideration I cannot but believe; for those who have done so much for the cause of art in the last quarter of a century, and of themselves, to raise the character of architects and architecture, will not, I am sure, be the ones to refuse to help their pupils and their sons in attempting to follow in their footsteps, and in their time from seeking still further to raise the standard of our rank. To them as our masters and teachers we owe much, and I hope we may, therefore, confidently look forward to having their advice and aid. But, on the other hand, let us not turn back: let us look forward, not let us not turn back: let us the good work which we have commenced; let us not undo what we have done by any shortsighted disgust or despair; but earnestly, manfully, and diligently strive for the object we have in view; still work and study amongst ourselves; and, I believe, in time our end will be obtained. In fact, we have ourselves, by the inauguration of our Life Class, at least shown our great anxiety to aid in carrying out the suggestions made to us by Mr. Sooty and others, and I am glad to be able to say that in this we have been successful. Last year we had forty-seven members in the class, of whom more than two-thirds were members of the Association, and under the able superintendence and care of Mr. Poynter, the artist whose services we were fortunate enough to secure, considerable progress has been made, and to him and Mr. Tarver, the honorary secretary, I consider the Association is much indebted. I trust that this year the numbers will be increased, and that members will show their appreciation of the scheme, and their desire also to carry it out, by joining this class forthwith. I feel quite certain that the drawing of the figure cannot be too strongly advocated, and that it is one of the most essential and necessary parts of an architect's education to do this well. If you do not learn now, you will never learn; and I cannot too strongly urge on the gentlemen of this Association the absolute necessity of doing what men a great deal better than I have been urging upon them for some time, viz., learning to be able to draw the figure with ease and facility.

Let us be able to design for the potter and for the decorator, and get them to mould the clay and paint the wall in fellowship with us; but, before we ourselves can even hope to design well for them, it is necessary that we ourselves shall have diligently studied and gathered up the materials of our forefathers; shall have seen how their design and work were done, so as to be enabled to combine such experiences and such study with the necessities of modern requirements and the advantages which modern skill and modern invention have given to us. Do you think for one instant that, if our Mediæval forefathers had lived in our day and generation, that they would not have grasped at the many inventions and improvements of this nineteenth century? Do you think we should have small narrow windows, and coarse, bottle-ended knobs, settling like flies amongst them? No, I think not. I think that the men who could so beautifully design and work with the materials and the education they had before them, would have grasped at our modern inventions, and would have thrown some life even into cast-iron girders and plate-glass windows, and not have crossed our rivers and our streets with ugly straight lines of simply mechanical skill and human power. Into human power would have been thrown assuredly some art. They would,

I believe, have done justice to the materials which, by the enlarged scope of invention and scientific skill, we nineteenth-century architects have to our hand; and surely there is no reason why we should not do likewise.

Of all things that tend most to harm the cause of art in this nineteenth century, I cannot but think that that of narrow cliquism is perhaps the greatest; for surely cliquism is merely an extended form of egotism; and he who narrows the limits of his sympathy and help in art-life to the circumscribed circle of the few who think exactly with himself, surely is no well-wisher of art; for we must look on the world of our art from no narrow circle of our own, but from as wide a point of view as our education and minds will permit us; and the more we embrace within our gaze, the more likely are we to perfect the work that we love.

I am quite certain that the more young architects (I say young, because I am speaking to this Association) know of each other, and the more they meet together in good fellowship and friendship, the better it will be for them all. There is no need for all to agree on questions of art; we all probably differ in this matter, more or less, as we do in other things; but why should there be any necessity for constant fighting over the ashes of extinct mummies, and taking up the gauntlet for designs of centuries ago? Have we no design in us, no hope in us, no brain to work for ourselves, or must we divide into divers cliques, and swear and do battle for the leader of this and that clique, now rushing on to the bristling lances of the thirteenth-century French school, and now clashing swords with the champions of Early English; now up in arms for the true and original, and national farmhouse and cottage architecture, and now swearing allegiance to the only and real style, the round arched Gothic of France and Italy? We write and talk as if in this nineteenth century we were simply to form parties and opinions in defence of different schools, following out and swearing by different erections of the past; and the war wages bitterly on, and instead of the battle of the styles, we have the battle of the cliques, and when "clique meets clique," then comes the tug of war. Is there no general school? Must we, because we like this or that, say that all else is wrong? Surely not, and I trust this Association will look a little beyond the narrow arena of any so-called clique. There is no reason that our ideas and opinions should all be alike; but if we differ let it be in a friendly manner, and rather than ignore those whose opinions are different, let us strive for interchange of thoughts and opinions, and to enlarge our own views. To compare thoughts and ideas will be, I am sure, to the advantage of us all. We are all students, earnest students, I hope; but the more we study together, and the greater interchange we have of honest opinions,—mind, not opinions taken from other men, but formed from our own honest convictions,—the more good shall we do to the cause we all have at heart.

CONVERSAZIONE OF THE ARCHITECTURAL ASSOCIATION.

THE session of 1865-6 was opened on Friday evening (the 27th ult.), with a *conversazione* held at the House in Conduit-street.

The rooms were hung with drawings, photographs, and other works of art, and there was a numerous attendance of the members and their friends, including a fair contingent of lady visitors.

The chair was occupied by the president, Mr. R. W. Edis.

Some formal business having been disposed of, the report of the judges on the drawings submitted for the prize in the class of design was read. It recommended that the first prize should be awarded to Mr. Birch, and the second and third to Mr. Florence and Mr. Bailey.

Mr. Penfold read the report on the drawings submitted for the prize offered by Mr. Tite, M.P., for the best design for a railway station for a small town, and which referred, in terms more or less commendatory, to the designs with the signatures "Progress," "Nil Desperandum," "Odd Hours," "Love's Labour," "W," and "Buffer." They recommended, on the whole, that the prize be given to "Buffer" (Mr. Johnson). The president subsequently handed the prize to Mr. Johnson.

The Association's prize for the best essay "On the Materials most appropriate for London.

Exteriors," was awarded to Mr. J. D. Mathews, one of the honorary secretaries. The president, in handing Mr. Mathews the prize, expressed in complimentary terms the gratification which it afforded him to find that it had been awarded to one who had laboured with so much zeal and ability to promote the interests of the Association.

The president then read his opening address, the greater portion of which we print elsewhere.

At the conclusion, Mr. Godwin having been called upon to address the meeting, said he had really little or nothing he desired to say, except to repeat what he had already often uttered on former occasions, namely, the expression of his desire to see the Association prosper. He was not a new friend—he had attended their earliest meetings—and he was glad to hear that the committee were satisfied with the progress which it had made. He hoped that as the students became, in course of time, practising architects, they would in their turn send their pupils and sons to participate in the advantages which the Association afforded. If this were done, the number of members would soon increase, instead of being only about 800 as at present. It was, he thought, to be regretted that the scheme for voluntary examination had scarcely found the favour that might be desired at the hands of the Association. It would, he thought, be a pity, that after such an apparatus had been constructed, it should fail for want of material to work on. It was surely surprising that five students should not be found to come forward to avail themselves of the advantages offered, or to show that they had not called for an examination without meaning to take advantage of it. He could understand that candidates for examination would desire some certain reward for their trouble, such as the right to affix to their name, Bachelor of Architecture, or Master of Architecture; but should it not be within the power of the Institute to confer such degrees, still it ought to be in itself an inducement for students to be able to say that they had gone up for examination and had proved deserving. It would, moreover, tell in the world. It was gratifying to see the designs and sketches of the classes exhibited in the room that evening; for although they might not be quite so good, as it struck him, as those of a year or two previously, still, when compared with what had formerly been exhibited, they furnished satisfactory evidence of skill and of power of invention. In his opinion, the value of drawing could not be over-stated. No one could hope to be an architect without a knowledge of drawing; although drawing alone would not constitute an architect. Holding this opinion, he recommended them not to neglect the class of design, nor the sketch-book, nor the country tour.

If these were attended to, the student of architecture would not fail to obtain a power for himself, and contribute his quota of good in his day and generation. So far as the older branches of the profession were concerned, he was sure they would be quite willing at any time to help the Association to realize the objects which it had in view.

Professor Kerr, in moving a vote of thanks to the President for the excellent paper which he had read, observed, that since he had got old himself he had taken an old-fashioned view of architecture. With regard to architectural criticism, if it might be so called, he was of opinion that considerable want of sense had been exhibited in the manner in which the question had been argued. They ought not to forget that it was necessary to look at architecture from a practical and common-sense point of view. He would recommend young architects to look upon themselves as candidates about to make a contract with the British public. They had to live by that contract, and the British public expected the architect not to cover the building with useless and unintelligible ornament, but to make it good and useful, and to clothe the whole with grace and comeliness without an effort. As for Mr. Ruskin's canons of art, if architects were angels of Heaven, they could not do what he required; and even if they could, John Bull would not appreciate it, because he loved that which was practical and to the purpose, and this could always be accomplished without making any sacrifice to beauty of design. Some persons were of opinion that architects could be dispensed with altogether. Some country gentlemen, for instance, thought they could build their mansions without them, and some country clergymen were also of opinion that they could

construct their churches without their aid. He believed, however, that in the end they were generally brought to the conclusion that it would have been better had they consulted an architect. What the public wanted was confidence in architects, and, in order to gain it, the attention of the profession should be turned to practical matters. After some other remarks, enforcing the value of a practical and common-sense style of architecture as opposed to florid, elaborate, and in many instances unintelligible ornamentation, Professor Kerr concluded by expressing his gratification at the spirit of union which had been urged in the paper. This, he said, he entirely approved of, because, however architects might differ among themselves as to style and so forth, it was most desirable that they should always act together against the common enemy,—the ignorant outsider.

Mr. T. R. Smith, referring to some observations which had fallen from Mr. Godwin, said he quite sympathized in the regret expressed by that gentleman that so few members of the Association had shown themselves willing to go up for examination. He did not think that anything in the shape of a diploma should be granted until a sufficient number of students were found fit and ready to receive it. Those gentlemen who were fit ought not, he thought, to hold back in the hope of other inducements being offered, but should consider that priority in the list was in itself a great distinction, which it undoubtedly was. He had listened to the address of the president with much gratification, and had great pleasure in seconding the vote of thanks proposed by Professor Kerr.

The vote having been unanimously awarded, the business of the evening was brought to a conclusion; after which, a selection of music was performed, in which Mr. Alfred Gilbert, Madame Henry Percy, Mrs. Chaplin Henry, Mr. Wells, Mr. Dawson, and others, took part, under the direction of Mr. Alfred Gilbert.

PROPOSED CONGREGATIONAL MEMORIAL HALL, LONDON.

At the meeting of the Congregational Union, at Bristol, it was resolved to erect a Memorial Hall in London, at a cost, including the site, of about 70,000*l*. Towards this, Mr. Remington Mills, M.P., has contributed the munificent sum of 10,000*l*., on condition that four other gentlemen can be found who will each give 5,000*l*. Mr. John Crossley, of Halifax, who was one of the speakers at the meeting, stated that although he was not yet in a position to say whether he should be one of the four, he had no doubt he should be "there or thereabouts when wanted." Another gentleman promised to be one of twenty to contribute 500*l*. each.

THE JURORS' REPORT ON THE BIRMINGHAM INDUSTRIAL EXHIBITION.

This report has been published. As was to be expected, the Jurors found that a great number of the objects exhibited were at once excluded from competition; among which they mention a quantity of copies from inferior works of art, many models of architecture and machinery of a perfectly useless character from a practical point of view. With regard to objects of art unconnected with manufacture, the jury report a great deficiency as to quality. In the department of art manufacture, the Exhibition, though deficient in many respects, is reported to have been decidedly more satisfactory. The works in flint glass exhibited, in particular, were remarkable for their general excellence. In ornamental window glass they regretted that only one specimen of leaded work was exhibited. To this work they awarded a first-class medal. In stained glass suitable for domestic purposes the works were, on the whole, above the average in merit.

In ornamental metal-work the number of specimens exhibited was less than might have been anticipated in an exhibition held in a town so celebrated for its metal manufactures, and but few of the works were of the highest order.

Decorative work in cast-iron was also imperfectly represented. The wood-carving exhibited was in some instances executed with remarkable ability; but, unfortunately, the best examples of workmanship were inappropriate in design.

Works in papier-maché were very numerous, and to several the jury made an award.

Carving in stone and marble was a branch of art-manufacture which the jury regretted to find represented by only one exhibitor. In ceramic and fictile ware the Exhibition was also by no means so extensive as might have been anticipated; and the objects exhibited were not such as appeared to call for any particular remark.

The new inventions, varied as they were in their objects, formed a highly interesting feature in the Exhibition.

TRIBUNAL OF COMMERCE.—PARIS.

On the island of the city proper of Paris, when the projected designs are carried out, the edifices will consist almost exclusively of public buildings. The Cathedral of Notre-Dame, the Palais de Justice and its new additions, the Sainte-Chapelle, the new Caserne de Gendarmerie, the new Tribunal of Commerce, the Prefecture of Police, and the Hôtel Dieu, have occupied a large proportion of the area of the island. The few remaining private houses must shortly be cleared away for the new Prefecture of Police, now in course of erection, especially when the principal block of the southern façade is commenced. This necessitates the demolition of the ancient Rue de Nazareth and the arcade giving access to the Chambre des Comptes (ornamented by the chisel of Jean Goujon), and every private house in the Quai des Orfèvres. The new Hôtel Dieu and Marché aux Fleurs will clear away the rest.

The Tribunal of Commerce stands at the angle formed by the Quai Napoleon and the Boulevard du Palais (or Sebastopol) and faces the grand entrance of the Palais de Justice. In its halls are regulated all affairs relating to trade, commerce, or manufactures; and in its courts are judged all cases arising from purely commercial transactions,—criminal and correctional justice being administered "over the way."

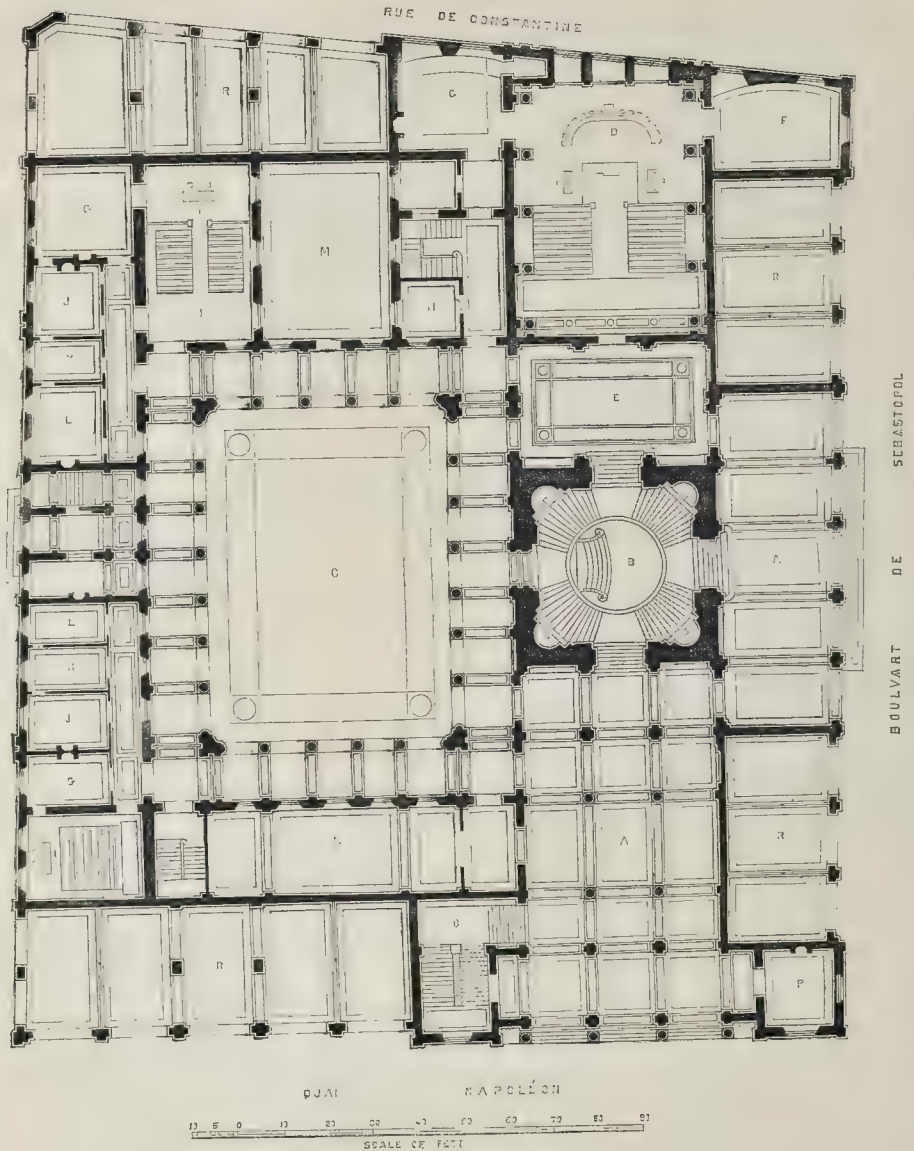
The council of *prud'hommes*, corresponding in some measure to the guilds of our corporate towns, consists of four parts, each comprehending many branches of industry;—the council of metals, which includes four categories; the council of silences or woven fabrics, comprehending six subdivisions; that of chemical products, embracing also six branches; and the council of divers manufactures or industrial arts, containing all those specialities not enumerated in the preceding classes.

These divisions have in the new building been provided with separate accommodation, containing a president's room, secretary's office, clerks' rooms, and consulting and arbitration chambers for each of the four great classes. Besides these there are waiting-rooms for witnesses, and spacious lobbies. On the ground floor are distributed two of these classes, also the hall of trade marks (*marques de fabrique*); the other two being on the first floor.

There are three façades to the building;—the western or grand front, with state entrance; the north front, furnished with a handsome entrance also; and the eastern, called the façade of the council of *prud'hommes*.

Entering by the western doorway, up a flight of steps, 52 ft. 6 in. broad, we arrive at a vestibule, 75 ft. by 28 ft., from which we can pass either to the judiciary chamber of the *prud'hommes*, at the right hand, to the principal staircase in front, or on the left hand through the northern vestibule (43 ft. by 82 ft.), by which we reach the *cour d'honneur*, or covered court, and thence the several offices. The court of honour, 56 ft. by 79 ft., surrounded by a peristyle, 12 ft. wide, with columns of the composite order, gives light to the adjoining corridors and apartments by means of large windows. It is roofed over with slabs of glass. The court of the *prud'hommes* (D on plan), is the exact counterpart of the tribune of commerce immediately over it, on the first floor. It is ornamented with ten composite columns, five on each side, and the ceiling is profusely gilt.

The grand stairs under the dome commence by an easy series of steps, as far as the first landing, whence an open bay, furnished with a balustrade, looks upon the court of honour. Here the stairs bifurcate, and each of the portions curving round, they meet at the landing on the upper floor. The eight faces of the staircase form as many circular-headed bays, separated by pilasters at the angles. Four of these bays are filled in as niches for statues; the other four, except that giving



THE TRIBUNAL OF COMMERCE, PARIS.—*Plan of Ground Floor.*

entrance to the lobby, are furnished with balustrades, and give a view of the vestibules and the colonnade, which corresponds to the peristyle of the court of honour below. The disposition of the first-floor is exactly similar to that of the ground-floor; the tribunal of commerce, immediately over that of the *prud'hommes*, is lighted wholly from the ceiling, both in day and night, the idea having been taken from the lighting of our Houses of Parliament. There is also some similarity in the ceiling, which is entirely gilt.

The ornamentation of the interior of this building has not been sparingly carried out, yet there is no appearance of heaviness in any part. The flooring of the court of honour, and all the lobbies, halls, and waiting-rooms, is paved with Italian mosaic, in cubes of a little more than a

centimètre each way, set in cement, and forming geometric patterns and borders. The walls of the lobbies and waiting-rooms are inlaid with central marble panels of various colours. The general style of the façades of the building is that of the Renaissance, the doorways ornamented with composite columns and pilasters, and the windows of the first story with pediments, alternately triangular and segmental. On the western façade these are ornamented with sculptured recumbent leopards, and the letter N. The attic story is pierced with bull's-eyes, decorated with garlands. Four statues are placed on the northern doorway; these are due to the chisel of Elias Robert, Eudes, Hyppolite Chevalier, and Jules Sampson. M. Robert Fleury is engaged to execute four vast paintings, illus-

trating commercial history, in the great council chamber. M. Auguste Bailly is the architect of this building.

REFERENCES.

- A. Vestibule.
- B. Grand Staircase under the Dome.
- C. Covered Court, or grand Atrium.
- D. Tribunal of *Prud'hommes*.
- E. Waiting-room.
- F. Robing-room.
- G. Council Chamber.
- H. Witnesses' Room.
- I. Arbitration Courts (Salles de Conciliation).
- J. President's Room.
- K. Secretary's.
- L. Clerk's.
- M. Council Hall.
- N. Hall of Trade-marks.
- O. Judge's Staircase.
- P. ConciERGE.
- R.R. Shops.



THE TRIBUNAL OF COMMERCE, PARIS.—M. AUGUSTE BAILLY, ARCHITECT.

DINNER OF THE BUILDERS' BENEVOLENT INSTITUTION.

THE eighteenth anniversary dinner of the above charitable institution was given at the London Tavern, Bishopsgate-street, on Thursday evening, the 26th ult.; Mr. Joseph Rigby (president of the institution) in the chair.

About 200 gentlemen sat down; among whom were Sir John Rennie, Messrs. R. Mallett, Burke, G. Plucknett, G. Ladds, G. Spenser Smith, T. Robinson, T. Ferguson, S. Wood, George Bird, Joseph Bird, G. Stanley Bird, J. Russell Freeman, J. N. Sheffield, Charles Rigby, George Dines, Dove Brothers, J. Passmore Edwards, L. M. Tatham, W. Keddie, J. Kay, W. Freeman, J. Phillips, &c.

The usual loyal toasts having been duly honoured, followed by "The Army, Navy, and Volunteers."

The Chairman rose to propose the toast of the evening,—"The Builders' Benevolent Institution," and, in so doing, expressed his pleasure at seeing so many gentlemen present to do justice to that institution, the interests of which the majority of those assembled had much at heart; but as there might be many gentlemen who were not sufficiently acquainted with the intention of the promoters and the good they hoped to do, he thought it desirable to state the objects of the institution. It was founded in 1847, for the purpose of giving relief and granting pensions to decayed members of the "various" branches of the building trade and their widows; also for affording temporary relief to workmen in cases of accident. They now had forty pensioners on their funds, the males receiving 24*l.* per annum and the females 20*l.* Notwithstanding the eighteen years that this institution had been established, it appeared that their stock amounted only to 11,570*l.*, 8*l.* 7*l.* being for the relief fund, and 2,700*l.* for the building fund. Upon that condition of their funds, he asked them if they had done all that they ought to have done, bearing in mind the builders as a class. For his own part, he was of opinion that more should have been done, and that there was no trade, considering the many who were engaged with them, who had a greater opportunity of doing good to their poorer brethren—those who had been exposed to the vicissitudes of fortune, and had fallen under circumstances over which they had had no control. It was for those particularly who had been reduced when apparently in the midst of prosperity that he then asked for aid. He felt that that institution should be made self-supporting; and after the lapse of eighteen years, and the means the builders had at disposal, he repeated his impression, that they had not done what they ought to have done, while there were yet so many really wanting and asking for their help—for that small sum of 24*l.* per annum. There were many thousands of builders in and near London, and he thought, for the sake of the fallen brethren, that more should be done, so that the committee should have a greater power of disposal to those who were anxiously waiting to become the thankful recipients of the benefits of that institution. He concluded by proposing "Prosperity to the Builders' Benevolent Institution."

The toast of "The Chairman and President" having been responded to,

The Chairman next proposed "The Patrons of the Institution," in which he included the names of Sir John Rennie and Mr. R. Mallett, making reference to their well-known engineering skill.

Sir John Rennie acknowledged the compliment, and admitted the principles of the institution, and stated that engineers were a part of the builders, for without the latter they could do nothing. The institution, on behalf of which he had assembled that evening, reflected great credit upon its promoters and supporters, and he hoped and trusted in its further success.

"The Architect and Surveyor" was next proposed, the Chairman remarking that at the present day no one could walk through this city, nor any of the cathedral towns, without admiring the magnificent structures which may be connected either with the ecclesiastical, municipal, or domestic style of architecture. They were not behind their day in architecture. He coupled the toast with the name of Mr. Sancton Wood.

Mr. George Bird, on the proposal of "The Brighton Branch," with which his name was associated, said he was rather pleased at the goodly number of gentlemen before him, but was sorry that they had not expended their money a little more liberally on behalf of the institution. He alluded to the Building Fund, which, after

eighteen years, amounted only to 2,700*l.* He thought that was a small sum when he considered the immense wealth possessed by the builders. He thought that those who built palaces for others might at least build houses for their poor. He, however, hoped that early next year something relative to these buildings would be done.

"The Press" (to which Mr. Edwards replied), and "The Directors and Stewards" (acknowledged by Mr. Joseph Bird) having been duly responded to, Mr. Harris (the secretary) read over the list of donations and subscriptions, which amounted to about 400*l.*; and included the following:—

The President, 26*l.* 5*s.*; Mr. Charles Rigby, 10*l.* 10*s.*; Messrs. Geo. Myers & Sons, 6*l.* 5*s.*; Messrs. Lee, Son, & Smith, 10*l.* 10*s.*; Mr. G. Spenser Smith, 5*l.* 5*s.*; Mr. J. Russell Freeman, 10*l.* 10*s.*; Messrs. W. Cobb & Co., annual, 10*l.* 10*s.*; Messrs. Lucas Brothers, annual, 10*l.* 10*s.*; Mr. Mallett, 10*l.* 10*s.*; Mr. Sancton Wood, 5*l.* 5*s.*; Mr. Edwards, 10*l.* 10*s.*; Messrs. Cheswright, Sheffield, & Co., 10*l.* 10*s.*; Mr. William Webb, 10*l.* 10*s.*; Mr. W. Francis Webb, 2*l.* 2*s.*; Mr. J. Ladds, 5*l.* 5*s.*; Mrs. Joseph Bird, 5*l.* 5*s.*; Mr. George Bird, 5*l.* 5*s.*; Mr. Stanley Bird, 1*l.* 1*s.*; Mr. J. Ferguson, 5*l.* 5*s.*; Mr. B. Cresswell, Birmingham, 5*l.* 5*s.*; Mr. L. M. Tatham, 5*l.* 5*s.*; Mr. Wm. Todd, jun., 3*l.* 3*s.*; Mr. G. Anderson, 5*l.* 5*s.*; Mr. William Radford, 5*l.* 5*s.*; Messrs. Greaves, Kicham, & Ball, 5*l.* 5*s.*; Messrs. Abbott & Hopwood, 5*l.* 5*s.*; Mr. J. E. Hobson, 5*l.* 5*s.*; Messrs. Jackson & Shaw, 5*l.* 5*s.*; Mr. Henry Barrett, 5*l.* 5*s.*; Messrs. Dove Brothers, 5*l.* 5*s.*; Mr. John Webb, 5*l.* 5*s.*; Mr. Jas. Tyler, 5*l.* 5*s.*; Mr. Chas. Hack, annual, 2*l.* 2*s.*; Mr. S. George Fritchard, annual, 2*l.* 2*s.*

A MONUMENT FOR LEIGH HUNT.

MR. S. C. HALL, in a "Memory of Leigh Hunt," published in the *Art-Journal*, says,—“He was buried at Kensal Green, but, unhappily, there is, as yet, no monument to record his name and preserve his memory; that is a reproach to all who knew him, and to all who have read, admired, and loved his many works—a generation that reaps the harvest of his labours. His works will, indeed, do both—they will be his monument—more enduring than any of 'piled-up stones'—and they will preserve his name for ever among the foremost men of his age and country. But it is not right that the crowded 'graveyard' which contains sculptured tablets of so many illustrious authors, artists, and men of science, should be without one to this great writer, and I appeal to the thousands by whom he is estimated to remove from England the reproach. It will gratify me much if I can obtain contributions for that purpose, in addition to my own. A large sum is by no means requisite. Such a monument as Leigh Hunt would desire should be unassuming and unpretending, as was his career in letters; and if I am so happy as to receive responses to this invitation, I will set about the work.” About 50*l.* is the sum spoken of as necessary; it surely ought to be a little more; and some 30*l.* have been already sent to Mr. Hall to carry out his very right suggestion. Are there not a few of our readers who would like the privilege of sharing in so good a work?

THE WALTER MEMORIAL FOUNTAIN, NOTTINGHAM.

THE first stone of a proposed memorial fountain to the memory of the late Mr. John Walter, of the Times, and for some time member of Parliament for Nottingham, was laid on the 24th ult. The proposed structure is described to us as of Gothic character, octagonal in form, divided into four stages rising to a height of 40 ft. The diameter at the base is 12 ft. Four basins of polished Aberdeen granite occupy four sides of the lowest stage, the other four compartments being filled in with suitable inscriptions. Immediately above the basins on two sides will be placed medallion profile portraits of the late Mr. John Walter. They will be of white marble, considerably recessed under traceried canopies. The eight compartments are finished with gables having carved finials at the apices, and this stage is surmounted by a trefoil pierced parapet. The flat surface behind the gables is relieved by diaper work. At the eight angles are buttresses relieved with pinnacles; and these are carried up throughout three stages, and add much to the effect of the general outline. The second stage consists of a series of Pointed arches under gables filled in with tracery, the lower portion containing shields bearing the town arms. The shafts in the first stage are of polished granite; in the second, of red Mansfield stone; in each instance with carved caps. The third

stage is of diminished diameter. The second stage is connected with the third by a series of stepping. Here the buttresses are again reduced and finished with pinnacles having carved terminals. The crowning pinnacle rises from a series of eight gables surmounted by an ornamental cross. The cost is to be 1,000*l.* The situation will be at the junction of the Lister-gate and Carrington-street, in the broad space which recent improvements have created at this point.

THE ARCHITECTURAL EXHIBITION.

WE perceive that the committee of the Architectural Exhibition have invited, by advertisement, a meeting for the purpose of considering the steps to be taken for the improvement of the exhibition. We must suggest to the committee, that one of the first steps they have to take is to make clear that a supposed representative of the press may enter their rooms without being insulted on the supposition that he has written something that was not agreeable. At the commencement of their last season this occurred publicly in the case of a gentleman supposed to be connected with this journal; and, though the committee after two meetings did regret that "any cause of annoyance" should have arisen to the gentleman in question, and further intimated that the curator "had expressed his regret for any hasty words which he might have used on the occasion," they did not send such an apology as was due. Until this be done, and the committee show they will protect the public against their servants, it can scarcely be expected that the conductors of journals acquainted with the circumstance will subject any gentleman connected with them to the possible repetition of such an unjustifiable affront.

We have no desire to go farther into the matter, if the council will make it clear that their servants will hereafter not be allowed to affront visitors with impunity.

LAYING THE FOUNDATION-STONE OF THE NEW TOWN-HALL, CHESTER.

THE ceremony of laying the foundation-stone of the new Town-hall by the mayor took place on Wednesday in last week, the proceedings passing off with the greatest *déclat*.

Although a record of all that has taken place in reference to the new building since the fire of 30th December, 1852, which destroyed the old one, is already contained in our columns, we may here give a brief *résumé* as to the competition from the local *Chronicle*.

The subject gave rise to many a warm and long discussion in the Council Chamber, some wanting the old building restored, others advocating an entirely new erection on the same site, while a third section of the corporate body strongly expressed themselves in favour of the new Town-hall being built in a line with the new Market. For nearly three years the subject has been a standing one. The site, after full discussion, was decided to be the ground on which the Ecclesiastical Commissioners' property rested, in front of the old Town-hall; and that decision being arrived at, it was determined to advertise for plans for a new building.

Early in 1864 designs for a Town-hall, to cost not more than 16,000*l.*, were advertised for; and in the course of a few months some thirty plans were sent in. The services of Mr. Digby Wyatt, of London, were called in to assist the council in adjudicating upon them, and at his recommendation the plan of "Love's Labour" was adopted, and the first premium of 1,000*l.* paid to its designers, Messrs. Lanyon, Lynn, & Lanyon, of Belfast, architects. Before this decision was arrived at, doubts were expressed that the design could not be carried out for the amount specified, and Messrs. Lanyon & Co., on being appealed to, stated that the building would probably cost from 16,000*l.* to 20,000*l.* The tenders sent in far exceeded that sum; and as it was the general wish that the building should be of stone, it has accordingly been resolved that it shall be so erected, and at the last council meeting the sum of 25,000*l.* was voted for that purpose; but for the present the central tower is not to be continued above the roof. The tower forms one of the most prominent features of the plan. The contractors are Messrs. Clarke & Son, of Wooton Warven, Warwickshire.

ARCHITECTS' CHARGES.

SIR,—The question mooted by your correspondent, "X. Y. Z.," in your last week's impression, is one which I feel sure will call forth from your experienced professional readers a ready response. As a member of the Royal Institute, and in practice in London for the past twelve years, I have long felt the desirability of the question of "Architects' Charges" being thoroughly ventilated and discussed, and especially now, more so as the matter appears to be brought under your notice by a layman.

With regard to the "Professional Practice and Charges of Architects," as suggested by the Royal Institute in 1862, it will be well at the outset to state that the scale suggested has been found to be inadequate, and its revision is now under consideration. However, it is, I believe, understood upon all hands that the commission is to be assessed upon the value of the works, irrespective of their nominal cost; and I think my professional brethren will bear me out in thus interpreting Article I. of the schedule. The justice of this must be manifest to every honest man; as, in the present age of indiscriminate competition and unlimited facilities for obtaining credit in the building trade, many unprincipled men adopt that calling at a venture. In confirmation of this, we have only to note that of those who take refuge under the Bankruptcy Law, the members of the building trades form a large proportion—I believe the majority; and even how often it occurs that an honest builder, from one of two reasons, either to obtain a desirable connexion or from lack of work in hand, will send in a tender reduced below the fair value of the works, by sacrificing a per-centage of the profits regularly conceded to the trade.

I am one of those architects referred to by your correspondent who, in order to meet the difficulties and injustice too often arising from competition, have for some time past uniformly adopted the system of assessing the commission upon the average amount of the tenders.

Your correspondent has only looked upon one side of the question, whereas it is our painful experience to feel upon the other. The injustice and irregularity, "to use no stronger term," that may arise to the architect upon the old system, have been entirely overlooked by "X. Y. Z.," for may not equally an unprincipled client arrange with a builder whose tender he has no idea of accepting, and pledges not to accept, to deliver a tender at a ruinously low figure, and thus in proportion succeed in reducing the architect's commission upon the works?

Again, it will be in the painful experience of the profession, that too frequently when a very low tender is accepted, the architect's detective duties in watching and protecting his client from impositions are greatly increased with less remuneration, and which unpleasant duties, were a fair value paid for the work, would rarely arise. Indeed, may not such a system be considered as offering a premium to dishonesty on the one part, at the sacrifice of the architect on the other part. If competition be considered so beneficial and necessary for the interests of the client, surely some recompense is due to the architect for extra care and trouble in obtaining that object.

It must also be borne in mind that under the system of averaging the tenders, should the highest price be accepted, the architect's commission falls short of that upon the cost of the works, and this happens in my experience lately to have occurred; so that the benefit of the system is not all on one side, as your correspondent would infer. In another instance, remarkably similar to that mentioned by your correspondent, the commission upon the average when the lowest of three tenders was accepted, amounted to some 25% more than it assessed upon the accepted one; and this, strangely enough, is the only case in my experience in which this system of charge has been called in question.

My argument then is, that architects must either be paid upon the average amount of tenders, which, with few exceptions, will be found to approximate most to the fair value of the works; or upon an estimated value, reckoned upon a recognised schedule of prices. And I maintain that the system of averaging the tenders, from its being more simple and easy to be understood by the uninitiated, would be by far the preferable method.

I trust your readers will see how necessary it is that some authoritative and practical solution should be arrived at by the profession at large;

and in the absence of this it has been my practice to deliver to my clients a scale of charges, a copy of which I beg to enclose, thinking you might deem it worthy of insertion with this letter.

THOMAS HARRIS.

"SCALE OF PROFESSIONAL CHARGES."

NEW BUILDINGS.

A commission of 5 per cent. upon the whole value of the work executed, with the addition of 2½ per cent. upon the value of any omissions, exclusive of the charge of measuring extras and omissions.

The above commission to include the following:—

- Preliminary sketches.
- Working drawings and specifications sufficient for an estimate or contract.
- Detailed drawings and instructions for execution.
- General superintendence of works (exclusive of clerk of works).
- Examining and passing the accounts (exclusive of measuring and making out extras and omissions).
- Furnishing rough estimate by cubing out the contents (exclusive of taking out the quantities for the builders to form their tenders upon).
- Providing one set of drawings and one set of tracings, with duplicate specification; it being understood that the use of these only are paid for, they being the architect's absolute property.
- The commission to be payable half upon the signing of the contract or acceptance of the tender, and the remainder on the passing of the accounts.
- All travelling and incidental expenses to be paid in addition.

The above per-centage charges not including services in connexion with negotiation for site, nor services incidental with arrangements consequent upon the failure of builders whilst carrying up the works; but all such services to be paid for in addition, according to the time employed.

Alterations made in the drawings after they have been prepared to be paid for according to the time occupied thereon.

Should the design have been completed, with plans, elevations, sections, and specification, ready for estimate, and the works not carried into execution, a commission of 2½ per cent. upon the value of the works. If tendered for, 3 per cent.

The charge for services by the day to be three guineas for principal, and for clerks according to the nature of the work upon which engaged.

If tenders are procured from more than one builder, the per-centage commission is to be reckoned upon the average amount of such tenders.

COMPETITIONS.

Smithwick New Public Hall.—At an adjourned committee meeting, on Monday, Mr. B. H. Chance presiding, the plans for the new Public Hall were again submitted. The plans of Mr. Yeoville Thomason, of Bennett's Hill, Birmingham, were unanimously accepted. The whole of the architects competing stated that it was impossible to complete any of the halls for the sum of 2,500l. each; and, under these circumstances, it was agreed that the committee should increase the expenditure to any sum not exceeding 3,000l.

Wolverhampton New Town-hall Buildings.—The committee who have been appointed to examine the plans of the proposed new corporation premises met again on Thursday afternoon, and have now left two plans only for future consideration.

Derby Slaughter-houses.—The corporation of Derby have awarded the premium for the best design for slaughter-houses proposed to be erected there to Mr. J. Gilbert Marshall, M.A., surveyor to the West Ham Local Board of Health.

THE MISCHIEF OF ANCIENT LIGHTS.

We often hear invidious comparisons made between the style of buildings in Paris, and that in London, and we all know the miserable tenements the poor are compelled to inhabit. Any difficulties put in the way of handsome and large buildings undoubtedly contribute to this result. As the law now stands, any one who is rash enough in rebuilding to interfere with the previous enjoyment of light and air of his neighbours, will be made to pay a heavy penalty for his intrusion.

The Supreme Court of New York, in *Parker v. Foote*,* have declared "that the modern English doctrine on the subject of lights was an anomaly in law, and not applicable to the condition of the cities and villages of that country. The injury resulting from window views was deemed rather speculative, and not analogous to the case of ways, commons, markets, water-courses, &c., where the injury was direct, palpable, and material; and the same rule of presumption ought not to apply to two classes of cases so essentially different."

* Kent's Commentaries on American Law. 9th edition. 1859. Vol. III., p. 633.

The landowners of London, and, indeed, of all large towns, are greatly interested in this question, inasmuch as their property is deprived of a good portion of its value from its incapacity for having large structures put upon it; and the public are interested by the anomalous state of the law stopping many improvements which otherwise would be made.

There is a large amount of feeling and dissatisfaction on this question. Some time since I suggested to a member of the Government that if a commission of inquiry were appointed, much good might result from it. W. T. WHITE.

Lights.—Sir: You may remember, under the Building Act of 1844, a very useful and salutary provision, viz.—that if any one formed or cut openings in an external wall, so as to overlook the ground of any adjoining occupier, one month's notice remedied the nuisance. As we are now, no such clause exists, and I am afraid great difficulties and complications may arise; as when an adjoining occupier seeks to build, he finds these improper easements or lights staring him in the face. The difficulty is further augmented by all walls being now deemed external, where they only divide a building from adjoining ground.

A SURVEYOR.

KAMPTULICON.

In reference to Mr. Wm. Burnett's remarks as to decay which had taken place in a wood floor, and which had come under his observation, I beg to remark that, in a church which had been erected five years, the floor of one of the pews had been covered with kamptulicon. It had been laid down about the time of opening the church; and, at the end of the period referred to, a sinking was noticed in the surface of the floor; and, on removing the kamptulicon, the entire space of the wood flooring, to the exact extent of the pew (10 ft. by 3 ft.) was found perfectly rotten, and crumbled in the hand when removed. The soil on which the church is erected is a very dry one. There is a good space underneath the flooring, which has a free ventilation throughout; and the flooring close adjacent to the pew referred to, and within an inch or two of it, was perfectly sound, dry, and free from any appearance of decay; the pew spoken of being the only one in the church in which kamptulicon was laid. The matter came under my immediate notice at the close of last year.

D. J. H.

THE EXPLOSION OF GAS, NINE ELMS.

ON TUESDAY afternoon, as most readers have already heard, an explosion occurred at the London Gas Company's Works, Nine Elms, which caused a serious loss of life, and destroyed much valuable property. The works are situated in Nine Elms-lane, close to the workshops of the South-Western Railway Company. On the eastern side, extending half the length of the works, was a range of low one-story buildings, used as workshops by carpenters, blacksmiths, meter-makers, and also for store-rooms, light offices, and counting-houses. On the opposite side of the yard was a lofty building, used as a retort-house. Between these two ranges of buildings was a large gasholder, some 150 ft. in diameter. Immediately to the south of this was a new building, just erected for a meter-house, 50 ft. in length by 30 ft. in width, with a handsome iron roof. About 100 yards to the south was another gasholder of the same dimensions, each being calculated to hold 1,000,000 cubic feet of gas. A number of plasterers were engaged plastering the interior of the new meter-house. Suddenly, without the slightest warning of danger, the new meter-house became a ruin, and the northern gasholder exploded with a roar like a salvo of artillery, while a column of lurid flame shot high into the air, carrying with it the fragments of the iron plate forming the telescopic portion of the gasometer.

The southern gas-holder afterwards took fire and burnt out, but without further damage. Nine of the sufferers are dead, and about twelve seriously injured.

For more than a quarter of a mile from the gas-works, in a south-easterly direction, every house and building is more or less damaged, while those in the immediate vicinity of the explosion, especially in Haward-street, Radley-terrace, and Penton-road, are rendered for a time unin-

habitable. In the first-named street, the doors and windows have been battered in, the tiles torn from the roofs, and the plaster and paper on the walls and ceilings completely stripped: in several cases the ceilings have fallen in.

The way in which the disaster occurred is not yet understood: perhaps it never will be. It is thought by some, however, that the gas escaped into the master house, through some damage to the governor, and that an explosion there drove in the side of the gas-holder, and permitted a sufficient admixture of air to enable the contents of that to explode also. Another supposition would be, that some defect in the gasholder had allowed of the entrance of air to it; but this does not seem so likely. A full inquiry will, of course, be made before the Coroner.

THE TRADES MOVEMENT.

The cabinetmakers in the eastern and northern districts of London are agitating for a rise of wages 10 per cent. per week, on day and piece work, on the ground of increased cost of living. They are proceeding with all due respect to their employers, some of whom have already granted the increase.

The *Birmingham Journal*, a friend to the working-classes, thus narrates a case which has occurred in the building trade at Birmingham:—

"We think we may safely say that in the whole range of our experience, we never came upon a more flagrant case of trades-union tyranny than that brought under our notice by Mr. Mault, the secretary to the General Builders' Association, in a letter which appeared in last Wednesday's *Daily Post*. Because a master-builder chooses to sublet Congleton work which union men refuse to do, he is threatened with a withdrawal of the society's masons from every building he has in hand. Because he is driven to employ men who are not masons to assist him in setting stone at one of these buildings, he is peremptorily ordered to discharge those men. Because, as a last resource, he turns up his sleeves, puts on his apron, and begins setting stone himself, he is told that 'proceedings will be taken to shelf his work for one, two, or three years, as the society may decide.' The 'wallah lodge of operative masons' have, as it seems to us, achieved the unenviable distinction of inventing an entirely new method of trades-union tyranny. At Cradley unionists cut the bellows of obnoxious employers. At Sheffield they blow them up. It was reserved for Walsall to prevent them doing their work themselves. And Walsall has done it; thereby putting more discredit upon unionism than all the efforts of past years to fix it upon an intelligent basis are likely to balance in the minds of those against whom this latest movement is directed."

The strike of the timber-yard labourers at West Hartlepool has ended in the men resuming work at 1s. below their former wages, instead of 1s. advance, for which they turned out.

The Dumbarton joiners' strike, after nine or ten weeks' duration, is now virtually at an end, the whole of the joiners, with the exception of half-a-score who still hold out, having obtained work elsewhere, or resumed within the last few days, on the masters' terms. This strike is said to have done much harm to the town, as, in consequence of the backward state of the joiners' work, a large number of carpenters, riveters, and other workmen had to be paid off.

WHO WILL BUILD AT HANLEY?

SIR,—Can any of your readers assist the unfortunate inhabitants of a large and important manufacturing town to obtain a decent roof under which they may shelter themselves? I am an inhabitant of Hanley, the chief town of the Staffordshire potteries, a town containing, at present, about 40,000 inhabitants. You will hardly believe that, in this place, there is not at the present time a single private house of a rental over 20l. a year to be had. There is one under promise, and which may possibly not be taken, at 70l. a year; and that is the only one in the town vacant. It is a matter of the utmost difficulty to obtain houses of a respectable kind, with five or six bed-rooms and two or three reception-rooms. Every such house is eagerly sought for, and let generally before it is vacant. There is not in all Hanley a single row of middle-class private houses such as professional men can inhabit. Generally speaking, all the good houses have been built by manufacturers or wealthy tradespeople for themselves, and either they or their descendants occupy them. The remaining houses consist of cottages, and miserable little morsels of would-be respectable houses, with two parlours, a kitchen, a pantry or washhouse, and three or four bed-rooms. The rooms are none of them large enough to swing a cat in with any comfort, and are horribly cold and draughty. I am reduced to the necessity of taking two houses, one next to the other. Another medical man in the town is in the same predicament. I have been for three years looking out for a decent house, and have never been in time to get one.

Barely it might answer the purpose of some of the London builders to come down here and build us a street of good houses. Every one says they would be taken before a roof was put on. Land is cheap, and can often be got from the foundations sufficient to build the house with; wages are lower than in London.

Our cry is, Come over and help us, and we will pay you well.

VOX CLAMANTIS IN DESERTO.

EDINBURGH.

A NEW Primitive Methodist Chapel has been erected on a vacant piece of ground, in Victoria-terrace, between the Mechanics' Library and Fisher's Close, from the design of Messrs. Paterson & Shiells, architects. The style of the edifice is an adaptation of Italian Gothic, and forms a pleasing addition to this picturesque part of the city. The basement contains a small house for the resident minister and a school-room, and the church is seated for 480 persons. In the front elevation there is an arched doorway, with a projecting canopy, supported by foliated brackets, on either side of which are two light windows, with shafts and plate tracery, above which runs a moulded string course. The main gable has three long windows, with a continuous carved impost: the centre window is panelled a third of its height, as the pulpit is placed against it. This window is divided by a shaft, and has tracery at the upper part: the other two are left plain. A portion of the church projects over the entrance to Fisher's Close, forming a small transept, which is lighted by a shafted window similar to that in the centre of the main gable, and this part of the building is finished by a pierced parapet. The gable has crocketed skewes, is terminated by a curved finial, and is flanked by a bell-turret, in form of a canopy, supported by four shafts, terminating in a steep pinnacle, with an iron finial. The interior is lighted from the south and east sides only; that to the west, against the Mechanics' Library, is broken up by an arched corresponding to the windows on the opposite side. There is a gallery at the north end, and one in the projecting portion or transept, which may be used for an organ. The roof is waggon-shaped, with moulded ribs, and the pulpit and benches are of deal and plain in character.

The Caledonian Railway Company have been making large purchases of property at the north end of the Lothian-road, for the purpose of erecting a new and commodious station. Among other buildings, St. George's Free Church is to be demolished, and a new building erected in the neighbourhood, at a cost of 25,000l. The loss of the present church is not to be lamented, as it is a very poor specimen of modern Norman.

When such improvements are in progress in this neighbourhood, it is to be hoped the heritors of St. Cuthbert's, the wealthiest parish in the city, may see the propriety of erecting a new church in place of the unsightly barn which they built about fifty years ago, and which is so great an eyesore in the beautiful valley of the Nor' Loch.

The new Sheriff Courts and the Theatre Royal are approaching completion.

CHURCH-BUILDING NEWS.

Eastbourne.—The foundation stone of the new church of St. Saviour has been laid, the erection of which has been commenced in the open space fronting South-terrace. The church, which will be in the Gothic style, is from designs by Mr. G. E. Street, of London. The material to be employed is red brick, with Bath stone dressings. Mr. Peerless, builder, of this town, is the contractor for the work. The site has been presented by the Duke of Devonshire, and it is understood that the cost of the building will be defrayed by the father of the Rev. R. Whelpton.

Otham (Kent).—The parish church of Otham has been re-opened after restoration, and an additional piece of ground lately added to the churchyard. The work of restoration includes a new roof to the chancel. The walls have been partially rebuilt, and new windows inserted. A large stack of pulpit, reading, and clerk's desks, together with the whole of the square pews, also the west gallery, have been removed. The nave and aisles are re-seated with open benches, the design being taken from an old seat found beneath one of the pews. The chancel has been fitted with oak stall seats and subseals, the sanctuary being enclosed by a rail of iron and wood, the sedilia occupying the south side. The floors throughout are renewed and arranged in pattern. The steps to the chancel and communion, of which there are five, consist of Portland stone treads and encaustic tile risers, the floors to the communion and foot pace being partly glazed and of richer colours than the others. The pulpit stands in the south-east angle of the nave, the steps and lower part being of stone, the upper portion of carved oak. The

lectern is also of oak. The cost of the restoration is about 1,000l., mainly contributed by the rector, the Rev. Talbot Brockman. The work has been carried out from the design, and under the superintendence, of Mr. R. Wheeler, of Branchley, the builder being Mr. Vanghan, of Maidstone.

Broad Somerford (Wills).—The church of this parish has been restored and re-opened. The work, under the care of Mr. Hakewill, has been going on through the summer, and is not yet completed. The east window is of stained glass, by Messrs. Lavers & Barrand; the spandrels filled with angels and cherubs (the church being dedicated in the names of St. Michael and All Angels); and the four lights with the following eight subjects:—Above the transept, Our Lord blessing Children; Our Lord carrying His Cross; Our Lord celebrating the Eucharist, standing; and St. Michael vanquishing the Dragon. Below the transept, The Sacrifice of Abel, portraying Faith; the Death of St. Stephen, Hope; the Widows showing the Coats which Dorcas made, Charity; and Augustine, bearing the Mission-flag charged with Doves, and preaching the Gospel to the Saxons. The removal of the plaster ceilings revealed the old saddle-back roof in good preservation, as did that of the galleries and other obstructions, the western arch and window of the tower. The roof of the chancel is panelled, the panels coloured in chrome, the ribs and bosses being picked out in gold, blue, red, and white. A vestry is provided by the old entrance to the roof-loft in the south wall. The floor is paved in tiles of black and red, lozenge-wise.

Ridgehill (Winford).—The Festival of St. Luke was observed in the parish of Winford by the opening of a new chapel or school church, dedicated to St. James. The rector, the Rev. Henry Tripp, gave a site and 200l. The little church is in the Early English style, with two lancet windows at the west, and a triplet of lancets at the east end. The roofs are overhanging and defined by barge boards, and surmounted by a tapering bell-turret. The church is built of stone. The roof is open, and constructed upon a patented principle. The benches are of stained wood, some being of Lichfield Cathedral pattern, others copied from those at St. Alban's, Holborn. There are Gothic fittings, choir-stalls, desk, lectern, and simple pulpit on one side of the communion-rails.

Templecombe.—The church of St. Mary, Abbas Combe, generally called Temple Combe, has been re-opened for public worship, having undergone a renovation and repair. The total cost of repairing the church is 1,309l. 3s. 4d. Additional accommodation has been obtained by rebuilding the north aisle, which was erected about thirty-five years ago, and by somewhat widening the chancel. All trace of the east, west, and south transept windows had been obliterated, and new windows were necessary. In these, tracery of the style of the earlier Perpendicular of the beginning of the fifteenth century has been used, but those of the new north aisle have been assimilated to the later Gothic architecture of the church. In the interior the row of pillars and arches which were put up, to form a north aisle some thirty-five years ago, have been retained, but the aisle itself is entirely new. The gallery has been removed, and the organ placed on the floor at the east end of this aisle, at which end there is also a vestry. The roof of the nave, which had become very much dilapidated, has been strengthened and restored without removing any of the old timbers. It was found impossible, however, to retain the roof of the transept or chancel. The church has been re-seated throughout: the seats in the chancel are oak, the rest of stained deal, with the exception of eight or ten old oak seats of the seventeenth century in the nave, which have been restored. At the east end a stained-glass window, by Messrs. Clayton & Bell, has been inserted as a memorial of the late rector. The work has been carried out by Mr. R. Reynolds, of Weymouth.

Gloucester.—Improvements are being effected at St. Mary de Lode Church, and at Christ Church, Spa. St. Mary's has been re-opened; the pews have been replaced by open seats of stained deal. Additional accommodation for 112 persons has been gained. The re-seating has been carried out by Messrs. Essie. The organ has been rebuilt and enlarged by Messrs. Williams & Son, of Cheltenham. The low chancel arch prevented the placing of the organ near the chancel, and it has been re-erected in the western gallery. The walls have been coloured, and ventilators have been inserted in the roof by

Mr. J. Clarke of Kingsholm. The portion of the chancel inside the altar-rail was recently laid with enamelled tiles, of a beautiful design. The chancel has now been further improved. The total cost of the works has been about 330*l*. The chancel of Christ Church has been extended, and north and south aisles have been added, in the former of which a new organ, now in the course of being built, is proposed to be placed. A new vestry has been erected, and other alterations have been effected. About 150 free seats have been provided, additional room has been obtained for the Sunday school children, and the accommodation secured. The total cost of the works amounts upwards of 600*l*, exclusive of the cost of the new organ, which has been built at the sole expense of a member of the congregation, and exclusive of the structural part of the chancel, which has been carried out by Mr. David Wingate, another member of the congregation, at his own expense.

Yeviv—Luton Church, near this town, has been re-opened. The new building has been erected on the site of the old church, which was in the Decorated style of about 1250. It has been slightly enlarged, but is built in the style of the same period by Mr. Davis, of Langport, builder, under the superintendence of Mr. B. Ferrey, of London. The church has been reserved principally at the cost of Mr. J. J. Farquharson and Mr. E. Newman. During the course of the rebuilding a stone coffin, containing human remains, was found built into the north wall. This relic has been replaced.

Pembroke.—The church of St. John, *Pembroke*, which has been entirely rebuilt, has again been opened for divine service. The edifice has been built after the model of the old one, and it consists of a nave, chancel, sanctuary apse, organ-chamber, and vestry, and a south-east tower and a south porch. The style is Transitional Norman, of the continental type. The structure is built of native stone, with Griershill stone dressings throughout the exterior; and the interior is lined with freestone ashlar, banded with grey stone. The roofs are open and boarded, lined with felt, and covered with Pembroke shingles. The floors of the chancel and sanctuary are laid with encaustic tiles, from the manufactory of Mr. Godwin, of Llugwardine; and the chancel is fitted with some carved stalls for the clergy and choir, this latter work being executed by Mr. Meyrick, of Hereford. The nave is fitted with open benches of stained deal, which will seat about 300 people. The whole of the work of the church has been carried out according to designs prepared by, and under the superintendence of Mr. Thomas Nicholson, the diocesan architect. Owing to the failure of the builder in the first instance, the cost of rebuilding the church has amounted to 3,232*l.* or about 1,000*l.* more than the original contract price.

Landissey.—The new church here has been consecrated. The edifice is in the Early English style of thirteenth century. The nave is 67 ft. by 22 ft. 6 in.; the north aisle 60 ft. by 11 ft., separated by arcade arches, intermixed with red and white Grinshill stone, springing from polished granite columns; the chancel 27 ft. by 18 ft., at the vestry and organ-chamber 17 ft. by 11 ft. The tower and spire are 95 ft. high. The roof is open-timbered red Dantisc, stained and varnished, covered with Aberllefny and Carnarvon mixed slates, and ornamental Staffordshire ridge, and there are crosses at the angles. The internal arrangements are on the open-seat principle. The nave floor is of Staffordshire tiles, in ornamental design, with heating arrangements underneath. The chancel-stalls are yellow pine-stained and varnished, and the flooring is done with Maw's encaustic tiles. The stained-glass window has for its subject "The Crucifixion." There is a peal of five bells, the old ones having been re-cast, and two additional ones added, by Mr. George Meurs, of London. The walls of the church are built of the local quarry stone, dressed, laid in courses, and seven courses. The tracings of the doors, windows, and spire, &c., are of white Grinshill freestone. The carvings are in the French style of Gothic foliage. The architect was Mr. T. H. Wyatt, of London; the contractors were Messrs. Chester & Co., of Liverpool; and the clerk of the works was Mr. Garland. The reredos and font were done by Mr. Sansom and Messrs. Burke & Co., of London; the pulpit by Mr. Dodson, of Shrewsbury; the eagle, by Messrs. Rattee & Co., of Cambridge; the east window by Messrs. Ward & Hughes, of London; the stone-cutting by Mr. Stockdale, of Liverpool; and the wood-carving by Messrs. Cox & Son, of London.

DISSENTING CHURCH-BUILDING NEWS.

Bristol.—A new chapel has just been commenced by the Wesleyan body, at Redland. It is proposed to accommodate about 800 people. It has a basement in which are placed schools and class-rooms, as well as also rooms for chapel keeper. It is in the Decorated Gothic style, with slightly French detail. The materials will be sandstone, obtained by excavating for basement, and freestone dressings. The architect is Mr. Samuel Hancorn, Newport, Monmouthshire, whose design was selected in a limited competition. The contractors are Messrs. Eastbrook & Son.

Rochdale.—The United Methodist Free Churches have opened a new chapel in Castle-mere. Externally, the new building, Italian in style, is of brick and stone. The entrance is an arcade of three arches, with four columns and two pilasters, having composite capitals; above the entrance is another arcade of windows, the arches being supported on shafts with composite capitals; and decorative stonework in the tympanum of the pediment crowns the central arcades, whilst string-courses and cornices, uniting with the stone corners, give completeness to the front. Under the chapel, and as large in area, is a schoolroom; and there are several vestries and other rooms. The architects were Messrs. Woodhouse & Potts, of Oldham.

Charleston (Salford).—A new chapel for the Independents has been opened here. The principal entrance is from the front, through a doorway under the tower which stands at the north-east corner of the chapel. There is another from Trentham-street, through a porch. Entrances are also provided to the vestries in the rear, and these will serve for exit when required. The plan of the structure is rectangular, the internal dimensions being 74 ft. by 42 ft., and the roof is of single span, divided longitudinally into six bays by principal timbers or trusses of hammer-beam construction. The interior is not open to the ridge, but an inner ceiling is provided, supported by a series of transverse ground-floor columns accommodating 410 adults. There is also an end gallery which similarly accommodates 140 adults. The constructional timbers of this gallery appear below the ceiling, and are stained and varnished. The tower is not yet completed. It is carried up to a level above the slope of the main roof, and covered with a temporary roof. When finished with the intended spire, the total height will be 100 ft. Externally, the walls of the building are faced with Yorkshire parpents, dressed, and the jambs, quoires, and other features are of Yorkshire stone. The mullions and tracery of the windows are of Bath stone. The style of the structure is Early Decorated. The architects, under whose superintendence all the works have been executed, are Messrs. Paul & Ayliffe, of Manchester. The general contractors for the building were Messrs. S. S. Sisson, of Salford. Mr. Tomlinson, of Charleston, has laid in the gas-piping, and the gas-fittings have been supplied by Mr. Dorey, of Manchester. The quarry lead lights in the windows are from Messrs. Edmundson & Son; and the carving to the stonework has been executed by Mr. Gregg, of Manchester. The building is warmed by Messrs. Haden's warm-air apparatus. The total cost will be 3,400*l.*

Books Received.

Illustrations of the New Palace of Westminster
(Sir Charles Barry, Architect). From Draw-
ings by EDWARD N. HOLMES, Architect.
Second Series. London, Warrington & Co.
1865.

In continuation of a former volume, Mr. Holmes gives sixteen plates, partly lithographs partly outline engravings, with a few woodcuts and some colored descriptions. The engravings, very clear and useful, illustrate the Victoria Tower of the Central Tower, and the Clock Tower; the lithographs show the Peers' Entrance, the Royal Staircase, the Royal Gallery, the Commons' Lobby, the House of Commons, and some other parts of the edifice. These are scarcely so satisfactory as the engravings, several of them being heavy and without effect. We would except from this objection the view of the House of Commons' Lobby. The book, as a whole, forms an interesting memorial of the remarkable building it illustrates.

Miscellaneous.

THE SOUTH-EASTERN INDUSTRIAL EXHIBITION, at GREENWICH HOSPITAL.—The ceremony of opening this exhibition, which, by permission of the Admiralty, is being held at Greenwich Hospital, took place on Saturday afternoon last, in the Painted Hall of that building, in the presence of a large company, amongst whom were many of the most influential inhabitants of the district. Viscount Sydney, K.C.B., Lord-lieutenant of Kent, presided on the occasion.

HESTON CHURCH.—With the exception of the eastern wall containing the windows of the double chancel, the whole of the body of the interesting old church of Heston has been levelled to the ground. Apparently it is to be extended laterally, as appears by the excavations on the north and south sides of the original building. This has enforced the removal from the graves of the remains of mortality there interred to a further corner of the churchyard.

PROPOSED NATIONAL MEMORIAL TO LORD PALMERSTON.—On Wednesday evening a preliminary meeting was held at the School-room, James-street, Bedford-row, for the purpose of taking steps to raise a national memorial in memory of the late lamented Premier. It was unanimously resolved,—“That the eminent services of Lord Palmerston for upwards of fifty years entitles him to the thanks of the country by the establishment of a lasting testimonial to his memory. That the vestry of St. James’s, Piccadilly, be requested to grant the use of the vestry-hall for a meeting of the friends of the late lamented Premier, and this meeting resolves itself into a committee for carrying out this resolution.”

TIMBER IN AUSTRALIA.—*The Inquirer*, Western Australia, says,—"It is perhaps of no very great moment to the persons immediately concerned in the transaction, that an engagement should have been entered into to deliver on board a ship, at Fremantle, 600 loads of mahogany sleepers, for an Indian railway, at £l. 13s. 6d. per load; for the mere facts are, we presume, that the timber is to be had at the price, and that it is suitable for the intended purpose; nor, if the matter merely rested with the buyers and sellers, would it be worth notice otherwise than as a mere topic of the day. But, in truth, it concerns the whole colony to know that millions of acres in its vast area produce a timber which no other part of the world produces; and because it is virtually indestructible by white ant and sea-worm, people will take the trouble to come here and buy it. It is no novelty to us to be told that our timber is good, but it is a new discovery, and certainly a good one, that there will be a demand for it; the same is said of everything under the sun which may be comprehended under the general designation of 'raw material'; but it does so happen that our colony is the only part of the world where this commodity exists, and where the supply is virtually inexhaustible."

STEAM CRANES AT BORDEAUX.—At a meeting of the Institution of Civil Engineers of France, held last month, a paper was read by M. Maldant, "On the Use of Steam Cranes at the Port of Bordeaux." In July, 1863, the Bordeaux Chamber of Commerce advertised for tenders for the right of loading and discharging vessels at that port, by means of apparatus to be supplied by the contractors. Fourteen or fifteen plans were sent in from France and England, based on the application of water-power and of steam, for the purpose. Under the advice of the consulting engineers, however, and after an examination which lasted almost a whole year, all the plans submitted were put aside, and it has now been decided simply to extend the application of steam to all the cranes of the port, in accordance with the experience that has been derived from four of these cranes during seven years past. It is found that the average daily expenses of a 14-ton steam-crane (1,500 kilogrammes), of 2-horse power, employed in the ordinary discharging of a merchant ship alongside the quay, are 12fr. 80c., or 10s. 2½d. per day. If the work of one man turning a winch be taken equal to 6 kilogram-mètres per second (2,577 foot-pounds per minute), a machine of 2-horse power will perform as much lifting work as twenty-five men, or about the same work as six hand-cranes worked by four men each. In the presence of such manifestly satisfactory results, it is difficult to understand why the use of steam cranes is not more general.

ASSISTING NATURE.—A Swiss invention has been introduced to aid bees in the formation of their comb. Narrow sheets of wax are imprinted by machinery so as exactly to represent the dividing wall of comb between the cells. These strips are attached to the top of the empty hive, before the new swarm is put in, thus enabling the bees to go immediately to work, and also guiding them in making the sheets of comb in the proper direction.

HOUSES FOR THE POOR.—The *Pall Mall Gazette* says:—A movement is on foot for building houses for poor people in Westminster. It is said that 2,000 persons were turned out to make room for the new Foreign Office, and now the Metropolitan Union Railway will turn out 821 more. They are of all classes of artisans, but all poor and all pressed by a special difficulty arising from the geographical position of Westminster. If they cannot get rooms near their old localities, they must wander far afield, either crossing the river, or the parks, or Whitehall, thus in many instances losing their occupations, and, in all, seriously increasing the day's work. The Marquis, whose vast property is so greatly benefited by these improvements, should look to this.

GLASS-BLOWING, in its simpler adaptations, is very easy of acquirement, and capable of affording much recreation at a small expense. Even cold glass may be worked with a facility known to few. It may be drilled in holes very easily, the only implement needed being a common watch-maker's drill-stock. A steel drill of good quality, well hardened, will do the business perfectly; and even if the edge of the tool should give way before the hole is pierced through, a little emery powder and oil will remove every difficulty; or, with the help of these, the hole may be bored with a copper drill. Not only so,—glass may even be turned in a lathe. Any amateur turner who has operated on either of the metals may chuck a piece of glass in his lathe, and turn it with the same tools and in the same way as he would a piece of steel, only taking care to keep the chips from his eyes.

THE ASSEMBLY-ROOMS, BATH.—This grand suite of rooms has been undergoing considerable alteration and renovation. The work of decorating the principal rooms was entrusted to Messrs. Green & King, of London, artist decorators. The proprietors have widened the entrance doors, as well as several in the interior of the building, and given additional light to the passages. The cloak rooms have also been rearranged. The vestibule walls are coloured a subdued Pompeian red, and relieved by the full Etruscan buff of the columns, the bases being black, while the entablature and cove which these support, and the lantern above, are enriched with light and delicate colour. In the tea-room, a portion of the old plaster ornaments of the ceiling has been removed, and four bands of colour are drawn right through the cove and across the ceiling. The various panels between these are treated with red lines and scrolls on a bluish-grey ground, the plaster being coloured to harmonise with the other portions of the work. The walls are coloured green, and the columns light ochre, with white capitals and bases. The niches are painted a deep Indian red, and the wall spaces immediately above them are enlivened with colour. The treatment of the octagon is more sombre than that of any in the suite. The prevailing tint of the ceiling is a light buff, which is warmed and relieved by ornamental panelling in red, with a little pale blue; the main lines of this converge towards a rosette of brilliant colour in the centre of the ceiling. The card-room remains as painted last year, a rose pink, by a local painter. As to the ball-room, it was part of Messrs. Green & King's original proposition to remove the plaster ornaments on the ceiling and to substitute for them a painted decoration in the Italian style. The proprietors, however, decided to retain the ornaments, which have been treated in light tones on a ground of light blue; this colour is carried down into the cove, where it is thickly studded with gold coloured stars. The columns which support the entablature are treated as statuary marble, the caps being etched with gold, and the festoons between them white on a pale-blue ground. The spaces between the columns are painted with Arabesque ornaments, the niches containing the figures being finished a light Pompeian red. The walls are divided into panels, filled with stencil work in imitation of amber satin damask. The dado beneath is finished in a kind of dead grey buff, to set off the dresses of the visitors.

ST. LUKE'S NEW VESTRY HALL.—The foundation stone of this new hall has been laid on the site which adjoins the workhouse in the City-road. The architects are Mr. William Christie and Mr. F. Warburton Stent.

THE PENZANCE BELLS.—Eight new bells, cast by Messrs. Taylor, of Loughborough, have been just placed in the tower of St. Mary's, Penzance. The committee engaged the celebrated Amateur Band of Change Ringers from Woolwich, members of the London and Cumberland Societies of College Youths, to open the peal on the 31st October.

INAUGURATION OF A SCHOOL OF SCIENCE AND ART IN SALISBURY.—A numerous and influential meeting of the inhabitants of Salisbury and the neighbourhood has been held in the Council Chamber of that city, for the purpose of inaugurating a local school of Science and Art in connexion with the Government Department of Science and Art. The Bishop of Salisbury presided. The Bishop observed that the principal object of the school would be to afford to the working man the means of raising himself to that position to which his talents entitled him. The school will be under the direction of Mr. Thurlow Short.

BIRMINGHAM ART FOR EGYPT.—A large and important order for the decoration of a yacht for the Viceroy of Egypt, which is being built by Messrs. Samuda, of London, has just been completed by Messrs. Bettridge & Co., of the Papier Maché and Japan Works, Birmingham. The only instructions received beyond the order, were, that the decorations must be of the finest possible character, without regard to cost. The decorations consist of painted panels, that are oval, circular, and square; and a number of large and small pearl and gold shells; and they are intended for the upper and lower saloons of the vessel. There are twenty-six ovals for the lower saloon, on all of which are painted flowers. Those flowers that are transparent in colour, such as the tulip, iris, and convolvulus, are painted on inlaid pearl; those that are of opaque, such as the rose, cactus, and camellia, are painted simply. Then there are flowers which unite the two processes, such as the geranium and columbine. Mahrouse, or the Bride of the Hill, is to be the name of the yacht.

NEW CHURCHES IN LIVERPOOL.—The following are mentioned as amongst the donors of new churches:—Mr. Thomas D. Anderson commenced, about two months since, a church in Liverpool, at his sole expense; the cost will be between 8,000l. and 10,000l. Mr. J. P. Maithers has begun a church at Bootle, at the request of a daughter, lately deceased, the cost of which will scarcely be less than 8,000l. for this church the Earl of Derby has given the land. Mr. William Peck is about to erect a church, at his own expense, in the district of St. John the Baptist; the cost will be from 5,000l. to 6,000l., exclusive of the land, which will increase the amount by at least 1,300l. Mr. James Tyer, a Liverpool merchant, has already nearly finished, at his own expense, a church near the Stratford Railway Station, for the benefit of the railway porters and servants; the cost of the whole, including land, church, endowment, parsonage-house, and schools, will amount to at least 12,000l. Mr. W. Preston, late mayor of Liverpool, is about to build a church, at his own expense, in one of the crowded districts of Liverpool.

WORCESTER CATHEDRAL ORGAN.—Another consultation with respect to the site of the cathedral organ has taken place, and we understand that the Rev. Sir F. Gore Ouseley has given his opinion that the best place for the instrument would be the chapel on the south side of the choir, formerly used as a vestry, and recently restored and thrown open; but in that case an additional chamber for the reception of some portions of the organ would have to be erected outside the east end of the said chapel. The *Worcester Herald* says,—"It is felt that wherever the instrument may be placed some sacrifice must be made, nor would the site proposed by Sir Gore Ouseley be free from that objection, inasmuch as the architectural proportions of the chapel in question have been brought out to fine effect, and are now an object of admiration; yet, with the exception of the great south transept, which we still maintain to be by far the best position for the organ, the aforesaid chapel may be the most fitting site, as the instrument would there hide less of the beauties of the cathedral than anywhere else."

THE CITY GAS MOVEMENT.—At a recent meeting of the London Court of Common Council, it was resolved to take immediate steps to give the usual notices, with a view to an application being made to Parliament, next session, to enable the citizens of London to take the supply of gas into their own hands.

THE LEEDS WATERWORKS CONTRACTS.—In the contracts let by the Waterworks Committee of the Leeds Town Council for 2,588 tons of iron pipes, a French firm contracted within 4l. of the lowest tender. Their estimate was 13,609l. and the contract was let for 13,605l. — *Leeds Mercury*.

CAB-FARE INDICATOR.—At the Birmingham Industrial Exhibition, the first prize, of the value of 25l., has been awarded to Mr. Peter Gaskell, inventor and patentee of a cab-indicator, which shows the distance the cab goes, and the amount the passengers have to pay. Two of them are said to have been in use about eight months, and have proved a protection to the proprietor.

CLOCKS AND BELLS.—The following are among the turret-clocks recently erected by Mr. W. H. Hughes, of Ludgate-hill:—For Mr. Guinness, M.P., Dublin (for St. Patrick's Cathedral), brass turret-clock, showing time on two 8-ft. dials, striking the hours on 36 cwt. bell, and playing four tunes during the twenty-four hours; for the Government of St. Kitt's, West Indies, brass village-clock, showing time on one 3-ft. dial, and striking hours on 6 cwt. bell; for the magistrates, &c., Rutherglen, near Glasgow, turret-clock, showing time on four 6-ft. dials for illumination, striking hours on 16 cwt. bell, and chiming the four quarters on four bells (for Rutherglen new town-hall).

SEWAGE IN THE DON: PROPOSED OUTFALL DRAIN.—The committee appointed by the town council of Sheffield to take into consideration the drainage question, not only as it affects Sheffield, but also the valley of the Don, are taking steps to secure the co-operation of other towns interested. The most feasible scheme is said to be the construction of drains by which the sewage of Sheffield, Rotherham, Doncaster, and other places in the valley of the Don, should be diverted and then utilized. The plan was submitted to Mr. Rawlinson, C.E., who expressed a favourable opinion upon it. Alderman Webster invited the town council of Doncaster to co-operate with the authorities at Sheffield. The preliminary cost, he apprehended, would not exceed from 300l. to 500l., upon a survey made either by Mr. Rawlinson or Mr. Bacon. A resolution was unanimously adopted to join Sheffield in the project, so far as the preliminary proceedings were concerned, on the understanding that the share or proportion should not exceed 100l. The pollution of the Don has long been a source of unmitigated evil, productive of fevers and epidemics of the most serious character.

THE SEWAGE OF WINDSOR.—An adjourned meeting of the Local Board of Health has been held, for the purpose of hearing Mr. Menzies' explanation of his proposed plan for the improvement of the drainage system of the Royal borough, and alteration of the sewage, which at present is carried by means of a main sewer passing through the Home Park, near Frogmore House, into the Thames, at a spot but a short distance from the new Albert Bridge. Mr. Menzies (acting as surveyor to the Commissioners of Woods and Forests) stated that he attended the Board in order to lay before them a rough draft of the report which he had prepared to be submitted to the Rivers Commission and Commissioners of Land Revenue with reference to his scheme. Having described the condition of the river in consequence of the amount of silt drained into it from Windsor, with its population of 12,000 persons, Mr. Menzies said he proposed to separate the sewage from the rainfall, and apply the former to the surface of the land. He was not then prepared to say what the expense of the proposed alteration would be, or by whom the sewage would be bought. With regard to the position of the land where the sewage could be applied, there were three or four localities to choose from. It would be best to take it to Old Windsor, on the other side of the Home Park, and apply the sewage to the land between the Thames and the New Cut, or on some adjacent farm. The Board consented to proceed to Broadmoor in the course of the week, to inspect and examine the system there; and, having adjourned, its members proceeded, with Mr. Menzies, to the Home Park, to examine the state of matters complained of.

ST. JOHN'S COLLEGE CHAPEL, HURSTPIER-POINT.—We are requested to state that this chapel was commenced in 1861, not 1851, as misprinted.

EGRESS FROM PUBLIC BUILDINGS IN MOSCOW.—It has been ordered at Moscow that in all public buildings the doors of the main entrances shall open outwards instead of, as hitherto, inwards. This arrangement is to enable people to have free egress in the event of any accident or panic occurring.

THE PROPOSED RAILWAY BRIDGE ACROSS THE HUMBER.—The promoters are taking active steps to carry out the arrangements. An engineer has been consulted; and, after a survey of the site, which is between Barton and Hessle, he has produced a design of the proposed structure. The bridge, which is to be built on piers, will be a mile in length, whilst the land approaches to it, consisting of arched viaducts, will be three-quarters of a mile. The promoters have framed a bill to bring before Parliament in the next session.

THE BESSEMER PROCESS.—This process for the manufacture of rails is being adopted at Dowlaish. Experiments are being made with the view of trying the durability of rails coated only with Bessemer steel, and not made entirely of that metal. If this can be successfully carried out, there will be a great saving effected in price, for the cost will be but little more (perhaps 2l. to 3l. per ton) than for ordinary iron rails. As a proof of the superiority of Bessemer steel rails, it has been stated that on the South-Eastern Railway a steel rail was laid down opposite an iron one, and the latter had to be replaced twelve times before the steel rail was worn out.

FALL OF HOUSES IN BERLIN—THIRTY PEOPLE KILLED.—A large house, in Wasserthor Strasse, almost entirely new, and occupied by more than sixty persons, has fallen to the ground. The latest accounts mention that nineteen corpses had been taken from the ruins, with thirty-one persons more or less severely injured; about twelve others still remained to be extricated. Some cracks in the building had been observed on the previous evening, but the landlord declared that there was no danger. He has since been arrested. A large hall in course of building, at Koenigsthor Strasse, has also fallen, by which three masons have been killed and four or five others hurt.

WATERWORKS FOR DANZIG, PRUSSIA.—Mr. Aird, an English engineer, has offered to construct the waterworks at Danzig on the following conditions:—The Company is to receive a yearly sum of 37,000 dollars, or about 5,500l., from the town, and to be sole owner of the works for forty years. After this time they become the property of the town. The estimate of the expense is 225,000l. The Berlin correspondent of the *Star* says, in reference to this: "I have not heard whether Mr. Aird's proposals have been accepted. If they are, it is to be hoped that the Dantzig Water Company will give more satisfaction than the English company of the Berlin waterworks is giving here at present. The water used to be clear, but for some time past it has been very turbid. I suppose the explanation is, that the filtering apparatus is not on a sufficiently large scale to meet the increased demand."

THE NEW WATER SCHEME FOR HUDDERSFIELD. At a special meeting of the Huddersfield Improvement Commissioners, Mr. Grosland, M.P., on behalf of the Waterworks Commissioners, explained the projected scheme for increasing the water-supply of the town and district. The plan comprises the supply of Longwood, Lockwood, Mold Green, Newsome, and Lindley, in addition to Huddersfield, with water obtained from a catch-ground of over 1,500 acres at Moltham, and a reservoir of 84 acres at Blackmoor-foot, to store a supply and furnish compensation to mill-owners. The present waterworks, when the mains are full, are calculated to supply Huddersfield township (34,000 inhabitants) with thirteen gallons per head daily; the projected works are calculated to supply the townships mentioned (present population 63,000) with twenty-five gallons a head daily if the population were 100,000. The cost of the scheme is estimated at 100,000l. or 120,000l., if two streams be included, and a reservoir made in the Wessenden Valley, which is doubtful. The scheme, as a whole, was favourably received by the Improvement Commissioners.

HOGARTH'S TOMB.—The inscriptions on the Tomb of Hogarth, in Cheswick Churchyard, are incised, and have been filled in with gilding or colour; but these have become so much obliterated, that they can no longer be read. A very trifling expenditure would renew them, as well as the faded colour of the armorial bearings above. This ought to be done.

ABERDOVEY.—Public meetings have lately been held to consider the question of the water-supply, and the local board of health have taken steps in the matter, and, at their last meeting, instructed Messrs. Goto & Beesley, engineers of the Oswestry Waterworks, to prepare plans and estimates for a new supply, to embrace the town of Aberdovey and Penhelyg adjoining.

VALUE OF PROPERTY IN LIVERPOOL.—An arbitration case, in which the corporation on the one hand, and Mr. Woolfield (the owner of land and premises in Church-street) on the other, are concerned, has been proceeding in Liverpool. The premises consist of a fashionable jewelry and "vertu" shop, now required to complete the scheme of corporation improvements. Mr. Woolfield claimed 70l. a yard, or 65,000l. odd, and witnesses were called on his side, whose estimates of value ranged from 45,000l. to 50,000l. On the other hand, witnesses for the corporation were called, whose estimates varied from 28,000l. to 31,000l. In Castle-street, which is more in the centre of the town, land has been priced at 100 guineas a yard.

THE PROPOSED NEW HARBOUR AT NEWLYN, CORNWALL.—At an open-air meeting of the fishermen and inhabitants generally of Newlyn, Mr. Floyd, engineer, described the proposed harbour, which contemplates commencing as a southern arm from the Green Rocks—a few hundred yards south of the old Newlyn pier; while another arm will run out from the Western Green, midway between Alexandra Place and Tolcarne, in a south-easterly direction. These piers will enclose and protect an area of about 80 acres of water, when the tide is in, and will give 15 ft. of water at low-water spring tides at the pier heads. The piers are to be of granite. The estimated expense is 50,000l., which it is proposed to raise in 10,000 shares of 5l. each. 500 shares have been taken up in Newlyn and Penzance.

LIME AND BRICK WORKS, NEW BILTON.—Mr. G. H. Walker, a landed proprietor associated with an enterprising firm, has commenced the manufacture of lime, cement, and bricks, at the late Victoria Works, Lawford-road. The company has already laid down a line of rails from the large kilns in which the perforated bricks were burned formerly, to the field in which many thousand tons of limestone were stacked. Along this line the limestone is speedily conveyed to the kilns, and, when burned, it is ground by steam-power, and despatched by rail or boat in bags and casks to London, to be used in the Thames Embankment, the Underground and other railways, Millwall and other docks, the New Blackfriars and other bridges and works that are being at present so energetically carried forward in the metropolis. Mr. L. M. Tatham, connected with the blue lias lime and cement trade, has great interest in the works now in progress here, and Mr. F. Fullwood, of Clifton. Mr. Fullwood has an improved method of manufacturing white facing bricks. We understand some fifty cottages are about to be erected close to the works for the workmen.

RICHMOND THEATRE, SURREY.—While the audience were in the theatre on Monday night, discovery was made that a beam going from wall to wall in one of the flies had caught fire from a gas-jet immediately below it, albeit the timber was cased with iron. The performance was continued while the manager and his men made efforts to extinguish the fire; but some people in the pit perceived water dripping on to the stage, and their attention being thus excited, the cause was detected, and a cry of fire raised. In vain the manager came forward and exhorted the audience to remain in their seats, as they were not in any danger. A stampede took place to the doors, and the house was cleared; although with much crowding, fortunately without serious accident to any one. The fire was confined to the flies and the back part of the stage, and was almost extinguished before the parish-engine was got up to the rescue. Not much injury was done by the fire, but considerable damage to the scenery was wrought by the water. The theatre is said to be nearly 100 years old.

EXAMINATIONS OF THE COMMITTEE OF COUNCIL ON EDUCATION.—According to the reports of the examiners on the examinations which took place throughout the United Kingdom during the month of May last, the numbers of candidates in the year 1864, in geometrical drawing, have increased from 312 to 608; in machine drawing, from 185 to 293; in building construction, from 55 to 74.

MONUMENTAL.—The statue of Field Marshal Viscount Combermere, at Chester, which has been uncovered, was sculptured by Baron Marochetti. It is situated opposite Chester Castle-gate. The pedestal is composed of blocks of granite, the height of the column being 12ft., that of the statue being about the same, making the total height from the ground to the top, 24ft. His lordship is represented as sitting upon his favourite charger, in military uniform.

ART PRIZE OFFERED BY THE FRENCH ACADEMY OF FINE-ARTS.—The Academy, as trustee of the funds bequeathed by M. Bordin, has offered a prize for an essay on a subject which is interesting when taken in connexion with the coming Universal Exhibition, and is stated in the following terms:—"To examine and demonstrate the amount of influence exercised on art by circumstances, national, political, moral, religious, philosophic, and scientific. To show to what extent the most eminent artists have shown themselves independent of, or affected by, such influence." The prize is, nominally, a gold medal, of the value of 2,900 francs, or 116l., and the essays are to be sent in to the secretary of the Institute on or before the 15th of June, 1867.

CHILDREN IN SHEFFIELD TRADES.—A committee has been appointed by the town council of Sheffield to examine the report of the factory inspectors who lately visited the town, and who recommended the application of the Factory Act to Sheffield. The object of the committee appears to be to resist the application of the Act. Several witnesses have been examined, and there are two points in which, according to the report in the local *Independent*, they seem to agree,—that the use of the fan in dry-grinding should be compulsory, and that children under fourteen years of age should be prevented from being employed. Dry-grinding, besides, could be got rid of altogether if the workmen were better paid and prices a little raised, as wet grinding takes longer time than dry.

THE SANITARY STATE OF MARYLEBONE.—The monthly report on the health of the parish of St. Marylebone, during August and September, 1865, by Dr. Whitmore, medical officer of health for the parish, has been presented to, and printed by order of, the vestry. It states that for some years past the mortality of the parish in August and September has not been so low as during the two months just terminated. Compared with the same period of last year, the deaths from zymotic diseases have been far less numerous, and none of them can be said to have assumed an epidemic character. The comparatively low death-rate from diarrhoea seems to negative the opinion generally entertained that hot weather and the eating of fruit and vegetables in a state of semi-decomposition are certain to increase the mortality from this disease. Dr. Whitmore gives a sad account of Crawford-place, a narrow court running from Crawford-street into Homer-street, which he remarks is beyond all comparison the filthiest and most deplorably wretched spot in the parish. The report, which excited very strong remarks in the vestry, was referred to the sanitary committee.

IMPROVEMENTS IN SAWING MACHINERY.—In the cabinet works of Messrs. John Taylor & Son, at Rosemont, Gardener's Crescent, Edinburgh, according to the *Scotsman*, an ingenious machine for the cutting of logs into boards has just been erected. The patent is held by one of the largest saw-mill proprietors in Germany. This machine, unlike those most in use in this country, works horizontally: the log is placed on a travelling carriage, which is constructed of timber, and made to cut logs of 30 ft. in length by 3 ft. square. The carriage is mounted on wheels, which run on the top surface of rails securely fixed to the stone foundation, whilst horizontal wheels are placed to run against the inside flanges of the rails, and thereby keep the carriage steady on the rails. The log is held securely on the carriage by means of iron clamps fixed in blocks, which work betwixt guide-bars, and are adjusted by screw spindles.

THE CHOLERA AND WATER.—The Registrar-General, in his return for the past quarter, just issued, says:—"It is gratifying to know that London and some of the other large towns are now in a far better condition to encounter the epidemic than they were either in 1848-49 or in 1853-54, when the disease killed 55,181 and 24,516 persons of both sexes and of all ranks in England and Wales. Cholera, like small-pox, is one of those zymotic diseases which exist in all climates. Under favourable conditions their products assume an active form, capable of inducing in other bodies the same morbid changes by which they were generated. For all practical purposes it may be assumed that the discharges of patients in the epidemic, either casually touching the mouth, or entering in dust and vapour through air or water, induce diarrhoea or cholera in a certain proportion of those exposed to their influence. Now London was supplied with the sewage water of a river by several companies in 1848-49: all except one got their water beyond the reach of the London sewage in 1853-54; and the mortality fell proportionately as the water became purer. At the present time the water of all the companies is comparatively little contaminated by zymotic pollution. The London pumps have also been placed under inspection. The drainage is in rapid progress. Analogy justifies the hope that, as the city is purified, and as the means of diffusion are cut off, the destructiveness of the disease will be diminished. The epidemic has hitherto commenced generally about October, and has only proved excessively fatal in the following summer. Thus all our towns have six months' notice and the whole winter for the preparation of defensive works. Every district in the kingdom should at once appoint its health officer."

ADVENTURINE.—The discovery just made by Pelouze, the chemist, of the secret which has hitherto given to the Neapolitan jewellers the monopoly of the peculiar composition called *aventurine*, has been regarded as an event in that section of the world of art to which such things belong. M. Pelouze composes his *aventurine* with chrome. The Venetian workman who first discovered the composition by accident, some years ago, and called it *aventurine*, from the circumstance (*per aventura*, in Italian), kept the secret well enough to enable his master to make a large fortune. He had split some iron filings into a crucible containing glass in a state of fusion. The secret is no longer exclusively possessed by Venice, and M. Pelouze has made his discovery public. His report to the Académie describes the composition to consist of 300 parts powdered glass, 40 parts protoxide of copper, and 80 parts oxide of iron, the whole to heat, for twelve hours, then to cool by slow degrees. The formula by which an improved result is obtained he also gives: it consists of 250 parts sand, 100 carbonate of soda, 50 carbonate of lime, and 40 bicarbonate of potash. The glass obtained by this mixture contains from six to seven per cent. of oxide of chrome, the half of which combines with the glass, and the other half remains detached under the form of crystal sparks of the most brilliant kind. This *aventurine* is far superior to the ancient invention of Venice. It is, moreover, hard enough to cut glass with the greatest ease.

DECEPTIVE GEMS.—A rough and worn surface in gems is no sure test of antiquity, for Italian ingenuity has long discovered that a handful of newly-made gems, crammed down a turkey's throat, will, in a few days, by the trituration of the gizzard, assume a roughness of exterior apparently produced by the wear and tear of many centuries. "In a word," says Mr. King, "though faith may be the cardinal virtue of the theologian, distrust ought to be that of every gem-collector." Here is another species of fraud. Antique stones bearing inferior intagli are worked over again by the Italian engravers, so that an apparently antique intaglio of good style is produced. The safeguard here is to examine the entire intaglio with a lens, when, if a fraud has been perpetrated, some portions of the work will be found to possess a higher and fresher polish than others, while the design will be sunk to an unnatural depth in the stone. Setting aside the question of art, the truest test of antiquity, in Mr. King's opinion, is a certain degree of dullness, like the mist produced by breathing on a polished surface. This appearance he believes cannot be imitated by any contrivance of the modern forger. Another satisfactory proof is afforded when the engraving

appears to have been executed almost entirely by the diamond point. Modern gems have been principally cut with the wheel, a minute disc of copper, rapidly revolving, and charged with diamond dust. In this operation the cutting apparatus is fixed, while the gem to be engraved is cemented on a handle, and is pressed against the wheel. Under the ancient method it remained motionless, like an etcher's plate, while the operator, working with his diamond point, had all the freedom of hand which the ether possesses.

FEVER IN MANCHESTER.—The honorary secretary of the local Sanitary Association again directs attention to the prevalence of typhus in Manchester. He says,—"Manchester is at present suffering from a severe epidemic of typhus fever, and, unless very decided steps are taken to check the evil, there is reason to fear that the disease may prevail here during the ensuing winter to as fatal an extent as it did in Greenock last autumn. Typhus fever is a disease of surpassing importance to society at large, inasmuch as its ravages fall most heavily on adults,—not on the children, but the parents—those, in fact, who support the family."

TENDERS

For erecting a new Congregational Church, The Grove, Stratford, Essex. Mr. Rowland Plumb, architect. Quantities supplied:—

Sewell & Son	£14,435 0 0
Hack & Son	14,345 0 0
Rivet	13,993 0 0
Hill & Reddell	12,831 0 0
Killy	11,963 0 0
Dove, Brothers	11,523 0 0
Higgs	11,323 0 0
Macey	11,301 0 0
Carter & Son	11,235 0 0
Perry & Co.	11,235 0 0
Myers & Sons	10,879 0 0

For factory and coppersmiths' workshops, offices, &c., at York-road, King's-cross, for Messrs. Henry Pontifex & Sons. Mr. Charles James Shoppee, architect. Quantities supplied by Mr. D. Cabitt Nichols:—

Asby & Sons	£7,810 0 0
Brass	7,650 0 0
Mansfield & Son	7,500 0 0
Patman & Fotheringham	7,444 0 0
Lawrence & Sons	7,430 0 0
Browne & Robinson	7,230 0 0
Jackson & Shaw	7,250 0 0
Macey (accepted)	6,950 0 0

For villa, church-road, Upper Norwood, for Rev. E. Birch. Mr. S. Dyball, architect:—

Perrin (accepted)	£3,310 0 0
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For alterations to the Masons' Hall in Basinghall-street, City. Messrs. Habershon & Co., architects:—

Piper & Wheeler	£5,033 0 0
Patman & Fotheringham	4,529 0 0
Henshaw	3,886 0 0
Manley & Rogers	3,883 10 0

For additions and alterations to 16, Broad-wall, Lambeth. Quantities supplied:—

Winton	£435 0 0
Sharp	334 0 0
Dobie	333 0 0
Sutton	273 10 0

For extension of offices for the Law Union Fire and Life Assurance, 125, Chancery-lane. Mr. Penfold, architect. Quantities supplied:—

Brass	£1,498 0 0
Trollope	1,348 0 0
Moultrie	1,250 0 0
Browne & Robinson	1,145 0 0
King	1,130 0 0
Sanders	1,060 0 0

For taking down and rebuilding No. 27, Noble-street, City, for Mr. J. H. Machee. Mr. B. Parry, architect:—

Sutton	£1,539 10 0
Robins	1,537 0 0
King	1,529 0 0
Gillett & Wibsey	1,400 0 0
Johnson	1,388 0 0
Warr	1,338 7 11
Manbridge	1,331 0 0
Perry	1,375 0 0
Nutt & Co.	1,374 0 0
George	1,237 0 0
West & Morse (accepted)	1,258 0 0
Pais & Co.	1,200 0 0

For alterations, &c., to St. Saviour's Union Workhouse, Blackfriars. Mr. Henry Jarvis, architect:—

Nutt	£920 0 0
Sharpe	929 0 0
Marsland & Sons	745 0 0
May	735 0 0
Glenn	714 0 0
Baguley	694 0 0

For cooking and hot-water apparatus, &c., at St. Saviour's Union Workhouse, Blackfriars. Mr. Henry Jarvis, architect:—

Norris	£987 15 0
Shand & Mason	718 7 0
Jeakes & Co.	589 0 0
Beck & Co.	582 0 0
Bury & Pollard	610 0 0
Brumham & Sons	408 0 0
Fraser (accepted)	437 0 0
May	450 0 0

For completion of mansion, 41, Hereford-street, Mayfair. Mr. J. T. Wigners, architect:—

Moultrie	£1,754 0 0
Fish	1,736 0 0
Stimpson	1,690 0 0

For a warehouse and workshop building and engine and machine shop, at Erskine-road, in the Regent's-park-road, for Messrs. Hindley, of Oxford-street, exclusive of carpenter's, glazier's, painter's, and glazier's work. Messrs. Lander & Bedell, architects:—

Manley & Rogers	£1,790 0 0
Sharppington & Coles	1,717 0 0
Dove, Brothers	1,668 0 0
Hill & Sons	1,584 0 0
Mansbridge	1,650 0 0
Grover	1,650 0 0
Mann (accepted)	1,590 0 0

For constructing sewer and forming roadway of Upper West-street, Ryde. Mr. Francis Newman, town surveyor:—

Kemp	£425 0 0
Sharon	375 0 0
Meador (accepted)	359 0 0

For villa on the Flowers Farm estate, Pangbourne, Berks, for Mrs. Breddon. Mr. Francis Newman, architect. Quantities supplied by Mr. G. B. Muswellwhite:—

Brown	£1,659 16 8
Wiltshire	1,650 0 0
Briant	1,460 0 0
Sawyer	1,406 0 0
Reavell & Sons	1,379 0 0
Biggs (accepted)	1,349 0 0

For shop, dwelling-house, and printing-office, Union-street, Ryde, for Mr. H. Wayland. Mr. Francis Newman, architect. Quantities supplied:—

Colenutt	£1,362 0 0
Sibley	1,218 0 0
Denham (accepted)	1,195 0 0

For paragon-house for St. Philip's, Arlington-square, Islington. Mr. William Smith, architect:—

Dimdale	£1,077 0 0
Roberts	1,080 0 0
Wiltshire	1,060 0 0
When	1,357 0 0
Hebb	1,380 0 0
Bishop	1,297 0 0
King	1,180 0 0
Grover	1,158 0 0

For Ragged Schools, Bethnal-green, in connexion with Union Chapel, Islington. Mr. William Smith, architect:—

Wiltshire	£1,337 0 0
King	1,086 0 0
Morist	1,070 0 0
Perry & Co.	869 0 0

For roads and drains on the estate of Mr. S. Purkis, Camberwell. Mr. William Berriman, surveyor:—

	For the roads.	For the drains.	Total.
Low	1,111 1 8	388 19 6	1,500 1 2
Footy	1,075 0 0	429 0 0	1,504 0 0
Kelson	1,075 0 0	345 0 0	1,420 0 0
Reddin	988 0 0	336 0 0	1,324 0 0
Blackmore	930 0 0	330 0 0	1,260 0 0
Ayers	943 4 5	268 3 2	1,211 7 7
Rogers	906 7 0	268 13 0	1,175 0 0
Gammam & Co.	693 9 0	295 9 0	988 18 8
Parker & Co.	642 0 0	307 0 0	949 0 0
Pacey	600 0 0	327 0 0	927 0 0
Purter	604 0 0	248 5 0	852 5 0
Larrant	542 0 0	281 0 0	823 0 0
Hamerton	500 0 0	300 0 0	800 0 0
Strickson	510 0 0	220 0 0	730 0 0

TO CORRESPONDENTS.

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The Builder.

VOL. XXIII.—No. 1188.

Condition of Aberdeen.

BERDEEN can boast of several engineering triumphs. The approach to the city by the railway is over a viaduct (longer, but not so lofty, as the one at Berwick-upon-Tweed), erected after a design by Messrs. Locke & Errington. It consists, as we counted, altogether of about fifty arches, including land arches. From the nature of the foundations in the bed of a rapid and shifting river, necessitating more than one alteration in the plan, it was attended with great difficulties in its construction. The station is commodious and well appointed, but seems small enough for the conjoined traffic of the Aberdeen and Dee Side Railways. The site of the station lies conveniently enough, in close proximity to the docks.

The harbour and docks of Aberdeen present us with a remarkable example of a successful struggle with natural difficulties. Enormous sums of money have been laid out on them under the direction of the most eminent engineers, such as Smeaton and Rennie. Indeed the harbour has at length become one of the best tidal harbours in Scotland. In 1813 an Act of Parliament was obtained for the construction of a wet dock, which has been accomplished under the superintendence of Mr. Abernethy, and covers an area of 34 acres. The cost of the harbour improvements of Aberdeen amounts to nearly one million sterling. The pier, which was originally planned by Smeaton and enlarged by Telford, is carried out into deep water. It is 2,000 ft. in length and about 30 ft. in breadth, and, including the parapet, stands about 15 ft. above high water. It is built of immense blocks of granite, varying from 5 to 40 tons in weight. We may add here that the revenues of the harbour are now in a flourishing condition. Last year there was a heavy surplus, of which, we believe, there has been some difficulty in disposing to the satisfaction of all parties.

Proceeding from the harbour to Union-street, we observe a large building, of which the Aberdeen people are very proud, viz., the Public Markets. This building, we are told, is the noblest erection of the kind to be seen in any part of the empire; and perhaps it is, for public markets of this description have long gone out of fashion anywhere else. The centre affords accommodation for 200 dealers in dairy produce, with 270 yards of side benches for gardeners; and the alleys underneath the galleries are occupied by fifty-four butchers' shops. The galleries

on each side are well supplied with shops and stalls, containing drapery, hardware, and fancy goods, with a grain market at the east end. The basement floor contains seventy-four shops, 25 yards of benches, and thirty-eight cellars, occupied by dealers in general provisions and poultry. But the most part of the area of the basement is appropriated to the sale of fish—salmon, cod, herring, mackerel, and the far-famed smoked fish termed "finnan haddocks." There is a very handsome fountain of polished Peterhead granite in the centre of the principal floor; and the building is 316 ft. long, 106 ft. wide, and 45 ft. in height, with Gothic roof and open-timber work.

Of course, it is not our business to find fault with the building, nor with its contents; but the idea of this gigantic and omnivorous marketplace is, we suspect, a grand mistake. The practice of congregating butchers' meat, fish, game, fruit, vegetables, and software goods together, in one emporium, is wrong, inasmuch as those separate articles, being of the organised kingdom of nature, have a tendency to putrefaction and decay; and, according to Berzelius's equally well-known doctrine of fermentation, the gases evolved from on body have a tendency to react on the others. The smell of meat is not of itself unpleasant, neither is the smell of fresh onions or fresh fish, nor perhaps is the effluvia of dead game (to some nostrils); but a conglomeration of these smells is highly unpleasant. Again, should one substance,—say the viscera of sheep, or fish, or vegetable refuse,—happen to become putrid, it contaminates the whole, and the resulting effluvia are unspeakably disgusting. Just fancy the delicious bouquet of strawberries impregnated with the oil of salmon! the tincture of red herrings! or the essence of ham! The very idea is insupportable. Finally, this concentration of commodities violates one of the first principles of political economy—the division of labour in the process of distribution. Such a market might do very well in Melbourne or Montreal, but it is antiquated and is out of place in a highly civilized community like Aberdeen.

Our experiences of bad smells in Aberdeen reached their climax as we happened, quite accidentally, to pass the slaughter-houses. We had not the courage to venture inside. Shakespeare's celebrated anathema never rose with greater force to our recollection. There is great need, we suspect, for some extra supervision in that quarter; or rather, there is much need for some radical reform. Why not, may we ask, reform it altogether by building new and cleanly abattoirs? On the subject of bad smells we must point out that the chemical works and the gas works close to the river sometimes give out smells of the most noxious and intolerable character. The gas works in particular are very bad. With that taste for classical quotation for which Aberdeen is distinguished, their office-entrance is adorned with the appropriate legend "*Ex fumo dare lucem*," which is all very well as a speculative principle, we dare say; but which, practically speaking, would work all the better if the fumes were not so pernicious: in other words, if the hydro-sulphuretted ammonia were more effectually neutralised! We commend this subject to the attention of the inspector of nuisances, if Aberdeen is possessed of such a functionary; if not, to the baillie of public health.

In the natural order of our subject we must now proceed to speak of the vital statistics of Aberdeen. The climate is, on the whole, mild and equable, considering the northern latitude of the coast; and hence the winters are not so cold nor the summers so warm as they are in the south. The greatest drawback to the town is its exposure to east winds and the blast of the northern ocean, impregnated as they usually are with dense salt-water mists. The mean

temperature at Aberdeen, as ascertained by nineteen years' observations, made by the late Mr. Innes, is 47° for the whole year; for the three summer months about 10° higher; and the mean of winter as much below. The rainfall averages, as far as we remember, about 28 inches per annum. We are not aware of any systematic determination of ozone.

A consideration of the physical conditions of the town will naturally lead us to the class of diseases which predominate in Aberdeen. The zymotic (epidemic and contagious) class of diseases are lower here than in other of the Scotch towns; Perth and Greenock, for example. But bronchitis, consumption, and even paralysis, occur with startling frequency; and the average of brain disease and heart disease is uncommonly high. It must always be recollected in dealing with the statistics of disease in Aberdeen, that it is the seat of an ancient and most flourishing medical school, and that many of the deaths which occur in the mortality tables should, in point of fact, be attributed to other quarters of the country. It usually happens, too, in the case of a severe epidemic,—such as occurred two or three years ago, when fever was so bad that there was not sufficient accommodation in the Infirmary, and the convalescent patients had to be temporarily quartered in the old Grammar School,—that the proximate causes can easily be traced to the overcrowding of the poorer quarters of the town, the defective drainage, and the insufficient water-supply.

The present supply of water to Aberdeen is obtained from the River Dee, close to the picturesque old bridge, about two miles above the town. For this purpose two single-stroke, or Cornish engines, are employed, about 30-horse power each. Working separately, they are employed on an average about eighteen hours a day, and in that time raise about one million gallons of water. The water is filtered by passing through a bed of gravel into a large well; thence it is drawn by a 24-in. suction-pipe, and then forced up to the reservoir in the town to an elevation, as we could observe from one of Bourdon's patent gauges, of upwards of 100 ft. This reservoir is a curious thing in its way. It is built at the west end of Union-street, that being, we presume, the most elevated part of the city, and concealed by a plain but very neat elevation of granite ashlar, pierced with windows, to correspond with the rest of the buildings in the street. After passing it repeatedly, we were still under the impression that it was a Presbyterian church, until on inquiry we discovered our mistake. It rises to an altitude of 130 ft. above the tide level. The cistern contains 94,728 gallons, the value of which, if it were whisky, we are told in one of the guide-books, at 4d. a gill, would amount to 50,521l. Query, what would be the additional cost of the ingredients for toddy? And how long would the inhabitants take to consume it?

From this reservoir the water is supplied to the town by the ordinary process. The water-rate is 1s. 6d. per pound of rental; and the management is vested in the commissioners of police. But for many years the supply has been very insufficient; and accordingly the commissioners are now in the midst of a vast and important undertaking to bring a supply, by gravitation, from the river Dee, at Cairnron, about 26 miles up the river. This extension of the Aberdeen water-works—which is of a similar character, and in point of importance second only to the Glasgow water-works—is under the charge of Mr. James Simpson, C.E. Provision is made for an extensive reservoir and filters at Invercain. There will be an aqueduct to Pitfodels, about 16 miles in length; a tunnel through rock of half a mile; and the rest of the conduit will consist of cast-iron pipes 40 in. in diameter. The maximum supply, it is expected, will amount to five million gallons per day; and the cost of

the works will be about 100,000l. Whatever may be said, therefore, respecting the commodity of bread, there can be no doubt that the Aberdeen water will by and by be made sure.

There appear to be some municipal regulations in Aberdeen as to the supply of water which we do not understand. Unless a street happen to be made of a certain width, the commissioners refuse the supply. But surely this policy is unsound; and for this obvious reason, that the narrow streets are undoubtedly the places where a good supply of water is most imperatively required. It is possible some other reason may be "subtended" in this regulation, but we hope it may be of a more satisfactory character.

It is probable that this scarcity and cost of water at the fire-plugs may be the cause why the watering of the streets is so much neglected in Aberdeen. That implement which we call a water-cart, indeed, seems to be altogether unknown to the northern commissioners. We can speak from bitter experience of the consequences of being caught in a cloud of the pulverized granite which constitutes the Aberdeen dust; and we are perfectly sure that diseases of the eye must, from this cause, be very frequent in the neighbourhood.

With regard to the drainage, our report, in order to be favourable, must be prospective; for with regard to the past and present condition of the city, it is worse than Perth, and that is saying a good deal. We do not know very well how to account for this; for there are certainly few other towns in Scotland so favourably situated for thorough drainage as Aberdeen. Notwithstanding this, it has (with the exception of one or two common sewers built in the most improved parts of the town) no system of main drainage; indeed, the only sewers are the Den Burn, the little streamlet which intersects the town and runs beneath Union Bridge; the Ferry-hill Burn, which passes the picturesque quarter of Springbank; and the Gilcomston Burn, all of which sewage streams also serve the purpose of water-power to the various mills and manufactories of the town. The Den Burn, besides, passes through the city in an ornamental channel, and is laid out in cascades; but this channel is often nearly dry in the summer season; at the same time, we have been informed some forty or fifty common sewers discharge into its course within a space of 600 yards. Of course, the bed of the river becomes highly polluted from these sources; for the Dee, opposite the town, has not much of a fall, and is completely tidal; therefore, at low-water it is covered with a thick, fetid, and filthy slime, out of which the poisonous gases may be seen oozing under the action of the hot sun. We need scarcely say the smell is horrible; indeed, we cannot understand how the inhabitants of Ferry-hill (we mean that village close to the railway viaduct) can support their existence within a few yards of such an atmosphere. The fact is, the inhabitants of Aberdeen seem only recently to have become aware of the supreme importance of good drainage; for the best quarters of the town are still only drained into cess-pools in the back gardens. Some houses so drained we had the opportunity of examining, and most of the inmates complained of the insufferable smells which pervaded their houses; and no wonder. The truth is—and the truth is not so generally understood as it ought to be—that the connection of an inhabited house with a cesspool, by means of a soil-pipe, is one of the slowest indeed, but most certain methods of poisoning, which the perverse ingenuity of mankind ever invented.

But having got thoroughly alive to the evils under which their town was suffering, the Aberdeen people have, with their characteristic energy, set about the work of reform. Somewhere about six months ago, the Police Board remitted to Messrs. Willet & Fulton, C.E., of Aberdeen, to examine and report on the plan which had been previously submitted by Mr. Anderson, C.E., of London, the engineer to the waterworks; and from this report of the first-mentioned gentleman, as published in the local journals of the 21st of July, we gather the following conclusions:—

1. That the existing arrangements are most objectionable; and that no time should be lost in abating the nuisance.
2. That the outfall of the main sewer ought to be placed in such a position as to render available at any future time the sewage matter for h. purposes of irrigation.

3. After careful consideration, Messrs. Willet & Fulton reach the conclusion, "that the scheme which has been sketched out by Mr. Anderson, of an intercepting sewer carried round the city, at an elevation sufficient to throw the main volume of the drainage of the town on the Old Town links by gravitation, is the best."

4. That in the event of the irrigation scheme not being entertained at present, there are the alternatives of a discharge at the mouth of the Don or into the sea.

5. That the area proposed to be drained by this project is 1,250 acres; that the probable population is 60,000; and that it includes all the most densely-populated parts of the city.

6. That the total estimate of the cost, including expense of district-draining, intercepting outfall sewer to Old Town links and Don outlet, compensation for land, and contingencies, is 47,521l. 14s.

We have not ascertained whether the commissioners of police have decided on adopting this comprehensive plan. The expense seems heavy, but the necessity is great, and it is certainly the cheapest way in the end to make a good job at the beginning. The proposal of the commissioners to discharge the sewage pure and simple into the mouth of the river Dee is, we must point out, a mere shifting of the difficulty. The Aberdeen newspapers, however, seem to discuss the subject fully and fairly; and we must hope that they will soon arrive at some solution of the important problem. So much for the drainage.

We now come to touch on a question which we would most gladly overlook, did not duty to the public and to the cause of sanitary reform make it necessary that we should always be as careful to point out error as we are to recognise truth. In one word, then, we must state that overcrowding is the greatest blot on the Aberdeen escutcheon, and at present, as it seems to us, the most prolific cause of the social evils under which the whole community labours. The causes of this will be easily understood, if the reader has paid attention to our account of the improvement of the town.* The process of demolishing, if we may so describe it, which began with these improvements, continued as a matter of course through the whole railway period, and is in full vigour at the present moment. It is possible—though we cannot tell—that the number of houses may not have diminished absolutely during the last five-and-twenty years. But most assuredly they have diminished relatively. Houses have, indeed, been built, but not houses of the same kind that were pulled down. Rubislaw-terrace has sprung into existence, and the Windmill brae has been half erased. Union-street, which shines so proudly in all its glittering glory, stands on the ruins of a multitude of steep, rough, suffocating thoroughfares, which, nevertheless, were crammed with population, for which no subsequent provision has been made. The consequence has been, that the working classes have been crammed, in the most inexplicable manner, into the remaining houses, to the great injury of their health and morals. And not the working classes alone, but many families of a higher yet humble position, have been ejected from their houses, and are at this moment forced to take refuge in the cells of Bridewell, which, fortunately enough, is for the present unoccupied by prisoners!

As usual, the population is by far the most densely crowded in the closes and courts of the city, of which we are informed on good authority there are no fewer than 60 narrow lanes, and 168 courts or closes, of an average breadth of 7 ft. Even the most cursory inspection of these quarters will reveal at a glance all that we care to know of their condition.† Indeed, if we venture to pass at once from the fashionable promenade of Union-street and Castle-street to the closes, such as Smith's Close and Peacock's Close, which lie at its eastern extremity, we shall pass at one sweep from the higher to the lower grades of civilization. We do not say the lowest, for there is something lower still in the Gallowgate, and the courts which branch from it. In Beattie's-court, Ferguson's-court, and Watt's-court, we examined a class of houses, of which, having had some experience of such investigations, we may be permitted to say that it would be difficult to find much worse houses, at such high rents, in

the country. 6s. per month, 3l. 12s. in the year, for a miserable room, 12 ft. by 10 ft. by 7 ft., and small light closet. There was no water, no gas, no water-closet, nothing in the shape of convenience but the bare walls. As for pure air, the high dingy walls of the close, and a huge untrapped gully-hole answered the question. We did not inquire how many persons slept in those two rooms; but we can guess, reasoning from analogy with other cases; nor do we need to be told that these are the pest-houses the cholera first visits when it goes north. On a rough estimate, we are told, there are 6,000 to 8,000 mill girls in Aberdeen, at ages varying from fifteen to twenty-five, living in such dens and hovels. It would be painful to give an account of the manner in which they are huddled together. A constant per centage of them, we may add, are either patients of the Maternity Hospital or preparing to go there!

A higher class of dwelling-houses than those of the Gallowgate quarter may be observed in Gilcomston, which, being originally a suburb, although now dotted with manufactories, has more of the fresh atmosphere certainly. But the ignorant inhabitants do their best to destroy their natural advantages. The low, old-fashioned red tiled houses have usually outside projecting stairs, with a timber rail; and, from the top of this stair, the vigorous nymphs project with great skill and precision their slops into the roadway—oblivious, sometimes, of the circumstance that the road was made for the purpose of travelling. Fresh herrings are here gutted, and dried fish hung up with the very same indifference; and the mill-stream which flows past affords a ready supply of water either for washing or for draining (notwithstanding the menacing placard of the police commissioners, who threaten divers fines under sundry Acts of Parliament for the offence). Even these houses are overcrowded to an extent which almost surpasses belief.

In fact, this overcrowding is conspicuous on the very face of the census of 1861. Let us take the population, in round numbers, at 75,000, and the number of inhabited houses at 6,000 (the actual numbers are 73,794 and 5,901), and divide the former sum by the latter. The result will be 12.5, or a ratio of twelve and a half inhabitants to every house—a result so enormous that we are inclined to suppose there must be some confusion in the statistics with regard to the definition of a house. What is a house, in Aberdeen? We are afraid we can scarcely answer the question—there are so many varieties of the *domus*. First of all, there is the well-known self-contained house of four floors, such as we know it in London; secondly, the equally respectable common stairs, with flats such as we see in Edinburgh; and, thirdly, there is an intermediate hybrid, called the half-house, which is neither the one nor the other, nor a combination of both: it is just the half-house, so far as we know, peculiar to Aberdeen; and it has this unfortunate peculiarity in itself, that there is only one water-closet to six families, perhaps. Some other varieties there are, but these are sufficient to warrant the presumption that a house is not by any means a definite quantity in the northern enumeration. If, however, the number of inhabited houses in the Aberdeen census signifies the number of separate domiciles—many of which we have seen are only single rooms,—then the statistics reveal a state of things that is shocking to contemplate.

We might prolong this discussion, but our readers have probably had enough. Of those places which are called "closes" and "wynds" in Scotland, in Shropshire a "shut," in Newcastle a "chare," and in London a "court," Aberdeen has its full share by the original necessity of its construction. By the circumstance of its rapid improvement those poor and unhealthy quarters have been overcrowded to an extent which it is difficult to conceive. From this overcrowding proceeds every now and then a decimation of the poorer inhabitants from cholera and typhus fever; need we add, that this contagion does not always pause at the narrow boundary which separates the dwellings of the rich from those of the poor. Although at first glance, and even on subsequent inspection, we feel inclined to pronounce Aberdeen in many respects the cleanest town we have seen in Scotland, yet we must point to these sanitary conditions of those poorer quarters as a great stigma on its character. The evil is not incapable of remedy, if Aberdeen will take warning from London and other communities, and build houses for the working classes on a large scale, either

* See p. 705, ante.

† A very common specimen of the old houses was fortunately being dissected in Windmill-brae, during our visit, to make way for a new railway-bridge. The basement story, we could easily see by the exposed section, was 6 ft. in height, two doors 7 ft. in width, sloping from the walls to the ridge, c. ft. The plan we could not examine.

by joint-stock companies or by the corporation. If granite be too expensive, let them adopt bricks, if bricks can be got. If not, they must even take Dee-side or Brax Mar Forest timber, as their forefathers did before them.

We have hitherto spoken of this overcrowding in a sanitary point of view; and here, perhaps, we ought to stop; but it is impossible to leave the subject without a single reference to the question of morals. It is unfortunately too notorious that Aberdeen stands higher than all other quarters of Scotland in the statistics of illegitimacy. From twelve to fifteen per cent. of the births annually recorded there are illegitimate. This fact speaks for itself; and we will not at present dwell on it or attempt to analyze it. A Scotch Presbyterian might endeavour to account for the sad phenomenon by the laxity of discipline in the church; an English divine will say that the Scotch church has lost its hold on the affections of the people. On this point we will not venture to pronounce. It is our business, as much as possible, to reduce the question to one of material circumstances, and to give poor erring human nature that opportunity for the practice of virtue which the want of a decent and healthful home must always interfere with.

ARCHITECTS, ENGINEERS, AND THE COMING SEASON.*

It is a relief to your president to feel that the address of 1865 follows upon a year of rest,—a year which, while it has not given birth to any particular reason for exultation, had, up to three weeks since, been equally devoid of any remarkable cause for sorrow and condolence. If there has been a Great Exhibition this year, it was one which was parted from us by St. George's Channel and the Race of Holyhead; and the exigencies of a huddled-up session, followed by a general election, have kept the collective wisdom of Parliament off from the fascinations of any art-crusade, or of any art-harpy,—things which sometimes run somewhat closely up into each other. This fall, temporary as it may prove, may be used by us as an opportunity for reviewing calmly and fearlessly the position of this Royal Institute, as the general exponent and mouthpiece of English architecture, and for considering the condition of national architecture itself as it may be mended, or the reverse, according as this Institute acts with unity, vigour, and wisdom.

I am ambitious for the honour and usefulness of the Institute, and, as the result of this ambition, I decline to rest where we are. We are all doing our best, and yet the Institute, with its ample prerogatives, its royal charter, and its various medals, its powers of examination, and its various prizes, with the distinguished names that belong to it, and the vast mass of most interesting architectural lore which it has conveyed to the world, has not yet risen to the summit of its duties and of its pretensions. The Institute ought to be, without rival and without demur, the central regulating areopagus of architecture,—of architecture as a science, and architecture as an art; of architecture as practised by its professional votaries, and as studied by the amateur,—as loved by both,—throughout this imperial realm. The time should come when the absence of those letters which denote some grade in the Institute from the name of any one who practises architecture should be as much cause for inquiry as the absence of academic distinction from that of the clergyman who has the misfortune to be a "literate." Do not mistake me, and imagine that I am the mouthpiece of any policy of aggression; least of all that I wish to crush the free art-life which has given birth to so many other architectural and semi-architectural societies, all instinct with the energy which the pure love of science and beauty inspires, and many of them further nerved up by the conviction of a mission to fulfil and a dogma to teach. I wish them all prosperity and all liberty. At the same time I desire that they should all act as members of one system, moving harmoniously round one centre, co-operating as the volunteer forces of the great architectural army, looking up to this Institute, not as the tyrant whom they are pledged to bring low, but as the *Alma Mater*, ready to give all fostering care, at the cheap price of unuspicious confidence.

* Opening address by the president, Mr. A. J. B. Beresford Hope, M.P., at the meeting of the Institute of Architects on the 6th instant, elsewhere reported.

We must not, however, shut our eyes to the difficulties attendant on the realisation of such an idea. I believe that in accepting it we should have to extend our borders, and to create one or more fresh classes of membership for the professionals in arts related to, but not identical with, architecture. This enlargement would of course entail increase of labour; but as it would involve increase of members also, more backs, no doubt, would be found broad enough and willing enough to bear the honourable burden. There is in particular and emphatically one phalanx which I earnestly desire to see absorbed into our body in larger proportions than they have as yet been. These are the architects who, because the buildings which they construct are pre-eminently massive, because they are buildings mainly devoted to the development of the grand material interests of the nation, because their measurement may be the furlong and not the yard, therefore abjure the name of architect to borrow the incongruous appellation of engineer. Do not mistake me, and imagine that one single thought derogatory to the grandeur of those constructions, or to the genius of the men who planned them, crosses my mind while I pen these sentences. The man would be unworthy of the name of Englishman who was not proud of them. All that I say is that I demur to the appellation under which their constructors have produced them. What is an engineer? I look to Johnson, and he tells me: "Engineer; (1), one who manages engines; (2), one who directs the artillery of an army," with a reference to Shakespeare's engineer hoisted on his own petard. I seek further help from Richardson, but he only provides me with an illustration borrowed from South: "In like manner, as skilful an engineer as the devil is, he will never be able to play his engines to any purpose, unless he finds something to fasten them to." We all know and we all admire what our great civil engineers have done, and we lump all their grand works under one term, and call it "engineering." But it is surely just as incorrect to designate everything that Stephenson or Brunel accomplished engineering, as it would be to call all the works of Michelangelo architecture, or painting, or sculpture. Michelangelo was great in all constructive plastic arts, but the versatility of his greatness did not bring those arts nearer together in themselves than they were before. So the patriarchs of modern engineering have mapped the roadways, invented the rolling stock, and designed the buildings, all of which in different ways go to make up a working railroad, just as an old architect might have built, painted, and carved a cathedral or public hall. The old architect thus showed himself to be architect, painter, and sculptor. So the civil engineer proved himself to be a surveyor in laying out the line; an engineer, properly so called, in constructing the engines; and an architect, in designing viaducts and stations. The name surveyor has no doubt gone out of fashion as applicable to the person who plans any very large works, and if the world prefers to substitute the designation engineer, I do not object. My immediate point is that the world should not continue to deceive itself with the belief that Stephenson and Brunel were not architects—self-made architects, it may be, just as the mathematician Wren and the physician Perrault were self-made architects, but, like those worthies of the seventeenth century, great architects. The notion that because to them architecture came without the usual training, therefore the engineer is for the future to dispense with the trained and learned architect for the construction of buildings whose monumental elevation gives its colour to our age, is a wrong on our whole craft of architecture, against which it is right to make an earnest protest. But you will ask, what is this protest worth, and what is the practical remedy with which you wish to follow it up? How will you mend the state of things by inducing a number, more or fewer, of our civil engineers to join this Institute? Be assured that I propose no such trivial palliative. I wish the world, eager enough as it is in general for subdivision of labour, to see that in its creation of the new profession of civil engineer it has been false to its own principles, by overweighing the responsibilities of a calling which, growing as it has done with the growth of modern science, may be almost called a new discovery, with those of the old time-honoured one of architect. The mischief of this course is only making itself evident:—

"Decipit exemplar vitis imitabile."

The great engineers overwhelmed us with the

rough grandeur of their huge style; able but less eminent successors may but abide as under the weight of heavy disproportion and unscholarly nakedness of detail.

The question of architect or engineer is not a mere fight of words. There are engineers who will build commendable structures, and architects whose works may be contemptible. But men's merits do not affect the value of principles. Architecture is the calling which, next to that of poet, dives deepest back into the young world's gulf of ages. As it moves on it spins out as part of itself that golden chain of association which ties together the ancient and the new, the foreign and the home-born, the beautiful and the useful. So an architect's education should be based on the broad foundation of history, science, and imagination. The liberal languages and the literature of other lands and times should be storehouses out of which he may bring the treasures with which he makes his handiwork lovable and true. Engineering repudiates the past, or uses it to point a self-exalting contrast. I do not say that engineers themselves do so; but this repudiation is the necessary price at which the constructive part of the engineer's business can any longer be formally divided from architecture.

Is it not, then, more necessary for us to dare to speak the truth, and to believe that our engineering friends will bear to hear that truth. We attack no vested interests, we deprecate no living man's work, when we say that the vast monumental structures of this glorious nineteenth century ought pre-eminently to be designed by men who have, as architects, learned how past great architects grappled with bigness; men who have studied Egyptian Thebes and the Colosseum, the Pont du Gard, the Castle and Bridge of Avignon, Conway and Durham Minster. Let it be our office to revindicate for architecture all works of piled material, either containing chambers or else cast in architectural forms, whether they be of arched or trabeate construction. The engineer legitimately claims the level and the gradient, the earthwork, the roadway, the culvert, and the breakwater.

These considerations lead us to a topic which ought on its merits to be faced within the Institute,—the relation of the society with the Royal Academy. It is one of the questions which it is the fashion to call delicate; but I see nothing delicate about it, if it be handled in candour and good temper. I approach it in the spirit of the utmost good-will towards the Academy, although believing that I best show my good-will by declaring myself a believer in the desirability of certain reforms within that distinguished body, which I desire to see always filling the exalted position to which it has the means of doing justice, so long as it continues to realize that rank and wealth involve responsibility with corporations no less than with men. The dualism involved in a Royal Institute of Architects such as I have foreshadowed, alongside of a Royal Academy of Arts, including architecture, is, I freely grant, at first sight, puzzling; but I flatter myself that I see the way of reconciling with advantage to each other, and to pure architecture, as well as to the mixed arts dependent on it, the continuous co-existence and the progressive development of the two great societies. Consider the broad differences which respectively mark off the constitutions of the two bodies. Both are, speaking generally, elective; but the election at the Academy means the choice of one distinguished man from out of many; while with us it is little more than the safeguard against improper nomination. Otherwise the Institute is in theory the collective body of all architects; the Academy a selected council of artists, among whom architects only form a certain, and I venture to add, too small a portion. But then we may be told, let the number of architect academicians and associates be augmented, and then the Institute might be suppressed. Emphatically no. The Academy is a great advantage to architecture—what that advantage is I shall proceed to point out; but the Institute is a necessity. I have just been revindicating for architecture much which it is the fashion to call engineering; but this revindication strengthens the fact that, while architecture is an art, it is also what, for want of a better term, I must call a business or craft.* It is this perpetual combination of the *utile* and the *dulce*, the perpetual necessity of adapting style, ornament, and proportion to construction,

* Profession applies to the person who professes, and not to the thing professed, and will not, therefore, serve my turn.

and of so manipulating construction that it shall not sin against beauty of detail or mass, which makes architecture the peculiarly complicated and scientific thing which it is—an art, and something more than an art. It is that which makes it so fascinating to those who are really embraced by its spirit; while, on the other hand, it deters so many amateurs, who find it very much easier to set up as connoisseurs of painting and sculpture than to risk being discovered as incapable of apprehending the mechanical exigencies of building. Again, the architect has also, as a member of the commonwealth,—charged with care for the life, health, and convenience of its various members,—to make himself at home with sundry legal matters of which an academy of arts could have no cognizance, but which are the legitimate function of an architectural corporation.

Of this mixed craft and art, then, the Institute can be the efficient regulator, as the Royal Academy, a purely artistic body, cannot be. On the other hand, something like the Academy is just what is wanted for painting and sculpture; and being so for these two arts, it was seemly that it should also include architecture, otherwise the exclusion would have seemed like a denial of its claim to be a liberal art. Nay more, at the time when the Academy was founded, and architectural art in this country was passing through a time of great depression, I have no doubt that the step was eminently salutary. I proceed further, and say that even now, when architecture occupies in every way a very different position from what it did in the early times of George III., we are more likely to be the better than the worse for the Ephorship of the Academy.

Still, it is well that we should know what the Academy can do and what it cannot. It cannot handle the many professional matters which constantly come before us. It can give lectures on the theory of architecture; it can teach a school of students on the art side of architecture; it can give prizes. We can also do all this, and we do a great deal of it. We shall do more when our School of Technical Teaching, on behalf of which a mixed committee was organized, gets fairly to work, as I trust it may do this session. Moreover, the Academy can, and does specially do, two things, neither of which we are so capable of carrying out. The first of them is not a part of its specially architectural functions, but it is of essential importance to the architect. The Academy possesses a life school, in which even the architectural student can acquire that power of drawing the live figure, which I am convinced ought for many reasons, direct and indirect, to form a portion of the curriculum of every one who desires to master architecture as an art, and not as a business.

The next thing which the Academy can and does do, is to hold an Exhibition. No doubt, if we had as large an income relatively as the Academy, we could hold our Exhibition; and no doubt, if the gallery in which we held it were one of the public buildings of London, we could make it a much better exponent of architecture than the Royal Academicians have ever made theirs. It would be affectation not to say what we all feel, that the architectural portion of the great annual display fails in doing justice to architecture. The best evidence of the shortcomings of the Academy is to be found in the independent Architectural Exhibition, which has been carried on for several years with so much zeal, and has for a considerable time been held on the ground-floor of the building which lodges us. Still we must all confess that this independent Exhibition does not in itself completely fulfil the requirements involved in an annual London display of architectural progress. The reason is not far to seek, and it is no fault of the promoters of that exhibition. Imperfect as our representation in Trafalgar-square may be, it still stops the way; it has prestige and antiquity, and so, while defective in itself, it keeps the younger enterprise from filling the void. Accordingly we say, let the Royal Academy, while seeking a new habitation, bear in mind that it can win both honour and popularity by making its Architectural Exhibition each year a vigorous reality, alike for the general visitor and for the student. I am sure if it embarked on this course, it would find no heartier co-operators anywhere than within the walls of this Institute.

In the evidence which I gave before the Commission which sat in 1863, to inquire into the condition of the Royal Academy, I urged its aggregating to itself associates out of the ranks of working artists. It should take any such step,

we, I am sure, in no spirit of rivalry, would also consider how we might enlarge our ranks, so as to admit the members of such professions into some regulated membership.

I have adduced instances of the peculiar work which we might wisely leave to the Academy. Let me now refer to two fields of labour of our own, in which we especially can do much good, but which would be quite beside the scope of the Academy. Air and light have an importance at once legal, sanitary, and architectural. That the Institute should have had a committee sitting on this question is a matter of unmixt congratulation. Only let me offer one caution—be not content with simply making a report, once for all, on a matter which must be continuously watched through its many ramifications.

The conservation of ancient monuments, on which, also, we have a committee appointed, is happily a responsibility which is now universally recognised. But it is one thing to recognise and another to perform. A former generation destroyed without shame and without consciousness. Our present generation is too often in the habit of changing and spoiling and bedizenning, and then of asserting with a complacent smile that it has only been restoring. Some of us have had our attention lately called to the painful fact that, with the very best intentions, the authorities of Lincoln Minster have lately been flaying alive the surface of that noble structure. Professor Willis, at the late Architectural Congress at Dorchester, laid down, in discoursing of Sherborne Minster, the true and exact law of treatment to which churches ought to be subjected—conservative alike of the fabric, and yet respectful of the solemnity and the exigencies of their still living use. The paper put out by our committee takes up the same position. Neither this paper nor the Professor handled the restoration of secular buildings; and so I hope we shall not pause midway, but instruct the committee to give the possessor of every castle, every hall, and manor-house, and every garage, practical and straightforward advice how to live and let live, without damage either to his own health and comfort or to his archaeological allegiance. No doubt this is a much more delicate problem than that of church conservation, where the fabric is either restored within its original unchanged walls, or else merely enlarged by aisle or transept, in accordance with the original motif, while house conservation is complicated by ever varying necessities of family, and social station, of ventilation, drainage, and smoke, for which no law can be laid down which can systematise the amount of necessary alteration; and therefore it is all the more necessary that some code of general principles should, if possible, be provided. The necessity has become more apparent, since, in an ever-increasing ratio, farm-houses situated in counties proximate to the capital, or to chief towns, are snapped up by near railroads and turned into villas. These houses are frequently interesting specimens of Medieval or seventeenth century architecture, sometimes perfect and sometimes disguised, which the judicious restorer would preserve and enlarge, while in the hands of the ignorant builder they would be doomed to hopeless destruction.

This sketch of the relations of the Institute to external powers would not be complete if I did not comment upon that Ministry of Public Works which has gradually grown up out of the old office of Woods and Forests. It has from time to time been argued, that, in order to avoid the vacillations and inconsistencies seemingly inherent in a fluctuating change of chiefs, there ought to be a permanent head of the Department of Works. I am decidedly opposed to any such arrangement. Not only is a permanent head to a great department antagonistic to our political instincts and traditions, but I believe that in this case the innovation would defeat its own object. The man who is originally appointed must have some art-notions or other of his own, or else he is palpably unfit to get the place at all. These notions may be good or they may be bad. Anyhow, if he is irremovable, they will be ineradicable, to the discomfiture of all opposing schools of thought. At best we should perpetuate sameness and tameness, at worst ever-recurring clique and manoeuvring. Besides, those who argue for the permanent chief, forget that in all public offices there is an element—often an overpowering one—of permanence in the irremovable second man. My own remedy would be based on the opposite principle, of exalting the attributes of the Minister of Works, treating his post as a necessary component, not merely of the administration, but of the cabinet, increasing his

responsibilities, multiplying his inducements to do well, and withholding him round with such constitutional safeguards as a perpetual oversight by the Institute and the Academy, not to mention the still more severe and formal one of Parliament itself.

The Commissioner of Works is sometimes in the cabinet and sometimes not; and whether in or out of the cabinet he is in theory only a subordinate of the Treasury. This is plainly wrong, for it pulls down the importance of the office, and consequently checks young men who are going into public life from really studying art questions as a channel of political advancement, not much inferior, in its openings, to heavy statistics or colonial responsibilities. Then modern educational developments have accumulated a large amount of mutual responsibilities, more or less referable to architectural art and its cognate pursuits, between the State and the people, which, if imposed upon the Minister of Works, would fill the hands of the office and of himself, and justify the suggested increase of his dignity. But by some freak the wise man, who busied themselves a few years ago in re-arranging the public service, passed over the First Commissioner, and instead created an anomalous semi-minister, under the ambiguous name of Vice-President of the Committee of Council, to divide his time between high art at South Kensington and parochial school squabbles in general over the remaining kingdom. I give nothing but praise to the noble collection at South Kensington, while, at the same time, I say that its wants have no relation to the department of state under which it is placed; and I claim that this museum, with the appendant art-schools, would more congruously be made a function of the Minister of Works than of the Vice-President of Education. Let the departments be thus redistributed, and the need for the latter never very well understood nor popular office falls to the ground. For the purpose of moving the really educational votes in the House of Commons, the Lord President himself, rid of his art responsibilities, would want, and ought to have, a parliamentary under-secretary, but that official need not be of weightier calibre than the Secretary of the Poor-Law Board. If the Minister of Works were expanded, as I propose he should be, into an undoubted and constant member of the cabinet, he should also have assigned to him a parliamentary under-secretary, to move estimates and make explanations; and then the Department of Works might be filled by a peer, if the fitting man turned up in the House of Lords. We should know how we stood towards such a minister, as we do not with respect to the actual First Commissioner. It would then be our duty, in conjunction with the Royal Academy, to see that, in the remodelling of the office, a definite standing should be given to those great societies, as the perpetual attorneys-general and referees of architecture at the bar of the administration. Thus the liability of the office-holder to be changed would check clique, and the fixity of his standing council would obviate fickleness and inexperience.

Let me now say a few words upon a detail of considerable importance to architecture,—the International Exhibition which it is proposed shall be held in Paris in 1867. Many here present to-night, no doubt, recollect the trouble that was taken in this Institute, and elsewhere, to secure an adequate recognition of architecture as the great material symbol of civilization at the London Exhibition of 1862. The result was not all that could have been wished for; nevertheless, much was achieved on the British side,—the only side with which we had to do. Not only a highly interesting and overflowing gallery of architectural designs was furnished, but at various points of the ground-floor, notably in three special courts, and all up the nave, such large fragments of buildings in progress as were noteworthy by reason of form or detail, and even smaller buildings, like drinking-fountains, in their integrity were exhibited. Compensadly architecture, as architecture, made itself felt on the British side of the Exhibition, as it would not have done if the professors and the lovers of architecture had not in time bestirred themselves. I turned accordingly with anxiety to the prospectus of the French Exhibition, which has just been reprinted and circulated from South Kensington, to see if it indicated progress or retrogression since 1862, in respect of the due recognition of architecture as an elemental duty in the general arrangement. It is my duty to report that I am filled with grave apprehensions that, if that programme is to be acted upon, we

shall find that recognition even less complete than it was in 1862. Of course, allowance must be made in reading this document for that love of playing at scientific arrangement, which among foreigners sometimes tends towards something very unlike pedantic fussiness. In one respect, I am glad to say that the Exhibition of 1867 is a marked improvement upon its predecessors; it will be truly universal, by breaking down the geographical divisions which converted its predecessors into what a man given to playing upon words might have called a map of the world upon Mercator's projection, and by ranging class against class in direct cosmopolitan competition. Here, however, I must pause in my praise, looking at the programme with an architectural eye. The prospectus ranges the exhibition in ten groups, subdivided into ninety-five classes. What an architect might have marshalled together under the great group of architecture is dotted up and down the list as follows:—Group 1 is entitled "Works of Art," and divided into five classes, of which No. 4 is headed, "Architectural Designs and Models," to be placed in the first gallery of the building, and is thus epitomized:—"Sketches and Details;" "Elevations and Plans of Buildings;" "Restorations based upon existing Views or Documents." I should have mentioned, that in a previous class, termed, "Other Paintings and Drawings," occur, "Cartoons for Stained Glass and Frescoes," while there is another class of "Sculpture and Die-sinking," which may cover architectural sculpture, which has otherwise no distinct place. Class 9, in group 2, introduces us to photographs of buildings. The third group is headed "Furniture and other Objects for the use of Dwellings," and includes thirteen classes, which in their turn include a mass of miscellaneous articles, which it is difficult to image could not be better subdivided. The "upholstery and decorative work" class starts with "bed furniture and stuffed chairs," and closes with "furniture, ornaments and decorations for the service of the church." The next class is designated "Crystal, Fancy Glass, and Stained Glass," and also runs from the secular to the sacred, from "drinking glasses" to "stained glass windows,"—the cartoons for such windows being, as we have seen, ever so many classes back. After exhausting other materials the classifier seems to have thought that the time for metal had arrived, and with a true system-monger's instinct he begins from the beginning with a class of "cutlery—knives, pen-knives, scissors, razors, &c.—cutlery of every description," and goes on to recapitulate in subsequent classes "church plate," "plate for the dining-table," and "statues and bas-reliefs in bronze, cast-iron, zinc, &c." I am sure you will admire the philosophic rigour of the classification, which ranges "razors and bronze statuary" side by side, and calls them both furniture. The anti-climax of the furniture group is a class of leather work and wicker. A long sweep brings us to the eightieth class of civil engineering, public works, and architecture; in this large group you will note coming after civil engineering in the large group of "apparatus and processes" in the common arts," in which a miscellaneous catalogue tails off with "models, plans, and drawings of public works, bridges, viaducts, aqueducts, drains, canal bridges, &c., lighthouses, and public buildings for special purposes,"—as if there could be a public building without a special purpose;—"buildings for civil purposes; mansions and houses for letting; lodging-houses for the working classes, &c." I ask you, as men of common sense, if this elaborate catalogue, coming where it does, and contrasted with the vague generalities of the so-named architectural class in group 1, does not indicate the subordination of pure architecture to so-called engineering? Another jump brings us to the last class but two, No. 93, which it seems is to be placed in the "Park" and is termed "examples of dwellings characterized by cheapness, combined with the conditions necessary for health and comfort," and is divided into two heads; "examples for dwellings for families, suitable to the different classes of workmen in each country," and "examples of dwellings suggested for factory hands in cities or in the country."

We shall be but guests at Paris, and so neither courtesy nor possibility allows us, I suppose, to make any formal opposition to a scheme already so elaborately prepared and officially published. We can only bear it and make the best of it. As your president I have the honour of being one of the British commissioners, and I need hardly tell you that my most strenuous exertions shall be

devoted to furthering the good cause of architecture. I should advise the formation here at as early a date as convenient of an exhibition committee. This committee ought to originate within the Institute; but, I think you will agree with me, that it might well contain an addition of co-operators from the cognate societies. If such were formed it would be my constant duty and pleasure to be the representative of its wishes at the commission. In any case, let every British architect, let every British architectural sculptor, metal-worker, wood-carver, glass-painter, and ceramist, gird himself up for a victory upon a foreign soil.

I must now offer a few remarks upon that which is even more important than the details of architectural administration; namely, the condition among us of that art in whose behalf alone this administration possesses any value. I am glad to be able to speak in a hopeful tone, and I am glad that the improvement which prompts that tone is one upon which I can insist without trenching on that impartiality which the position in which you have placed me demands. To whichever side the victory in the battle of styles may verge, this much is certain,—that the truth of architecture has been made more precious in our eyes, and her fertility of resources has been enhanced in consequence of the conflict. All sides are now agreed that material ought to be real, and all sides are anxious to enlarge the list of real materials. Variety of colour and variety of material in the same building has by this time become a question merely of degree. The sky-line is appreciated and studied; the catalogue of plants available for the working artist's chisel is no longer limited to the acanthus and the honeysuckle; finally,—The painter and the sculptor are, as in great old days, both of them welcomed as brethren of the architect, and co-operators in the broad idea of the completed construction,—not merely as the parasites who are to fasten on the finished pile.

No doubt, with the single exception of the recognition of the sky-line, the acceptance of these incidents does not amount to the demonstration of improvement in that which is of the chief importance in architectural art,—composition. It is possible to conceive the world's noblest design carried out in cement, while the vilest nightmare might be embodied in a façade of marble and serpentine, bristling with sculpture and bedaubed with gold mosaic. Yet, indirectly, the consciousness of variety in his materials, and in his permitted details, and the responsibility thus laid upon him to make his use of all, must strengthen the heart and heighten the intellect of the composer; for opportunities make men, as often, at least, as men make opportunities. As far, also, as truthfulness of material comes into question, a tender conscience in avoiding shams will also breed a manly truthfulness in the composition of the mass; for it is untrue to nature that the man who sees no vice in palming off plaster for stone and marble, and graining for oak, should be very scrupulous about the proportions of the mass, or the purity of his details, should he see a short and easy way open to vulgar popularity through the lavish employment of gaudy and meretricious forms.

If what I have said be true, we may expect to see the fullest proofs of the improvement in London and other large towns. Of the condition of London architecture, I am willing to think more favourably, and anxious to speak more hopefully, than it is the fashion to do in some quarters. Undue depreciation is as little clever or original as undue laudation, while it is, if possible, even easier. No man is more conscious than I am of the infinite amount of lost opportunities which have to be made up in London, or of the ineffectual manner in which these opportunities have too often been taken in hand. But of late years, at all events, London has been shaping itself into that form of beauty, of which alone, from many reasons, foremost of them our civil liberty, she is at present capable—the beauty, I mean, of picturesque variety. We know how, under different political circumstances, foreign cities are forfeiting their old picturesque qualities in order to do the aspect of official regularity. London, on the other hand, is growing out of an irregularity of plan in which, speaking generally, there was no architectural character, into one in which irregularity has become picturesque. Of course, a vast number of the new London buildings will not stand criticism. But in which of the large old picturesque cities do we find the majority of the houses really

good architectural composition? It is the ensemble, and not alone the merit of each component, which gives the general effect to cities such as Bruges or Amsterdam.

The first feeling of the stranger who comes unexpectedly upon the sumptuous palaces which are, for example, growing up in that dingy and narrow thoroughfare Lombard-street, is probably regret that they should have been dropped down into a corner, which seems to preclude the appreciation of their merits. On second thoughts he may, however, pluck consolation from the reflection that it was in narrow thoroughfares like Lombard-street that the buildings which give their fame to cities, such as Verona or Genoa were planted; and that the picturesqueness which the traveller finds to admire in them is in no little degree enhanced, whether truly or in imagination, I do not now concern myself to ask, by the narrowness and irregularity of the ancient streets of these cities. Perhaps in coming time, when London shall house by house have been rebuilt, as we are now rebuilding it, and when a little of the mellowing of time shall have passed over those buildings, the curious traveller from the antipodes may visit London, not to sit upon the broken arch of London Bridge, but to drink in notions of Old World picturesqueness from the houses of Lombard-street and Mincing-lane.

In what I have been saying I have confined myself mainly to the development of domestic architecture upon existing lines of streets. If, for example, I were to speculate upon the razias and rebuildings which follow on the importation of railroad termini into the heart of the town, I should engage you in a maze of conjecture of which I feel that I have no time to seek the clue. The architectural future of the Thames Quay is a problem which ought to fill us with anxiety: the material advantage of the great enterprise is beyond a peradventure; the artistic gain which may be made of it, remains to be gauged. It is a curious reminiscence that when the Thames quay was first advocated in the House of Commons some forty years ago by Sir Frederick Trench—a name to be always had in honour for the contragious and constant zeal with which its possessor continued to advocate an improvement which he was not destined to see completed—it should have been opposed by Sir Robert Peel in the interest of the streets running down to the Thames, and supported by Lord Palmerston. Were I to enter upon the new phase through which religious art is passing in London, as well as elsewhere, I should have still more to say, which, however, I think it is better not to say. Were I further to talk of that feeling of respect for the ancient monuments of the metropolis which has prompted so general a restoration of them, my anticipation of London's architectural worth would be still further enhanced. The epoch which witnesses simultaneously the decoration of St. Paul's, of Westminster Abbey, and of St. Stephen's Undercroft; the restoration of the Tower, and Guildhall, of the Temple, Austin-friars, and St. Bartholomew's Churches, and the Savoy Chapel, and the resurrection of Charing-cross, is one in which the spirit of reverence for old forms of beauty must be abroad.

Next year the Archaeological Institute holds its congress in London. It is well that we should be able to meet it with a confident spirit in a city which has not been untrue to its inheritance of ancient buildings. The pursuits of this society are to a great extent parallel with our own, and I am sure we shall cordially welcome a gathering of which a main object is the complete investigation of the monuments of architectural antiquity in and around London.

I have been the more anxious to invite your attention to the architectural condition of London, because next session will in all probability decide whether the capital is to be enriched with a great public building of undoubted excellence, or afflicted with one of costly mediocrity. The nation is going to rebuild its Law Courts, and mass them in one pile. I do not now question the site selected. This is, according to the modern phrase, an accomplished fact; and it is enough to say that the area chosen is one well suited for a magnificent and commodious structure. I say nothing, though I might say much, about the method to be adopted in selecting the architect. I do not claim to dictate the style, for I trust that whatever style may be chosen, architectural truth may not be sacrificed. If the building is to be classical, classical must not be interpreted to mean a modern house, with floors below, and chimney-pots above, ill concealed by

barricades of pillars, fencing off light and air from the unhappy occupants. If it is to be Gothic, Gothic must not be handled as the style which enforces narrow casements and diamond panes, turrets that lead to nowhere, and gurgoyles that spout no water. Under any condition, we claim a building which shall tell the tale of its own destination, and indicate the puissance of the nation in whose behalf it has been raised. We claim—what Manchester, out of merely a county's resources, has so generously provided—a palace in which the disposition of parts and the ornamentation spring from the destined use; in which the law courts and the great hall shall stand out from the general structure; in which the corridors shall be lofty and wide, the staircases easy and dignified, the subsidiary chambers many and accessible; acoustics, light, and warmth, and ventilation, all well attended to; and after all these utilitarian requirements have been satisfied, in which proportion and material shall all be of the choicest; in which form and colour, sculpture and painting, shall combine to beautify the pile, and leave it a living chronicle of the great growth of that sublime spectacle—the world's wonder and envy—English law, fearfully and solemnly administered by English judges without spite and without favour, unbiased by Crown or mob, or armed battalion. If the building shall fall short of this ideal, great will be the scandal and the misfortune, on whomsoever's back may lie the blame of the miscarriage.

If it were only for the proximate erection of the Palace of Justice, next season would be an important one to us. But in this age of change, full activity it is not needful to look to any one incident as the text on which to preach more vigilance, greater exertion. We are all proud of our Institute; we all acknowledge its importance; we all are conscious of what it has done, and of what it might do which it has not done. Let all of us, then, laying aside self-seeking and mutual jealousy, sloth, and fear, unite with one heart, cheerfully and magnanimously to promote the best interests of architecture as a science and as an art, and to build up this Institute as a guarantee to ourselves and to the world that architects shall respect and the public acknowledge the just claims and genuine character of that science and that art.

THE WINTER EXHIBITIONS OF PICTURES AND DRAWINGS.

It is but a step from the little Gallery in Pall-mall, to the larger one of the Society of British Artists, where Mr. Wallis has prepared for all varieties of taste. Unlike Mr. Gambart, of whose collection it may be said that if numerically the smaller, it has the advantage of entire novelty, Mr. Wallis has allowed no restriction beyond that implied by its general worth, to interfere with his object of providing a very extensive and an attractive exhibition. Some may think that in one respect this double intention has not conduced to the most satisfactory end possible; that it was scarcely desirable to have absorbed a considerable amount of what is fresh to lighten it, in so overwhelming a mass of productions too recently seen in some cases to be remarkable now, and in others where not quite calculated to fill a position they are not intended to occupy,—portfolio drawings, and very valuable ones considered in that light, are made to bear the brunt of comparison with more finished performances.

On the other side it may be argued that this diversity is an attractive feature,—to those especially who have had no previous opportunity of examining the greater portion of the 619 items constituting the gathering.

There are several of the new pictures painted expressly for this exhibition that would be conspicuous by other reason than that of their first appearance, and with numbers of those that have been seen before, both by British and foreign painters, it will be pleasant and profitable to renew acquaintance. *Mlle. Rosa Bonheur's* replica of her renowned *Cattle Ploughing*, (594), "*Labourages-Nivernais*," crowns with glory that section representative of foreign art; it is like a poem by Wordsworth for elegant descriptiveness of the simplest truth; and the list of English lady-artists includes Mrs. E. M. Ward, Mrs. Benham Hay, Miss M. E. Edwards, Mrs. Robinson, Miss E. Osborn, and other names that are a guarantee of excellence.

Mr. E. M. Ward, R.A., contributes a new pic-

ture of similar importance with that at the French Gallery, "*Jeannie Deans's* first Visit to the Duke of Argyll" (274), which vividly expresses the description of Scott in the "*Heart of Mid-Lothian*," and is very admirable for its freedom from affectation as well as for its technical merits.

Mr. Orchardson has not been happy in his choice of subject; and the large scale on which he has illustrated one of the introductory scenes to the "*Taming of the Shrew*" (wherein the drunken tinker on waking up calls, "For God's sake, a pot of small ale" 238), dispenses the humorous points of the situation, and lays bare all its vulgarity. It is to be regretted that so much power should have been expended to little purpose, as, in spite of the little motive that evokes it, the evidence adduced proves the artist's qualification for taking a very prominent position as a narrator of stories better worth the telling and the language he has at his command. Mr. J. Pettie is another from whom great things may be expected; but his progress is marked too much by increased dexterity of execution, that may ultimately exclude earnestness or very close study. "*The Bible and the Monk—an Inquisitorial Visit*" (364), hints, with its improvement on former works, that the process of its production was very rapid and easy. In a smaller picture or sketch, for it hardly pretends to the superior denomination (229), "*The Rehearsal*" of some Terpsichorean feat by a little votary of that muse to such tuneful strains as her appreciative instructor is energetically scraping from a fiddle,—this fluent method of workmanship, that is not so strictly imitative as suggestive, is more agreeably displayed; there is great dash and vivacity in the action of the dancing-girl, though it is too much left for demonstration in the ultra-inflation of her nether-garment. Mr. E. Long has painted with great breadth, if less refinement, one of the many ordinary episodes of Spanish existence that are picturesque enough if they can only be invested with vitality; but the occupation of "*Matting-making, Granada*" (293), according to what is seen of it here, is not a very interesting one apparently, and the mere representation of it secures no great return for the painstaking and observation necessary to its depiction. Mr. J. B. Burgess is more fortunate in selecting a genial subject to help him, "*A Spanish Improvisatore*" (452), delighting the crowd of listeners grouped around him with some unusually apposite hit of his saucy witticism, the personality of which is being greeted with uproarious applause by those who recognise the object of it. A promising theme for the artist, and he has employed great skill in dilating on it.

"*The Knightly Mirror*," by Mr. P. R. Morris, has probably some further meaning attached to it than at first sight is perceivable; perhaps the lady who is turning to looking-glass account the bright breast-plate of a fashionable warrior is significant of a futile attempt on a steely heart; and, making but a superficial impression, she stands reflecting on his hard case and her own.

Mr. T. F. Dicksee paints very pretty faces, though his notions of beauty are based on the artificial rather than the natural; and "*Celia*" (259), and "*Olivia*" (280), show his own ideas of them rather than those generally derived from Shakespeare.

Mr. E. C. Barnes has succeeded in conveying some appropriate sentiment into his picture of a disconsolate widower with his young son, in contemplation before his lost wife's portrait. (412) "*Never Again*," is the burden of all his present recollections, and the title of this clever work.

Mr. J. Sant, A.R.A., whose studies of children are always looked for, has more than the one we particularly, because of liking best "*The Walk from School*" (439).

"*A Retired Walk*" (300), by Mr. J. D. Watson; "*The first few Meshes of the Net*" (324), by Mr. J. Hayllar; "*Boulgne Cherry Seller*" (388), by Mr. E. C. Barnes; "*At Bay*" (346), by Mr. W. B. Richmond; and "*A Dream of the Golden Age*" (404), by Mr. W. M. Egley, may be cited as a fair sample of what here abounds, and where nearly everything is note-worthy, not as exceptions at all.

PROPOSED PARK AT PECKHAM-RYE.—A select committee of the Camberwell vestry has been appointed, with the object of acquiring the smaller commons adjoining Peckham-rye, and constituting the whole into a park.

THE TRADE AND TRADE CHARGES OF ARCHITECTS.

SIR,—Mr. Thomas Harris, after twelve years' practice, he says, as a member of the Royal Institute of Architects, desires the question of their charges "thoroughly ventilated" and "more so as the matter appears to be brought under your notice by a layman." It is more than twelve years since I began, not as "a layman," to urge in vain the ventilation of this very matter, both in the *Builder*, and by less public channels, confined strictly to technical readers; and it is simply their perfect insensibility to it, that has driven me to claim, in now repeating the attempt, the character of a "layman." If an "architect" is understood to mean a designer and supervisor of buildings on the terms described by Mr. Harris and your other correspondents, I repudiate the name. I have never touched such "commission" or "per centage;" I never will; and I infinitely prefer, if need be, the designation "crossing-sweeper" to "R.I.B.A.," so long as those letters may convey such a meaning.

Will you allow me then, sir, as another layman, for such I am, but having had dealings both with builders and architects, and likely to have them again, to promote the ventilation he demands, by copying for Mr. Harris a few of the words of a few far more learned and accomplished laymen on the matter?

J. Mr. E. B. Denison, in his "*Lectures on Church Building*," pp. 205–8, "If the problem of modern architecture is how to get 5 per cent. upon a certain—or rather the uncertain—sum of money which is to be paid to a builder, with the least possible trouble" (and I defy you to state the problem better), "no doubt the solution will be a very different one from that of the problem which the old builders thought they had to solve. Just imagine the architect of Lincoln Cathedral or St. Mary's Abbey, sending to some Grand or Provincial Master of Freemasons, to ask whether he ought to be paid for advising that the roof should have the old lead taken off and new put on, by charging 5 per cent. on the value of the new, or only on the amount of the plumber's contract as usual; and receiving for answer, that when old materials are re-used, the architect ought to charge a commission on what their value was or would be when new, and that 'many architects' (one is glad to see, at any rate, not all) 'charge more than the ordinary commission, and with justice, on alterations and repairs.' Possibly you may think all this has no more to do with architecture than the mode of taxing the attorney's costs has to do with the verdict of the jury, or the decision of the judge in a lawsuit. But it has a great deal to do with it. If an artist—and a real architect is an artist of the highest rank—is to be paid like a broker, it lays him under a great temptation" (Adam Smith or Mr. Mill would show him rather under the strictest necessity, unless he starves), "to act as a broker, and to treat architecture as if it were the trade of manufacturing plans, and as if he is the greatest man in it who can sell the greatest number in the shortest time."

"And, as I have taken upon me to speak of these things" (he continues), "I will go a little further, and say here in print, what has often been said by others out of print, that nothing tends more to keep down the estimation in which the architectural profession is held by the public than this trading and auctioneer-like system of paying them by a per-centage on the builder's contract. . . . And to these difficulties of their position, there is added the reflection that the best and most upright architect cannot suggest the most necessary alteration, or the most obvious improvement of a building in progress, without exposing himself to the remark that he has just the same interest in suggesting alterations, as the upholsterer who assures you that your drawing-room curtains are getting very shabby, and that he has just received some beautiful new patterns from Paris. And, besides the odium of this stock-jobbing mode of payment, nothing can be more absurd, whether you regard it as remuneration for labour, skill, or any one of the qualities which make one professional man better than another. . . . And when we see the newspaper which is appealed to as the authority for settling questions of professional etiquette, answering its questions in the way I alluded to just now, and telling them that they may—and with justice—refuse to be content with the ordinary mode of calculating their percentage when it would work out an unpleasantly low figure, they need not be surprised if the

public take hold of the other end of the stick, and say, that if the rule is not to hold when it will not give enough, it is time to put a stop to it where it obviously gives too much. Thus it comes to pass, that builders who act as 'general practitioners,' making their own plans, are already supplanting the 'regular practitioners' from the Royal Institute of Architects;" (as they certainly ought;—what earthly advantage can arise from two heads instead of one, if they have identical interests, and are, in fact, partners?) "Thus, too, have come architectural" (he means architects) "competitions for prizes of 100*l.* or less to be given for designs and working drawings of buildings worth 20,000*l.* or more, which cunning town councils thereby get possession of for next to nothing" (never for a farthing less than their true value, however), "and then employ the fortunate candidate or not, as they please, and get the benefit of seeing all the other plans, and taking from them as much as is convenient for absolutely nothing. In short, I am rather inclined to think that there is some ground for the occasional lamentations in the *Builder* over the apparently wide-spread conspiracy of mankind against the just rights of the profession. They are not likely to accept any suggestion of mine to defeat the conspiracy, neither is it any business of mine to invent one." (Of course not, but it was certainly a business of mine, when editing, three years earlier, such a work as "Dobson's Guide to Measuring," &c., where I took, accordingly, some pains to treat it.) "I will therefore" (Mr. Denison continues) "only add, that some day or other perhaps architects will find out that those of them who deserve it can achieve both fame and money, by charging for their services with some reasonable degree of reference to the character of the work they undertake . . . by no rule to be stated in decimals (like '05 on a building contract), but just as Millais fixes his price beforehand for a picture, or Gibson for a statue, . . ."

2. Lord Denman—(I copy from the *Builder* of December 20th, 1845)—"told the jury that although the architects had all deposed to the existence of a custom to pay a commission upon the outlay, such custom could not bind the defendant, unless at the time of making the original engagement he understood that such were the terms upon which compensation was to be made. . . . It might be custom, he said, but it certainly was not law."

3. Lord Kenyon (the *Builder* continues) "ruled long ago that a per-centage could not be recovered."

4. Mr. Scarlett.—"In Starkie's Reports, it is said relative to this case," Chapman, Gardiner, & Upward, architects, v. De Tastet, 1817, "that evidence was given that this was the usual mode of charging for the description of business done, and that Lord Ellenborough left it to the jury to say whether this mode of charging was vicious or unreasonable. Mr. Scarlett, on the part of the defendant, urged that it was unreasonable to suppose that a surveyor could be entitled to a remuneration fixed upon the amounts of the bills which he himself was to regulate and settle. It became, in that case, "his interest to swell the sum as much as possible, and therefore he contended the plaintiff's demand was not founded on justice." The jury, however, found it was.

Now, before drawing any conclusion from this, I beg to find some grave faults in the page I have quoted from the first of the above lawyers, Mr. Denison. That gentleman, you will have observed, seems to disparage, or thinks he disparages, the "custom" of architects, by three comparisons. It is, according to him, a "broker-like," "auctioneer-like," and "stock-jobbing" mode of remuneration;—three words chosen, apparently, for nothing in the world but a supposed ugliness of sound. But now, attending to meaning instead of sound, let us inquire what parallel is to be found between any of these and the architect's custom. A broker who collects rents for me, claims a per-centage on what?—on the cost of collecting them? on the expenditure of time or any other means? No: on the result, on the sum he brings me in. But to make any parallel with the "Practice and Charges of Architects," as set forth by either the R.I.B.A. or Mr. Harris, my understanding with the broker should be this:—"Mr. Broker, we know that we cannot recover all these arrears of rent; some portion will necessarily be bad debts. Collect as much of the whole for me as you can, and we agree that your remuneration shall be so-and-so per cent. on the remainder that you fail to collect." When Mr. Denison shall effect that reform—for which I promise him great popularity

among the brokers—then, and not sooner, will his comparison become just. Again, with an auctioneer, if the parallel insinuated held good, I ought to agree thus:—"Mr. Auctioneer, I am in want of just so much money (say 1,000*l.*). I authorise you to sell for me such a piece of my estate as will fetch that sum, and no more. But then, for your remuneration you must sell or keep for yourself another piece. Now, must this be a twentieth of the acreage of the piece sold for me, or a thirtieth, or what per-centage of it shall we agree upon?" But no auctioneer has ever heard of such a system. He is paid a per-centage, not on what he may find necessary to sell to bring in to his client a required price, but a per-centage of what he brings in for a given property. Just the same, I believe, with the "stock-jobbing" agent. So, then, all three are paid in proportion, not to what they sell or spend for their client, but, to the exact contrary, what they bring him in! Their difference from the architects' custom is not simply unlikeness, but diametrical opposition. It is just that which deafened us in the days of the "Revised Code," with those years of screaming row between the real and sham schoolmasters, the two principles of payment "according to results," or (as was exaggeratedly pretended) according to time or some other means expended. Only here there is no exaggeration. A whole "profession" claim to be paid according to expenditure, while the three other professions to which it is compared are actually result-paid, and perhaps more simply and rigorously so than any others. They are precisely the three, so far as I know, the most directly contrasted with the one Mr. Denison meant to disparage,—in short, the three unfitted for his purpose.

Instead of disparaging our architects, then, this gentleman has so needlessly, and, indeed, nudely exalted them, that I hold it very shabby of their Institute not to have accorded him a special vote of thanks; and, on the other hand, I think Mr. Denison must himself see, on republishing his words, that he unintentionally, but not the less unjustly, by these comparisons vilified three respectable bodies of men—brokers, auctioneers, and stock-jobbers—and owes them all three several apologies.

But now, sir, your correspondent, Mr. Harris, is of the opinion that jury of Lord Ellenborough's above cited,—a jury, I undertake to say composed, if not of architects or builders, then of upholsterers, man-milliners, *et hoc genus*, and of whose successors to-day not one sees anything "vicious or unreasonable" in the custom in question. The first conclusion I draw here is, that Mr. Harris must be precisely the artist for these people; that he and they are made for each other; and, I hope, have plenty of dealings together. Nevertheless, there is something in his language and that of the R.I.B.A. to be complained of. Why do they, and he in particular, persistently speak of themselves as "professional" men, and their customers as their "clients"? I protest against these terms as a mischievous abuse, and one that, if persisted in, must be arraigned before public opinion as a dishonest abuse of language, that can have no conceivable object but to mislead the consulters of a body of tradesmen into the error that they stand to their advisers in the relation of clients to professional men, instead of customers to traders. The two relations are perfectly distinct, well understood, and understood by all rational people to be incompatible. An old book, from which mottoes have been inscribed all over the Kensington Museum, and which "the Church doth read for example of life and instruction of manners," tells us,—"Neither consult with . . . a merchant concerning exchange; nor a buyer of selling; nor, &c. . . . hearken not unto these in any matter of counsel." But Mr. Harris, after explaining that he is simply, as regards any particular job, in partnership with the builder thereof, claims to advise, nay, talks of his "detective duties in watching and protecting his client,"—that is, his customer. Protecting from whom? From Mr. Harris's own trade-partner, forsooth! And others of your correspondents talk of an architect being umpire or arbitrator between the contractor and owners of a work,—judge between his own partner and their joint customer!

No wonder things have to be called, then, by false names—a trade a "profession," and customers "clients." I protest against the present use of these terms, sir, as a shabby, shuffling cheat. The Royal Institute of Architects have

declared themselves, by their publication of 1862, tradesmen, the partners of tradesmen, and nothing else. Whatever they might claim to be in Lord Kenyon's time, when it was known that none could, without breaking the law, obtain any "per-centage on outlay," the reversal of that rule leaves the present generation of them without the shadow of a claim to be called a "profession," except in the sense wherein the word is applied to every occupation, from governing to begging. The distinction of "professional man" from "tradesman" is perfectly established and definite, and has nothing to do with kinds or degrees of learning or skill. Every one understands, for instance, why a physician is a professional man; while the apothecary, who must study precisely the same sciences, and may be known to possess more of them, may even have graduated higher in them, is a tradesman. He is a tradesman who has towards his employer any such contrariety of interests as exists between buyer and seller; or we may lay down a stricter definition, thus:—

Every one is most certainly a tradesman (or has been so) who sees, like the jurors above cited, nothing unreasonable in an adviser or director of expenditure being paid a per-centage on that expenditure. But to every non-trading man, it appears, as it did to Mr. Scarlett and the other lawyers, unreasonable and insane; and I challenge the two Institutes, of Architects and of Engineers, to produce one single person in Europe called professional, out of their own *soi-disant* "professions," who will not consider it the acme of social insanity. When that is produced—and not sooner—I will admit they are something else than tradesmen; and what kind of tradesmen, at present, I forbear to say; for there are tradesmen and tradesmen; and the term is a very wide one. M. Léclaire, I suppose, would call himself so, if among us; and the Institutes named are of tradesmen of another kind; and as trade also means handicraft, a crossing-sweeper is another,—of a respectability intermediate between the two former.

I know of no stranger coincidence than the meeting of the accounts of M. Léclaire, and of the "professional charges" in one identical number of the *Builder*; and it leads me to end this letter with a very practical suggestion. It is this, sir: that though we wait and pray, year after year and decade after decade, for the rise of an English Léclaire, whenever we shall have a school of really professional building artists (for they—the paid "according to results"—must repudiate the name "architects" as long as the paid according to expenditure—the Institute—hold it), then it will be in the power of that school and their clients to initiate,—or to throw on their clients the sole responsibility of opposing,—the most blessed revolution in this age conceivable,—no less than at once and for ever, as regards the building trades, to abolish strikes, by abolishing their sole cause, that monstrous creature of the age, that *reductio ad absurdum* of its "economy," the master-builder. For what, pray, is to hinder a real master-designer and a real client from making the relations between contractor and workmen a part of the specification, a part of the contract? What would prevent a designer, not himself to be the contractor's partner, demanding a Léclaire, specifying one as he specifies a kind of brick or timber, by some Léclaire clauses (as I hope they may long be called) in every specification; fixing the ratio to be observed between the final value of a labourer's day, a mason's, a carpenter's, and every other, up to the contractor's,—requiring a strict account of every man's time before each payment to the latter, and that the men's shares (all but the daily market-rate of wages) may be retained till dismissal or the end of the work? We read of a Sesostris claiming the gratitude of Egypt for great buildings, on whose cornice was inscribed,—"No Egyptian wrought on me." Now I would propose a Sesostris problem for nineteenth-century temple-builders: to aim at rearing such as might bear on their honest brows to heaven such blazing inscriptions as these,—"*No plundered journeyman toiled on me*," "*No stolen labour here*," "*No profitmonger won by me*." Would not that be a feature at once more Medieval and catholic than Pugin ever thought of reviving, and a greater novelty just now than Mr. Harris's latest Victorianism? Will neither Archbishop Manning nor any future Spurgeon try what a Léclaire clause in a specification may cost, and whether it be not, after all, worth more than many mosaic pavements and many painted windows?

EDWARD L. GARBETT.



IRON AND CONCRETE CHURCH, VÉSINET, NEAR PARIS. —M. BOILEAU, ARCHITECT.

[See also p. 805.]

IRON AND CONCRETE CHURCH,
VÉSINET, NEAR PARIS.

IN our last volume we gave some particulars of a church constructed of wrought and cast iron and concrete, the *béton armé* of M. Coignet, that had been erected from the designs of M. Boileau, in the Park at Vésinet, at foot of the terrace of St. Germain. The engravings in our present number illustrate this building. The church of St. Eugène, of which also M. Boileau was the architect, was the first in Paris, in which the application of cast and wrought iron was made to a considerable extent; and when the

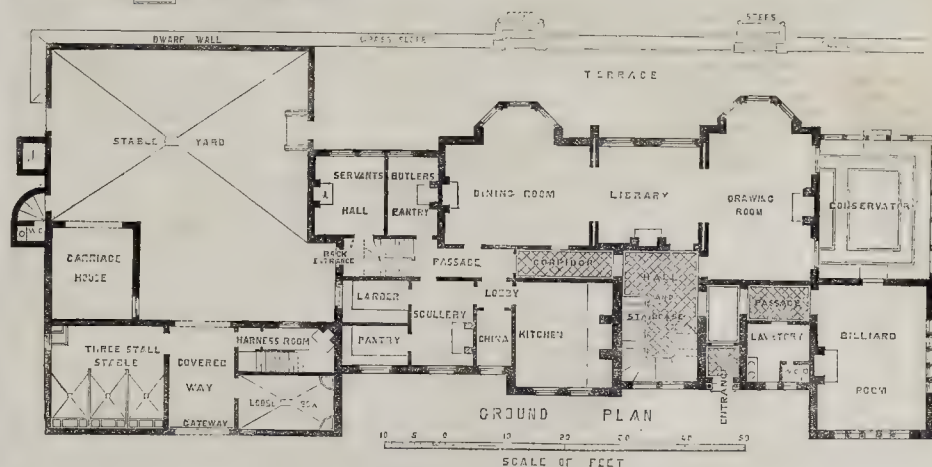
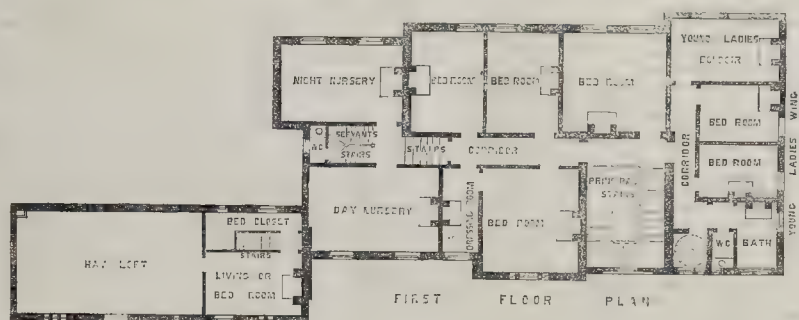
design of the Vésinet chapel was being arranged, M. Coignet requested M. Boileau to try the experiment on a large scale, by substituting concrete for stone. This was agreed to, and the result is a church having its walls in one piece, as well as the columns and open work parapets.

The eastern entrance, with a porch, is surmounted by a tower, and is flanked on each side by a small chapel in the line of the side aisles. The church, which terminates with an apse, is divided into nave and side aisles, separated from it by grouped slender columns of cast iron, which rise as high as the side walls. From these spring

Pointed arches, of iron also, over the nave and over the bays, separating it from the aisle. These arches, carried up to the roof, relieve the walls of the pressure of the arches over the aisles. All the roofing is externally covered with two layers of wrought iron plate, separated a few inches asunder by a hermetically imprisoned layer of air. The length of the edifice is 170 ft. 7 in., the breadth 55 ft. 9 in., and the height to the summit of arches of nave 55 ft. 9 in.; so that the breadth is equal to the height internally. The spire is 131 ft. 3 in. high.

About 300 residences have already been built at Vésinet.

TORWOOD, WIMBLEDON PARK, SURREY.—MR. JOHN GILES, ARCHITECT.



VILLA RESIDENCE, WIMBLEDON PARK, SURREY.

In continuation of the series of illustrations of residences of various degrees of importance we are seeking to afford our readers, we give in our present number a view and two plans of a residence recently erected in Wimbledon Park, from the designs of Mr. John Giles, architect, for Mr. W. Edgcombe Rendle. It includes fourteen bed-rooms and dressing-rooms, three reception-rooms, billiard-room, kitchen, conservatory, and stable. Two of the bed-rooms are on a second-floor, above the nursery, and two of them in the tower. The walls are faced with white bricks and some few red ones, with Bath stone dressings. The roofs are covered with red and blue tiles.

The cost, exclusive of the billiard-room, conservatory, &c., has been something under 5,000l.

THE HEALTHFULNESS OF MARGATE.

As we have had occasion lately to point out some local disarrangements and evils existing in Margate, always a healthful resort, we have the more pleasure in printing the following communication from Mr. Edward Mottley, who published in 1863 a very remarkable Report on the Sanitary Condition of that town. Mr. Mottley dates from Würzburg, in Bavaria.

This sea bath, says the writer, is so extensively visited by invalids, that its sanitary condition is a matter of great interest, and to watch its fluctuations is an imperative duty the corporation owe to the visitors and the resident inhabitants.

The town of Margate is distinguished for its local health; but circumstances not always adverted to, or considered, have brought this quality of the sub-district Margate into question. I twice volunteered to examine the death-rate, believing that the mortality of a region is the only test to its salubrity (where no trade dangerous to health is exercised). I took Dr. Parr as my guide, and humbly followed the path he has so admirably traced out, to lead us to the truth.

I am so convinced of the eminent advantages that Margate presents as a place of winter residence, that I intend to take its mortality during the colder months as one of the principal tests of the value of a region as a place of residence for invalids during the winter. Medical advice and public opinion point to the South of Europe as a place of winter refuge. Statistical inquiry points out certain favoured districts in the North of Europe as the least subject to sudden variation in temperature and an atmosphere singularly pure. These regions, I venture to affirm, are known by their death-rate. The unexceptionally healthy districts are to be recognised, their annual mortality not exceeding 16 per 1,000 living, for a series of years.

I find the mortality of the town of Margate was only 12 per 1,000 (twenty-five years' annual average), and the number dying during the last six months—from October to March, 1864-5—only at the annual rate of 12 per 1,000. I am now employed in collecting the vital statistics of the shores of the Mediterranean, or the most celebrated winter resorts in the south of France and Italy, and the observations of the resident physician on the climate. I will trouble you with only one example, a comparison of Venice with Margate!—the "Sea Cybele" with a Cockney watering-place,—a singular comparison, but not without interest:—

Average Population:—Venice, 123,290. Margate, 10,000.
13 years. 130,000.*

	Venice.	Margate.	Average per 1,000 living.
January	442	179	33
February	368	168	29
March	396	165	29
April	220	146	20
May	276	171	22
June	235	115	22
July	366	136	33
August	289	209	22
September	269	239	21
October	270	218	21
November	325	191	30
December	413	177	32
	3,977	2,474	

Infant Mortality, without stillborn:—Venice, 857 deaths to 123,290 living. " Margate, 347 " 130,000 "

* The Italian numbers are by Dr. Bertie-Namias calculated with great care, without stillborn. The Margate numbers are from the registrar, attested by the district registrar, the sub-district registrar, and examined by another officer.

Infant mortality during the cold months at Margate is exceedingly low. I am not without hope of being able to determine the local health of the principal Italian towns as accurately as Shoreditch or Manchester. Unfortunately the subject is unattractive.

Of course it is understood that no special claim is made for Margate beyond having a mortality of 16 per 1,000. Therefore the same advantages are to be found at Eastbourne, Isle of Wight, Anglesea, the Scottish Isles, and certain parts of Norway, all of which enjoy a temperate climate and low death-rate, and the absence of pulmonary affections.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The opening meeting of the session 1865-66 was held on Monday evening last, at the House, in Conduit-street.

The chair was occupied by the president, Mr. A. J. Beresford Hope, M.P.

The following honorary Fellows were elected:—Lord Elcho, M.P.; Mr. W. Stirling, M.P.; Sir Walter James, bart.; and Mr. John Ruskin.

Numerous donations were announced, including a copy of the address of Professor Hayter Lewis, recently delivered before the students of the London University College.

The President took occasion to refer to the satisfaction which he was sure they all felt at Mr. Lewis's having been placed in a position to deliver such an address. University College had certainly sustained a loss by the retirement of Mr. Donaldson; but it had been compensated by the accession of Mr. Hayter Lewis. The hon. gentleman then announced an important donation of 120 volumes of books, &c., from the late Cambridge Camden Society, now the Ecclesiological Society. As it was no longer necessary for the latter to maintain a library, they had presented these books to the Institute, being of opinion that they could not be bestowed in a better direction.

The Rev. Mr. Webb (the hon. secretary to the Ecclesiological Society) testified to the gratification which it afforded the Society to know that the Institute appreciated the gift.

Mr. Hayward stated that there were eight volumes of drawings in the collection.

Messrs. Florence, Dillon, and Davis were, on ballot, elected Associates of the Institute.

Mr. Donaldson, referring to the address of Mr. Hayter Lewis, delivered at University College, recommended the curriculum adopted at that institution to the attention of students of architecture, as he believed it would be productive of great advantage, more especially to those members of the Architectural Association who might desire to present themselves for examination to the Institute. Two years devoted to the course of study directed by his friend and successor, would, he was persuaded, amply repay the trouble. Mr. Donaldson also referred to the donation of Mr. Bruton's work on "Ecclesiastical Dilapidations," which, he remarked, contained a great deal of interesting and useful information for the profession.

Votes of thanks were accorded to the donors of books, &c., and to those gentlemen who had delivered student lectures last session.

Mr. Hayward exhibited specimens of plans printed from the originals by means of prepared paper and light. He considered it would supersede the operation of tracing.

The President having read his inaugural address (which will be found elsewhere),

Mr. Donaldson, in moving a vote of thanks to the President, observed that the discourse just delivered was full of interesting topics, treated in a broad and distinct manner; and he trusted that it would act as a stimulus to the members to follow during the ensuing session the principles laid down in it. The President had referred to the engineers as essentially forming a portion of the architectural body. He was glad to hear the observations which he had made. The engineers had now grown into a body of such importance in a scientific and artistic sense, that they had taken what might be termed a distinctive form. The profession of the architect was an honourable one—even the engineers must admit that; and, indeed, so honourable was it, that famous ship-builders were proud to call themselves naval architects; and they had a perfect right to the appellation. For his own part, he had always been desirous of recognising the engineers as a part of the profession; and

he would like to admit as members of the Institute all those engineers who had built what might be called monumental structures, such, for instance, as great railway-stations and dock-yard works, similar to those built at Plymouth by Sir John Rennie. He was, therefore, in favour of admitting all engineers of repute, whether Royal Engineers, naval engineers, military engineers, or civil engineers—in fact, all who had produced works which might be regarded as architectural in their character. With reference to the Royal Academy in connexion with architecture, he felt bound to express his regret that the members of the architectural profession had dissociated themselves from the Academy. He had himself been a student of the Academy, and he had derived great benefit from it. He recommended students of architecture to attend the Academy, and to associate with the students of painting and sculpture whom they would find there. It should be remembered that the Institute did not pretend to teach the student of architecture his profession, although it was quite willing to assist, by meetings, discussions, lectures, and the examination of such persons as chose to present themselves for the purpose. Such aids as these it freely offered; but it could not be called an *Academia Artis*, as it had no claim to such a title. With respect to the architectural exhibition, he regretted that anything of the kind had been attempted; it had not proved a success; and he also regretted that the Royal Academy had not found better accommodation for such drawings and designs as the profession might be disposed to exhibit on their walls. He hoped the profession would rouse themselves in reference to this matter, and that such a pressure might be brought upon the Academy that it would be forced to give the architects the accommodation they required. The President had also referred to the forthcoming International Exhibition in Paris. This was a subject of great importance, and he ventured to express a hope that a committee would be formed without delay, to put itself in communication with the French commissioners, in order that the architectural profession of England might be worthily represented at the forthcoming contest, and take the position to which it was entitled among the architects of Europe.

Mr. Godwin said he had great pleasure in seconding the vote of thanks to the President, and he would do so in a dozen words. The first half would be devoted to the expression of his gratification and thanks for the catholic, eloquent, and useful discourse which the President had just delivered, and which he was sure they had all heard with equal pleasure; and the second half would be to express his satisfaction at seeing the representatives of the public press again in that room. As one of the earliest members of the Institute, he congratulated them upon a step away from what he regarded as the suicidal policy of secrecy, and in the direction of that policy of publicity for their proceedings to which the Institute owed so much of its position, and by means of which it was beginning materially to influence the outer public in favour of their art. He cordially seconded the proposition before the meeting.

Professor Kerr also expressed the pleasure which he had derived from hearing the address of the President. It struck him forcibly that Mr. Hope had evinced a proper spirit in endeavouring to draw together the architects and the engineers. He was sure they were all agreed as to the view which he had taken of the relations which ought to exist between the two sections of the profession; and he ventured to throw out a suggestion, whether it might not be desirable for the Institute to elect a certain number of members of the Institution of Civil Engineers as honorary Fellows, in return for the election of a similar number of their own members to a like distinction among the engineers. At present architects could only be elected Associates of the Institution of Engineers, and it was questionable whether they would like to join the engineers, in any number, in a lesser rank than that which they held among their own profession.

Mr. Seddon (hon. sec.) thought it would be well if some understanding could be arrived at between the two bodies, with regard to the reciprocal interchange of members; for, as Professor Kerr had already stated, the Institution of Civil Engineers would not admit an architect among them, although he might be a Fellow of the Royal Institute, to a higher rank than an Associate. He was anxious to know whether, if

an engineer were proposed for election into the Institute, it was likely that he would be accepted.

Mr. J. Papworth said he, for one, would decline to ballot in favour of any member of the Institution of Civil Engineers, while their law remained as it was; and to show his sincerity, he begged to state that he had assured one of his own family, who was a member of that Institution, and desired to be elected a member of the Institute of British Architects, that he would oppose him if he were put forward.

The vote of thanks to the President was then put, and carried unanimously.

The President, in acknowledging the compliment, said he felt very much honoured and gratified, and indeed relieved, by the manner in which his address had been received that evening. He felt that he had a difficult and delicate duty to perform, and it rejoiced him much to think that he had given satisfaction. The address was written in the quietude of the country, and he had sent it to the press without taking the opinion of any one upon it. The manner in which some of the points referred to in it—the Engineers, and the French Exhibition—had been taken up by Mr. Donaldson, had also afforded him much pleasure. He hoped that the former subject would receive from the Institute the attention it deserved; and with regard to the latter, he might state that the subject had already been warmly taken up by the council, and that it stood as an agenda for that evening forth, on which occasion a paper on iron-work would be read by Mr. White, a gentleman who had given much study to the subject.

Mr. Scott, Mr. E. M. Barry, Mr. Gibson, Mr. B. Ferrey, Mr. James Fergusson, Mr. Ashpitel, Mr. B. Brandon, Mr. Hanson, Mr. W. White, Mr. Burgess, Mr. Burrell, Mr. Charles Fowler, Mr. Porter, Mr. Truett, Mr. Garling, Mr. Haasard, Professor Lewis, Mr. Marrable, Mr. Roger Smith, Mr. James Thomson, Mr. Henry Shaw, Mr. Gordon Hills, Mr. E. T. Paris, Mr. G. L. Taylor (Taylor & Cressy), &c., were amongst those present.

THE ARCHITECTURAL EXHIBITION AND THE INSTITUTE.

In the address with which the president opened the present session of the Institute of British Architects, on Monday last, Mr. Beresford Hope spoke in eulogistic terms of several societies having objects more or less akin to the profession of architecture, and recommended more intimate relations with them. The one architectural society for which he had not a kind word, but only disparagement, was the unfortunate Architectural Exhibition.

Mr. Donaldson, the late president, in moving a vote of thanks, not only echoed all the president had said of the Exhibition, but added expressions which I refrain from quoting, as good taste will probably lead to their modification before they are published. Both these speakers seemed to be influenced by the idea that if the Architectural Exhibition were given up, or if the Institute repudiated all connexion with it, some better terms might be hoped for from the Royal Academy. As considerable misconception seems to exist on this point, I should like to be allowed to say a few words regarding it.

Admitting, for the sake of argument, that the Academy is the best possible form of a society, and composed of the best possible body of men, this does not alter the fact that, from the first hour of its existence to the present day, it is essentially an Association of Painters and Sculptors. To these classes the Exhibition is of vital importance. To individuals it is the only means of exhibiting their works, while to the body it is even more so as their only means of income. Every year the demands on their available space are becoming more and more urgent, and the attractiveness of their works draws a larger number of sillings from the public.

It is true, of course, that architects are tolerated in the body—but how? Three or four men—not always the most eminent—are selected, and are content to remain with a safe majority of nine to one always against them; and their exhibition is relegated to an ante-room, where it occupies one wall, among miniatures, and other refuse of the Exhibition. There seems to be a vague sort of notion abroad that the Academy are going to get a larger space for exhibition, and when this is the case architecture will be better treated. My impression is

that this is a mistake. If the space at their command were doubled to-morrow, they could fill it. The architectural drawings look poor and washy when placed in juxtaposition with oil-paintings. They do not draw a single shilling, and the painters feel that they could occupy the space these fill up far more attractively and more payingly. Where this is the case, it would be paying them a very bad compliment, as men of business, to suppose that they would continue to devote it to architecture.

On the other hand, it has always appeared to me,—and it has to several others,—that as a body the British architects are not only numerically, but in social position and architectural rank, quite equal to the painters; and consequently, if they associated with each other it ought to be on terms of perfect equality. It has also occurred to me and others that there is an essential difference between their arts, and the mode in which they are practised, notwithstanding the accidental adjunct of the adjective "fine," which seems the only link between them.

Though perhaps not formally articulated, it was the existence of this feeling which led to the formation of the Royal Institute of British Architects; and the logical sequence would have been that the seceding body should also have established an exhibition of their own. The Institute did not take this view, but a considerable number of the members of the profession thought so, and the consequence was the establishment of the Architectural Exhibition some fifteen years ago.

At any time during that period it would have been easy for the Institute, as a body, or for the members of the profession individually, to have come forward and rendered the exhibition attractive, self-supporting, and worthy of the profession. Many have exerted themselves worthily in the cause; but the Institute has not only held aloof, but on every occasion when an opportunity offered itself, done all it could to discourage the attempt, and throw cold water upon it; and last Monday, the council, through its two mouthpieces, the present and past presidents, went further in this direction than usual. To me it appears that the encouragement of a thoroughly congenial association would have been a wiser, or at all events a more generous policy than begging for the contemptuous patronage of the painters.

The question is now of pressing interest, and I trust the profession will think seriously about it. Those who have been connected with the Exhibition during the last fifteen years are getting tired of this kind of treatment. They have offered architects every facility for having an exhibition worthy of their art; but they cannot accomplish it without their assistance, and if they will not now come forward the thing may drop through. Let us hope for better things; for if this should be the case, and the painters will not take pity on the architects—and they won't—the latter may be left without any proper means of introducing their works to the public. While, however, the Institute is negotiating with the Academy, it will require only a very slight exertion on the part of the profession at large to enable the new committee, in spite of the Institute, to open this year's exhibition with a better show and brighter prospects than any which have cheered it since its establishment. J. F.

THE "SANG-REEL" OF THE ARTHURIAN ROMANCES.

SIR,—In your very favourable and kind notice of my "Handbook for the Pictures in the Westminster Palace," you observe:—

"In describing one of Mr. Dyce's works, by the way, the Vision of Sir Galahad and his Company, derived from the romance of the St. Greal, he [Mr. Gullick] says,—

"We need only remind the reader that, according to the later romance (which appears to be derived from the apocryphal gospel of Nicodemus), the St. Greal is the holy vessel, or "hamp," from which Christ drank and gave of the wine to his disciples at the Last Supper, and which is said to have been afterwards used by Joseph of Arimathea, to collect the blood which flowed from the wounds of the Saviour."

This seems scarcely to convey the story. The "true blood" was the *Sang-reel*, and it was the search for this in the vessel described, brought over and hidden, as was supposed, somewhere in Britain, that was the grand object of the institution of the Round Table.

Now it seems to me that this observation may possibly lead to the belief, or at least leave an impression, that I have shown some carelessness

or inadvertency, if not ignorance, in a portion of my book with which I have, in reality, taken the utmost pains. As, I assure you, the passage in question was written deliberately, and only after weighing an antiquarian discussion, the "pros" and "cons" of which would have been out of place in my little book; and as, therefore, I have a defence for my incidental definition, I would,—trusting to your well-known sense of fairness, and the courtesy you have shown on former occasions in opening your columns to me,—ask for space to say a few words in explanation.

It is, then, doubted by many eminent recent antiquaries, whether there is any foundation for the supposition, long and still entertained by many besides yourself, that the words "Saint Greal" are a corruption of the French words *Sang-reel*, of the Norman romances and *trouvures*. The distinguished antiquary Mr. Wright, for instance, says positively, in a note to his edition of the "Mort d'Arthur," that the words "Saint Greal" have been improperly confounded with *Sang-reel*, the "Real Blood." By the way, the theological dogma of the Real Blood or Presence was, I believe, only established long after the date of the earlier romances. But more conclusive, perhaps, is the testimony of the learned author of "Britannia after the Romans." This esteemed authority on the particular subject under consideration says: "The story of the Saint Greal, or Greal, is no romance, but the most extravagant and daring imposture on record, in which it is endeavoured to pass off the mysteries of bardism for direct inspiration of the Holy Ghost." "Greal," he says, "is a Welsh word, signifying an aggregate of principles, a magazine; and the elementary world, or world of spirits, was called the *country of the Greal*. From thence the word Greal, and in Latin, *Gradalis*, came to signify a vessel in which various messes might be mixed up." Perhaps you will allow me to add, that although the history of the St. Greal, in Sir Thomas Malory's compilation of the "Arthurian Romances," is little else than a tolerably intelligible religious allegory, strongly tinged with the monastic ideas of the thirteenth century, and seemingly intended to throw discredit on chivalric greatness; yet the writer above mentioned considers the story to be the most ancient of the "Arthurian Romances," and in its original form to have embodied the religious system which he terms "Arthurism." The date at the commencement of the work is 717, and he attributes the authorship of it to the famous bard Tyallio. As an Arthurian myth, the "quest" may represent the priests of Arthur (i.e., the visible sun) setting out on their journey of initiation into the higher mysteries, which were ultimately to displace the worship of Arthur, the mysteries of that other "sun of no illusory lustre," until whose coming Arthur was to be the sun. See the ancient poem of "Arthur and Ellicold," in the appendix to "Britannia after the Romans." Hence the grief of Arthur, and his declaration that the quest of the St. Greal would destroy the fellowship of the Round Table. Hence, also, the circumstance that, although the Round Table signified the world, and Arthur the sun, he never ventured to place himself in the "perilous seat," but reserved it for him who was to penetrate the mystery of the St. Greal. The meaning of the original myth becoming gradually obscured, the later allegory of the "quest" in the "Mort d'Arthur" may probably be interpreted as primarily representing a number of the great ones of the earth preparing to forsake the world and its honours, to devote themselves for a time to penitence and the offices of religion. Adopting this view of the romance, I also bore in mind the fact that there is no definite statement in the "Mort d'Arthur" that the blood contained in the cup, or "hamp," was the object of the "quest."

For these, among other reasons, I only felt justified in stating that the cup was the object of search, tacitly leaving it to the reader to entertain his own opinion, or draw his own inference as to whether the great sanctity of the vessel was supposed to arise from what it had contained or did still contain.

I trust it may not be deemed egotistical to add that the account in my Handbook of Dyce's great works in the Queen's Robing-room (the substance of which had appeared in the *Illustrated London News*, and which I have again given in the *Art-Journal* for the present month) is the result of much research and thought, aided by private papers of the painter, and copies of his correspondence with the Fine-Art Commissioners, kindly placed at my disposal by

the artist's family. Unfortunately, however, these contain very few allusions to the various personages introduced in the frescoes, and I have only succeeded in identifying some of the minor characters, after careful collation of many passages throughout the "Mort d'Arthur," and other remains or works in the broad field of Arthurian literature.

THOS. J. GULLICK.
* We willingly insert this statement of Mr. Gullick's views, but retain our opinion as to the St. Greal.

LORD PALMERSTON'S LONDON RESIDENCES.

We are led to believe that, for "Carlton House-terrace," given as the residence of the late Lord Palmerston between 1843 and 1850, we should have said No. 4, Carlton-gardens, where he was the tenant of the late Mr. Adrian Hope, brother of Mr. A. J. Beresford Hope, who now has the care of the house as executor and guardian of Mr. Adrian Hope's son and heir. On Lord Palmerston vacating it, Sir James Hogg became the tenant, and still occupies it. When Lord Palmerston left Carlton Gardens, he went to Hamilton-terrace, Piccadilly, to the house of Mr. Beaumont, M.P. for Cumberland, and remained there some time before going to Cambridge House. Mr. Beaumont's house is next to the one occupied by the late Marquis of Northampton, and where he held his never-to-be-forgotten soirées as President of the Royal Society.

In speaking of recent burials in Westminster Abbey, we recalled simply some at which we had been present. We may mention, in addition, that of Lord Dundonald, Lord Clyde, and the Duke of Northumberland, in the private vault that belonged to him.

THE NORSHAM CHURCH RESTORATIONS.

The restorations in hand are gradually approaching towards completion. The tower has been denuded of plaster, and pointed. The Norman arch of the tower and the lofty west wall of the church are being ornamented with coloured designs and reproductions of patterns which were discovered in scraping away the whitewash, during the present and earlier repairs. There are two large cartoons to be sketched here,—one the Annunciation (the church being dedicated to St. Mary the Virgin), which will be so drawn as to obviate in a manner the curious appearance of the tower-arch not being placed in the centre of the wall. Above this will be introduced a representation of the Last Supper. The ribs and bosses of the ceiling were picked out with colour before the present restoration, and it has been the endeavour of the artist to reproduce and enhance the former designs. The tie-beams are now being made to harmonise with the tints of the ceiling. The chancel is more elaborately treated, gilding having been introduced. Here, too, the wall-plate is masked by a curious cornice. Here the tie-beams have angels on the supporting corbels, and on their shields are depicted the emblems of "the Passion." Neither the ornamentation of the west wall, ceiling, nor any of the stained windows, are defrayed out of the public funds entrusted to the committee. The pews are open seats, without doors. Hot-water pipes are carried beneath the pavement. A new organ, by Mr. Willis, of London, is being prepared: it will cost nearly 700*l*. A space has been reserved for it on the north side of the chancel. The pulpit, of carved oak, on a sandstone base, is to be placed against the north-eastern pillar, where the nave and chancel meet. Had the committee more funds at their disposal, the base would have been, according to the architect's design, of Sussex or Purbeck marble; but this must be left, like the flooring-tiles, reredos, spire, and glazing of the windows, for further restoration. It is hoped very soon to see the stained glass of the east window of the chancel fixed in its place, and that of the west window in the tower: the expense of the latter is defrayed by the "labouring classes" of the parish. The artist of both these is Mr. O'Connor, of London, and the upper portion of the east window was inserted some time ago: the ladies' committee had collected 600*l*. for the purpose of embellishing the window. Private individuals have determined to place "memorials" of stained glass in the

east window of the south aisle, in the south window of the Shelley chantry, and in the several lancets in the aisles: the five western windows of the church are also private gifts. The lighting of the church with gas, for evening services, is effected by pendent coronas, suspended between the arches, from brackets, under the string-course in the nave: the aisles are lighted upon a somewhat similar principle, and in the chancel an immense corona, of sixty-five lights, hangs from the roof. The designs are approved of by the architect, and are the workmanship of Mr. Skidmore. The ground-plan of the building has been considerably altered and enlarged, by the addition of another south aisle, and the throwing open the two chantry chapels; while, to economise space in the chancel, and to make sufficient room for the new organ, the ancient priests' door has been built up, and a new Perpendicular entrance opened in the vestry wall. An improvement has been made by levelling the earth in portions of the churchyard, and widening the paths up to the several doors.

LLANFAIRISGAER, NORTH WALES.

The new parish church of Llanfairisgaer was consecrated on the 21st ult., by the Bishop of Bangor. The style of the building is Early English. It consists of a nave, 68 ft. 10 in. by 21 ft. 6 in.; transept, 17 ft. by 16 ft. 3 in.; chancel, 22 ft. 3 in. by 19 ft.; vestry, 12 ft. 3 in. by 8 ft., and has a bell gable at the west-end. The church is built of stone from the local quarries, faced with Newry granite, the window dressings, &c., being of Wrexham stone, and will accommodate 285 persons. The several roofs are framed with coupled rafters, stained and varnished. The nave and transepts are fitted up with low open seats, and the chancel, with stalls on each side, for the choristers, and with prayer-desk and lectern, the pulpit being placed at the south-west angle of the nave. The aisles are paved with black and red Staffordshire tiles, and the chancel, with Hawes & Co.'s encaustic tiles, of appropriate design. Over the altar is an ornamental centre piece, with the Commandments, the Creed, and Lord's Prayer on either side, executed by Messrs. Drury & Smith, of Sheffield.

The east window, of three lights is filled in with stained glass, the gift of the widow of the late Mr. J. G. Griffith, of Llanfair, in memory of her husband, who was a liberal contributor to the funds of the church, and also gave the site on which it is built. The centre light of the above window has three medallions (surrounded by elaborate tracery), representing the Birth, Crucifixion, and Ascension; the side lights two medallions each, containing the Burial, Pentecost, Passion, and Resurrection, illustrating the sentence in the Litany, beginning, "By thine agony and bloody sweat, by thy Cross and Passion," &c.; the whole executed by Messrs. O'Connor, of London. The font, worked in Caen stone, is placed at the west end, near the entrance door. The church is warmed by a Gill stove apparatus, supplied by Mr. Edw. Firth, C.E., of Rotherham, and is lighted by twelve paraffine bracket-lamps, and with candle brackets on the pulpit, by Messrs. Cox, London. The architect of the church was Mr. G. Weightman, of Sheffield; and the builder, Mr. William Thomas, Menai Bridge.

THE METROPOLITAN GAS MOVEMENT.

The struggle which many years since the *Builder*, single-handed, set agoing in the metropolis (as elsewhere throughout the country), between gas consumers and gas producers, is likely to come to a grand crisis in the ensuing Parliament. If the metropolitan gas consumers will now give their powerful leaders—the City Corporation—moral and material support, the tyrannical and overreaching monopolists who have for so long ridden rough-shod over them, will be at their mercy, and little of it do they deserve. The common council of the City Corporation have determined to apply to Parliament for powers to erect gas-works, and to manufacture or contract for the supply of gas, and lay down new or purchase existing gas mains for the distribution of gas to the citizens of London.

The leader of the movement in the Council is Mr. Dresser Rogers, who carried his point by an excellent address on the subject, in which he showed how great a public benefit it had been

to Manchester, Halifax, and other towns, that their respective municipal authorities had taken the supply of gas into their own hands. Mr. Rogers remarked that

"There were no less than fifty-eight towns where the gas was so supplied. Amongst others, at Manchester, Oldham, Rochdale, Stockport, Halifax, Doncaster, Walsall, and they did it profitably. At Manchester, the Corporation, after paying every expense, were enabled to realize profits to the large amount of 59,545*l*. last year, and that was after paying all liabilities, and setting aside 12,000*l*. odd for depreciation of plant and so forth. At Halifax, again, the Corporation has purchased the works of an existing company, by Act of Parliament, and, by the assets published in June, 1864, they find the capital was 123,270*l*. The income during the year was 24,350*l*.; and the expenditure, 16,690*l*, leaving a profit of 7,750*l*. for the year. Then, also, they supplied the public lamps at 1*s*. 8*d*. per 1,000 ft., and the private consumer from 3*s*. 2*d*. to 4*s*. Gas was supplied equally cheap at Walsall and other places, and if it could be done there, he said it could be done in the City. Now, as to the mode by which the Corporation should undertake the supply. He did not say that they should manufacture the gas themselves, but rather that they should erect the works, contract for the manufacture of the gas, and supply the consumers. There were plenty of spots in the outskirts of London suitable for the erection of such works, and they could employ a gas engineer respecting the manufacture of the gas, and undertake the supply. He had taken the opinion of a gas engineer himself, who said that 250,000*l*. would be sufficient capital."

As to the question of fair prices for gas, Mr. Rogers instanced the following cases:—

"At Plymouth, gas was 2*s*. 8*d*. per 1,000 ft.; at Whitehaven, Walsall, Newcastle, Birmingham, and Cardiff, it was less than 3*s*. At Manchester, where they supplied twenty-candle gas, 3*s*. 2*d*.; Edinburgh, Glasgow, Leicester, Liverpool, Macclesfield, Oldham, Preston, Rochdale, Staley-bridge, Wolverhampton, &c., from 3*s*. to 3*s*. 6*d*.; at Chelsea, where the gas could be supplied at these places cheaper than in London, because, as we have seen, it was a fallacious argument, as he believed he could show, for where coals were cheap the residuary product of the gas, coke, was considerably less in price. At Plymouth, where gas was supplied at 2*s*. 8*d*. per 1,000 ft., the coals were brought from Newcastle; and they there paid ten per cent. dividend, and were getting 15*s*. 6*d*. per chaldron for their coke; and at the south of London, where they were supplying gas, not three miles from the City, at 3*s*. 4*d*. per 1,000 ft., whilst the citizens had to pay 5*s*. 8*d*. By comparison, a tradesman in Manchester paid 1*l*. 1*s*. for 7,000 ft. of pure twenty-candle gas: in London he paid 1*l*. 11*s*. 6*d*. for the same quantity of impure ten-candle gas."

Should the City Corporation prove themselves capable of opening the gas monopoly within the City boundaries, the league without must soon follow; so that it is for the direct and material interest of the metropolitan gas consumers generally to support to the utmost their leaders within the City limits. It is earnestly to be hoped, therefore, they will make the City question in every respect their own question, and convince the new Parliament that the whole metropolis is at the back of the City Corporation.

WOODEN BUILDINGS; METROPOLITAN BUILDING ACT.

At the Clerkenwell Police-court, on the 3rd inst., Mr. George Leech, builder, was summoned before Mr. D'Eyncourt, by the district surveyor of South Islington, for having erected a stable-building, 12 ft. long, 8 ft. wide, and about 7 ft. high, in the rear of house No. 142, Essex-road, occupied by Mr. Henry Hall, butcher, without giving notice to the district surveyor, as required by the Act; also for having constructed the said building of woodwork, contrary to the first schedule, Preliminary Rule 1, and not abating the irregularity when called on so to do.

The surveyor had made many endeavours to obtain amendment, without effect. Leech pleaded guilty on both summonses: he knew he was doing wrong, he said, and had told the employer, Mr. Hall, he would not take the responsibility. Since he left it the building had been put on wheels.

The magistrate said the builder could not avoid the penalty of breaking the law by telling some one else he must take the consequences of the deed. It was to be regretted that the Act did not allow the district surveyor to proceed at once against the owner. With the concurrence of the district surveyor, under the circumstances, the fine was reduced to 10*s*., with 12*s*. 6*d*. costs. On the second summons, the magistrate, who went very carefully into the matter, and referred especially to the case *Stevens v. Gourlay* (29 Law Journal, C.P. 1), made an order to amend the irregularity by substituting enclosure walls of incombustible materials, and covering the roof with incombustible material. The builder said the owner would probably refuse to let him do it.

It may be useful to mention that, if the magistrate's order to amend be not complied with, the builder, in such a case, incurs a penalty not

exceeding 20¢ a day; and the district surveyor may send workmen on to the premises, do what is necessary, and recover the expenses from the owner. The extent to which an owner is amenable to the builder at common law, in respect of the earlier proceedings in such a case, seems to call for inquiry.

SANITARY SUGGESTIONS.

The not inapproprable visitation of cholera is stirring up some, and ought to stimulate all, public authorities, to the most necessary and urgent of the application of sanitary measures. Where in past years works of drainage and water supply have been neglected, it is now of little use for such places to attempt more than superficial measures; that is, such remedies as are most readily applied; and then (once the panic over) it will be for them to say whether they will wrap themselves up in the cloak of a penurious economy and fauiced security, until they are once more roused to temporary activity by the recurrence of a plague whose food is dirt, and whose very existence depends upon their negligence; or will they learn the value of a human life, and the immense national importance of the public health.

The coffin goes slowly by :
Never mind ; what care I ?
Rates are easy ; no sewer, no drain ;
What did before will do again.
The widow groans, the children weep :
In workhouse ward to-night they'll sleep.

Apathy is not by any means, however, the universal rule, as I can attest to the unceasing endeavours of many public authorities to promote to the fullest degree the public health of their respective localities. The following few simple and suggestive ideas have been printed and circulated extensively in several districts, with the most beneficial results. In drawing them up, I had in mind the class of persons they were specially designed for; and their circulation in other places might lead to good results; therefore I submit them to you:—

"1st. Perfect cleanliness of the person and of dwellings is of the utmost importance.

2nd. A free admission of fresh air into all apartments, especially sleeping-rooms.

3rd. Abstinence from eating fruit which is over-ripe, or flesh or fish which is not perfectly fresh.

4th. The lime-washing of all rooms, cellars, privies, outbuildings, courts, alleys, and all confined places.

5th. The removal from the neighbourhood of dwellings of all filth, refuse, garbage, dung, or other offensive matter.

6th. The keeping of swine near to dwellings, and the keeping of poultry or pigeons *within dwellings*,* should be at once discontinued.

7th. A free use of chloride of lime wherever there is any offensive smell arising from any close or confined room or place, or from any offensive drain, &c, &c.

With a view to assist poor persons to comply with suggestions Nos. 4 and 7, the Local Board will supply chloride of lime, quicklime, and whitewash. Brushes *free* on application at the offices of the Local Board between the hours of _____ and _____ in the afternoon of every day except Sunday."

How could a local board or corporation better spend a few shillings or pounds than in the wholesale distribution of information such as the foregoing, and in the providing and supplying free the means of carrying out the suggestions?

JOSEPH BRIERLEY, C.E.

THE ARCHITECTURAL EXHIBITION AND
THE PRESS.

SIR,—Believing that you have the welfare of the Architectural Exhibition at heart, I venture to reply to the passage in the *Builder* of November 4th, and state that the curator, who gave offence to the representative of the press, retires from his duties at Christmas next.

I was not present at the first meeting of the committee referred to; but I am given to understand had the representative of the press attended the committee as requested, a resolution might then have been arrived at; and, with reference to the second meeting, I am sure the

Feeling as you do, interested in the progress of the art, and the importance of extending the knowledge of architecture to the public, I trust the committee may receive your aid in their endeavours to improve the position of the Architectural Exhibition.

THOMAS CHATFIELD CLARK.



CHURCH AT VÉSINET, PARIS. INTERIOR.

[See p. 820, *en'te*.

SCHOOLS OF ART.

The Coventry School.—The annual meeting of this school has been held in St. Mary's Hall, Coventry. The meeting was large and respectable; a great many ladies were present. The mayor presided. The mayor said, he had observed with pleasure the improvements which had been made in the designs of ribbons and watches in this city, and they had no doubt been indebted in some degree to the school of art for the improvement in the staple manufactures of the town. He congratulated them upon having such a building in which to pursue their studies as the new School of Art, as compared with what he might call the hole of a building which they formerly occupied. The influence of such a place as the new school must be beneficial to the pupils. The twenty-first annual report stated that the number of local medals obtained at the last examination was twenty-four, and ten received honourable mention. In the national competition, two national medallions and one honourable mention were obtained. The number of national medallions obtained has been as great as in any four years, but as a higher standard of excellence is required by the department, the number compares favourably with that obtained by other schools. The number of pupils under instruction during the year has been 700, and 171 under superintendence. There were distributed on the present occasion two national medallions, besides medals to twenty-five pupils, and a number of special prizes.

The Bath School.—The distribution of prizes to this school has also been made. The meeting was held in the Council Chamber, the mayor presiding. The report stated that, in November, 1864, the committee succeeded in engaging a master highly recommended by the Department, who had passed most successfully the highest

class examinations, and they had much pleasure in stating that it was a continual source of gratification to the committee that they had the good fortune to secure Mr. Puckett as the art-master to the Bath School of Art. The receipts from payment for pupils at the school, which for the whole year 1861 was only 67*l*. 10*s*. 6*d*., had in the last nine months amounted to 97*l*. 6*s*. 6*d*.; and the committee had every reason to hope the fees for the whole twelve months would be more than double that of the previous year.

The Cork School.—The fifteenth annual distribution, to the students of this school, of the medals and prizes, has taken place in the Rotunda of the Athenaeum, before a very large assembly. The chair was taken by the mayor, who passed a high eulogium on Mr. Brennan, the master of the school, who he said was not merely a thorough master but an enthusiast in his profession, and possessed the faculty of imparting instruction to his pupils with facility, and making their labour an agreeable one—a work of pleasure rather than a task. It was gratifying to him, as the head of the corporation, to think that they were the first municipal corporation to present to a school of design part of the funds at their disposal, and to see that the portion of the funds thus employed was not thrown away or given in vain. Mr. Brennan read the report for the year, from which it appeared that for two medals were awarded, three for silver, and five for gold. The drawings were sent for national competition, and twenty-eight students passed in the second grade examination in freehand, geometry, perspective, model and memory drawing—many passing in two and some in three subjects. Two national medallions were received at the competition in London in 1864: these were awarded,—as so many of the Schools of Art prizes are,—to ladies, in this case for analyzing floral forms, so as to produce ornament,—a stage in which the school has

* A very common practice in Lancashire.

always been successful. The department purchased them for examples. In the present year sixteen medals were obtained, thirteen drawings were retained for national competition, four students received honourable mention, and three were again awarded medallions at the national competition; fourteen students passed in free-hand, geometry, &c. This year Mr. John Daly offered prizes amounting to 10l. for designs for Kidderminster carpets. The decision was left to Mr. Wallis, manufacturer at Kidderminster, and he awarded the prizes to Miss Baker, Mrs. Hill, and Miss Elizabeth Baker. A design for brocade poplin, by Miss Baker, was purchased by the Messrs. Pim & Co., of Dublin, and it is at present worked in their loom in the Dublin Exhibition.

SUNDERLAND.

SOME little stir has been produced in Sunderland by recent remarks in our pages, and will, it may be hoped, lead to improvements. The Bridge toll is to be lessened forthwith. Even from writers who profess to reply to our correspondent's strictures, comes further evidence of evils that need remedy. Thus the *Sunderland Times*, speaking of one such, says,—"The following extract from our correspondent's letter is interesting, and, we earnestly hope, may help to the adoption of some means to abate the evils referred to, the fruitful source of disease, intemperance, immorality, and poverty:—"I look on the narrowness of the alleys, in proportion to the height of the houses, as the most crying evil of Sunderland, and am sorry to think of its incurability. I have, however, at Nottingham, seen the operations of a corporation in a similar difficulty since I visited you. There, sums of money, up to 200l., have been from time to time, for about nineteen years, paid as bribes to owners to induce them to pull down a house here and there, to uncock a closed yard, or open the middle of a long lane, and this with great benefit, though not sanctioned by any local Act."

SHEFFIELD WORKMEN AND WORKCHILDREN.

THE proprietors of the *Sheffield Independent* some time ago offered four prizes of 5l. each, and four prizes of 1l. each, for the best and second best essays on subjects chosen to elicit practical information on pending legislation as to the employment of the children and the protection of the life of artisans in disease-producing branches of trade. The prizes for essays on the first subject have now been awarded. Mr. John Wilson, pen-blade grinder, Nottingham-street, wins the first prize of 5l.; Mr. Robert Marshall, Aberdeen-street, wins the second prize of 1l. The other three subjects for essays, on which the same amount will be given, are as follows:—

"II. The Habits of the Artisans and their Families as formed by their Employments: the Difference between the Orderly and Disorderly, the Intelligent and the Ignorant. Essays to be sent in on or before the 18th of November."

"III. The Educational and Industrial Training of Working Children—those employed in Factories and those employed by Out-workers. What is now done for them? Can Legislation improve their Condition in Mind and Body? Essays to be sent in on or before the 23rd of December."

"IV. The Progress of our Artisans in Comfort, Property, Intellect, and Morals since the Adoption of Free Trade, and the Means within their own Power to make still greater Progress. Essays to be sent in on or before the 21st of January."

THE "OLD MEETING," LUTON.

WITH some of our contemporaries we have been misinformed as to the age of the church at the Old Meeting, Park-street, Luton. The "Church," as it is technically named, meeting in this place is one of the oldest in Bedfordshire. Mr. Thomas Marsom, imprisoned for conscience-sake in Bedford jail with John Banyan, the immortal tinker, was its first pastor. But the present building was not erected until 1814, when the old chapel, built in 1686, had become too small for the congregation. It was the application of the word "Church" that misled our informant. In the vestry is an old chair, which the present community believe was used by Banyan.

THE WAGES MOVEMENT.

Chelmsford.—The following communication from Chelmsford shows what has been done in that town:—Recently, the journeymen carpenters and joiners of this town served a notice upon their employers to the effect that, unless an advance of 6d. per diem upon their rate of wages was submitted to, they would cease work after a given day. The master builders convened a meeting, at which the following resolution was unanimously agreed to:—

"That the master builders of Chelmsford, taking into consideration the rise of wages throughout the country generally, are willing to meet the request of the carpenters and joiners as far as possible; and in order to introduce a more correct system of payment, agree in future to pay by the hour, instead of, as at present, by the day; and that such payment be regulated according to the respective merits and capabilities of each workman."

The result has been, the inferior workmen obtained no favour, the better class received an increase of wages, and the threatened strike fell through. It is only fair to mention that the rate of wages in this town in the building trade, judging from other places, is not commensurate with the fair claims of labour. If the character of men and labour here is equal to that which is employed in London and elsewhere (about which I have no doubt), it behoves the masters to act liberally on their parts, and thus avoid giving a plea for a general strike in the spring of the year.

THOMAS MOSS.

COMPENSATION CASE.

PARTRIDGE v. THE EDGWARE AND HIGHGATE RAILWAY.

This inquiry was held at Edgware, on the 1st instant, before Mr. Under Sheriff Burchell and a special jury. Mr. Sergeant Parry and Mr. Channell appeared for the claimant, and Mr. Lloyd for the Company.

The Company, it appeared, took a strip of land out of the middle of nearly 18 acres of grass-land, with a frontage to Deans Brook-lane, Hendon, dividing the remainder into two pieces of 6½ acres and 10½ acres; but altering the road, by raising it to cross the railway, so that 300 ft. of the remainder would have no frontage. The witnesses for the claimant, Mr. H. Baker, of Kilburn, Mr. E. Roberts and Mr. R. C. Driver, both of London, valued the land at 250l. per acre, as accommodation and not agricultural land, making, for the quantity taken (adding 20 per cent.) 350l. to 386l., and for the severance and damage 750l. to 800l. The railway would be nearly on a level with the land, and no communication would be given.

The company did not call any witnesses, but relied on a speech by counsel, who contended that the damage was imaginary, and that all necessary communications would be given by two justices; that there was no value in the land beyond that for agricultural purposes; and that there would be little or no injury or depreciation; and suggested that 400l. or 450l. would be ample compensation for land and damage.

The jury, after considering for a short time, assessed the value of the land at 350l., and the damage at 500l.; total, 850l.

COMPETITION COURTESIES.

SIR,—My attention has been called to a letter which appeared in your impression of the 28th ult., under the signature of a "Competing Architect," referring to an advertisement in the *Builder* of July last, offering a premium of 20l. for an approved ground plan and elevation for the erection of a public-house on the Birbeck Freehold Land Society's estate at Upper Holloway; and complaining that the award of the said prize has not yet taken place, or that no information or return of the plans could be obtained.

I must, in justice and fairness to the society, request you will be good enough to allow me, through the same medium, to inform your readers that the "unsuccessful" "Competing Architect" has stated what is not correct. That the premium has been awarded and paid is manifest from an advertisement in your issue of the 21st inst., a week previous to the publication of the letter above quoted (vide back page, middle column), stating "that the premium of 20l. has been awarded to 'Perseverance,' Mr. Geo. Foreman, of 13, South-street, Grosvenor-square, and that a second premium of 5l. 5s. (although not announced in the advertisement of the 1st July last) has been awarded to (Specs) Mr. E. Walker, of No. 10, King's Arms-yard, Moorgate-street. The rejected plans will be returned upon personal application to Francis Ravenscroft, Manager."

Now, as 121 plans were sent in, many of which were considered of a high order of merit, it must follow that some time would be occupied in selecting one to which the premium should be given; yet but a few weeks elapsed ere the award was made, and no money paid; and I may add, that the greater portion of this large number of plans have since, on application, been returned to their respective owners. FRAS. RAVENSCROFT, Manager.

METROPOLITAN BOARD OF WORKS.

At the last ordinary weekly meeting of the Metropolitan Board of Works, the report of the Thames Embankment Committee was brought up and read. It recommended the formation of the following approaches:—From Whitehall-yard, at an estimated net cost of 40,500l.; from Whitehall-place, at an estimated cost of 10,800l.; from Charing-cross, through Northumberland House to the Embankment roadway at Charing-cross Railway Bridge, including a branch leading southward to the Embankment roadway, a cross street from Great Scotland-yard to the extension from Whitehall-place, the widening of Northumberland-street, and the extension of Green-street, at an estimated net cost of 181,500l.; from Wellington-street to the Embankment roadway at Charing-cross Railway Bridge, including a branch from the same to the Embankment roadway at Waterloo Bridge, at an estimated net cost of 283,700l.; from Villiers-street, at an estimated net cost of 1,202l.; from Norfolk-street, at an estimated net cost of 7,000l.

The Chairman suggested that the report should be adopted without discussion, and referred to the Streets Committee.

Mr. Tite moved, "That in order to form approaches to the Thames Embankment, as recommended by the committee, and to construct an extension of the Thames at Chelsea, and to widen Park-lane at the Piccadilly end,—all of which, in the opinion of this Board, are desirable improvements,—it is necessary to apply to Parliament for an Act of the cost and wine duties."

The motion having been seconded,—Mr. Collinson moved an amendment, the object of which was to separate the Chelsea embankment from the rest of the necessary Parliamentary notices to the parties interested, and to prepare the books of reference, &c., and submit them to the Streets Committee.

Mr. Bazalgette's report as to the progress of the Thames Embankment was then received.

GOLD DIGGING ON IMPROVED PRINCIPLES.

SOME interesting particulars as to the present state of the Australian gold-diggings are given in *Dicker's Mining Record* of 22nd of August last. In a summary of mining, the *Record* says:—

"The United Extended Band of Hope Company has washed out gold to the amount of 189,644l. 10s. within the space of thirteen months. It has paid to its shareholders dividends to the amount of 110,400l., expended in wages over 34,000l. in firewood and mining timber, between 11,000l. and 12,000l. in the same period of time, and gives besides constant employment to 272 men. Very nearly 10,000 trucks have been raised weekly, with an average weekly yield of 800 ounces of gold during the past half year. By the introduction of the buddle, fine gold, that until recently was allowed to run away in the sludge, is now saved every week, of the average value about 15s., the cost of the process being only 15d. weekly. A large bath-room and drying-room have been fitted up for the accommodation of the miners on coming up from the mine. Duplicates of all the most important portions of the machinery are kept on the claim to prevent any unnecessary loss of time when any breakage occurs. A new feature has quite lately been introduced in this mine, that of lighting up the underground workings with gas. The length of drive lighted up is about 800 ft."

Although this is the first attempt of the kind in Australia, it is no new thing in the northern counties of England. In one of the mines in Northumberland the gas itself is manufactured underground, and the entire mine is thus lighted up.

In another of the English mines it is forced down from the surface in pipes, as it is in the case referred to in Australia; water being used, however, as the motive power instead of steam.

KAMPTULICON.

SIR,—If every fact necessary for the consideration of the cases mentioned in your last two numbers by Mr. W. Bennett and "D. J. H." has been laid before your readers, it would appear that this article, though made solely of ground cork and rubber, deprived of all its moisture by heat and pressure, has the astounding property of decaying wood by contact merely. Now, if this be so, how is it that it has been laid at the Houses of Parliament, the British Museum, and innumerable public buildings, banks, offices, &c., for long periods, varying from five to twenty years, without developing this property?—i.e., without having in the least degree tended to decay the wood? The truth is, that in the cases mentioned by your correspondents the ventilation under the floor could not have been effective. It is well known to all your readers that if on a floor either damp itself or exposed to damp vapours you place any article which, like oil-cloth or kamptulicon, prevents the escape of the damp above, without ensuring ventilation underneath, the boards are likely to decay. During many years experience of kamptulicon the very few complaints we have had of its rotting the floor (not one in the last twelve months) have been where it has been laid on a basement floor with no actual air currents underneath, although there may have been gratings for ventilation. More than that, we have known kamptulicon to be laid on damp boards with this result, that if stuck down, as is often the case, the boards in shrinking have torn the kamptulicon into pieces, exactly as if some one had cut it with a knife between the planks, or, if not stuck down, the boards have shrunk without any effect on the cloth.

What is in writing not here to advertise ourselves, but to elucidate the truth, we enclose our card for your satisfaction only.

MANUFACTURERS OF KAMPTULICON.

A HINT TO ARCHITECTS.

Mr. W. P. FRITH, R.A., writes:—

I ask to be allowed to warn the public through your columns against a man calling himself Wilson Lee—a perfect stranger to me, who has forged my name as an introduction to unsuspecting persons, whom he has afterwards plundered. His plan is to call on an architect, to produce an address card with my name engraved in full on it, and then, in the most gentlemanly and plausible manner, in reply to the architect's disavowal of personal acquaintance with me, to assure him that his name and works are well and favourably known to me; that only the other evening, when he met me at the Hon. Mr. Blank's, I spoke so warmly of the architect's merit, that he had resolved to rebuild Woodlands,—"an old, tumble-down place,"—and this architect, and no other, should do it. The pleasing prospect of a splendid commission, the elegant manners of the proprietor of Woodlands, and perhaps the forged introduction, combine to throw the architect off his guard; and when, just as the swindler is leaving, he produces a crossed cheque, drawn by one of the most respectable inhabitants of Palace-gardens on a well-known London bank, and regretting that, his banker being at Maidstone, the cheque is for the moment unavailable, he asks the architect kindly to give him cash for his cheque in exchange for what afterwards proves to be an impudent forgery, it is not surprising that in some cases he succeeds. That he has succeeded in defrauding two gentlemen, one of thirty guineas and the other of twenty-five, is a fact of which my knowledge may make this letter public at once, farther proceedings may be stopped.

Books Received.

VARIORUM.

"On Telemeters; or, Instruments for Measuring Distances. By the late Archibald Hamilton Bell, M.A., Lieut. Royal Artillery. London: printed by G. & J. W. Taylor, Gray's Inn-road, 1864." The chief object of this pamphlet is to give an account of an instrument (the hydro-scope) of the late Lieut. Bell's invention, which has been adopted by Government, upon the recommendation of the Ordnance select committee, and is now in use in Great Britain. Engravings are given of one which only costs a few shillings. The instrument seems to be both simple and adapted to its purpose. The inventor had mainly in view the utility of rifled ordnance, carrying missiles with sufficient destructive force to a distance of between two and three miles.

"Electrical Communication in Railway Trains. By A. E. Brue. London: Wilson, Royal Exchange." In this pamphlet the causes are considered which have hitherto prevented the successful application of electricity to the purpose in view, and a list is given of the several patents for its attainment, including two invented by the author, of which the specifications, &c., are given. To us it appears, that without proper arrangements for the transit of the guards along the trains, either inside or outside the carriages, all of the innumerable projects, electrical and mechanical, for communication between passengers and guards are defective; and with such means of transit they would be nearly all useless. A guard's "bent" along the trains, therefore, is the one essential measure on which the public and the press ought to insist. Some simple bell-ringing apparatus might then be added to complete the trim of trains in transit.

Miscellaneous.

SUCCESS OF THE DUBLIN EXHIBITION.—We are glad to hear that the present beautiful exhibition will prove no loss to the guarantors. On the contrary, a considerable surplus will be the result.—*Freeman.*

THE INSTITUTION OF CIVIL ENGINEERS.—The weekly meetings of this Institution will be resumed at the House in Great George-street, on Tuesday evening, the 14th instant, at eight p.m., when a paper by Sir Charles Tiltson Bright, M.P., M. Inst. C.E., on "The Telegraph to India, and its Extension to Australia and China," will be read and discussed.

THE SOUTH-EASTERN INDUSTRIAL EXHIBITION, GREENWICH.—The ultimate purpose of the promoters is to form a permanent museum or similar institution, for the benefit of the industrial classes. While avoiding sensational performances in the exhibition hall, they hope to provide recreative concerts and readings, interspersed with a few popular interesting lectures. The prices for admission to the exhibition are,—from ten in the morning to six p.m., 6d.; from thence to ten, 2d.; excepting on Fridays, when the prices will be 1s. in the morning, and 6d. in the evening.

SEWAGE UTILIZATION AT PRESTON.—In our notice of Mr. Newton's plan (p. 778, ante), the want of a point turned 5l. 16s. 8d. per acre into 5,168l. per acre. We mention it, but the slip was too obvious to mislead.

WORKMEN'S TESTIMONIAL.—On Saturday last, the employees of Messrs. Millington & Hinton, of Budge-row, presented one of the foremen, Mr. E. W. Pearse, who was about to leave them after a service of nearly twelve years, with a handsome silver watch, suitably inscribed, as a mark of their esteem.

"CLOCKS AND BELLS."—The clocks mentioned under this heading, last week, as having been recently set up for Mr. Guinness, M.P., in St. Patrick's Cathedral, for the Government of St. Kitts, West Indies, and at Rutherglen, were the work of Mr. J. W. Benson, of Ludgate-hill. A list of others lately erected by the same maker would fill a column of our paper.

NEW BRIDGE AT PRAGUE.—On the 19th ult. the foundation-stone was laid of a new suspension-bridge over the River Moldau, at Prague, which is to be named in honour of the Emperor, "Franz Joseph's Brücke." The ceremony was performed by the Governor of Bohemia, in presence of the Cardinal Archbishop of Prague, Prince Schwarzenberg, and many others of the nobility and clergy. The bridge is to be constructed from the designs of Messrs. Ordish & Le Penne, of Westminster, who were successful against eleven competitors from Holland, Austria, Germany, and France.

SERPENTINE.—The fracture of the common serpentine is harsh and brittle, but that of the commercial serpentine is in flakes, like slate. It is adapted for taking the finest carving, and wears even better than granite. Serpentine also retains its polish out of doors. The comparative degrees of strength of serpentine, Portland stone, and Devonshire marble, is shown by the statistics of the test made before the committee of the Institute of British Architects, on the 7th of August, last year. The shafts of each material were 1 ft. in length and 3 in. in diameter. The trial resulted as follows:—

	First Fracture.	Broken.
Portland stone, No. 1.....Tons	7.3	10.25
Ditto, No. 2.....Tons	8.7	8.7
Devonshire marble.....Tons	9.2	10.7
Serpentine, No. 1.....Tons	12.15	16.25
Ditto, No. 2.....Tons	16.92	17.62

The figures relating to the fractures represent the hydraulic pressure applied, and indicate the superior weight-bearing qualities of serpentine. Thus it is shown that in regard to polish, hardness, strength, durability, and beauty, serpentine is a stone that is very desirable for the ornamentation of buildings.

ROYAL SCHOOL OF NAVAL ARCHITECTURE.—The winter session of the Royal School of Naval Architecture and Marine Engineering at South Kensington, in connexion with the Science and Art Department of the Committee of Council on Education, has been opened. Mr. C. W. Merrifield, F.R.S., has been appointed principal, in the room of Mr. A. J. Parkiss, B.A., who was drowned a few weeks since while bathing in the Cam. The course of study, which is calculated to last three years, includes, amongst other subjects, pure mathematics, applied mathematics, theory of fluid and resistance of waves; theory of design, construction, and behaviour of ships.

BRISTOL INDUSTRIAL EXHIBITION.—This exhibition has been finally closed. Receipts of extra days were devoted to the fund being raised in Bristol for the erection of a fever hospital. The distribution of prizes took place at a meeting at which the mayor (Mr. W. Naish) presided, and at which Mr. H. Berkeley, M.P., addressed the successful exhibitors. Mr. H. E. Allen read the report of the committee, from which it appeared that the total number of exhibitors was 783. The number of visitors during the six weeks the exhibition was open was 116,926, and the total receipts were 3,253l. 14s. 11d. Of this amount, a sum of 500l. was placed in the hands of the adjudicators to be distributed in prizes; but the prizes awarded only absorbed 421l. 8s., besides 187 honours mentions. At a meeting of the committee, however, it was resolved to relax the rules, so as to enable the balance of the 500l., and a further sum of 150l., to be given in additional prizes. After discharging all liabilities, there will remain a considerable surplus, which it is proposed to divide among the principal medical charities and some of the other institutions of the city. The report was adopted.

PENRITH.—Mr. John M'Ilquham has been appointed town surveyor and manager of water-works for the town of Penrith.

THE REBUILDING OF CONSTANTINOPLE.—In addition to his munificent donation to the official fund for the relief of the sufferers from the late fire, the Viceroy of Egypt has intimated his intention to rebuild, in brick or stone, 200 of the burnt-down houses owned by the poorest of the victims.

ACCIDENTS.—There has been an outbreak of sewage in the Wapping tunnel on the London and North-Western Railway at Liverpool. About thirty yards of the tunnel will have to be reconstructed. Heavy rain is believed to have led to the bursting of the sewer.—A ship, driven by a strong current, has dashed into a railway bridge at Hartlepool, and done serious damage to the bridge. No life was lost, although a train was in peril of crossing the bridge at the time.

—A man has been killed at Rochdale by the falling in of part of a sewer covered with large masses of paving stones cemented together by asphalt, through which there were difficulty and delay in reaching him.

THE UTILIZATION OF TURF BOGS.—In a recent number of this journal, says the *Tipperary Free Press*, we directed attention to a new discovery which had been arrived at by two gentlemen of position in this county, and we are glad to learn that the result of their scientific labours will ere long open up a valuable source of commerce, which will be productive of very great advantages indeed. We refer to the utilization of the turf bogs of Ireland, from which, it appears, may be extracted oils of great value, and fully equal in quality to those which have rendered portions of the American continent the centres of vast commercial wealth and profitable enterprise. The principal products of the turf are illuminating and lubricating oils, specimens of which we have seen tested; and these, in vast abundance, can, it is calculated, be brought into the market at a cost considerably less than the present specified value of such commodities.

METROPOLITAN MEMORIAL TO MR. COBDEN.—The general committee for carrying out the erection of a statue to the memory of the late Richard Cobden, to be erected in the Broadway, at the entrance to Camden Town, has had a meeting in St. Pancras Vestry-hall. A report was received in reference to the memorial fund, which stated that to complete a design for a statue and pedestal, 22 ft. in height from base to summit, submitted by Messrs. Wills, Brothers, of the Euston-road, about 100l. more would be required. It was resolved to have photographs of the proposed design taken, and copies sent to the subscribers, with a request to renew their exertions to carry out the object with as little delay as possible: subscriptions to be sent to either the London and Westminster or National Banks, or to the treasurers (Messrs. Lawford & Robson), or the churchwardens, or the Rev. Canon Champneys, the vicar of St. Pancras. It is most earnestly to be hoped that excellence in the statue will be insisted on.

THE DRINKING FOUNTAIN MOVEMENT.—A drinking-fountain, which has been erected at the cost of Mr. John Ransom, at the entrance to the Avenue, Southampton, has been inaugurated. The design was selected from several submitted to the choice of Mr. Ransom by the town surveyor and architect, Mr. Poole, and the fountain and troughs have been constructed and erected by Mr. S. Stevens, builder. The carving was done by Mr. Sansom, of London. The fountain is designed square on the plan, and is raised on a concrete and brick foundation by three graduated steps. It is guarded by a tessellated or mosaic tile pavement, the basement being a channel rusticated with a weathered plinth, and plain band. Each side is furnished with a moulded basin supported by marble shafts, with Portland stone caps and bases. The upper portion of each side is decorated with two engaged columns, having entablatures and pediments with acroteria at the angles, and supporting an enriched dome, terminated with a carved four-armed cross, indicative of cross roads. On each face is an elliptical moulded and sunk metal panel with figure carvings in high relief, representing the four seasons, the festoons over which are also carved with characteristic foliage. The capitals are carved with foliage of a natural type. The water supply will be constant, that to the fountain being independent of the troughs for horses and cattle.

A NEWS-PAPER PRESS TRAINING COLLEGE.—In the belief that a definite course of professional training is requisite to sustain the credit and efficiency of a recently very much extended English newspaper press, a training college has been established at Dorchester, Mr. W. Wallace Pyle, a gentleman of great experience in journalism, being principal, and assisted by a competent staff of instructors in all the departments,—literary, reporting, circulation, advertising, financial, and mechanical. In this college, according to the prospectus, young men are daily articulated, through a three years' course of professional practice; or, without being articulated, are afforded such special opportunities of acquiring experience, along with systematic instruction in the different departments, as may appear desirable. "By the course pursued at this establishment," continues the prospectus, "the attention of the student may be limited to the precise branches in which he seeks to become accomplished. Whether to the literary or to the financial manager, however, nothing will be found more valuable than a sound and comprehensive knowledge of the whole economy of the press; whilst to the newspaper proprietor such knowledge is indispensable. It is also believed that the proper professional training of its *élèves* will inspire the public with confidence in the character of the press. Observing, in many parts of the country, the success attending duplicate circulations in connexion with county newspapers, means have in this instance been adopted for enabling the students to participate in the actual experience derivable from the working of a considerable series of journals." The principal of the college certifies competent candidates for appointments on the press.

THE MEMORIAL WINDOW IN ST. JOHN'S CHURCH, EYON.—The inscription has recently been inserted in the new east window of this church, extending the whole width of the base. The inscription is in Latin, and runs as follows:—
"In honorem Dei, et in memoriam cum Alberti Principis, tum aliorum quorum opera aucta esse hæc parochia, fenestram hanc conscripturum nonnulli ex Etonensibus. A.D. MDCCCLXV." No slight alterations have been made in the window by which the colouring of the base has been deepened, the ground of the lower lights having been changed from grey to claret, and the robes of the Saviour, bearing the cross, from scarlet to crimson. As a further adornment, it is proposed to erect a reredo, the designs for which are preparing by Mr. Woodyear, the architect of the new college schools. The reredo, like the window, will be the result of public subscription.

TENDERS

For vicarage, &c., Marton, Yorkshire, Mr. John Ladds,
architect.

	House and Offices.	Stables, &c.	house, &c.	Con- &c.	Total.			
Freeman	£1447	4 0	£245	10 7	£129	£1821	14 7	
Slater, ..						1762	0 8	
Broadbent	1375	11 7	7	161	2 2	120	1656	13 9
Benson	1289	10 0	21	18	9	117	1598	8 9
Chambers & Son...	1130	0 0	233	0 0	110	1470	0 0	

TO CORRESPONDENTS.

Advertisements cannot be received for the current week's issue later than **FIVE o'clock, p.m., on Thursday.**

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS.
J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees Estimates and Specifications of every description of Horological Machine, especially cathedrals and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34 Ludgate-hill, E.C. Established 1749.

NEWSPAPERS and MAGAZINES. —

Messrs. COX & WYMAN, Printers of "THE BUILDER," and other First-class Publications, beg to call the attention of Proprietors of Newspapers and Periodicals to the unusual Facilities their Establishment presents for the production of the above class of Work with regularity and in the best style.—Lincoln's Inn Steam Printing Works, 74-75, Great Queen-street, W.C.

The Builder.

VOL. XXIII.—No. 1189.

Cathedral of Sens.

THE Cathedral of Sens has peculiar interest for an English lover of architecture, interest sufficient to carry him to that city in preference to others equally within reach, though his immediate object be a place for the retired pursuit of other studies than architecture. Here we might fairly not be out of hope to find some of the motives that William of Sens brought over seas for the extension and embellishment of Canterbury Cathedral, and even apart from this hope there are temperaments that find additional zest in reflection upon the art in the native place of its dexterous and brave professor. Who now knows not the story, recorded by Gervase the monk, how William succeeded in inducing the churchmen, his

patrons, to extend their designs to at least the full length of their purse, and when disabled by a fall from a scaffold—by God's judgment or the devil's malice, Gervase will not decide,—went on with the work from his bed, till hopeless of recovery and further efficiency, he gave up perforce to have a bruised and broken body transported back to Sens?

The genius of the time, however, in this, as in almost every other period of Gothic architecture, dominates the genius of the master, even of a master like William of Sens, just as in the church he served even the genius and energy of a Gregory, or an Innocent,—these seem expressions of corporate rather than outbursts of individual vigour. Sexpartite vaulting, with varied design of the intermediate piers, affection for cylindrical piers paired, grouped, and single, with Corinthian capitals, and almost the normal proportions of columns,—these are points of agreement between Sens and Canterbury, but they may be traced between many other structures earlier and later, at hand and remote; and even should characteristic mouldings have more coincidence than it struck us was the case, we should not be at all surprised to find agreement still closer with monuments at the other extremity of Christendom.

Of a truth, it will often occur to the mind, when we glance over the wider field, that there was as much of concurrence as of sequence in the development of Gothic architecture, and that men felt their way onwards in parallel directions by sympathy as often as by signal and direct imitation. There are very few English cathedrals in which every epoch of the style does not find some illustration, and there is more than one which, standing alone, might be taken to contain proof by what natural and

easy gradations,—after the primary assumption of builders eager for novelty, ardent for improvement, and reckless of precedent as a restraint,—by what leading suggestions of convenience, and through what inviting and seemingly manifest occasions of enrichment, the whole history of the art unfolded itself within the limit of a single ecclesiastical foundation.

As we walk down a nave like that at Worcester, and scrutinize one pier after another, it is not difficult, after a little study, to discern the considerations of effect inducing every change, plausibly, at least, and even manifestly; but we must be cautious in assuming that we are, therefore, without question, at the centre of originality, the exclusive seat of the invention, for we have not to ramble far,—and ramble as we may, we shall find the identical motives recognized elsewhere, lingered upon and sometimes dropped as rapidly, and sometimes retained to the end.

With this reservation recorded, a casual resident or courting tourist, at any rate, may do well to restrict his attention to the case that the monument he visits places before him, and will so make the best of his time, both for notes and observations to be noted. Those who care to read his notes will probably also thank him for sparing them a digest of a local guide-book, and the authorities they are as familiar with, or know their way to, as well as himself. And so we set down our memoranda of effects for good or ill, of natural developments and experimental changes, happy or the reverse, that struck us in the cathedral at Sens, when we betook ourselves thither at spare half-hours, for relief from other thoughts, and the hot sun of the summer of 1865.

The transepts are later and flamboyant, each with rose window and stained glass, worthy of notice by all whom such concern. The exterior of the transepts is in the same enriched style, not guileless of that effect of flimsy unsubstantiality relatively to general magnitude of which I accuse Amiens. Of the western towers the southern has been rebuilt at a later date than the northern; western bays of the nave were involved in the same reconstruction and furnish a most interesting case of comparison with the forms that they superseded, of which presently. Varied and interrupted base mouldings on the exterior betray the alterations and also the insertions of portals at a still later date.

The main body of the church seems to have been proceeding in 1160 downwards, which was some ten years before the murder of Becket, a great name at Sens, where he took refuge, or at least whither he retired in the course of his contest with Henry II. The sacristan shows the cope that he left behind him, and seemed to like telling the story how a titular bishop of Westminster of our own times had pleased himself harmlessly with putting it on.

A general character is given to the interior by the prevalence of columns single, paired and grouped, with attic bases and Corinthian capitals.

The first bays on entering the church are not included in the nave proper, but are specially and grandly treated; two octagonal piers of exceptional mass facing attached piers of corresponding plan.

The vaulting is sexpartite in the nave and quadripartite in the aisles; the nave proper consists of three double bays of compound piers placed lozenge-wise, and intermediate pairs of pillars grouped on transverse axis of plan. The piers which terminate the series eastward are the large piers of the crossing, and the westward are those which provide support for the towers, and between which and the west wall are bays of wider span and distinct vaulting forming an interior porch or included narthex. Although, therefore, the external porches are not very important, we are spared that uncer-

monious and blunt, not to say unreverential neglect of any intermediate stage between the world without and church within. The choir eastward, again, consists of three such sexpartite compartments, but the intermediate paired columns now receive the addition of a pair of smaller columns in their nooks, and the apse is closed at the end by a pair of such groups with no pier intermediate.

The extra projection of the great piers of the crossing and of the porch, it will be thus seen, form the nave into one apartment of three double bays. A second division is given by the four great piers of the transept crossing, and then in the choir the two first sexpartite bays are again distinguished by the larger size of their more eastern piers; while from these the interval or breadth of choir narrows towards the turn of the proper apse.

The fourfold grouped columns of the choir have a common abacus with projection on each front, the expression of a distinct abacus for each column; the archivolts of the side arches are thus received very agreeably where they are met at a right angle, and the jar of a skew incidence at the turn is at least considerably alleviated. The paired columns in the choir at Canterbury have an abacus of the same plan,—the side projection being supported below by the projection of the combined foliage of the adjacent capitals.

A special distinction is further given to the apse by a modification of the composition of its pair of piers.

There is some very awkward vaulting in the aisle beyond the apse in consequence of the wide spread of the chapel piers relatively to the intervals of the apse; but the perspective effect from the choir is very happy, as the clear light of the Lady Chapel is seen at the end, and through the lateral arches of the apse the pier of many members illuminated from the chapel at its side.

In this general plan, then, we have a very exemplary enunciation of the early Gothic principle to give a very distinct and positive expression to every distinct function. It was in this recognition of function that the architects of the time sought and found the source and secret of expression and the varieties of architectural motive; but time had to go on before they acquired the art of economizing emphasis,—of blending and softening transitions, so that contrast should not induce dissociation, nor variety lapse into confusion. The value in architecture, above all other arts, of large breadths of uniformity was recognised at last, and then repose was conciliated by a greater simplicity of design, by uniformity of piers and less gross diversity of those which still demanded prerogative distinction. The sequence of such changes was by no means always in the same direction; in some epochs of architecture the law of well-balanced expression has to fight its way to light through chaotic contrasts; but sometimes its first difficulties lie with the discerning and marshalling of right distinctions. As regards Gothic architecture, some of its worst and most costly failures have been due to tameness resulting from the obscuring, not to say the obliteration, of all character, the reduction of the style to a mere scheme for mechanical application of one all-sufficing pattern.

The system of alternated piers, which is here retained in architecture pretty uniformly pointed, had run its course already in the round style; sometimes in dependence, rational enough, on sexpartite vaulting,—or at least quadripartite,—involving the six piers of two pairs of bays; then retained, as at Durham, to divide quadripartite vaults into pairs; or, as at Waltham Abbey, to be divorced from vaulting altogether, and reconcile itself as it might with a timber roof; then weakly asserting itself in alternation of secondary or merely ornamental details, forms of attached side columns,

idle face columns, or sculpture of capitals, and so dying out; but often only dying out locally, while elsewhere it was flourishing; perhaps reviving, if only reviving for a struggle.

One remainder from these primal arrangements, but partly due also to the affection for large central towers, was the retention of very heavy and projecting piers at the crossing. The contraction of the nave opening, the altered proportion of the arch, the interference with the general view, were disadvantages which some architects of these ages manifestly recognised and fought against; but which have left far too deep and wide a mark.

But we are at Sens, and with Sens we must get on. Let us read the criticism of the re-builder of the western bays, as expressed in the changes he made upon the work of his predecessor. Refreshed and restored as the church has been, we may in most cases rely upon deciphering the handwritings. One technical mark of earlier and later work is to be found in the key-stones, which are, by a very unusual practice, solid in most of the older arches, whether of nave, aisle, or triforium, and double—that is, having a joint at the apex of the arches—in the later work.

The general plan of the piers is identical. There are the same number of attached shafts and columns; but differences are introduced both in their details and their relative proportions, under the guidance of the one principle, to relieve harsh contrasts and soften without obliterating gradations.

The original plan of the half-pier towards the nave shows shafts and columns attached or applied, which may be numbered 1, 2, 3, 4, 5, and 6.

No. 1 is the face shaft, bearing the transverse rib, or rather archivolt, of nave vault, and is about equal in diameter to No. 6, which has the like function in the nave arch. The intermediate shafts are inserted in four nooks of the pier, with the salient angles appearing between them. Shafts Nos. 2 and 5 carry the roll-mouldings of the superarches of Nos. 1 and 6 respectively, and are of the same smaller diameter as No. 4, which corresponds with the nook-moulding over the clerestory window. The remaining shaft, No. 3, has the important office of bearing the grand diagonal rib of the sexpartite vaulting; and, while it is smaller than the face shafts, it is considerably larger than the others, and notably than Nos. 2 and 4, which are grouped alongside of it. Moreover, its plinth, instead of being placed with sides parallel to the sides of the re-entering angles, is parallel to a line joining the salient angles,—that is, is turned to face the direction of the rib that it answers to.

Now, in the revised pier the architect first provided for an easier gradation of inequality between the shafts, and this he effected by leaving Nos. 2, 4, and 5 much as before, and reducing the diameters both of the larger face shafts, and also of the diagonal shaft, No. 3, which now approximates, though still with superiority, to the two smaller shafts on either side of it.

The harsh angularity of the salient angles of the pier-core between the circular shafts is next taken in hand, and each angle is not merely taken off, but channelled or fluted, leaving just sufficient arris on either side to give definition to the cylindrical shafts. Only in one case is this varied from, where an open nook is admitted for the manifest purpose of separating adjacent shafts, Nos. 4 and 5, of like diameter, and marking the distinction between the pair pertaining to the nave arch and the more important group owing allegiance to the vault.

In the earlier pier, the re-entering angles of the adjacent plinths met sharply the salient angles of the pier; but they now come opposite the concave flutes. Moreover, the lines of the plinth of diagonal rib shaft are set parallel to those of the others, and the exceptionally acute angles are thus got rid of. The diameter of the shaft being so much reduced, the acknowledgment of the direction of the rib would be harsh and premature here, and was left accordingly to the abacus, which is still at right angles to its direction. In the new bays under the towers, diagonal bases are still retained.

The sudden contrast between the large plinth of the face shaft and the smaller of the adjacent nook shaft is relieved by cutting off the angle of the larger, to such an extent as to give it five equal sides, and even the reduced angles are relieved by short sinkings at top. This change is not extended to the smaller plinths. Future architects pursued the development, and cut off all the right angles of every plinth, and then

came in still more numerically enhanced polygons. Our present architect, however, has more to tell.

In the original pier the toruses of the bases are contained upon the surface of the rectangular plinths, and throw off a leaf or griff, to cover the unoccupied margin at the angle. These would have been superseded at once by the general reduction of the right angles, but a greater change was made, and the angular surface is covered entirely by such spread being given to the toruses of the bases, as made their circular plan coincident with the plinths at the angles while intermediately they over-sailed. That the angles of the small plinths were still slightly notched or bevelled, betrays the feeling of a still subsisting harshness of contrast between right angle and round, that generated the polygonal base.

Still, again, in the old pier the mouldings of the bases finish against the wall or the sides of the nooks; in the new they are continuous all round the pier, following and bending about nooks, flutes, arrises, and taking up each base in turn.

The profile of the bases is considerably changed, and with the same feeling for more flowing gradation. The earlier type is much nearer to the antique model in the uprightness of the scotia, which in the new has that deeper and more recumbent section so much affected by the Goths. The lower torus in either case is sufficiently flat, but most so in the later. The upper torus is modified significantly; the convex swell, in fact, takes a concave flexure upwards, and ends with a narrow horizontal ledge or margin, within which descends the sheer profile of the shaft. The upper torus, in fact, becomes what in the defective terminology of the mouldings is usually referred to as a *cyma reversa*, though here upon a very small scale.

The same variation is found in some of the bases of the remarkable *Salle Synodale*, and it intimates one of those silent workings of the architectural conscience which it is a pity should have been less respectfully listened to here by Medieval architects than in some other instances, where they were more alive to the pricks of the monitor, and found so great reward. This is the nearest approach they ever made, and it is but occasional and equivocal to that softening of the transition from vertical shaft to curved and spreading base that the Greek provided for by the scape or apophyge. At St. Germain des Prés, at Paris, the columns have a bold and well-expressed apophyge, torus, and plinth, of proper Tuscan proportions, but we may search long for traces elsewhere of due appreciation of the tradition. The usual Gothic practice is to bring down the profile of the shaft at a hard angle upon the horizontal surface of the base, and the value of the apophyge is as much forgotten or despised as the entasis itself. The apophyge is a member that no doubt enhances care and cost, if duly executed as part of the lowest drum of the shaft, and it must be worked or finished after fixing, or there is great risk of damage, and much more skill and time are required for reducing it in position. Modern constructors of Greek colonnades surmount these difficulties by working the apophyge out of the same stone as the base, and thus cutting it off from the column by a joint,—a vulgarism in architecture of the same type as the employment of the article *an* instead of *a*, to avoid the responsibility of an inconvenient but incumbent aspirate. On the shafts of Italian works, touching the verge of the lower empire, works that are uncertainly or equally of *medice* or *infame Latinitatis*, we often find a rather rough fillet projecting a little above the base, which derives manifestly from the ill-understood and unworked provisions for the apophyge.

We have a little more to say, but must leave it until next week.

ON BUILDERS' HARDWARE.

DOOR FURNITURE.

A QUESTION is just now engaging the attention of the hardware manufacturers of Birmingham and South Staffordshire, of considerable interest and importance to the building trade of the country. We refer to the application of fine art to the manufacturing industry of that district, and more especially to the articles known familiarly as "builders' hardware."

There can be no dispute as to the necessity of

an improvement in this direction, as regards the majority of articles included in the term just quoted. Owing partly to the introduction of machinery, partly to the division of labour system, and partly to the rage for cheap goods, most of the brass and iron ware used in the construction of modern buildings, is of such a character as to be in many cases positive eye-sores, and blurs upon the otherwise pleasing aspect of the edifice.

Improvements in architectural design are everywhere visible, both as regards outward elevation and internal ornament and finish; but in the case of many of the hardware fixtures, without which the most splendid edifice would be incomplete, little or no regard has been paid to decorative art; and, in fact, some instances might be quoted in which the articles now made are much inferior in this respect to those of the last century. They are, moreover, bad in manufacture.

We propose in the present paper to refer more particularly to door furniture, including locks, bolts, and hinges, which will present a striking confirmation of the statement just made.

An architect or a builder in quest of locks usually has to choose between the square box-shaped article, which is a blemish upon a well-decorated door, or the mortice lock, which modestly hides itself inside the panel, leaving nothing but the keyhole visible. Both these are open to objection; the former for its ugliness, and the latter because it weakens and partially destroys the door. *Dead* locks are common enough, but why should locks be *buried* in our doors? Why should they not rather assist the decorator in the completion of his design? Four qualifications are of course necessary in all such articles, viz., utility, durability, economy, and beauty, each of which should be given in due proportion, none encroaching on the domain of the other. But in the case of locks, the fourth quality is altogether ignored. We do not argue for anything incongruous or out of character. We have heard of coal vases in the shape of dogs and elephants, the backs of which were made to open as lids, and the same articles are made with artistic representations of cathedrals and hay-fields. All this is absurd. We want an object of utility properly decorated.

The knobs, finger-plates, and other furniture connected with locks, are somewhat better as regards decoration than the locks themselves. In this case, however, there is a leaning on the part of builders towards the plain brass knob, or the antiquated ring of the same material, tasteful articles in rosewood, ebony, bronze, and china, being seldom purchased except for houses of the first class. Bolts and hinges are proverbially devoid of graceful shape. In most cases the former are stowed in some unseen part of the door, and the latter are usually hidden under successive coats of paint. Yet each of these articles is capable of being rendered pleasing to the eye, without losing its practical strength and usefulness.

Now, the question arises, who is to blame for this condition of affairs, and to whom are we to look for a remedy?

To some extent, of course, the locksmiths must plead "Guilty." Year after year the same stereotyped patterns are supplied to the factors and merchants, and thence distributed among the consumers, who, it may be said, having so limited a choice of selection, can hardly bring about any improvement in the matter. The real truth is, however, that the builders of this country are mostly in fault, and with them rests the duty of taking the initiative. A demand for more artistic workmanship would at once produce a supply, for the district in which locks are principally made—the Black Country—has some of the most skilled art-workmen in the kingdom. We have conversed with many workmen upon the subject, who tell us that they have repeatedly introduced ornamental locks, bolts, and hinges, at considerable expense, but without the least success. Before us lies a sheet of engraving, representing French door furniture, and the contrast between that and English ware is certainly striking. Scrolls, chasing, and bead-work, give to the articles a pleasing appearance, such as would not disgrace a home of taste.

Another feature in connexion with door furniture, which claims a passing remark in these "notes," is the want of durability. It is proverbial almost, that locks, knobs, bolts, and hinges have a remarkable aptitude for getting out of order. Locks that require the door to be slammed before they will catch, knobs that become loose and turn round, bolts that will not

slide, and hinges that creak, are among the domestic trials common to the lot of all. For this the entire blame rests with the building trade. The cry is, "something cheap," and in order to satisfy the craving, the makers have been compelled to reduce the strength of material, cut down the artisans' wages to the finest point, and produce articles devoid alike of ornament or strength. Any one who has visited the lockmaking shops at Willenhall, where more warden locks are produced than at any other town in the country, will be satisfied as to the truth of these remarks. Rim locks are actually sold to the factors as low as 7s. 6d. per dozen, including staples. Dead locks are sold as low as 5s. per dozen, and mortice and drawback in like proportion. These qualities are chiefly made for contract work, the purchaser being satisfied if they will just keep in order until the architect's certificate has been obtained. Such a state of affairs is, however, most unsatisfactory. The maker cannot do himself credit, and the artisan has to labour thirteen weary hours per day to earn a scanty pittance. The people who practise such deceits, who lie in iron and brass, should be whipped at the cart's tail. As regards economy, of course such articles are in the end the dearest that can be had. Their average duration is certainly not more than one-fifth of that of a lock double the price. If specifications, contained a description of the locks required, such as "solid ward," "round rim," "bushed key and follower," or (in better class buildings), "levered" on the principles of Barron, Bramah, Chubb, or some other maker of repute, much dissatisfaction would be prevented, and the locks would be alike creditable to the maker and the builder.

It would scarcely be believed that the competition in the ordinary brass-knob trade has rendered those articles almost worthless. The bowl of the knob is not even soldered into the neck, being merely twisted in, by pressure, and there is nothing to prevent it becoming loose after a little wear. The weight of metal has been reduced to a minimum, and the thickness does not exceed that of ordinary card-board. The necessity for thus destroying the durability of these articles, by paring down the expense of their production, is evident from the fact that the original net prices are now subject to a discount of not less than 65 per cent.

Architects who prefer brass knobs might prevent such articles being affixed as those we have described, by specifying that the knobs should be of cast brass, entire, which, although double cost, are in the long-run the cheapest knobs made. The brass knobs made twenty years ago were, on the average, double the weight and strength of those now in use. The substitution of wood or china knobs for brass is on the increase, as regards superior buildings. Finger-plates, with neat gold borders, are also becoming more general for reception-room doors.

Bolts and hinges have in like manner lost much of their former strength and comeliness in the competition for lowness of price. The original price of iron tower bolts was 1d. per inch net, from which, however, a discount is now taken of 75 per cent., and the price of hinges has been proportionately reduced. Of course, much of this is due to the increased facilities of production; but a portion of it represents the diminution in the strength and durability of the article.

Door furniture is usually regarded by architects and builders as a matter of such trifling detail as scarcely to require notice. In reality, however, it is an important feature in the finishing process of a structure, however imposing in architectural design, or however small and insignificant; and to neglect these minor matters is like "spoiling the ship for an ounce of tar."

We refer to these things because just now the subject is exciting some interest among the producers of these articles in the midland district, and it only requires the co-operation of the architects and builders of the country to ensure a speedy reformation.

In concluding our remarks on door furniture, we may just allude to an improved lock which has been brought under our notice. It is made either as a rim or mortice, and is adapted for both right and left hand doors. All builders know from experience, how much trouble is often caused by having locks for the opposite hand required by the doors for which they are intended. By a very simple arrangement this is quite obviated, the latch-bolt has a smoother action, and additional strength is imparted to the fore part of the lock. The inventors are

Messrs. Carpenter & Co., of Willenhall, and the article is known as the "double-handed lock."

The demand this season for locks, latches, bolts, and hinges for the country trade is quite up to the average. English builders always prefer the horizontal movement in the latch bolt of rim and mortice locks; but abroad, the perpendicular action is preferred, so that the home and export branches of the trade are quite distinct. No alteration in the price of locks is likely to take place this winter; but in bolts and hinges an advance is not improbable. In the pottery district of North Staffordshire, the inquiries for porcelain and China lock furniture are more than usually brisk this season, many of the workpeople being obliged to remain beyond the usual hours to keep pace with the demand.

THE PREVENTION OF STRIKES.*

THE inquiry into means of averting the now-impending strikes, and constituting in permanency a substitute for the "armed truce" that has been the ordinary state of the relation of capital and labour to one another, has led us through the discussion of different courses to be taken, and institutions to be set on foot, to a conclusion in favour of an increased establishment of the two forms of association wherein the workman participates in profits, or beyond the wages that he receives for his labour. We have distinctly shown that for every character of man in the working-classes, it would be unsafe to say that either form of association would be suitable, at least for some time to come; but, on the other hand, facts have left us no room to doubt that associations of workmen amongst themselves, and partnerships between masters and their men, would answer commercially, and might prevent a considerable number of strikes even in the concerns left existing under the old relations of master and servant. The conclusions, however, were not ours, so much as those of writers, at once eminent as political economists and friends to the working-classes, whilst sufficiently removed from what has been called *working-man worship*. It may take some time to convince a large number of masters that their interests would be served by turning their concerns into companies, with limited liability for their workmen: efforts now being made, may not immediately secure the confidence of the men,—as we regret to hear is the case in the instance of the company of Messrs. Briggs, which we have spoken of, for working their collieries near Normanton, in Yorkshire; but the difficulties are only such as are found attendant upon all social changes. From France, every week seems to bring us some fresh publication of opinion, and some addition to the evidence that is there tending to the conclusion in favour of co-operative association as the true remedy for the evil of strikes. We have mentioned one journal of the movement: another is announced for appearance on the 15th of this month. It is to be called *La Mutualité*. The French writers claim the liberty of meeting, as essential for the complete realization of results; but as we in England have that liberty, we may take their testimony as favourable to the probability of successful issue of association on this side the Channel.

The recent strikes in France have come to pass notwithstanding the existence of *Conseils des Prud'hommes*. Different explanations are given of the circumstance. One of them is that the strikes have taken place almost entirely in those trades or callings which are not regulated by such councils; and that the occurrences were only the natural reaction, allowed by the new law as to *coalitions*, from the previous repression,—an idea that has already been adverted to by us. However, taken collectively, facts are neither opposed to an opinion of the value of Councils of Conciliation, nor conclusive of their entire sufficiency. The proportion of cases which the *Conseils des Prud'hommes* fail to settle without the courts of law, would appear to vary very greatly; still, at all times it is extremely small. But, many callings, indeed the great majority, in which there are the relations of master and servant, must always remain unrepresented in such councils as those of the public character, which there are in France; and where the dispute arises in a trade that is properly represented, the facility with which disputes may be taken before the councils, must be attended with a certain

inconvenience. The writers we refer to, are those who may be reasonably supposed alive to all that there is of value in the *Conseils*; and they it is who have the most to say in praise of the measure which the Emperor has taken in the appointment of the commission of inquiry into the facts connected with co-operative associations.

Without precluding ourselves from a return to these views, corroborative of our own, we proceed to our promised particulars of the partnership-association that has been mentioned so often in our previous articles. It will be recollected that M. Leclaire succeeded at the end of 1841 in forming the first association between himself and his workmen, following upon the formation of a Provident and Mutual Aid Society. That partnership continued according to his original intention, from 1842 to 1863, with one fortunate result of which we have given some idea; and in the course of those years, M. Leclaire was not inactive in the suggestion of means for the diminution of misery, as our last article has shown. In 1863, the twenty years, or more, of success, induced him to think that the establishment might be made to exist after he had passed from the scene of his labours, and on the original basis. He therefore procured the approval of the Provident Society, in conformity with a decree which bore the date of March 26th, 1862. The approbation was given by the Minister of the Interior, on the 27th of July, 1863; and on the 29th of August, M. Leclaire was, by a distinct Imperial decree, named president. The Society had been originally authorized by the Minister of the Interior, in 1838.

Before getting the approbation in 1863, the statutes of the Provident Society were remodelled, principally with a view to the Society's being constituted a partner in the establishment of Leclaire & Company. On the 29th of September in the same year, 1863, by an "*Acte de Société*," or deed of partnership, passed before a certain notary and his colleague, of Paris, a partnership was formed, for fifty years, between Messrs. Leclaire & Defournaux and the Provident and Mutual Aid Society of the Workmen and Employés of the *Maison Leclaire*, with the object of carrying out the undertaking of work in house-painting, gilding, paper-hanging, glazing, and the manufacture of mirrors. On this occasion, M. Leclaire appeared in his own name and also as the president of the Society.

The "*Acte*," or deed, sets forth that the establishment of M. Leclaire, founded in 1836, had from 1842 been organized on philanthropic principles, having for the object the participation by the employés and workmen (who, by various claims might be judged worthy), in the profits of the enterprise; that the results of ten years' experience having been favourable, M. Leclaire had, in 1852, joined with himself many associates animated with ideas like his own, and pledged to continue his work; that in 1857, one of the partners retired from ill health, and six years afterwards another; and that that partnership was dissolved from the 1st of July, 1863. It then mentions the resolve of Messrs. Leclaire & Defournaux to form a new association; and to admit, from the February following the date of the "*Acte*," the Mutual Aid Society of the "*Maison Leclaire*" to participate in the profits, in place of the former partner. The postponement to the following February, of the acquisition of partnership-rights by the Society, was made for reasons which it is not necessary to enter upon: the interval is however made subject, in the "*Acte*," to conditions. After these, the terms of the convention are recited in seven chapters, containing in all thirty-one "*articles*." The chapters relate to the Creation of the Partnership, the combined Fund and Contributions; the Administration and the Duties of the *Associés*; the Books, the Mode of Payment of those supplying goods, and the Balance-sheet; the Division of Profits; the Responsibility of the principal *Employés*, and Security to be given by them; and the case of Retirement of one of the Partners, the Dissolution, and the Liquidation of Debts.

In looking through this "*Acte de Société*," it is apparent, were it not before known, how minute must be the provisions for accidents, and

* See pp. 737, 758, 774, ante.

* "*Maison Leclaire et Co.*, Rue St. Georges, 11, au Coin de la Rue de la Victoire, 38. Entreprise de Peinture, Dorure, Tenture, et Vitrierie. *Acte de Société* passé par-devant Me. Leclaire de Saint-Maur et Son Collègue, Notaires à Paris, le 29 Septembre, 1863. Paris: Imprimerie de Madame Veuve Bouchard-Ruzard, Rue d'Éperon, 5, 1863." 8vo., pp. 27.

for different states in the existence, of such a form of association; and any one about to commence the formation of similar associations in this country, might advantageously study the Articles. But the importance of the Provident and Mutual Aid Society in the association, and integrally, must not be forgotten. This Society has its own rules; which appear to be very carefully drawn up.*

The regulations of the workshops are equally important to the accomplishment of the objects of the partnership; and they contain matter of particular value for the improvement of painters' work.† The Society has a library, of which the regulations and catalogue form the matter of another pamphlet.‡ There is yet another feature of the establishment deserving mention and imitation. There are special courses of lectures for those belonging to the establishment, on *hygiène*, painters' work, gilding, paperhanging, glazing, measuring, and the keeping of accounts. These lectures were commenced only on the 29th of January last. The inauguration on that day is the subject of a special report.§

From the articles of the "Acte de Société," or deed of partnership, we learn that the "Maison Leclaire," called by M. Leclaire in his report of June last, to his clients, already referred to, a partnership "en commandite," is more exactly to be described as of that character only as regards one of the three partners, namely the Provident Society. But this latter society being formed of the *employés* and workmen of the establishment, with M. Leclaire himself at the head, each one of these individuals participates in the share. For exact information of the position of each member of the establishment, therefore, the rules of that society, which have for their object merely providence and mutual aid, require to be examined. In the partnership-association, or "Maison Leclaire," the Society is a simple *commanditaire*, or "sleeping partner," receiving advantages, but not interfering with management. It is represented by its president, M. Leclaire. Between M. Leclaire and M. Defournaux (called "Les Associés," throughout the "Acte"), the partnership is of the ordinary kind, "en nom collectif." The partnership is not to be dissolved by death or withdrawal of either of the parties, but is to continue for the fifty years from the 15th of February, 1864. The head-quarters of the establishment, and the warehouses, are designated exactly where situated; and the style and signature of the concern, as under present circumstances, are given; as are also those of the concern as in the future. Eventually, in place of "Leclaire et Cie," there would be the name of the oldest partner prefixed to the word *Compagnie*; which latter would always be followed by the words *d'Ancienne Maison Leclaire*.

The capital of the concern is formed of three equal sums, making in all 300,000 francs; that is to say, M. Leclaire contributes 100,000 francs, M. Defournaux a like sum, and the Provident Society, the like. The amount of the Society's contribution has been handed in by M. Leclaire in the Society's name, partly with the Society's own moneys, and the rest with his private funds. These latter he is to reimburse himself from the Society's share of profits as accruing. The contribution of the other two partners ("Les Associés") is made in merchandise, materials existing, and amounts of debts owing to them. We

have not come upon any provision for valuation of these materials and debts. This would seem to be essential in any future case. As regards the "clientèle,"—that is, connexion, or "good will,"—it is stated that no value is set thereon, but that the contribution of it is made gratuitously, and that the property in it will be reserved to the Provident Society,—since that, many persons having interested themselves in the benevolent object of M. Leclaire, and having given him their countenance only in view of the annual partition between himself and his workmen, he would have shown ingratitude in drawing any private advantage from this element of property. Each contribution of 100,000 francs is to produce interest at 5 per cent. (per annum, it would seem), payable on the 15th of February and 15th of August in each year. Each of the three partners has an account with the concern. The balance due to each is to be paid over, as soon as the concern may have the means, in the following manner:—1. The claim of the Provident Society is to be paid before both the others, and by preference. 2. The accounts of the other two partners will be paid in proportion with their importance, and as fast as the means come in. A reserve fund of 100,000 francs is to be formed, by taking annually 20 per cent. of the profits. This fund is to cover losses, and to complete the capital in case of its having been abstracted. In any case, the reserve is to be entered upon only so much as comes to 50,000 francs; and with the following year, restitution of the sum is to commence on the system of the original formation.

The next subject is the management. As to this element of success, it used to be contended in England, by many heads of establishments, that the thing would be irreconcilable with a system of participation by workmen in profits. The articles of the third chapter of the "Acte" before us, first set forth that the partners *en nom collectif*, that is "Les Associés" (Messrs. Leclaire and Defournaux) are to be the managers (*gérants*) and responsible. They undertake to devote all their time and intelligence to the greatest advantage of the enterprise. M. Leclaire preserves the chief direction and control. After his retirement, M. Defournaux will occupy his place; and after him, the direction will belong to the oldest partner. It is distinctly set down that the members or delegates of the Provident Society are not to intermeddle in the management, or even in the superintendence-work of the commercial establishment. The article says,—

"Separately or conjointly, they will not have any justification to demand, nor any criticism, verification, or observation to make: they will be bound to be considered as strangers to the commercial association, in order not to injure the relations that ought to exist between masters and workmen."

Each of the two chief partners may use the signature of the firm; but it is expressly forbidden to each to sign notes or engagements that would furnish the groundwork of any action against the concern; and with this view, it is agreed that all materials and articles purchased shall be paid for in three months from the delivery. Next come the regulations for the subordinates of the management, the clerks and foremen. It being first observed that there would be advantage in the residence of one of the two chief partners at head-quarters, the article says that, in any case, one of the principal *employés* should there reside at the expense of the concern. An amount to be allowed to him is stated as not to exceed 1,000 francs. The person is empowered to carry into effect the matters agreed on between the two chief partners: he is to open letters in their absence; and to see persons who may call, out of the regular hours of business. A following article enjoins on the two chiefs, daily conference as to works in hand, or to be done, and also enjoins adherence to the rules and usage of the original concern. M. Leclaire adds a note on the importance of unity in the direction, and in deprecation of hasty change by any of his successors, from the rules which he had established. Each of the chiefs is allowed for his trouble in management, the sum of 6,000 francs (240*l.*) per year, the payments being made monthly and carried to the account of the general expenses. The principal *employés* are to be paid monthly, at the rate of 4,000 francs (160*l.*) a year. Before this remuneration can be given them, they must be possessed of qualifications that are mentioned in a subsequent article. Another article relates to the cash, and to the manner of drawing money from the bankers of the society.

Next, there are minute particulars as to the

account-keeping and books. To facilitate the making up the balance-sheet, firstly all the sums due by the concern are to be paid, and the property is all to be repaired and made good, and the expenses discharged, or allowed for as to be paid with the least delay. Then in each year, and on the 15th of February, a balance-sheet of the assets and liabilities is to be made up, the estimation of assets being made on a method which is minutely prescribed.

The division of profits is to be in the following manner. Twenty per cent. of the profits will first be taken to form the reserve,—unless where the 100,000 francs, its intended maximum, shall have been already reached. The remainder of the profits will then be divided thus. A fourth will belong to each of the two chief partners. The half then left, will go, two-fifths of it to the Provident Society, and three-fifths of it amongst the *employés* and workmen who may have rendered themselves worthy of the favour,—the proportions of the shares to be determined by the two chiefs. If from particular reasons, which they reserve to themselves the exclusive appreciation of, the chiefs (*Associés*) should not deem fitting to distribute the three-fifths just now mentioned, and even should the same position be reproduced several times, the portion not so shared between the *employés* and workmen, is to belong to the Provident Society; and under no pretext are the two chiefs to get a share of the profits greater than the 50 per cent. allotted to them as previously explained. The shares pertaining to the *employés* and men, will be given to them when the balance-sheet is closed, subject only to an exception which will be mentioned; and the two-fifths share of the Provident Society will be carried to the account of M. Leclaire, till his advances have been reimbursed: this reimbursement effected, the Society will receive the share belonging to it; only that excepting when there is no cash immediately available, the amount of the share will be carried to its account. As for the profits coming to each of the chiefs, they will be handed to them only when there shall be disposable funds, and after the receipt by the Provident Society of its profits; in the opposite case, these profits will be carried to their account, and they will receive them only as there may be the funds. The principal *employés* to whom may have been accorded a share in the three-fifths of the profits as before mentioned, will receive such share only after the expiration of four years. Their sum of each year, during these four years, will remain in the concern in the form of a current account, but with a special affectation of warranty for the management of the *employés*, that is to say, as security or pledge, conformably with the article 2,073 of the Code Napoléon; but the interest of these sums, at 5 per cent. will be paid to the *employés*. Should the *employé* quit the concern, the amount of his account is to remain with Messrs. Leclaire & Co. during four years afterwards. The *employé* is to share in the year's profit only up to the day of his departure. The *employés* may leave the concern without notice; and Messrs. Leclaire retain the right to get rid of them similarly.

The only Articles remaining to be noticed, relate to the case of withdrawal of one of the partners from the concern, to dissolution, and to liquidation. Each of the two chiefs has the right to retire when he pleases. In case of disagreement, or from any other motive, one of these two parties can be required by the other and by the president of the Provident Society,—these latter together agreeing,—to give his resignation. In both cases, the retirement may be immediate, and without notice from one side or the other. The contracting parties, to prevent all kinds of disputes, have decided that whatever the cause of the retirement, or the period of the year, the retiring one of the two chiefs shall not have any right over the funds in reserve, or over the profits of the current year; but that his 6,000 francs of the year shall be all given to him, and that a sum of 6,000 francs beyond, shall be given; but he will have to defray all registration-dues, and like expenses resulting from or entailed by the change. The original contribution of the partner, and the sums that would be carried to his share-account in the profits, will be reimbursed him from year to year in sixths. Interest, at 5 per cent., of sums remaining due to him, will be paid. The reimbursement will be made by the outgoing partner's successor; and the Provident Society may help the latter. Neither of the two chief partners is to cede his rights to any one. A retired partner is not to exercise the same calling in the Depart-

* "Règlement de la Société de Prévoyance et de Secours Mutuels fondée par M. Leclaire exclusivement pour les ouvriers Peintres et Employés de sa maison; autorisée par décision du Ministre de l'Intérieur, sous le No. 169, du 18 septembre 1864, en date du 28 septembre 1865, approuvée par son Exc. le Ministre de l'Intérieur le 27 Juillet, 1863, et son Président nommé par sa Majesté l'Empereur par décret en date à Saint-Cloud du 29 Août, 1863. Prix 25 centimes. Paris: Imprimerie de Madame Veuve Bouchard-Huzard, Rue de l'Eperon, 5, 1864." 8vo., pp. 34.

† "Maison Leclaire et Co.: Rue Saint-Georges, 11, au Coin de la Rue de la Victoire, 33. Entreprise de Peinture, Dorure, Tenture, et Vitrerie. Règlement à observer dans les Ateliers par les Ouvriers et Employés. Prix: 50 centimes. Paris: Imprimerie de Madame Veuve Bouchard-Huzard, Rue de l'Eperon, 5, 1864." 8vo., pp. 53.

‡ "Bibliothèque de la Société de Prévoyance et de Secours Mutuels, des Ouvriers et Employés de la Maison Leclaire," &c., &c. "Siège de la Bibliothèque, Rue Cardinet, 54 (17^e Arrondissement)," &c., &c. "15 Novembre, 1864." 8vo., pp. 32.

§ "Maison Leclaire et Co.: Entreprise de Peinture, Dorure, Tenture, et Vitrerie, à Paris. Siège de la Société de Secours Mutuels, Rue Saint-Georges, 11; Côté de la Bibliothèque, Rue Cardinet, 54 (17^e Arrondissement)." &c., &c. "15 Novembre, 1864." 8vo., pp. 32.

O—O
Médaille commémorative de l'approbation de la Société de Secours Mutuels.

Compte Rendu de l'Inauguration des Cours Spéciaux pour les Ouvriers et Employés de la Maison Leclaire et Co.: Paris: Imprimerie de Madame Veuve Bouchard-Huzard, Rue de l'Eperon, 5, 1865." 8vo., pp. 35.

ment of the Seine. The concern will not be dissolved by the death, or the forced or voluntary retreat of one of the chiefs; who in every case is to be replaced within three months following the death or resignation. The successor must be approved of by the other chief, and by the president of the Provident Society; and he must possess knowledge of house-painting and its measurement—so as to be able to make out a bill of painting and gilding, and to make an estimate from a design,—also of the keeping of the books and instructions having relation to the conduct of the business; and finally it will be necessary that he should know in some degree how to draw. The partners replacing Messrs. Leclaire and Defournaux are to have all powers to continue, rule, and liquidate the operations previously commenced; and they will be subjected to the rights and obligations of these latter.

Arrived at the period of fifty years, the concern is to be continued, if possible, on the same conditions as before. But, in the event of dissolution, from whatever cause, the Provident Society will take without indemnity,—1. The "*chénille*," good-will, or connexion; 2. The material, whatever the value, and whether it may have been entirely redeemed or not; and 3, in case the president of the Society should judge it advantageous, the leases, lettings, and bills of sale, if any, of premises and warehouses belonging to the commercial association. The Provident Society will be allowed to dispose of all such matters, or to reform the commercial association. There are other Articles relating to the same matter; but we need only mention as amongst them, one concerning the 100,000 francs reserve. The sum is to be handed over to the Société du Prince Impérial, or to the charitable establishments founded by the present Emperor and Empress of the French.

In his report of June last, M. Leclaire mentions that prior to the "*Acte*" of 1863, the affairs of his establishment went on much as they are going now, or to profit of the Provident Society,—the only difference being that what was coming in to the Society was placed in reserve by him. But the deed of partnership has allowed the Society to enter into possession of its property; so that, as he says, this year the Society has in the French "*Rentes*," in deposit in the "*Caisse des Retraites*," and in the partnership, so much that it is at the head of a capital of 194,810 francs 4 centimes; which is over 7,792*l*. This is a small amount possibly, as compared with what is possessed by each one of several benefit societies in England, that could be named; but it represents the savings of the workmen in but one concern. The reader of our previous articles referring, more especially, to the organization of the partnership, and of the Provident Society, as they respectively existed before 1863, has perceived some of the good effects that were produced in the entire prevention of strikes in the establishment of M. Leclaire (whilst the period was most prolific of disorder), and in the marked elevation of the character of the workmen. We have as yet said nothing of the good done by the Provident Society itself in the direction of its special aims, or little more than would have been known to our readers of the advantages capable of being conferred by such a society. We may however return to the regulations of this society as they exist, and to some statement of what it has effected in conjunction with the partnership association of the "*Maison Leclaire*." Our main object however, in another article, will be to complete M. Leclaire's details of the position, this year, of his at once composite and harmoniously-working enterprise, and to gather from the printed regulations of his workshops, and from the report of the inauguration of the courses of lectures, such particulars as we can, and that would be suggestive of measures on the part of those English masters, who have a proper regard for those whom they employ, who would effect the so much-needed improvement in quality of work, and who see with us at last, the main direction where to look for means of "the Prevention of Strikes."

N.W. TOWN-HALL at MANCHESTER.—The much-ventured question of a site for the new town-hall at Manchester was on Wednesday set at rest, after a long debate, by a resolution empowering the town-clerk to give the usual Parliamentary notices for powers to take the town's yard and such properties as may be required in Albert-square.

MR. GLADSTONE ON GREEK ART.

THE Chancellor of the Exchequer, in the course of his recent remarkable address to the University of Edinburgh, said,—“I venture to suggest that the anthropomorphic spirit of the Greek religion was the source of that excellence in art which has become to after ages a model for imitation and a tribunal without appeal. All are aware that the Greek religion was eminently poetical, for it fulfilled in the most striking manner that condition which poetry above all requires,—harmony in the relation between the worlds of soul and sense. Every river, fountain, grove, and hill were associated with the heart and imagination of the Greek; subject, however, always to the condition that they should appear as ruled by a presiding spirit, and that that spirit should be impersonated in the human shape. A poetical religion must, it seems, be favourable to art. The beauty of form which so much abounded in the country was also favourable to art. The Athenians, however, are stated not to have been beautiful; and at Sparta, where art was neglected, beauty was immensely prized. And, indeed, the personal beauty of a race is by no means usually found sufficient to produce the development of the fine arts; and as to the poetry of religion and its bearing upon art, while a general connexion may be admitted, it is very difficult to define the manner and degree. The practice of image-worship promotes the production of works, first rude and coarse, then more or less vulgar and tawdry. Over the whole continent of Europe there is scarcely at this moment an object of popular veneration which is worthy to be called a work of art. Of the finest remaining works of Greek art not very many, I imagine, bear the mark of having been intended for worship. The great size required for statues like the Athens of the Parthenon and the Zeus of Olympia seems unfavourable to the exhibition of fine art in the highest sense. In Pausanias we find notices of an immense number of statues in and about the temples; they are not commonly, I think, praised for excellence in this respect, and the mixture of materials, to which we find constant reference, could hardly have been chosen by the artist for the sake of his own proper purpose. I have heard Lord Macaulay give his opinion that this mixture in the Zeus of Phidias at Olympia, made of ivory and gold, simple as was that form of combination, may probably have been due to the necessity of condensation to the popular taste in connexion with an object of worship. Although, therefore, the highest artists were employed, it does not appear probable that they derived any part of their higher inspiration from the fervour or the multitude of the worshippers in the temples. That many accessories contributed to the wonderful result I do not doubt. But, mainly and essentially, every art and method, every device and habit, in the language of Aristotle, has an end, and is modelled upon the end, at which it aims; and by that end its greatness or its littleness is measured. Now, the climax of all art, it seems to be agreed, is the rendering of the human form. What, then, could be so calculated to raise this representation to the acme of its excellence, as the belief that the human form was not only the tabernacle, but the original and proper shape, the inseparable attribute, of Deity itself? In the quaint language of George Herbert,—

“He that aims the moon
Shoots higher much, than he that means a tree.”

And again, as Tennyson has sung,—

“It was my duty to have loved the highest;
We needs must love the highest when we see it,
Not Lancelot, nor another.”

It was this perpetual presentation of the highest to the mind of the Greek artist that cheered him and rewarded him; and yet, while it cheered him and rewarded him, still ever spurred him on in his pursuit. Whatever he had done, more remained to do,

“Nil actum reputans dum quid superesset agendum.”

The desire of ambition was fulfilled; he had always more worlds to conquer. The divine was made familiar to him, by correspondence of shape; but on the other side, its elements, which it was his business to draw forth and indicate to men, reached far away into the infinite. And I know not what true definition there is for any age or people of the highest excellence in any kind, unless it be perpetual effort upwards in pursuit of an object higher than ourselves, higher than our works, higher even than our hopes, yet beckoning us on from hour to

hour, and always permitting us to apprehend in part. I venture, then, to propound for consideration the opinion, that the fundamental cause of the transcendent excellence of the Greek artist lay in his being, by his birth and the tradition of his people, as well as with every favouring accessory both in idea and in form, and in such a sense as no other artist was, a worker upon deity, conceived as residing in the human form. It is hardly necessary to observe how the rich and many-sided composition of the Greek mythology favoured the artist in his work by answering to the many-sided development of the mind and life of man. Unconsciously then to himself, and in a sphere of almost parochial narrowness, the Greek not only earned himself an immortal fame, but was equipping from age to age a great school of art, to furnish principles and models made ready to the hand of that purer and higher civilization which was to be, and over the preparation of which, all the while, Divine Providence was brooding, like the Spirit on the face of the waters, till the fulness of the time should come.”

MR. GLADSTONE AND GREEK ART.

IN the present chaotic confusion in which all matters relating to art are, it must be a matter of no small interest to catch a glimpse of the opinions and fancies not only of professed artists, the producers of art-works, but as well—and perhaps it is the more important of the two—the opinions and fancies of non-professionals,—the public; and, above, all of those whose social position and vast acquirements place them so far above their fellow men. Mr. Gladstone is one of these fortunate people; and we ought, therefore, to be not a little thankful to him, as representative of a class, for going out of his public way and telling us what he thinks of art,—always, it is to be feared, to the public and business man and political economist a childish trifle, worth little more than a compassionate and passing look. Mr. Gladstone has thought over and studied this, to him, trifling matter, and treats it seriously, solemnly, and religiously. Will you, therefore, in consideration of its interest, add once more to past favours, and allow me a few words on it? If Mr. Gladstone be right in all he says, then is he the great art-teacher of his time. If he be wrong, then certainly it is he who stands in need of art-instruction and elementary and primitive school teaching.

Mr. Gladstone's address to the students of the Edinburgh University fills seven columns of the leading journal, and took two hours and a half to deliver; so that in the narrow compass which I can now ask you for, I can preface nothing, but must come at once, though very unwillingly, to his first proposition and art-dogma, though, as he says, “*volumes might be written with profit to trace the application of the principles touched upon in this address to modern civilization, and even then more would remain to be said than had been said*.” Mr. Gladstone's proposition is this:—“I venture to suggest that the anthropomorphic spirit of the Greek religion was the source of that excellence in art which has become to after-ages a model for imitation and a tribunal without appeal.” And again, “I venture, then, to propound for consideration the opinion that the fundamental cause of the transcendent excellence of the Greek artist lay on his being, by his birth and the tradition of his people, as well as with every favouring accessory, both in idea and in form, and in such a sense as no other artist was, a worker upon deity conceived as residing in the human form.” This is Mr. Gladstone's Greek art proposition, got from the positive study of Homer, the negative study of the Bible—for of the Jew, he tells us,—“though always ready to worship the serpent or the golden calf,—his idolatry never was anthropomorphic. The majesty of deity was thus in the belief of the Hebrew race effectually apart from that one form of lowering association which was by far the subtlest, the most attractive, and the most enchainingly,” and from his determined and most positive refusal to look at the actual remains of Greek art itself. This it is that must justify me in saying simply that these propositions, and all that this learned person has founded on them, have no existence whatever in fact, as to be seen in the works themselves, and are, moreover, the direct and absolute reverse of the truth. In contradistinction to Mr. Gladstone's theory, I venture to suggest that the anthropomorphic spirit of the Greek religion

had nothing whatever to do directly with that excellence in art, to be seen and found in the actual remains of it, but that it all came of natural taste, wonderful powers of observation, and executive power never surpassed in the artist who executed the work,—the combined result of his fact-observing mind and self-executive hand. I undertake, therefore, to destroy Mr. Gladstone's theory of Greek art in the mind of any reader, and even in Mr. Gladstone's own, if they, or he, will condescend to go to the British Museum, and look at the marbles themselves, but not otherwise. I must confine myself to one particular series for this, *i.e.*, the original unrestored work, so that we cannot be deceived. The reader must bear in mind that this sculpture is connected one figure or group after another, and shows us the whole order of the procession, for the simple purpose of carrying in great state the *Peplos*, or sacred veil, to be suspended before the statue of the goddess within the temple. It would take too long to catalogue these wonderful figures: it is sufficient to say that every and all the minute details of the procession and sacrifice are shown, the instruments used, and the victims. Nothing but careful looking at can realise this. Greek art is well nigh forgotten now-a-days, so that we must remind the reader also that this procession marched twice round the Acropolis on which the temple stood, and passing through the propylæa, or acropolis gateway, found itself, not in front of the temple, but immediately opposite its north-west angle, thus to see it at the greatest possible advantage, *viz.*, angularly. When near to the platform on which the temple stood, the procession divided,—it is important to note this,—one part passing by the north side, and the other passing by the south side, and meeting again at the real front of the temple, the east end; that portion of it bearing the *peplos* doubtless entering the temple where were in all probability those who were appointed to receive it. If the reader will, after looking at the marbles, try to *realise* this procession, he will have no sort of difficulty in doing so; for it is a perfect and literal rendering of it, and, indeed, simple copy of it. "The meanest man can copy." Among these was Pheidias, the chief sculptor of this stone manuscript. So literal is this copy that the very dividing of the procession is shown at one of the angles, both meeting, as did the procession itself, at the middle of the east end, immediately over the doorway. It will add to clearness to note that, from No. 17 to No. 25, as figured in the museum, all are from the east front, No. 10 being the centre panel. The magnificent seated figures, six on one side and two on the other,—the remaining four being lost,—are considered by the learned and spiritual to represent gods and goddesses, as Jupiter and Juno, Castor and Pollux, and so on; but, if the reader will look at slab 18 more especially, he will see that figures leaning familiarly on each others' shoulders, talking together, and even one of them in the act of hugging his knee, are not likely to have been the gods as conceived by the mind of a Greek, or even by Mr. Gladstone, but are of those privileged few who had seats either in the temple or on either side of the outer platform on which it stood. They simply waited for and received the procession, and perhaps, as slab 18, were the sacrificing priests and soothsayers.

The learning that has been brought to bear on these figures is wonderful and deep, past finding out, but quite thrown away. It would fill a volume. But I am not now trying to prove this, but to show how entirely all this great work, the triumph of Greek art, is not *imaginative*, but *realistic*; not *deified*, but *human*. It is all simply the copying in stone of a real and actual occurrence, and not the coinage of the brain or the result of invention. Neither is it, nor can it have been, brought into existence by "a sense, such as no other artists ever had, of being workers upon deity conceived as residing in the human form," and for the additional purpose of "furnishing principles and models made ready to the hand of that purer and higher civilization which was to be," and, we must suppose, now is; but where, Mr. Gladstone should have told us. It is simple copyism, at once instantaneous in the mental impression received from the object itself, consummate powers of drawing and stone-cutting, and the fact—the certain fact—so unlike the work of the modern sculptor, that the artist himself, *with his own hand*, wrote on the stone surface. Seeing all this, what a pity it is that this thoughtful chancellor, timidly speculative in spite of himself, did not first "open his eyes and see." Thus of Greek art Mr. Gladstone knows nothing whatever; he has not yet looked at it; but what a tremendous superstructure of theory and art practice has he not built up on it. And this is art interest, no less than this,—that no artist can ever hope to approach, even at a distance, the might of the Greek work, unless he be impregnated with the idea that the human figure he is trying to copy is *deified*, whatever may be the occupation or action of it; and the same it may be presumed applying equally to the horses and cattle which may be moving along with them; for the victims and horses are as magnificent in form and action as the human figures.

It will be obviously impossible to notice, even by name, the many art thoughts Mr. Gladstone has opened up in this learned address; but one other theory he has built up on his "Greek anthropomorphic" idea. I must ask leave to say a word: it is, that it was and is the great "intellectual factor of the Christian civilization." "Salt," he continues, "is one thing; the thing salted, another." The Greeks were ordained to labour in fine art especially, and philosophy, to fill up a vast unprovided-for vacancy, both working harmoniously together towards a common end. This is the text of Mr. Gladstone's address. But, is it true? On the contrary, every fact is against it. Greek philosophy and speculative thinking, and I had almost said, Greek art, from the days of Pericles and St. Paul, and St. Augustine, down to the present hour, have been and now are *antagonistic*! What does not Mr. Gladstone mean?

In these advanced days, it is the fashion to moralize on every text. There is a very profound moral in this; for what is it we now all day long see about us? the producers of art, and those for whom it is manufactured. On the one side, is this very learned and "advanced scholar," and future Prime Minister of England, with every conceivable advantage the world can bestow at present on any man: everything is his. The great Greek art was and is produced for him, and such as he,—might I not say for them alone, for they only have time to look at it? Mr. Gladstone has read about it all, speculated about it, refused to look at it,—or, if he has, but with a momentary condescending nod,—and knows, above all, nothing whatever about it. On the other hand, we have the producers of art,—those, as he says, for whom the Greek "left his art as a legacy defying all competition and all appeal;"—those who now in architects' offices and sculptors' studios really work out our modern art, at the wages of common mechanics and policemen. Mr. Gladstone is compelled in the course of his imperial duties to go into the details of corking wine-bottles and measuring tubs; does he know what an "improver" in art means and measures? And

* I cannot help adding,—and I think Mr. Gladstone's course of reasoning justifies my doing so—a thought which I have not seen elsewhere. It is a very solemn one, and goes to the heart of things. It is this,—that Nature is never still; that in all ages of the world, from the earliest records of history down to the present hour, there have always been two kinds of original and progressive thinkers,—the world following now one, now the other, and perpetually at war as to which of the twin is to have the mastery in its heart and soul. The one are the mighty religious thinkers—those to whom something has been supernaturally revealed. Of such were Moses and Mahomet, St. Paul and Augustine, and the saints of the Church. The other kind are those mighty thinkers who have never professed to have come at their thoughts through a revelation of any kind or from any source, but from whose own minds and nature their thoughts have, as it were, bubbled up like the waters of a spring,—aided by observation and reflection. Of such were Aristotle and Cicero, Bacon and Gal, and generally the reasoners of the world. These two transcendent forces are, and always have been, antagonistic: to hold to and follow the one is to reject the other. Mr. Gladstone says they are working together. Where are they working together? Cicero, in his little treatise, is all along fighting the deities of his day, while the Cæsars stood by and laughed. In our day these two powers are as wide asunder as the poles of the world; no dovetailing of "Elements" even seems possible. Will Mr. Gladstone venture to divide into this line of reason? In St. Augustine's day, and specially in his own person, was this battle fought, and left to the very last an undecided contest. Augustine was a Christian and a saint, but at the self-same time his inmost soul was Greek and heathen to the last.

where would all his wonderful theories be if he did? These working people are now threatened with extinction, if they do not speedily become "advanced scholars," even like unto Mr. Gladstone himself, ready with quotations from Rousseaueau, Plato, Lord Macaulay, Buckle, Sir J. Acton, and Homer, and hosts of others, bewildering even to name. What this advanced learning has done for this eminent person we see; what, then, shall it do for the working art drudge?

How much is it to be lamented that Mr. Gladstone did not in this vital inquiry cast aside all this learning; throw it from him as an incumbrance; gone quietly by himself for a day even, and looked at the Greek art in the British Museum; walked home, looking all the while at modern imitations of Greek art; and then asked himself, "Who does all this?" Then might he indeed with profit have gone down to the modern Athenian University and lectured its students, and left even Mr. Thomas Carlyle a practical and useful and human text to talk about.

C. BRUCE ALLEN.

CONSUMPTION AND FRESH AIR.*

DR. POLLOCK has made excellent use of the large field for observation and practice presented to him as physician to the Hospital for Consumption at Brompton, and has produced an admirable book, which is a valuable addition to the literature of the disease. It will tend greatly to extend the knowledge of it, and it is to be hoped will lead, in conjunction with the labours of others in the same cause, to the discovery of some method of treatment better adapted than that at present known, to the cure, or, at any rate, the prevention, of this national scourge. Much has been written lately in opposition to the establishment of special hospitals; but few have denied the immense advantage of the particular institution to which he is attached; and, if any further proof were wanted, the fact of the publication of this book as the result of a minute and skilful analysis of 3,500 cases in the author's practice alone, would be quite sufficient. The title hardly expresses the scope of the work; for, although valuable rules for prognosis are given for each stage and most of the complications of the disease, it is really a masterly monograph of the pathology and treatment of consumption, and is evidently the work of an accomplished and energetic physician.

As a matter of course, in a book of this character, there are some few statements which rather startle us at first sight, and are likely to provoke discussion; such, for instance, as the alleged immunity of consumptives from liability to catarrh and bronchitis, from atmospheric influences; the opinion of the non-alliance of scrofula and consumption. Indeed, Dr. Pollock gives a chapter, devoted to strumous consumption, almost making it a distinct species, which is certainly not the opinion of most observers; and again the assertion that emaciation *always* precedes the deposit of tubercle, &c., &c.; but the book is written so honestly, and in such a pleasing style, that it is hard to find any fault with it at all.

The chapter on preventive treatment is so excellent that it cannot be too widely known; indeed, the paragraph on ventilation so fully endorses the opinions set forth on the subject in this journal on so many occasions, that we give it entire:—

"The ventilation of sleeping-rooms demands even more care. In winter there may be a fire, and a louvre ventilator 2 ft. square in the door, with access of fresh air from an open window on the adjoining staircase. This should be open day and night, but less open in severe cold weather in winter. The above plan is far better than warming the whole house by a heating apparatus, for it insures change of the inspired air, which the latter plan does not. The mode of obtaining fresh air in the sleeping-floors of our modern houses by an open window summer and winter, has several advantages. The air so entering is derived from the upper stratum, and not from that on a level with the streets. It also prevents the access of miasmata, and of the fermentation and products of foul drainage, which are derived from the basement. Where the kitchens are below the level of the ground (as in London), a door should shut off the whole of the floor, and with it all entrance of air from drains. If a house be shut up at all points at night, the air which must enter will find its way from the drains, and down the chimneys, in both cases foul and impure. Let us then get rid of prejudice, and let in that portion of the atmosphere which is the purest that is possible to obtain; and this can alone be had from a free opening on the higher floors of the house, and best of all from a window. Temperature in the bed-room is to be maintained by fire in

* "The Elements of Prognosis in Consumption, with Indications for the Prevention and Treatment." By Jas. Edward Pollock, M.D. London: Longmans, Green, & Co. 1865.

an open fireplace, which is in itself the best of ventilators. Having thus provided for warmth and pure air in the sleeping-room in winter, we can secure it equally in summer, by leaving the bed-room window open at the top. Delicate children cannot be too soon accustomed to sleep in fresh air. With warm bed-clothing (a very important point), this is not only safe, but necessary; and, remembering that the organs of respiration are those threatened by the disease we are considering, their vital processes cannot too early be accustomed to pure unventilated air; and this should not be scanty or filtered through warming machinery, but unrestricted in quantity, and as pure as is obtainable. The points to remember about open windows in sleeping-rooms are, that the bed-clothing be sufficient, and that no current of air be directed on the body."

And again, with respect to the influence of occupation, it is mentioned as a remarkable fact that butchers are of all others least liable to consumption, which is chiefly to be attributed to their constant employment in the open air, and not being subjected to the bad effects of crowded and ill-ventilated workshops. Occupation holds the second place after hereditary predisposition in the causation of consumption, and regarding it Dr. Pollock remarks:—

"That which is deleterious in occupations, *per se*, may be referred to the heads of ventilation, confinement within doors, posture, deleterious matters inhaled, and too great prolongation of working hours. Of these, ventilation is probably the most important as influencing the largest numbers; but, if confinement to chambers be added to it, we shall find here the two agents most fertile in the induction of tubercular diseases.

The effect of crowding numbers together without sufficient access of air is well known.

The extinction of disease by altering the unwholesome conditions in which numbers live is scarcely less striking, although less known.

In their working-rooms and sleeping-apartments, the lower classes of this and of all other countries are deprived of a sufficiency of air to support vital changes in their integrity. It is not sufficient to measure the exact quantity of carbonic acid which may be present without the extinction of life: a far lower quantity of the impure products of respiration added to the exhalations from the human body, is capable of inducing disease in the system which shall ultimately prove fatal. The respiration of impure air directly debilitates the vital powers, enfeebles the nervous system, depresses appetite, deranges the secretions, and leads to the retention of effete matters in the blood. The decarbonisation of the blood is directly lessened by the absence of a sufficient equivalent of oxygen in the respired air, and some have even gone so far as to attribute phthisis directly to this cause. And whether the retention of carbon in the system be a proximate cause of phthisis or not, we shall do well to consider the conditions under which its exhalation from the lungs is increased or diminished."

Dr. Greenhow is quoted to show that the preventable cases of consumption in England and Wales amount to the almost incredible number of 45,000; and the inquiries recently carried out in Sheffield and elsewhere go far to prove this correct.

Let us say in conclusion, that we have read this book with much pleasure, and we congratulate Dr. Pollock on the production of this result of his ability and perseverance.

THE HEALTHFULNESS OF MARGATE.

THE communication from Mr. Edward Mottley, in the last issue of the *Builder*, bears just tribute to the local advantages of Margate. The equable temperature and dryness of its atmosphere during the winter months should point it out as a most desirable winter residence for invalids. The great complaint of the inhabitants is the shortness of the season; and he who can induce visitors to make more extended trial, and remain during the winter months, will deserve to have his statue erected on the Fort as a benefactor to Margate and his kind.

All that Mr. Mottley states is quite true as to the advantages Margate affords for winter residence: higher authorities than he, Sir James Clark, Dr. Erasmus Wilson, and others, have said the same; and, could the tide of public estimation in this respect once be turned towards the place, there is little doubt the benefit to invalids and to the town itself would be mutual.

But in Mr. Mottley's present communication there is an element which may mislead the good folks of Margate, and which it is the present object to clearly point out. The mortality, according to his statistics, is very low indeed in Margate during the winter months; but, granting this, may it not be urged that the evils of insufficient drainage, of defective sanitary arrangements, of the existence of the intolerable nuisance of cesspools, are less active in their pernicious influence during the winter months; and, to put it still more strongly, that the machinery, imperfect though it may be, that clumsily answers for a population of ten thousand persons in the winter time, may altogether break down when used by forty or fifty thousand in the hot months of July and August?

The inhabitants must not rest in false confidence because Mr. Mottley's statistics show Margate to be locally—that is, by situation and natural causes—so happily healthful. To deserve support of visitors, no efforts should be spared; and, to lengthen to ten or twelve months of prosperity the present short season of three or four, the following requisites are wanting:—Houses built for winter residence; sheltered promenades for winter invalids; well-situated hotels for winter visitors; and, above all and before all, roads, drainage, and determined sanitary reform. These happily accomplished, Margate will claim the reward of her perseverance; and the not-half-sufficiently-valued old town will be our Torquay, Madeira, and Mentone all in one, with the pure bracing air peculiar to herself, unequalled, and never changing.

THE POSITION OF THE ARCHITECTURAL EXHIBITION.

I ATTENDED the public meeting, held on Tuesday, to consider the condition of this institution, expecting that something would be proposed in the form of a new programme, to meet the many complaints which have been made against the management for years back; and I am bound to say that anything more completely unsatisfactory than the proceedings at that meeting I have never experienced. It appears that for fifteen years somebody has been collecting and disbursing a considerable amount of subscriptions, without even that simplest of all the conditions of constitutional management—the annual meeting of subscribers! The gentlemen of the "committee" have taken all the trouble of electing themselves and re-electing themselves; of dismissing and dropping each other; of making and unmaking the regulations of the society; of appealing, complaining, and reporting to the profession and the public; of receiving, paying, and auditing, &c., without a moment's misgiving as to the end of it all. And what, then, is the end, or, rather, the present point of progress thereto? What is the cure proposed for the public dissatisfaction taking its most fatal form when, as in this case, it takes the form of the persistent apathy so lugubriously deplored? What new programme had the "committee" to propose to the great public meeting convened with such a flourish of trumpets? First, the creation of a new order: when empire gets weak in the knees, there is always a growth of dignities. The "committees" elevate the retiring secretary-active to the new title of a vice-president, with the retiring secretary-non-active for his colleague, and Mr. Asphitell and Mr. Tite (who, I venture to suggest, have never had anything to do with the scheme) to "float" the whole. The "committee" further elevates itself into the honourable position of a "council," and beyond these two notable measures I am really at a loss to understand what is to be done. Is this to cure "the apathy of the more influential part of the profession?" I ventured, so far as courtesy would admit, to hint that a clean sweep of the "committee" was the right thing for the circumstances, so that the superior class of architects might be invited to assume what I feel sure would be to them the grateful task of re-constituting the institution on a higher level altogether. What do you imagine was the reply? "We have tried all those gentlemen whom you name, and not one of them has ever been found willing to take part in the management!" To which I ventured to rejoin, that to my mind this fact showed, not the incurable apathy of the superior men (who make up such difficulty about assisting in the same house), but something in the system of management which drives them away. Surely this is a state of things which ought at once to be remedied. If, as is often suggested, the "Architectural Exhibition" is practically nothing better than a combination of the art of a couple of hundred inferior "pretty pictures" by beginners, with the science of a lot of quack cooking-ranges and water-closets, the latter providing the means of meeting the expense of both, then the sooner the simple remedy is applied of calling in the aid of men who can do without such a discreditable scheme the better. If, on the other hand, it is intended that the best works of the best architects are to cover the walls, in co-operation—perhaps even in competition—with the Royal Academy, then again how can it be possible that these superior men refuse their aid unless by reason of some-

thing in the management? When we hear, as we did at the meeting in question, no other apology offered for want of success except denunciations of Mr. Donaldson and Mr. Hope for having spoken disrespectfully of the Equator, and sneers at the entire body of "the principal architects," for their unfeeling and unpatriotic idiosyncrasy in failing to perceive the money value of the invitation to have their "best works" exhibited more or less over a patent syphon pan apparatus at the low charge of 7s. 2d. (with a liberal discount to architects and the trade),—when we find the "committee" so totally incompetent to grasp that simplest of commercial ideas, that if you have been pushing an undertaking uphill for fifteen years, and can't make it hang anyhow, it is time to revise the whole thing,—what will be the verdict of common sense contributors? When I, for one, urged the advisableness of what I called "constitutional proceedings," the answer was, "We have no constitution!" So it appears. Query, therefore, whether it is not the proper time to demand a constitution, and meanwhile refuse the supplies? Pray excuse a somewhat spasmodic style in these remarks, thrown off in a hurry to be in time for the present week's issue of your paper; and let me assure you and your readers that they are dictated only by the deep interest taken in the real cause of an "Architectural Exhibition" by one who can easily be recognised as a steadfast supporter in many ways of the present attempt ever since its origin.

R. K.

THE SANITARY CONDITION OF LINCOLN.

A PAPER on the drainage of the city of Lincoln, by the surveyor to the corporation, Mr. Drury, has appeared in the *Lincolnshire Chronicle*, from which we take the following details and remarks:—

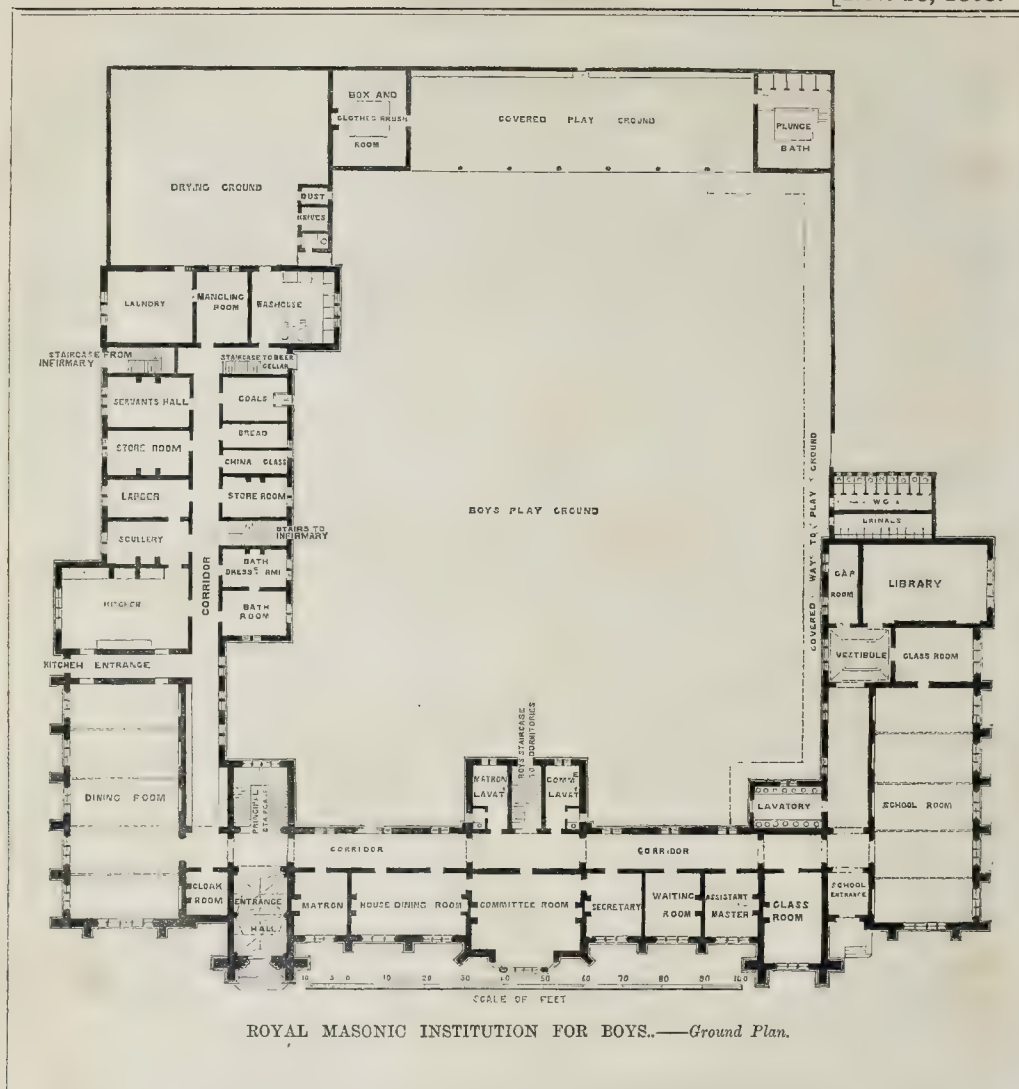
"The city of Lincoln is divided by the natural conformation of its site into two districts, viz. Up-hill and Below-hill. Up-hill may be roughly described as that portion of the city north of the river Witham, occupying an extent of about one mile long and 1,000 yards wide, and is built upon the sloping sides and plateau of a hill, rising 210 feet above the river, and the whole extent, with some slight exceptions, might be drained by gravitation. Assuming the present population of Lincoln to be 24,000, the probable cost, calculated at the average, would be 15,000*l.*, which sum might be borrowed, the principal and interest to be paid off in thirty years by an annual payment of 900*l.* or about 8*d.* per head per annum. The present rateable value of the city is 70,000*l.*, and an 8*d.* rate now levied by the Lighting and Faving Commissioners brings in over 2,300*l.* An additional 8*d.* rate would bring in nearly 900*l.*; but as the rateable property assessed under the commission does not include the 8*l.* houses nor the land which would become liable under the Local Government Act, it is reasonably calculated that the ratepayers would actually pay less than a 3*d.* rate additional for the privilege of being able to get rid easily of the offensive nuisances which pervade the whole town; whereas now every effort to that end made by private individuals has to be effected not only at an enormous cost to themselves but to the whole town through the increased contamination of the river or the poisoning of the subsoil.

That improvement in health would be gained by good drainage is proved, first, by the returns of the County Hospital, which, since the abolition of the cesspools and the adoption of the present very inefficient drain, has become much healthier; secondly, by the reports of towns throughout the kingdom which have adopted a complete system of sewerage."

The journal from which we quote, in a leading article on the subject of Mr. Drury's paper, draws attention also to the overcrowded and ill-ventilated dwellings of the poor. "Many of these places," remarks the writer, "require 'reforming altogether'; indeed, some of them are so abominably bad that they ought to be 'improved off the face of the earth.' Hence the determined and bitter opposition of their owners to a sanitary *résumé*. We have often advocated the adoption of the Local Government Act on this ground, as well as for the sake of the powers it would confer with respect to the supervision of new buildings and the formation of new streets—a highly necessary branch of jurisdiction in a rapidly growing town like Lincoln."

In a long letter to the editor, Mr. D. J. Garnham, house surgeon *pro tem*, to the local Dispensary, enters into details of the state of the courts and lanes of the city, and the causes of the prevalence of epidemic diseases. It is the old story. Wherever there is most filth, overcrowding, &c., there we find appended such remarks as these: "Fever and smallpox have visited here this month"—"these eight houses have lately been visited with some severe cases of fever"—"the sad details being occasionally modified, however, by such notifications as this: 'I do not know of any illness in these houses, which are fair and well-ventilated residences.'"

* Dr. McCormack, of Belfast, has advocated this view.



COMPETITIONS.

Wolverhampton Town Hall.—The committee report that nineteen designs were received, and, with the assistance of the borough surveyor, examined. After several meetings, this number was reduced to eight, and afterwards to four. Of these four the committee are of opinion that the design bearing the device of a Crown is the best in order of merit; and they, therefore, recommend that the premium of 100*l.* be awarded to the author of that design, provided it can be carried out for the sum stated in the estimate accompanying it, viz., 15,000*l.* The committee consider the second premium of 50*l.* should be awarded to the author of the design bearing the motto of "Non quo, sed quomodo."

ROYAL MASONIC INSTITUTION FOR BOYS,
WOOD GREEN, TOTTENHAM.

WE mentioned recently the inauguration of this institution, and now give a view of it and the plan of the principal floor. The building is placed 150 ft. from the public road, and is faced with white Suffolk bricks and stone dressings; the copings, water-tables, and strings are exe-

cuted in Ketton stone; the tracery of the windows, mullions, jambs, and sills are in Ancaster stone. Gauged arches of alternate yellow and white bricks are introduced over the windows; the entrance-hall is paved with encaustic tiles, has a groined roof in Bath stone, the ribs springing from carved caps, and polished granite shafts. The corridors, boys' entrance-hall, and vestibule to library are paved with coloured tiles.

The dining-hall, 48 ft. high to apex of roof, with organ gallery 7 ft. 8 in. wide at north end, and the school-room, 45 ft. high, have open-timber roofs, stained in imitation of oak, and, with the corridors, library, &c., are warmed with hot water.

In addition to the accommodation shown on the ground plan, the first floor contains four dormitories, 12 ft. 6 in. high; also sleeping apartments for the matron and maid servants. The infirmary, with a western aspect, contains sick ward, convalescent and nurses' rooms, bathroom and lavatory, with separate stone staircase.

The second floor contains five dormitories, average 12 ft. 6 in. high, and bed-rooms for the assistant masters.

Eight lavatories, placed in convenient situations, contain 75 basins, &c. The building is intended to accommodate 150 boys, and the

dormitories would give about 40 superficial feet and 500 cubic feet to each boy.

The architects are Mr. Edwin Pearce and Messrs. S. B. Wilson & Son. The contractors for the building are Messrs. George Myers & Son, Lambeth. The engineering works, lavatory and washhouse fittings, and water-service, are by Messrs. W. Jones & Son, Castle-street, Leicester-square.

The gas fittings are by Messrs. H. Greene & Co., King William-street, City.

The heating apparatus is by Mr. S. Egan Rosser, Dorset-street; the latrines, &c., are by Mr. Geo. Jennings, of Lambeth.

The cost of the building, &c., as contracted for, is as follows:—

Foundations	£1,899 14 1	
Superstructure	21,894 0 0	
Latrines and urinals.....	23,793 14 1	
Heating apparatus	140 15 0	
Water service.....	275 11 0	
Gas-fitting, &c.....	440 0 0	
Engineering work.....	259 0 0	
	1,280 0 0	

£26,165 0 1

The organ in the dining-hall is by Messrs. Gray & Davison, Euston-road.

The building is situated at Wood Green, five miles from the King's Cross Station on the Great Northern Railway.

ROYAL, MASONIC INSTITUTION FOR BOYS, WOOD GREEN, TOTENHAM.—MR. EDWIN DANCE AND MESSRS. S. L. WILSON & SON, ARCHITECTS.



MODERN HOUSES.

SIR,—Long and diffuse as has been the discussion on the decline of domestic architecture, no fair conclusion has been arrived at; the object of every correspondent with journalism seeming to be to decry stucco and cheap domiciles; or to show their travelled acquirements, like "Master of Arts," when he referred to experiences in Rome, Tivoli, and Naples, in Arab tents, Syrian huts, and waggons of Damascus; and complained that in seven months (if the tenant should survive rheums and catarrhs for so long a space), the veneer of his modern furniture peels off, the backs of his chairs curl up, and the French polish oozes away! Then, quoting from Vitruvius, he invokes Ruskin, and imprecates an earthquake—"a good, wholesome, general earthquake," to abate, by a single shock, the 100,000 "lean, shabby, slender, and mangy tenements" which have been crowded together within ten years, near all the railway stations within fifteen minutes of the metropolis.

Others, again, have censured the style of finish bestowed upon all modern tenements ranging from 30*l.* to 150*l.* a year; the coating of combs, the quality of joiners' work and timber, the frail marble mantels, the plastering, and, above all, the ornamentation in cornices and pateras, condemning all as sham realities, or real shams, and then conclude with the wind-up complaint that the rents of such novelties are too dear.

It is not my object to argue that the quality and style of such modern houses are right or satisfactory to taste, but the requirements of the time demand the erection of houses for increasing multitudes flocking to London, as also for the 100,000 denizens dislocated by railroads and stations, which in all quarters invade, modify, and demolish the old metropolis.

It is well known that these innovations have enhanced the value of every building-site within the twelve-mile radius, and that central positions in trading localities now command ten times the value fixed upon them only ten years back; and also that every acre within three stations of the City is now enhanced to a fourfold value.

That objection should be made to the neat finish of the cheapest houses, say at 30*l.* or 35*l.* a year for those of six rooms, or 45*l.* for eight rooms, even although slight and covered in plaster; or that marble mantels, worked stucco, and sembling grained finish of painting should be decried, because not of the first quality of workmanship, is unreasonable.

Is the occupier of such a house not to be indulged with the idea that his tabernacle should in some degree assimilate to the villas or halls of the wealthy commercialists who settle down in new suburban residences, or who reconstruct demolished warehouses in all quarters of the City, in a style of which even Venice might be proud?

The requirement for houses to lodge the population dispossessed by recent demolitions has caused a competition amongst builders, as well as the owners of land. The rent exacted for any site within a fifteen-miles range by rail, if only 17 ft. by 40 ft., is on an average 5*l.* a year. With such an incumbrance the speculative builder starts; his outlay upon a six-roomed improvisation must be, exclusive of his own labour and time, 150*l.* He must hasten to complete, and is forced to raise his capital, story by story, as he proceeds, by giving a bonus of fifteen per cent. to the sagacious lenders. Thus he must expend 22*l.* 10*s.* for usance, and 39*l.* for his own time (six months), at only 5*s.* a day, until the "blotch" is finished, and fit for occupation or sale.

This will make, together with 5*l.* for the first year's rent, in all 216*l.* 10*s.*; and to complete such an erection for that amount would be impossible, if the materials and quality of workmanship were such as a surveyor would undoubtedly require on a matter of arbitration or reference.

In this case our constructive adventurer may perhaps get 30*l.* a year in rent, or may ask 300*l.*, and take 250*l.*, for his good-will and lease.

The tenement is certainly not of that class, in point of construction and finish, which a gentleman of fortune, or retired tradesman, would found on his own freehold; but it is one that suits the City official or clerk, who finds that the proprietorship of a mansion (restricted and meagre though it be) for the use of his family is better than a second-floor in the West-end at the same cost; and that his transit daily by a third-class railway-ticket is only two-thirds of

the charge for four miles by omnibus. If his markets are a little dearer, he has only to regulate his supplies from Leadenhall and Billingsgate, while the pure atmosphere of his abode reduces the expenses of medicine and advice by a large equivalent.

The tirade against flimsy houses, sham architecture, and the pretensions character of those new but humble dwellings is not called for; competition must regulate both the quality and style of the smallest ranges at the junction, or of the mansions and terraces of the park or common. There is ample scope for the display of architectural talent and skill in the City, growing daily more gorgeous, and throughout the counties where the capitalist delights in adorning his hall.

It is well that small houses are multiplied to meet the wants of a population increased to an extent without example; for if the huddling together of houses were to have continued, leaving old London to fester in its swarming slums, a visitation by epidemics might again resume the character of those, the last whereof was enshrined in Smithfield and the purlieus of the Charter-house.

The great demand for small and cheap houses near to the various vicinal stations, and their summary occupation so soon as they are finished, give pretty fair proof of their utility and actual requirement; and although a traveller, or gentleman of reduced means and refined tastes, may disdain cheap decorations, and slender marble mantels; still such neat though slender, and comfortable though slight, abodes are an accommodation and boon to the industrial classes.

QUONDAM.

CHURCH EXTENSION IN BELFAST.

ON Friday, the 27th ult., the Primate of all Ireland laid the foundation-stone of a new church, which is to be dedicated to St. Mary. It is the first of five churches which are about to be erected to supply the pressing need of accommodation for the greatly increasing population of Belfast and its suburbs. The site is on the Crumlin-road, and was presented gratuitously. The scheme has been on foot for some years; but, until certain formalities had been gone through, the committee were not able to commence building. The committee is formed of the most influential men in the town; and their object is to raise sufficient money to endow these churches and purchase sites. The money so raised is met by the Ecclesiastical Commissioners with a sum sufficient to erect and complete the churches themselves. In the case of St. Mary's, a further sum of 1,000*l.* has been placed at the committee's disposal, by the executors of the Beresford family, who left a certain sum of money to be devoted to this purpose. St. Mary's being the first church, will be built on a more extensive scale than the remaining four. The design is by Messrs. W. Slater & E. H. Carpenter, of London, under whose superintendence, together with that of the Ecclesiastical Commissioners' architect, it is being carried out.

The church will accommodate between 600 and 700 persons. It is cruciform in plan, having a wide nave, with aisles, transepts, apsidal choir, with vestry and organ chamber, on the south side; and a lofty central tower and spire. It is Early Pointed in style. The nave is four bays in length, the columns of which, together with the alternate vousoirs, are of red Carlisle stone. The material generally used is white Scarsbo stone. The aisles have lofty gabled roofs, and, there being no clerestory, the lights are large, having two windows, with a circle over, under one wide arch. Red Carlisle stone is used in all the arches of the windows, and tower, and for bands and strings. The roofs, seats, &c., are of deal. The organ is to be over the vestry, and open to the church by arches in the chancel and transepts; and the seats for the choir are on the north and south sides of the chancel. The pulpit will be against the north-east tower pier.

The tower stands on four arches, resting on massive moulded piers, and has an arched lantern story, open to the church, for the purpose of obtaining additional light and a lofty effect. The two upper stages have richly moulded arcades, five arches on each face, resting on columns with five capitals. In each arch is a lofty lancet window. The spire rests on a moulded and corbelled cornice. It is of

timber, and slated, having on each of its four cardinal faces lights of oak, surmounted with small slate spires.

The works are being executed by Mr. Henry, of Belfast; and will be completed in about eighteen months.

The site of the second church is not yet finally settled; but the building will be in a very short time commenced.

BRISTOL SOCIETY OF ARCHITECTS.

ON Wednesday, the 8th inst., a meeting of the Bristol Society of Architects was held at the Fine Arts Academy. Mr. S. C. Fripp in the chair, to take into consideration a notice of motion by Mr. A. C. Ponton (fellow), to the effect that it would be desirable, in order to extend the usefulness and promote the effectual working of the society, to make the alterations contained in the agenda paper, which were in substance the following:—

To drop the exclusively professional character of the society by altering its name to the "Bristol Architectural Society."

The admission of amateur members into the council.

The admission (under certain restrictions) of ladies, who should be present at the ordinary general meetings; and

The reduction of the terms of subscription, and number of meetings.

Mr. Ponton said his object was to try to increase the number of those who belonged to the society. It was found that those who took an interest in its affairs were generally the lay members. The professional members did not attend their meetings or take that interest in the proceedings of the society which was expected; and it appeared to him, as well as to some other members, that their best course would be to try to reduce the subscription and make it a mere trifle, hoping by that means to get those interested in architecture to attend the society's meetings, and thereby greatly extend its influence and usefulness.

Mr. C. J. Phipps (hon. secretary) said he also was an advocate for the alteration of the rules and the re-constitution of the society, for the labour in connexion with it had been great, and the results very small. He adverted to the meeting during the past year, which had been well and largely attended by amateur members, students, and visitors; but as to the fellows, or professional members, on an average never more than five out of the twenty-one members attended. Consequently their title and constitution as a society of architects was a pure myth. He felt sure that if the alterations were made, instead of seventy members as at present, the society would quickly double the number.

After some discussion, Mr. Ponton proceeded to move the various alterations *seriatim*. The first proposition was, "That the name of this society shall be the Bristol Architectural Society." Seconded and carried.

The second resolution was, "That the society shall consist of four classes,—members, associates, honorary members, and corresponding members."

Mr. Hansom moved an amendment, "That the society shall consist of four classes. First, fellows; secondly, associates, being students and assistants, and gentlemen amateurs; thirdly, honorary members and corresponding members; fourthly, ladies interested in the study of architecture."

After some discussion, the amendment was carried.

The third resolution was, "That the annual subscription for all classes connected with the society should be 7*s.* 6*d.*"

Mr. Hansom moved, as an amendment, "Fellows, one guinea; associates, half-a-guinea; ladies, 5*s.*" The amendment was carried.

The fourth resolution was, "That the council shall consist of seven gentlemen, chosen from the members, the proportion to be four architects and three amateurs."

Mr. Hansom moved the following amendment,—"That the governing body of the society remain in the hands of the fellows solely." He remarked that if Mr. Ponton's proposition were carried, they would be severed from the Academy, and would not be able to carry on the operations of the society there, as they would have to leave the place.

The amendment was seconded, and carried.

officers of the like limited experience, instead of the qualified civil engineers who were sent out from England? Why, heavy loss, such as has occurred on the Ganges Canal from a similar cause.

Had one or more civil engineers of large experience in canal works been induced to go to India and act as consulting engineers to Government, instead of failure there would probably have been success in that important and gigantic undertaking.

WATER SUPPLY IN THE NORTH.

AN extensive scheme has been proposed by Mr. Thomas Dale, C.E., of the Hull Corporation Waterworks, for the supply of water to various towns, from the lake districts of Cumberland and Westmoreland. In this scheme, in laying down the main trunk pipes, he proposes to make provision for the following quantities of water to be supplied daily to the towns enumerated, viz.:

	Gallons.		Gallons.
Lancaster	2 millions.	Kegbley	2 millions.
Preston	5 "	Bradford	1 "
Wigan	4 "	Huddersfield	4 "
Deasbury	3 "	Bursley	4 "
Wakefield	3 "	Rohdale	4 "
Liverpool	40 "	Hahlfax	4 "
Leeds	15 "	Adne	1 "
Harley	1 "	Bury	8 "
Kendal	2 "	St. Helen's	2 "
Bolton	8 "		
Blackburn	6 "	Total	131

There are also many small towns and districts lying contiguous to the line of main trunk pipes, for which due allowance in the capacity of the discharge of the main pipes must be made. From the Ullswater and Haweswater Lakes, in particular, Mr. Dale proposes to take the water. The main trunk would consist of several distinct lines of pipes, laid side by side, so that should repairs or contingencies arise, ample provision would be made to retain a constancy of flow. At all stations where branch supplies were required for towns, &c., reservoirs would be constructed to receive the discharge of waters from the mains. He proposes that the various towns thus to be benefited should combine financially to carry out this project. He is of opinion that the outlay for construction, &c., would not exceed, for the supply of each million gallons of water daily, the sum of from 60,000l. to 70,000l.

WOODEN BUILDINGS

UNDER METROPOLITAN BUILDING ACT.

On the 31st of October, in the Lambeth Police Court, Mr. J. H. Taylor, district surveyor, summoned Messrs. Lowther, of Regent-street, for building extensive workshops in the rear of their premises in South Lambeth, covering an area of 408 square yards, without notice being given by the builders, of quartering and boarding instead of building walls of brick, stone, or other incombustible material, on solid ground, or concrete, or other solid sub-structure, conformably with the first schedule preliminary of the Act.

Mr. Cameron, solicitor, attended on behalf of the defendants, and submitted that inasmuch as the erections were based on the surface of the ground without carrying them more than one story high, and were an extension of a portion that was formerly erected, they were not buildings within the meaning of the Act.

Mr. Elliott, in deciding the case, considered that the part of the Act which had been pointed out by the surveyor prohibited all wooden buildings, and referred to the case of *Stevens v. Gourlay*, 29 *Law Journal*, C.P. 1, decided in the Court of Common Pleas; and, being a case analogous to the present one, ordered the buildings to be rebuilt agreeably to the Act, to the satisfaction of the district surveyor.

VILLAGE HOSPITALS.

THESE very useful institutions are extending. One has been established at Wrington. It is simply a cottage, fitted up with beds and baths, and placed in charge of an experienced nurse. It has five beds for surgical cases and twenty-four for others, and gives advice to out-door patients, while the entire cost of rent, nurses, coals, stimulants, and medicines, was only 102l. last year. Each patient is expected to pay a small sum towards his maintenance, and this is readily given, the sick finding

that they recover far more rapidly than in their overcrowded rooms.

At the second annual meeting of the subscribers to the Walsall Cottage Hospital, the chairman congratulated the meeting on the success which had hitherto attended the operations of the hospital: notwithstanding that the beds (eight in number) had been generally all occupied, and the expenses heavy, the outlay during the past year had been more than covered by the income, the latter amounting to above 500l., while the expenditure had not exceeded 460l. The report advocated the erection of a more suitable building than the one at present occupied. A site had already almost been promised by Lord Bradford, and the committee taking into consideration that upwards of 800l. had been subscribed towards the building fund, advised their successors in office to commence operations as soon as possible. The report was unanimously adopted.

SERPENTINE.

HAVING seen a paragraph in your paper of the 11th instant relative to this material, I beg leave to lay before your readers my own experience relative to its utility for out-of-door work.

About two years ago I had several 4-in. pillar-shafts of serpentine to carry the arches of an arcade on the upper story of a building. They were placed in position as the work proceeded, and dowelled at top and bottom to the stone caps and bases; consequently, a certain amount of pressure came upon them, but not more than stone pillars of the same size would have borne with ease. One of the shafts soon showed signs of fracture, splitting diagonally across, and but for the dowels it would have fallen into the street.

The parties who supplied the pillars sent another in its place, which was put up without dowels. This soon fell all to pieces, and some passers-by narrowly escaped being killed.

Upon examination I found that this last had never been a sound piece, but was manufactured of small pieces, stuck together with shellac and wooden pegs or dowels. Several of the other pillars are now in a very dangerous state, and will have to be removed.

I have spoken to persons of experience in the marble trade, and they all say that they cannot obtain serpentine in any quantity or size that can be relied upon to carry weight. It may answer very well where only required for ornament; but wherever subject to a strain, it is not trustworthy. The specimens exhibited are, of course, carefully picked; but it would be impossible to supply equally good serpentine in any quantity without charging an exorbitant price.

E. WYNDHAM TAIN.

FORMATION OF ROADS.

THE concreted macadamization to which we lately alluded is described in a pamphlet now issued by Stasford, of Charing-cross, under the title of "A New Mode of Constructing the Surface of the Streets and Thoroughfares of London and other great Cities, by which Mud and Dust will be greatly Diminished, and the Expense of Maintenance and Repair much Lessened." By Jos. Mitchell, F.R.S.E., Civil Engineer.* Mr. Mitchell was, at one time, a general inspector of roads and bridges in the northern counties of Scotland, and is a member of the Institution of Civil Engineers. The following quotation describes his proposal:—

"I have found that a cubic yard of broken stone metal, of an ordinary size, screened and beaten down in regular layers of 6 in. thick, is still of such open formation that the vacuities, when filled up with liquid, amount in all to 11 cubic feet. In a macadamized road we have, therefore, in every cubic yard, 16 ft. of solid stone, and 11 ft. of clay or mud, forming a *quasi* cementing matter. Being intrinsically deficient in this quality, however, it is not surprising that it should, yield to the pressure of heavy weights, especially when assisted by the action of wet or heat; and hence all the mud, and the greater part of the dust, which is generated on the best macadamized road hitherto made.

To remedy these defects, I propose to substitute for the 11 ft. of muddy cementing matter in the macadamized road, an admixture of Roman or Portland, or other hydraulic cement, grout, or to use separately according to circumstances, in certain proportions. The stone, when carefully pressed together, and the interstices filled up between with this material, will very rapidly set into a uniform and impervious mass, which will be found wholly unaffected by heat or moisture, either from above or below; while, of course, the total exclusion of moisture prevents the injurious action of frost. We shall thus have bound together the macadamized material, or broken metal, in its original and pristine form and stability, not

crushed down or reduced to a yielding substance, but consolidated and fixed, so as in fact (assuming the cement to hold good) to be liable to no other action whatever than the attrition of the traffic on the surface. Hence this road should resist tear and wear nearly as effectively as a paved street."

A specimen of his concrete macadamization has been laid down, with the Hon. W. Cowper's permission, on the Mall at the foot of the Green Park, St. James's.

Mr. Mitchell also proposes for paved streets the substitution of Portland or Roman cement for the lime at present used in the concrete bottom and joints of the pavement. This he has tried and found to form an excellent street-way.

The matter is of considerable importance, and Mr. Mitchell's mode ought to be fairly tried.

THE CARVINGS AT CHATSWORTH.

WE have recently spoken of the beauty of the wood-carvings at the Palace of the Peak. Of their kind they are nowhere surpassed. Mr. W. G. Rogers, carver, having recently examined them, has printed some notes of his visit, wherein he describes them as rapidly perishing. "Silently," he says, "and almost imperceptibly to the general observer, the work of destruction is going on; but to the experienced eye, the peculiar whitish bloom upon the surface tells that all is rottenness within, and that minute but active animal life is feeding on the fruit and flowers of Gibbons." He further asserts that, unless some method be adopted to preserve them, they will not long remain in their present state.

Mr. Rogers ascribes all these carvings to Gibbons. Is he aware that, although all the accounts for the expenditure on the building are preserved, the name of Gibbons scarcely appears in connection with the works, and that locally the greater part of the carving is supposed to have been executed by Samuel Watson, of Derbyshire, whose epitaph in Heanor Church, referring to the work at Chatsworth, we recently printed?*

Let this be as it may, the Duke of Devonshire will doubtless lose no time in taking steps to preserve these admirable carvings.

NON-COMPLETION OF CONTRACT.

THE case of *Russell* (clerk to the Merthyr Tydfil Board of Health) *v. Tucker*, in the Court of Queen's Bench, was an action by the Board of Merthyr Tydfil against the surety of a contractor, to recover damages for non-completion by him in due time of certain works he had undertaken to execute for them. The defence in substance was, that the specification was not duly signed by the Board. The Act required that the contract should be executed by five members of the Board, and the contract itself was so executed; but the specification which was referred to therein, and so incorporated therewith, was not so signed, and this fact formed the basis of the defence set up by the sureties.

The Lord Chief Justice and the other members of the court thought that there was neither a legal nor an equitable defence. As to the equity, it was rather the other way, for the sureties had not, and could not have been damaged. It was not as though there had been no specification drawn up at the time of the contract. There was such a specification, and it was identified, and had been acted upon. What did it matter now that the specification had not been regularly signed? The contract itself had been so signed and referred to, and identified the specification.—Judgment for the Board.

DAMAGE BY BUILDING OPERATIONS.

IN the case *Williams v. Golding*, in the Court of Common Pleas, the defendant was a builder, and whilst he was carrying on a building operation the work caused damage to the plaintiff's property, which adjoined. The plaintiff sued for damages, and recovered 20l. The question now was, whether a rule to enter a verdict for the defendant should be made absolute.

The Metropolitan Building Act states that "no district surveyor or other person" should be sued in respect of anything done under that Act without having a month's notice of action. No notice had been given in this case, and the point was raised whether the term "other person" was confined to official persons, or included builders.

The Lord Chief Justice thought that the rule should be discharged. The Court were of opinion that the term "district surveyor or other person" was intended only to include persons of the same class as district surveyors. Rule discharged.

* See p. 638, ante.

THE PAYMENT OF ARCHITECTS.

SIR,—The letter of Mr. Edward L. Garbett in the *Builder* of November 11th, upon "The Trade and Trade Charges of Architects," touches upon a very interesting topic. I have laboriously sought the full meaning of his remarks, so as to draw some practical inference for individual guidance, and, taking his own words, I find—what?—that the suggestion is, we should "abolish . . . the master builder," and then—do what?

Following his ideas farther, it would seem that the sequence would be,—the "real master designer" should make "the relations between contractor and workman a part of the specification,—a part of the contract." In other words, the architect should seek a man to provide plant and machinery, and materials and labour; and should define the rate at which such a man should be paid for all; not to mention the intermediary rates at which the labourers also should participate in the profits he was to be allowed. Granted all this; but in what is the real state of things changed? Do we not possess all the practical advantages of this scheme by paying for work by measurement and valuation, instead of by speculative competition in contract beforehand? The real sore still remains; and here I most thankfully agree with Mr. Garbett.

The basis upon which an architect's remuneration is fixed is entirely wrong; and it is surprising, when one comes to think of it, that the system should have been allowed to have remained so long unaltered.

At present, an architect, whether a man of "isms," a Church reviewer, a Victorian exponent, an illustrator of jumbledom, a classicist, or whatever peculiar walk he chooses as his own, is paid, not in accordance with the service he renders, but in proportion to the outlay he directs. This brings up now and then an unpleasant element in the relations of employer and adviser which all men of any experience must have encountered. Permit me a little personal reminiscence by way of illustration.

The Americans are a practical people, and generally look into the rationale of things; with little reverence for "precedent," they accept no axiom until fairly reduced to common sense, and during some years' professional experience among them (and perhaps Mr. Garbett will not object to the term "professional" when he reads what follows), I found a grave difficulty always occurring when the money side of our relations had to be discussed. "Oh, then, the more you make my building cost, the more your fee comes to, eh? No, I guess that won't work, any way you can fix it!" And so I pondered on the rights of the thing, and this was the result in my own case. Upon accepting a commission, I named a price that should cover the expense of all preliminary drawings,—the working drawing, specification, &c.; all, in fact, requisite to bring the obtaining of a contract, or the entire erection and finish of the building to a successful issue. Then I named a precise sum for each visit the owner might wish me to make to the works during progress,—so much for time, so much to reimburse travelling expenses,—leaving for him to send for me as often as he pleased, or not at all. This I found most rational in working out, and in every instance, ultimately, much more satisfactory to my pocket than any 5 per centage would have been. Thus there was no incentive supposed for increase of outlay; my time and abilities were wholly at the service of the owner whenever he chose to call me to his side, and whether to direct alterations, explain details, settle disputes, and finally to examine and pass accounts, it made no difference to me: my time and skill were what were remunerated, and whether in so many hours' labour I settled questions involving expenditure of 1,000*l.*, or advised upon the laying out of a garden, or the ornamentation of a boudoir, my services were paid for, not in proportion to the outlay I might advise, but by the estimation in which they were held by the owner, who could keep me one hour, or one week, just as he thought the object under discussion deserved.

These are the principles I would be glad to act upon in practice here, and perhaps Mr. Garbett will, to his "practical suggestion," append in concise terms (if he approve the idea thus offered), a scheme by which some such method of payment for an architect's services may be resolved upon.

I purposely put the question in its plainest light, and after his logical treatment of the evil, perhaps he will kindly help in suggesting an

intelligible remedy,—one capable of immediate use, suited to the ways of the world as we find them, and so truthful in principle as to admit universal application.

G. W.

MASTERS AND MEN IN MANCHESTER.

SIR,—As the plasterers' labourers of this town have turned out, this day, from their employment, I wish to lay the facts of the case before you, so that the public may have an opportunity of knowing the tyranny we are from time to time subjected to by those we employ.

It has been an established custom in Manchester, and, I believe, in all other places in England,—in fact, all over the civilized world,—that where large contracts are taken at a distance, the labour portion is employed on the spot, and paid for at the standard rate of that district, town, village, or hamlet nearest to the work. But the plasterers' labourers of Manchester, at a week's notice, have stepped in, and say this shall not be so, and unless you discharge the labourers now employed at country work, and employ us from this town, paying our travelling expenses to and from and in your time, once a week, two weeks, or a month, as the distance or case may be, together with extra for lodgings, and the additional rate of wages paid here, we shall withdraw our plasterers and labourers from all your jobs now in progress, and which they have actually carried out.

This is the proceeding of the Manchester Amalgamated Association of Plasterers' Labourers. But this is not all: they are assisted and encouraged by the Association of Plasterers, inasmuch as they decline to carry on the work with labourers who may be found to supply the place of the turn-outs.

It has been explained to them, that all contracts are based upon the price of labour and material obtainable at or near the place where the undertaking is intended to be carried out, and are, in many cases, not commenced, or far enough advanced for the commencement of our portion or branch of the work, for twelve or eighteen months after the contract has been settled or agreed for; and, consequently, that a serious pecuniary loss to the contractor would be the result if their demand were put in force,—with other conciliatory remarks, all bearing directly on the point at issue, and all having a tendency to induce them to desist from putting in force so pernicious and tyrannic a demand; but to what purpose we now have positive proof.

The tyranny exercised by the operatives in most branches of the building trade towards their employers has been long talked of; but this, I think, will bring matters to a crisis.

AN EMPLOYER.

THE BUILDING TRADES.

London.—In consequence of an intimation given by Messrs. Lucas, Brothers, to their workmen, that they intended to carry out the nine hours' movement during the winter, the men struck, but afterwards returned to their work on a withdrawal of the intended measure, in consequence of a discussion between the parties. Other masters had intended to adopt the same course, but awaited the result of the movement at Messrs. Lucas's.

Newark.—The long-aggitated proposal to pay by the hour and leave off work at one p.m. on Saturdays, has been adopted during the past month by the principal builders of Tottenham, Newark. The wages are now 7*d.* an hour for bricklayers; 6*d.* to 7*d.* for carpenters; and 4*d.* for labourers. The men will not, as hitherto, be paid for a whole day's work on Saturday, but only for as many hours as they shall have been employed.

Berlin.—A rather crowded meeting of working men was held here lately, for the purpose of discussing the relations of master and workman, and the position of the latter generally. The most sensible speeches, exhorting to prudence and economy, were not always the best received, according to the *Star* correspondent. A working man, named Born, said that he had lived fourteen years in London, and that he attributed the better position of the English working man, as compared with that of the German, to his greater industry, and the fact that he does not smoke at his work, as the German does, a great part of the day; and also that he lives well.

THE HOLY GRAAL.

SIR,—As the editor of Robert de Borron's old French romance of the *Saint Graal*, and Herry Lonelich's later English version of it, styled by him *Seint Graal* or *The Sank Ryall* (Roxburghe Club, 4to., 1863-5), I must ask your permission to say that in my opinion Mr. T. J. Gullick is wholly right in his etymology of *Graal*, which means vessel, and that the version you adopt of *Sank Ryall* is only a later fancy, introduced or mentioned first, I believe, by Borron's translator, the said Herry Lonelich, whose MS. you will find in Archbishop Parker's Library at Corpus, Cambridge.

If you will turn to De Borron's "History," or any of the old Arthur books,* or any modern philologists' discussions, you will see that there is really no doubt as to the fact that *Graal* is a vessel, the dish in which Christ ate the last supper, and into which the blood from his corpse was put by Joseph of Arimathea.

FREDERICK J. FURNIVALL.

CHURCH-BUILDING NEWS.

Reading.—All Saints Church, Reading, has been consecrated. The church, which is in the Early Decorated style, somewhat French, and which at present is only completed as far as the third bay of the nave, consists of an apsidal chancel of five sides, 33 ft. long, 22 ft. 6 in. wide, and 45 ft. high; a nave, 77 ft. 6 in. long, 22 ft. 6 in. wide, and 55 ft. high, with aisles of the same length by 14 ft. wide, from which it is divided by an arcade of five arches. Transepts project north and south from the chancel, to which, and also to the aisles, they are open. The tower, on the south side of the south aisle, forms the southern entrance, and will face up the eastern side of Downshire-square; it is 20 ft. square and 70 ft. high, boldly buttressed and surmounted by an octagonal spire, 85 ft. 6 in. high, in all 155 ft. 6 in. There is a northern porch on the opposite side to the tower. The vestry, 14 ft. square, is at the east end of the north aisle, to which there is a porch, and a heating vault under. The walls are of blue Bristol stone, laid in courses, and lined with brick. All the dressings are of Bath stone. The contract has been executed by Messrs. Wheeler, Brothers, of Reading; the carpenters' and joiners' work by Mr. Woodroffe, of Reading; the carving, by Mr. Earpe, of London; the ironwork by Mr. Leaver, of Maidenhead; the heating by Messrs. Hadon, of Trowbridge. The architect was Mr. J. P. St. Aubyn, of London, under whose superintendence the whole of the works have been carried out. The cost of completing the whole will be over 9,000*l.*

Nottingham.—From a circular issued by the vicar of St. Mary's Church, it appears that a restoration of this edifice is contemplated. Mr. Scott has made a survey of the church, and given a rough estimate of what he supposes its restoration would cost. The estimate is as follows:—

For exterior work	£2,000
Re-seat pews in handsome and appropriate oak seats, including floors	3,000
Restoring and repairing roofs	1,300
New organ chamber	500
Gas-fittings and other expenses	700
Total	£7,500

But a chief feature in St. Mary's of old consisted in its windows, which are so many that it is almost necessary to have at least the principal ones of stained glass. There must therefore be added to Mr. Scott's estimate, the following for windows:—

Chancel windows (seven in number)	£1,100
West window	1,000
North transept window	1,000
South transept window	1,000
The rest of the windows required in cathedral glass	600
Total	5,000

There will also be needed for the restoration and improvement of the organ 500 || The whole estimate will therefore amount to | £13,000 |

The whole of the church thus restored will henceforth be free. An appeal is now made to the inhabitants of the county as well as the town of Nottingham, to help in this work. Earl Manvers has headed the subscription list with a donation of 1,000*l.*

* May I call your readers' attention to the fact that a society has been started mainly to reprint all the English texts relating to Arthur? It is *The Early English Text Society*. Hon. Sec., Mr. Hy. B. Wheatley, 53, Berners-street, W. Subscription, one guinea a year.

Thornton.—The old "bell chapel," erected in 1612, though it has since undergone several alterations, now presents an antiquated and dilapidated appearance. It is at length to be pulled down, and a new church is to be erected in its place. It has been resolved to give instructions to Messrs. T. H. & F. Healey, architects, to prepare the plans of the intended edifice, which is to contain accommodation for 800 persons, and to cost 4,000*l*.

Cheltenham.—The site for the proposed new church, situate near Pitville-circus, will shortly be enclosed, and authority given to commence the erection of the structure, which will be designed by Mr. J. Middleton, architect.

Rhayader.—The new church at Cwmdandwr, dedicated to St. Winifred, has been consecrated. The style is Early Geometrical, and the edifice consists of nave, with south aisle, chancel, with organ chamber on the north side, vestry on the north-east side of chancel, west tower and spire, and south porch. The extreme length inside is 86 ft.; width 35 ft.; and the edifice calculated to accommodate 296 persons. The nave is lighted on the north side by three two-light windows, with tracery heads, and is divided on the south from the aisle by an arcade of four bays carried on columns, with carved caps and moulded bases. The chancel arch is the whole width of the chancel. The chancel has two windows on the south side, one single, and the other a double light. The east window has three lights, and three circles over them, with tracery in the head, and all these will shortly be filled with painted glass. The tower is placed at the west end of the nave, and divided from it by a large and lofty arch: it is 40 ft. high, and is surmounted by a spire 35 ft. high. The walls are built with stone from the neighbourhood, with Bath stone dressings. The roofs are open timber, and the seats are open: those in the nave are of deal, varnished; and the stalls, altar-table, pulpit, &c., are of old English oak. All the passages and floors, except under the seats, are laid with coloured tiles, by Mr. Godwin, of Lugwardine. The heating apparatus is by Messrs. Kimmington; and the lectern and gas-fittings, which are of illuminated iron, have been executed by Mr. Skidmore, of Coventry. The contractor was Mr. J. Mason, of Hereford. The cost will be about 2,200*l*. Mr. Kempton, of Hereford, was the architect.

Chester.—The foundation-stone of Trinity Church has been laid. The design is Early Decorated. The edifice will consist of nave, chancel, north and south aisles, vestry, and chorister's vestry, and will be built of red stone. The length from east to west is 101 ft., the width from north to south walls 66 ft. 6 in. At the south end corner there is a tower and spire, rising to a height of 154 ft. One of the chief entrances to the church will be by a moulded doorway through the tower. The nave is lighted east and west by moulded and tracered seven-light windows, the north and south aisles by three and two light windows. The nave is covered by an open-timbered roof; the chancel-roof carved, moulded, and panelled. The seats, which are calculated to accommodate about 900 persons, are to be of oak, and the floors laid with encaustic tiles. The architect is Mr. James Harrison, of Chester, and the builder, Mr. Thomas Hughes, of Aldford.

DISSENTING CHURCH-BUILDING NEWS.

Sunningdale (Berks).—The Congregational Church here has been opened for divine service. Mr. W. F. Poulton, of Reading, is the architect. The entire cost has been about 1,200*l*, towards which upwards of 800*l*. have been obtained.

Liskeard (Cornwall).—The corner stone of a new Independent Chapel has been laid here. The chapel is being built in Dean-street, opposite the post-office, on the site of an ancient structure of humble appearance, in which for nearly sixty years the Independent Church of Liskeard had worshipped. The style chosen is Early Decorated. The length will be 60 ft., and the breadth 36 ft. The basement will be occupied by school-rooms, in order to afford adequate light to which the floor of the chapel will be raised 4 ft. above the ground level. A gable nearly 50 ft. high will face the street. In this is to be a large five-light central window, with tracered head, with a smaller one on each side. With side and end galleries it is calculated that between 500 and 600 persons may be seated. There will be two aisles, and the seats

will be open benches. The roof will be ceiled and partly open timbered, stained, and varnished. The material used in building is a free working drab-coloured local stone, the memorial stone laid being Polyphant. The architect is Mr. Tarring, of London; and the builder, Mr. Sergeant, of Liskeard. The total cost may be estimated at between 1,500*l*. and 1,600*l*.

Derby.—The foundation stone of a Primitive Methodist Chapel has been laid in Traffic-street, Derby. Messrs. Giles & Brookhouse, of this town, architects, prepared plans for the building, the estimated cost of erection of which was 2,500*l*. The contract was let to Mr. John Gadsby, builder. The old chapel has been pulled down.

Liverpool.—The new Presbyterian lecture-hall erected in Prince's-road for the temporary accommodation of the congregation of the United Presbyterians, has been opened with Divine service. As soon as the church is built, the present building will serve as the school; and its architecture is therefore of simple character. The interior is capable of seating about 500. It is built in ornamental brickwork. The cost has been about 2,500*l*.

Stockport.—The congregation and friends in connexion with Mount Tabor section of the New Connexion of Methodists of this town, have selected a site for the erection of a new chapel, &c., on Wellington-road South. The edifice is to be in the Corinthian style of architecture.

Miles Platting.—The foundation stone of a new chapel in connexion with the Wesleyan body has been laid, in Oldham-road, Miles Platting. The style of architecture is Gothic, and the materials are pressed bricks for the front, with Yorkshire stone dressing and black bricks and encaustic tiles freely introduced into the arches and string courses. Provision is made for 700 persons—364 on the ground-floor, and 336 in the end and two side galleries. The total cost of the building, including gas-fitting, boundary walls, warming, architect's commission, &c., will be 2,611*l*. Mr. Mark Foggett, of Cheetham Hill, is the contractor for the whole of the works; and Messrs. Blackwell, Son, & Booth, of Manchester, Bury, and Southport, are the architects.

FROM SCOTLAND.

Edinburgh.—Lady Yester's Church, which has been closed for ten weeks, whilst undergoing extensive repairs, has been re-opened for divine service. The two large windows on either side of the pulpit have been filled with obscured glass, bordered with floral coloured designs. The side windows, six in number, are filled with mottled glass, each having a coloured border. The walls of the church have been lathed and plastered. A large sunlight, having 200 burners, has been placed in the centre of the ceiling. The expense of these and other minor improvements amounted to about 600*l*.—The foundation stone of the Chalmers Memorial Church, Grange, has been laid by the Earl of Kintore, in presence of a large assemblage. The object in view is not only to provide a suitable place of worship for the district, but to erect a monument to the memory of Dr. Chalmers. The edifice is in course of erection on the Grange estate, at the head of the Lovers' Loan, in close proximity to the last resting-place of the leader of the disruption. The plan of the new church will be cruciform, with a tower and spire at the south-east corner of the nave, and a turret on the east side. The style will be Geometric. The tower and spire are not, however, to be proceeded with in the meantime. The area of the church is designed to accommodate 500 people, but should circumstances require it, galleries can afterwards be fitted up to accommodate 500 more. The cost of the building is estimated at upwards of 5,000*l*, and the architect is Mr. Patrick Wilson, of Edinburgh.

Commencement of the Bridge over the Forth.—This gigantic undertaking may now be said to have fairly commenced. The construction of a pier near the middle of the Forth has been contracted for. The pier, though not of the largest dimensions of those proposed, is upon a very great scale, and the foundation will be 45 ft. below the surface. The contractors are Messrs. Gilkes, Wilson, & Co., of Middlesbrough. The contract price is about 17,000*l*, instead of 25,000*l*, as estimated by Mr. Bouch, the engineer. The pier will be finished by May next. The system of founding without piling or coffer-dam is to be adopted. This system, which has

been recently applied by Monsieur Kalebott in the Garonne, on a great scale, with success, proves to be a revival of an ancient method which was used in the construction of the old bridge of Westminster. In the lower portion Mr. Bouch uses green beech instead of iron; Mr. Edwin Clarke having found that such wood in the Thames exists in a condition of perfect soundness for an ascertained period of at least six hundred years. Iron, to a certain extent, used under such circumstances, is liable to corrosion. The pier when constructed will be tested by an enormous weight of iron rails. The foundation of the pier will occupy a space nearly equal to one-half of Westminster Hall. The formation of the pier is proceeding in the harbour of Burnt-island, from which at the proper time it will be floated to its own position and sunk.

Glasgow.—A meeting of the Glasgow town-council was held last week, at which, among other business, a proposal was introduced by the magistrates which, if carried into effect, will create nearly as great a revolution in the appearance of certain districts of Glasgow as has been made by the Emperor of the French in many quarters of Paris. The proposal comprises the gutting out of the dismal wilderness of unhealthy houses hidden behind each side of the Salt-market, High-street, Gallowgate, and Main-street, Gorbals, and the cost of the improvements is estimated at 1,000,000*l*. to 1,200,000*l*. This would also include the expense of a north-east park. The report was supported by the Lord Provost, and received the favourable attention of the council. It was ultimately agreed to prepare a Bill for Parliament soliciting the necessary powers.—The arrangements for the exhibition of works of art and skill by the working people of Glasgow are going on favourably. Already about 400 applications for space have been received from intending exhibitors. A number of gentlemen have promised to contribute paintings and other works of art. Her Majesty has intimated her intention of sending a bust of Prince Albert, executed by the Princess Royal. The Duke of Argyll is to open the Exhibition.

Ayr.—The memorial of the late Earl of Eglinton, of tournament memory, has been inaugurated. The statue stands 12 ft. high, and is placed upon a pedestal about 16 ft. in height, giving a total height to the monument of 28 ft. The earl is represented in his uniform of lieutenant of the county of Ayr. Mr. Noble was the artist. The statue was cast by Messrs. Robinson & Cottam, founders, Battersea, London. The pedestal is composed of a base of three tiers of Aberdeen grey granite, the lowest of which is 13 ft. 6 in. square, and three courses of red Peterhead granite, the first of which forms a truss base to the inscription-block. The pedestal was designed by Mr. Field, of Messrs. Alexander, M'Donald, Field, & Co., Granite Works, Aberdeen. The monument is erected at the west side of Wellington-square, in line with General Neil's Monument, and faces the portico of the County Buildings. The statue is 4½ tons in weight, and the pedestal upwards of 40 tons.

ACCIDENTS.

An inquest has been held on a carpenter's labourer, employed on the Foreign-Office works, who met with his death by falling down a "lift," a distance of 36 ft. When he was picked up, it was found that his skull was fractured, and that he was quite dead. The coroner thought that a rail ought to be placed at these openings to protect the lives of the workmen. The jury were of the same opinion as the coroner; and having returned a verdict of accidental death, appended a recommendation to that effect.

At Woolley Bridge, near Glossop, Mr. Ferland has been enlarging his premises, which he has done by erecting another building similar to the one already erected, and these are joined to each other. In the course of building the second one, the partition wall of the first was removed, which was substituted by a large iron pillar placed in the centre, which transformed the building into one large square room. The south side of the roof of the first building and the north side of the roof of the new one, rested on each side of an immense iron trough, on which were flanges for them to rest. This trough was supported by the pillar before named; and it also appears that the water which fell on these two sides of the roof had to pass down the pillar.

The slaters had nearly finished slating this portion of the building, and, fortunately, had gone to dinner, when, without any warning whatever, the immense cast-iron trough broke close to where the pillar stood, and the whole of the roof of both the old and new parts, and most of the wall of the new building, fell, smashing a quantity of timber and slate, besides doing damage to tin and zinc work in process of completion in the shop at the time. Mr. Ferrand and others were on the premises, but, fortunately, they sustained no injury, as the whole of the great weight and mass of the debris fell towards the centre of the floor.

The *Courrier des Alpes*, of the 6th inst., says:—"At the moment of going to press we have received news of a frightful catastrophe. The powder used in boring through the Alps exploded about ten o'clock this morning. Four workmen, who were labouring at a considerable distance, and their bodies, when picked up, presented only shapeless masses; besides this, a great number of workmen were wounded. At Fournex and Modene, more than a kilometre and a half distant, scarcely a pane of glass remains in the houses, and a great number of buildings have sustained much damage. The loss is considerable."

Books Received.

Report of the (American) Commissioner of Patents for the year 1862: Arts and Manufactures. Washington: Government Printing Office, 1864.

This is a continuation of the report on American patent law which we noticed at some length in our last volume (p. 677). The present report, with its volume of illustrations, is for the year 1862. The letter-press consists of 752 pages of abstracts, besides seventy-one pages of index; and the illustrations, which are all on a small scale, form a volume of 446 pages. They run from No. 34,046 to 37,263. The whole, therefore, forms an extensive as well as valuable record; and we wish much that so condensed and excellent an illustrated view of British patents were issued by our own Government.

The Commissioner, in a letter transmitting his report, gives the following amongst other statistical abstracts:—

No. 1.

Number of applications during the year 1862	5,038
" " patents granted, including designs and re-issues	3,521
" " caveats filed	824
" " applications for extension of patents ..	41
" " patents extended	22
" " expired 31st December, 1863	618
Of the patents granted, there were:—	
To citizens of the United States	3,439
To subjects of Great Britain	33
" " the French Empire	33
" " other foreign governments	11
Total	3,521

No. 2.

Statement of money received during the year, viz.:—	
On applications for patents, reissues, &c.	\$153,818 00
For copies and for recording assignments	11,031 50
Appropriation, July 16, 1862, to refund expenses of printing patents	60,855 49
Total	215,754 99

No. 3.

Statement of expenditures from the patent fund.	
Salaries	\$77,404 93
Contingent expenses	15,057 93
Temporary clerks	4,462 13
Withdrawals	6,140 00
Refunding money paid by mistake	570 00
Judges in appeal cases	175 00
Total	182,810 39

No. 4.

Statement of the condition of the patent fund.	
Amount to the credit of the patent fund	85,418 55
Amount paid in during the year	215,754 99
Total	221,171 54
Deduct expenditures during the same period	182,810 39
Leaving in the treasury January 1, 1863, the sum of	38,361 15

By Act of Congress of March 2, 1861, the Commissioner was authorised to print ten copies of the descriptions and of the drawings of the patents issued by the office. After a trial of eight months the work was discontinued on account of the expense, and the section of the law authorising the printing was subsequently repealed. During the year 1862 he ordered well-digested abstracts of the patents to be prepared

by an experienced examiner in the office, with the claims and reduced copies of the drawings attached, which accompany this report. The publication supplies a great want felt by inventors. The reports of 1859 and 1860 were issued in a style which reflected credit upon the office, and were of great value to all interested in the improvements in arts and manufactures.

VARIORUM.

"On the Scientific Investigation of Disease in Animals and Men." By an F.R.S. and F.R.C.P. Harrison, Pall-mall. The author of this tractate proposes "an extension of that system which has been many years in operation both in the Royal Society (Government grant) and in the British Association. It seems probable," he thinks, "that, if the Government would make grants to those who were engaged in scientific researches upon questions of such great public importance as the cattle plague, cholera, &c., great encouragement would be afforded, the number of workers would multiply, and it could scarcely happen but that many new facts would be demonstrated, and, perhaps, discoveries, of which the country might feel justly proud, be made. Grants would not only enable men to enter upon expensive inquiries which they could not otherwise undertake, but would excite a taste for purely scientific inquiry in younger men."—Part VII., for November, of "A Dictionary of Science, Literature, and Art," edited by W. T. Brande, D.C.L., &c., and the Rev. G. W. Cox, M.A. (Longmans & Co.), has been issued. It runs from "Lath" to "Marquess."—"Scientia Scientiarum: being some Account of the Origin and Objects of the Victoria Institute, or Philosophical Society of Great Britain. By a Member." London: Hardwicke. The first object of the Institute, or Philosophical Society, in question is, "to investigate fully and impartially the most important questions of philosophy and science, but more especially those that bear upon the great truths revealed in Holy Scripture, with the view of defending these truths against 'the oppositions of science, falsely so called.'" "The problem of the age," says Archdeacon Hare's "Sterling," is to reconcile faith with knowledge, philosophy with religion; and hundreds, even thousands of years before Archdeacon Hare was born, the grand end of human knowledge was declared to be "the reunion of philosophy with religion," but whether the establishment of a society of this kind be likely to realize the great end in view, remains to be seen.—The *Gentleman's Magazine* has an interesting and very fully illustrated paper on "The Bishop's Palace at Wells." The *Gentleman's Magazine*, now 134 years old, is for sale.—"Rowland's Reason; or, The Little Cripple," is an interesting little story in words of two syllables, by Mrs. S. C. Hall (published by Seeley, Jackson, & Halliday), and is intended as a prize-book for infant schools. It inculcates, in Mrs. Hall's own pleasant manner, self-denial and thought for others, and is prettily illustrated. The circumstance that the profits arising from its sale are to be given to the Cripples' Home, is an additional reason why we should recommend it.—The *Bombay Builder*, of October, gives a view of the proposed Esplanade Native Dispensary, Messrs. Scott, McClelland, & Co., architects. Such merit as it may have will depend wholly on the details. If this journal is to maintain the high price put on it, it must strengthen its staff.

Miscellaneous.

HAYMARKET THEATRE.—Very well acted indeed is the new farce (new so far as English words are concerned) called "Who killed Cock Robin." Mrs. Charles Mathews has a part exactly suited to her, and plays it with wonderful vigour; and the same may be said of Mr. Mathews. "Used Up," since it went back to Paris, has proved more attractive here than ever.

THE RUSSIAN CHURCH.—The chapel of the Russian embassy, which was erected and finished under the superintendence, some months ago, of Mr. James Thomson, architect, and of which we gave a view, has lately received an important accession to its embellishments by the hand of Mr. W. Cave Thomas. It consists of a series of heads, life size, of the Twelve Apostles, in the cupola. These are not copies, but original studies, and are entitled to favourable notice.

TESTIMONIAL TO A MASTER.—The workmen of Mr. Philip-Anley, builder, as a mark of their gratitude, presented to him a handsome silver snuff-box at the Three Colts Tavern, London-wall, where they partook of a dinner on Tuesday, the 7th inst.; Mr. Miller in the chair.

ARCHITECTURE AND THE ROYAL ACADEMY.—Sir: The Royal Academy of Arts has just issued the card of admission to the lectures for the session 1865-6;—Anatomy.—Mr. Richard Partridge; Sculpture.—Mr. R. Westmacott, R.A. Where is Architecture? Is she to be again the "silent sister" she was in times gone by?—C. C.

SOCIETY OF ARTS.—The first meeting of the 112th session of this Society was held on Wednesday evening, in the Society's house, John-street, Adelphi. During the recess, full-length portraits of her Majesty and her children living in 1851, and of the late Prince Consort, were placed in the apartment where the meetings are held. Mr. Wm. Hawes presided, and read the opening address.

A GRACEFUL AND BENEFICENT ACT.—Mrs. Arnott, the widow of the well-known Dr. Arnott, author of "Physics," has signified her intention of endowing two scholarships for the study of Natural Philosophy;—the one at the Queen's College, Harley-street; the other at the Ladies' College, Bedford-square, to be called the Arnott Scholarships, in memory of her late husband.

CITY COMMISSIONERS OF SEWERS.—At the meeting of the City Commissioners of Sewers, Mr. H. Lowman Taylor brought forward a motion that the iron pavement that has for some time been placed in the Poultry, and which was found to be so dangerous and inconvenient to the traffic, should be taken up and replaced by granite. The motion was seconded by Mr. Burroughs, and after a short debate was agreed to.

A GAS COMPANY FOR FLAMBOURGH, YORK.—The small town of Flamborough, with its 300 houses and 1,300 inhabitants, is now making an effort to illuminate itself with gas. A limited liability company has been formed, with a local directorate. It is proposed to raise the modest capital of 2,000*l.*, by the issue of four hundred shares of 5*l.* each—a sum which will no doubt induce many of the inhabitants of that romantic village to make a small investment, and thus encourage a scheme which will bring comfort and improvement to themselves. Mr. J. F. Fairbank, C.E., is the engineer.

LIMESTONE WORKS AT KEYNSHAM.—Our attention has lately been directed to North Somersetshire, where Messrs. Hall, Son, & Co., have reopened the works at Keynsam, near Bristol, which were formerly carried on by a limited company. The limestone on this property produces blue lias lime of good quality, and eminently hydraulic; and in addition the Messrs. Hall manufacture Portland, Roman, and other cements and plasters, which will be convenient for the builders and contractors of the West of England and the principalities, who are at present compelled to obtain their supplies from London. On the railways in course of construction in the neighbourhood of Bristol blue lias is chiefly used.

ENLARGEMENT OF THE NATIONAL GALLERY.—The Commissioners of Works and Public Buildings have issued their plans for the extension of the National Gallery, preparatory to their being submitted to Parliament. The portion of land proposed to be taken is at the back of the Gallery, on the north side of Trafalgar-square, bounded by Hemming's-row on the north, by St. Martin's-place on the east, by Duke's-court on the south, and by Castle-street on the west. It is proposed by the commissioners to purchase St. Martin's Workhouse, and Archbishop Tonsen's Grammar School, which stand on the site indicated.

FAILURE OF THE GREAT LOW-WATER BASIN AT BIRKENHEAD.—This failure has led the Mersey Dock Board to initiate a new plan of dock works at Birkenhead, and it was yesterday resolved to promote a bill to close the Woodside basin, to convert the low-water basin into a wet dock, and to excavate the foreshores at the northern entrances, Birkenhead. The alterations in the basins are estimated to cost 167,000*l.* What the excavations will cost it is impossible at present to estimate, as the foreshore at 14 ft. deep comes upon solid rock; and the last bill obtained by the Board provided for a depth of 17 ft. It is hoped, however, that some modification of the previous Act may be obtained as to depth, and thus an enormous expense avoided.

LIGHTING OF BOMBAY WITH GAS.—On the 7th of October, a portion of the town of Bombay was for the first time lighted with gas, which excited the greatest wonder amongst large numbers of the natives. The gas appeared to be of good quality, and burned brilliantly.

MONUMENTAL.—It is proposed to erect a memorial of the Marquis of Westminster at Chester. It is suggested that it should consist of a statue of the marquis. A committee has been appointed and subscriptions will be received by the banks in Chester. The amount collected already is 800 guineas.

OPENING OF THE ALBERT INFIRMARY AT BISHOP'S WALTHAM.—The 7th inst. was quite a gala day in the little town of Bishop's Waltham, owing to the opening of the Royal Albert Infirmary by their Royal Highnesses Prince Arthur and Princesses Helena and Louise. The approaches to Bishop's Waltham and High-street were gay with all sorts of decorations, triumphal arches, festoons, and mottoes.

THE PRESTON EXHIBITION.—This exhibition has now been open about seven weeks, and it has proved highly successful. The total number of admissions for the first six weeks was 70,000, and the receipts amounted to about 2,000l. When all the expenses are paid there will be, at all events, a clear profit of 1,000l., and it is probable that this sum will be considerably augmented. The proceeds will be equally divided between the Institution for the Diffusion of Knowledge and the Central Working Men's Club.

OPEN SPACES (METROPOLIS) PRESERVATION. It is intended to apply for leave to introduce into Parliament, next session, a Bill for the appointment of commissioners who shall be enabled to accept a surrender of, or to purchase in trust for the public, the rights possessed or claimed by lords of manors, or by commoners or others, and with respect to all open spaces within 15 miles of the General Post-office; to empower the commissioners and the metropolitan police, or either of them, to superintend such open spaces and to abate nuisances there; to enable the commissioners to prepare a scheme for the improvement of such open spaces by drainage or otherwise; and to recommend the levying of a rate and other powers, for the purposes of the scheme.

THE SANITARY STATE OF GATESHEAD.—The public health committee of the town having recommended the appointment of an inspector of nuisances, at a salary of 100l. per annum, the town council made the appointment at their last meeting, on which occasion a report by the officer of health, Dr. W. Robinson, was read, which shows that the town must be in a very bad state of health, there having been more deaths than births during the last three months, or 105 deaths to 92 births, although there seems to have been no epidemic prevalent during that time. The report states, however, that typhus fever has now become epidemic, in the same long-neglected localities as ever, and so often complained of. "The town," says the medical officer, "was never in a worse condition to meet an epidemic. The air is impure, dwellings overcrowded, nearly every ashpit in connexion with tenement property is an open cesspool. Some of your thoroughfares are literally middens for the reception of ordure, the inhabitants having no conveniences attached to their dwellings." There are evidently some earnest sanitary reformers in the council, however; and the instant appointment of a nuisance inspector, urgently suggested by the medical officer as well as by the health committee, is a step towards a better state of matters.

RAILWAY BRIDGE ACROSS THE MERSEY.—A bridge is now being constructed for the London and North-Western Company, across the Mersey, between Runcorn and Liverpool. It approaches the north-east bank of the river at Runcorn Ferry, which it crosses at Runcorn by a bridge consisting of three wrought-iron trestle girder openings, 305 ft. in width each, and 75 ft. in height, on the under side of the girders, above the level of the river at high water, thus permitting any vessel of ordinary size to pass under it. On the Lancashire as well as on the Cheshire side of the river, these girders are supported by abutments crowned with castellated turrets, rising nearly 40 ft. above the railway level, whilst in the river the girders are supported by stone piers. The railway is carried through Runcorn by a viaduct of thirty-two arches. By this addition to the railway eight miles are saved in the distance between Liverpool and London.

THE NEW SEA WALL AT YARMOUTH.—This wall, which was recently erected at the expense of the Government, on the south-west side of Cliff-end Fort, is giving way, the sea beating against it and the heavy rains of late having done it serious injury.

HARBOUR OF REFUGE AND COMMERCIAL DOCK AT NEWHAVEN, SUSSEX.—We observe from the *Survey Standard and Sussex Express*, that an important and influential meeting of the inhabitants of Lewes and the neighbourhood has been held at the County Hall, for the purpose of receiving Capt. Roberts's address upon the great scheme for a harbour of refuge and commercial docks, &c., at the port of Newhaven. After some discussion of the subject, the following resolution was unanimously adopted:—"That this meeting is prepared cordially to support the formation of a harbour of refuge and commercial docks at Newhaven. That the plans now submitted to the meeting by Captain Roberts, appear to be well adapted for that object. That the members for the borough and the county be requested to use their influence in support of the Bill that may be introduced in the coming session of Parliament, which offers the best plan for a harbour of refuge and commercial docks at Newhaven, including a Government guarantee of 4 per cent. upon the requisite capital for such an object."

STATISTICS OF THE DUBLIN EXHIBITION.—In 1853 but one colony (besides India) and seven foreign countries were represented. This year 21 colonies, exclusive of India, and 21 foreign countries have obtained space. The number of works of art exhibited in 1853 was 1,493, while this year they amounted to 2,072. At a rough estimate the value of the industrial objects may be set down at more than 400,000l., and the fine arts at nearly 300,000l., making a total value of 700,000l. The Exhibition has been open for 159 days and 51 evenings, and the entire number of admissions of every kind has been a little over 900,000; being an average of about 5,000 by day, and of 3,000 by night. The number of visitors was a quarter of a million under those of 1853; and the total receipts, about 45,000l., are considerably under those of 1853, which amounted to 60,000l. But for the Exhibition of that year it was necessary to erect wholly new and special buildings, at a net cost of upwards of 40,000l., while for this year's Exhibition building, erected by a joint-stock company, a moderate equitable rent is all that the funds are chargeable with.

TENDERS

For alterations, additions, and repairs to No. 10, Castle-street, City, for Messrs. Tubbs & Lewis. Mr. H. Ford, architect:—

Palmer & Son	£1,177 0 0
Rawlins	1,060 0 0
King	808 10 0
Ashton	748 0 0

For extension of the India Rubber Company's Works, Vauxhall-road, Liverpool. Messrs. J. A. Picton & Son, architects. Quantities furnished:—

Tomkinson	£6,774 0 0
Hughes	6,428 0 0
Rome	6,270 0 0
Haigh & Co.	6,271 0 0
Mullin	6,262 0 0
Jones & Son	6,139 0 0
Ray	6,054 0 0
Urmon (accepted)	5,919 0 0

For rebuilding the North-Western Bank, Dale-street, Liverpool. Messrs. J. A. Picton & Son, architects. Quantities furnished:—

Deaton	£6,750 0 0
Tomkinson	5,089 0 0
Holme & Nicol	5,028 0 0
Wells	4,999 0 0
Rome	4,869 0 0
Haigh & Co.	4,820 0 0
Jones & Son	4,885 0 0
Urmon	4,774 0 0
Ray	4,765 0 0
Hughes (accepted)	4,750 0 0

For additions and alterations to the Old Rising Sun, High-street, Marplebone, for Messrs. Taylor, Walker, & Co. Mr. Chas. Dunch, architect. Quantities by Mr. G. P. Raggett:—

Coleman	£2,546 0 0
Ferry	2,469 0 0
Simpson & Son	2,380 0 0
Newman & Mann	2,287 0 0

For alterations and additions to Rose and Crown, Bidder-street, Canning Town, Essex, for Mr. George Wood. Messrs. Wm. Gosling & Son, architects:—

Heritage	£198 0 0
Finch	185 0 0
Thompson (accepted)	183 0 0

For rebuilding premises, Wharf-road, City-road, for Messrs. Gilbert, Breckley, & Co. Mr. H. J. Hammon, architect. Quantities by Mr. Charles Bamfield:—

Turner & Sons	£1,259 0 0
Bishop	1,149 0 0
Eaton & Chapman	1,085 0 0

For the construction of roads on the Commonwealth Land and Building Company's estate at Northumberland Park, Tottenham. Mr. J. L. Dale, surveyor:—

Balton	£202 0 0
F. & P. J. Wood	821 0 0
Pound	406 0 0
King	400 0 0
Blomfield	370 0 0
Humphreys & Son	360 0 0
Porter	275 0 0
Parker & Co.	249 0 0
Mattar	202 0 0
Chick	187 15 0

For building a new vicarage-house, Stratton St. Margaret's, Wills. Mr. Lansdowne, architect:—

Extra if Bath	
1st Contract.	
Stones Dressings.	
Wheeler	£1,025 0 0
Fadley	945 0 0
Smith	897 0 0
Barrett	854 10 9
Wheeler	765 0 0
Knapp	760 0 0
Lyddiate	750 0 0

For the erection of three houses at Kennington, for Mr. W. Wade. Mr. Albert Bridgman, architect:—

Nutt & Co.	£1,233 0 0
Faice & Co.	1,180 0 0
Sharp	1,084 0 0
Dobbs	983 0 0
Cass & Keast	895 10 0
Neill	885 16 7
Bush	875 0 0

For houses and stables at Cromwell-square, Kensington, for the Directors of the Commercial Bank of London. Mr. Thos. Cundy, jun., architect. Quantities supplied by Messrs. Parker & Elger:—

Holland & Hannen	£58,880 0 0
Smith & Co.	55,460 0 0
Lums	55,120 0 0
Trollope	53,500 0 0
Higgs	52,789 0 0

For alterations at the Hereford Arms, Hereford-square, Brompton. Messrs. Finch Hill & Paraire, architects:—

Sillick	£1,360 0 0
Chapman	1,299 0 0
Simpson	1,281 0 0
Nutt & Co. (accepted)	1,139 0 0

For villa, Upper Norwood, read, instead of Perrin, Ferry (accepted).....£3,310 0 0

For the erection of farm buildings, school, and repairing a cottage, &c., at Sutton, Beds, for Sir John M. Burgoyne, bart. Mr. Watson, architect. Quantities supplied by Messrs. Chadwick, Brothers:—

	Farm Buildings.	School.	Cottage.
Nowell & Dours	£2,700 0 0	£755 0 0	£310 10 0
Shields	2610 0 0	6 700 0 0	220 0 0
Chapell	2551 13 0	589 17 0	219 8 0
Mansbridge	2515 0 0	630 0 0	190 0 0
Maley	1979 0 0	450 0 0	132 0 0
Field	1942 0 0	435 0 0	120 0 0
Young	1825 0 0	445 0 0	115 0 0
Sherrin	1752 0 0	370 0 0	113 0 0
Smith	1506 0 0	391 0 0	112 0 0
Miskin	1543 0 0	353 0 0	100 0 0
Wynn & Fosters	1465 0 0	335 0 0	91 7 3
Dunham	1473 0 0	310 0 0	87 0 0

TO CORRESPONDENTS.

R. C. R.—H. E. M.—W. B.—J. P.—O. M.—M. A. J.—Messrs. O.C.—Kamptulson (several letters on this subject).—W. W.—M. H. & A. A. C. (yell)—T. C. & Co.—B. R.—Mr. De M.—T. C. A.—J. W. D.—P. W.—H. H. V.—R. E. A.—W. A. J.—A. P.—J. C. T.—K. A. W.—W. A. D.—A. B.—T. D.—O. W.—W. H. S.—J. W. P.—A. Constant Reader.—R. A.—C. C. H. (in type)—(it depends on the individual).—J. M. O.—P. (it depends on circumstance).—W. G. E. (should pay the post).—J. E. O. (we believe the statement to be correct).—Inhabitant of the Borough road (in type).—W. H. A. (it can be prevented).—St. Andrew's, Camberwell (in type).
We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

NOTICE.—All Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent Garden. All other Communications should be addressed to the "Editor," and not to the "Publisher."

[ADVERTISEMENT.]

CHURCH, TURRET, AND STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

The Builder.

VOL. XXIII.—No. 1190.

The Dead
and
the Living.

R. HUTCHISON'S liberal determination to erect, in Liverpool, a depository for the dead, previous to interment, at the suggestion of Dr. Trench, and the general advocacy of similar steps elsewhere by the daily press, are encouraging signs to those who have long been urging the necessity for arrangements which should prevent the retention of the dead with the living, and the host of evils, moral

and physical, that follow. If the facts were well known,—if the sickness, misery, and demoralization that result from the practice were fully realised,—the next session of Parliament would probably not pass without such an enactment as should protect men and women, not merely against their neighbours in this respect, but against themselves,—

against their own prejudices and feelings; the latter good in themselves, but deadly in their effect. It takes a long time to make the public hear. It is only by continued efforts that it can be done.

Twelve years ago we gave a view of a room in the Bishopsgate-street district, showing what we had often met with in the course of our perambulations, the dead amidst the sleeping living, and wrote thus:—"In a single room the family sleep, work, eat, and perform the various duties of life in company with the dead, and the evil is increased by the length of time the poverty of parties obliges them to retain the corpse until

what they consider proper preparations have been made for the funeral: this seldom takes place in less than a week; instances have been known of the interment having been put off for twelve days or a fortnight. This is a difficult matter to deal with, for the prejudices of the uninstructed are strong against the removal of the bodies until they are taken to the graveyard. It is most desirable that the feeling should be overcome, and proper places be provided for the reception and retention of the dead until the proper time for interment."*

Again and again, since then, we have pointed out the evils resulting from the practice, under the circumstances in which the poor are placed, and urged the necessity of some endeavours to prevent it. "Apart from the inevitable consequences of such a state of things being most prejudicial to health" (as Mr. Hutchison truly says in his reply), "the practice of retaining the corpse within the chamber of the living, amidst filth, squalor, and wretchedness, begets a feeling of irreverence and indifference, and the abandonment of those religious feelings which ought to be associated with the obsequies of the dead. Nay, more; it has a positive demoralising and brutalising effect upon the minds of the people, and any scheme which has a tendency to lessen the evil is worth the experiment, even if it should prove abortive. I am fully alive to the difficulty and delicacy that surround the question. The poor feel as acutely as the rich the loss of their friends, and we must not hastily and perforce do violence to their natural feelings even in our attempt to serve them."

Much may be effected by advice and by providing the facilities for safely preserving the bodies of their deceased friends till the time for interment has arrived; but we are disposed to think that nothing effectual will be done till it be made illegal to retain a corpse in a room occupied by the living more than twenty-four hours. At Leeds this question is now being forced on the attention of the magistracy, by the rapid increase of fever in the lower parts of the town, mainly through the bodies of fever patients being allowed to remain for days and days in the confined and ill-ventilated rooms where they had died.

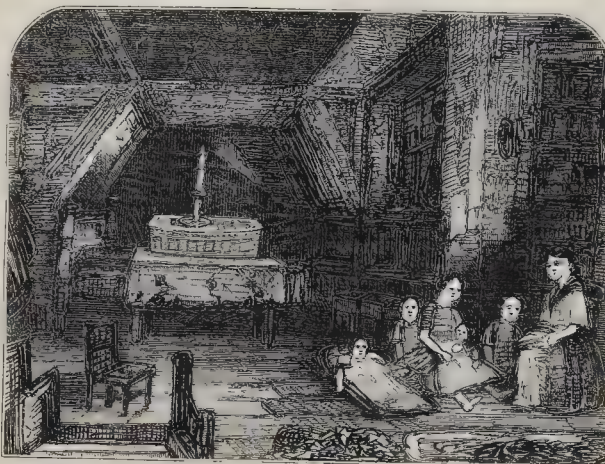
A few weeks ago we took occasion to examine a number of houses in the neighbourhood of Leather-lane, Holborn, chiefly with the view of learning the effect of recent great removals of houses on the population of those that remain.

* See, too, "London Shadows," p. 27. 1854.

and we may say, in parenthesis, that generally we found this had been largely increased; rents had been raised; many families were living each in one room, instead of two; and the number of dwellers in each house was consequently larger. Persons who are engaged in French-polishing, at bird-cage and box-making,—tailors, shoemakers, and others who used to have two rooms,—keeping one chiefly for a work-shop,—have only one, in which the operations of eating, sleeping, and working are carried on. The scenes of confusion which some of these places presented were extraordinary. In many instances, the landlord or his agent had increased the rent, in houses which let for about 30*l.* a year, to the extent of 4*l.* *per annum* (about 1*s.* 6*d.* a week). In some tenemented houses, the price of each room had been raised 6*d.* a week, so that those who sublet made a good thing of the difficulty. Let this pass, however, for the present. We are speaking simply of the retention of the dead in the midst of the living. We had made our way up a narrow and cranky staircase, and were at the top of the house. Entering the garret, we found, in gloom that was nearly darkness, a woman and five children, two of them very ill, a dead child in a coffin on the table, and the corpse of a man on the only bed in the miserable apartment. The man was uncoffined, and in a state of decomposition. The family had seen somewhat better days; and, on coming to this garret, had been forced to sell some of their furniture (a long step towards pauperism), because the staircase was too narrow for it. How the coffin, when it arrived, was to be brought up, did not seem clear. Why it had not been brought before the woman could not explain. We are not making any complaint against the parish authorities; we do not know sufficiently of the circumstances; but, in such a situation as this, the bodies should not have remained a day. Small wonder that the faces of all in the room were nearly as pale and lifeless as that of him who rested so quietly, though so hurtfully, amongst them. The atmosphere was oppressive and sickening: it was a miserable sight.

We give a sketch of the room, for the pencil conveys a stronger impression of such a scene than the pen,—the eye is sometimes more compassionate than the ear,—and it will surely serve as one more piece of evidence in proof of the assertion, that steps should immediately be taken to afford the poor the opportunity, at any rate, to remove the dead from the rooms in which they are forced to eat, work, and sleep.

As the natural consequence of the state of things existing in the neighbourhood referred to, sickness prevailed generally. At the same time, as we are assured on unquestionable authority, there were 200 cases of fever in Brooks Market hard by, and twenty-five of the poor children cared for in the Fox-court Ragged Schools were ill from the same cause. "I feel sure," writes one of the active promoters of this most useful institution (where funds are greatly needed), "that the cause of all this sickness is the wretched state of the neighbourhood, the slaughter-houses and bad drainage. In one part the rats have become so numerous (from the drains), that the boys catch them as we would



The Dead and the Living: a Room near Leather-lane.

fish, by baiting a hook. We are exerting ourselves to alter this state of things, but we cannot expect to do very much, as the ignorance of the poor people is so great, that they will not believe that this fever might have been kept off, in a great measure. However, we must do what we can. We can have dust-bins emptied, can distribute disinfectants, and lime-wash rooms.

Similar accounts come from other parts of the metropolis, showing the existence of frightful evils. In Bethnal-green, almost periodically, juries affirm that the death of the person concerning whom they have been inquiring, was accelerated, if not caused, by the condition of the dwelling-place and neighbourhood. Still, nothing, or comparatively nothing, is done to prevent a recurrence of the infamy. Hear what Dr. James Edmunds says in the last Bethnal-green case made public:—

"With regard to the 'house,' it was a dilapidated tenement of two small rooms, with a small shed called a kitchen, behind. The rooms, if such they could be called, were connected by a rickety staircase, so cranky as to be quite unsafe. The roof let in water, and the floor of the lower room, resting upon the earth, was a foot below the alley or court, and in many places the flooring was broken. The chimneys were so imperfectly constructed as to be likely to smoke, and they did smoke, so poisoning the lungs and preventing ventilation. There was a small yard of a few square feet, leading to a dilapidated privy, without water, with a large heap of stinking refuse surrounding it. There were no taps for water, but there were two orifices whence the water ran out once a day for twenty minutes, and it ran into a small rotten tub without a cover. The whole yard was overflowed with water; for when the tub, the capacity of which was quite inadequate to the wants of a family, overflowed, there was no place for the water to run off; and the stink arising from the privy and the rotting refuse would be absorbed by the water in the tub, and which was thus rendered unwholesome, if not poisonous. He concluded by saying that the surroundings would account for the death of the child. The coroner and jury expressed their indignation that such tenements should be allowed to stand, and a verdict was returned 'That death arose from natural causes, accelerated by the bad sanitary condition of the house in which the parents lived.'"

Next week a similar disaster will occur, and similar "indignation" will be expressed.

An effort is being made, and wisely, to procure additional information as to the precise localities in our cities and towns productive of disease, or known to foster it. The Health Committee of the Social Science Association have drawn up a series of resolutions having reference to the possible advent of cholera, in accordance with the resolutions passed at the Conference held in August, whereas the Bishop of London presided; and on Monday last a deputation from the committee attended the President of the Poor Law Board, the Right Hon. C. P. Villiers, to obtain the co-operation of the Board. They showed him that the number of deaths in England by miasmatic disease, of which a large proportion is preventable, amounted in 1863, according to the Report of the Registrar-General, to 114,538; and as it is of great importance, for the economical and efficient direction of public effort to ascertain and make known, as early and as clearly as practicable, among what classes, under what conditions, and from what causes—whether of overcrowding, of defective water supply, want of proper ventilation, or otherwise—these diseases are developed and perpetuated, they asked the president to direct the boards of guardians particularly to inquire into and ascertain by their officers the seats of the most rife miasmatic diseases, and to publish them without delay for the information of the ratepayers and others.

What is wanted is, that poor-law inspectors should induce the medical and relieving officers to mark on maps of their districts the places they have had occasion to visit for diseases of the miasmatic class; that union clerks should mark on the same maps the places from whence deaths from diseases of the miasmatic class have been registered; that the medical and relieving officers should make notes and observations on the conditions of the places affected by miasmatic diseases, and the classes of persons who suffer most from them; that the courts, alleys, and other places which are undrained, or badly

drained, and which have no proper water-closets or self-cleansing house drains or sewers, and no proper pavement, should be marked on the proposed district map; that the police having constantly to traverse all districts, and being well acquainted with those which are physically in the worst conditions, should aid the local inquiries; that the marks on district maps should be transferred to general maps; then that maps and lists constructed and marked in the manner recommended should be published without delay for the use of all concerned in sanitary inspection; and further, that local associations should be formed to visit the places pointed out in the maps and lists, and to organise a system of voluntary house-to-house visitation, to ascertain the conditions which require removal or mitigation.

Mr. Villiers appeared to appreciate fully the importance of the steps pointed out, and promised the serious attention of the Board should be given to the request of the deputation. It is to be hoped that immediate steps will be taken in the direction pointed out; expense ought not to be considered for an instant. The money so employed would doubtless prove a most profitable investment. A sickly population is a costly burden to a country, and increases the criminal population, which is more expensive still.

THE CATHEDRAL OF SENS.

RESUMING our account of this cathedral,* we have one more remark on the bases of the columns,—upon the modification of their ambases. In the earlier piers, the high plinth below the base proper has a cyma reversa as base moulding, of continuous outline but with intermediate joint, and this rests again upon a shallow plinth, with sides parallel to that above, the whole standing upon the octagonal base of the general pier, of which the upper edge is bevelled. The later architect gives a bolder sweep to the cyma reversa, commencing the curve from higher up, but still leaving the anomalous joint at the point of junction of the curve and the straight; then, to harmonize the profile here with the oversailing torus above, he gives a curved or concave bevel to the upper angle of the plinth below the cyma. The result is scarcely happy, and the process was scarcely logical; a more daring and consistent modification was soon to follow, by omitting the bevel, and bringing the whole sub-plinth to a plain face vertical to the overhanging moulding.

As regards the capitals, suffice it to mention that they are modified on the same principles as the bases; the Corinthian leafage is made more varied and flexible, the abacus profile is altered, and the corners or right-angles of the confluent abacuses are cut off, so as here also to modify the sharp opposition of angles and points.

But the next pier eastward is also a reconstruction, and exhibits new and very remarkable changes, all manifestly made on reflection; whether all with happy effect in relation to general proportions is not quite so certain.

The coupled Corinthian columns are superseded, and give way to a compound pier-like column. An attached shaft in front carries the transverse rib of the sexpartite vault of nave, and is grouped with a smaller on either side, running up to carry a roll moulding in nook of vault above clerestory. Larger lateral attached columns provide for the archivolt of the nave arches, and another at the back for the vaulting of the aisle.

Some change was clamorously called for. The paired columns of the earlier architect are set with their division on the line of the axis of the intermediate piers, and of their attached columns bearing the archivolt of nave arch; but from their relative dimensions the face of wall above is brought not much in advance of the axis of the front column, which, thus, although not advancing nearly so far as the front line of the piers, seems away from its work, and the vacancy of its abacus is but ill work, and justified by the small shaft that rises from it to bear the central rib of the sexpartite vault. The new architect manifestly recognised this incongruity, and also that it was inconsistent for the columns composing the secondary piers, for such are the paired columns, to be so glaringly predominant in girth and solidity over the shafts of the chief piers; and

he also took a course to modify at least, though he was not yet prepared to obliterate, the gross contrast of alternate bays.

The coupled Corinthian columns had to give way to a compound pier-like column. This has an attached column at back answering to those on wall of aisle; and others, one on either side, corresponding with the lateral attached columns of piers and nave arches; an attached shaft in front to carry the transverse rib of sexpartite vault, and a smaller on either side bearing the roll-moulding in nook of clerestory, correspond to the triple group in front of the altered pier westward. The intervals between the three shafts are, therefore, to complete the correspondence, channelled; and yet—so strong was the striving after improvement, not in exact correspondence—the margin now left is all, but invisible, so that the outline of the flutes seems almost returned unbroken upon the convex shafts. The other intervals between the larger shafts are convex, as if the core of the pier were a cylindrical column, an effect enforced by the mouldings of the capital not being continuous with those of the lateral attached pillars. The angle of the abacus of this core-column receives the moulding of the super-arch, and in the aisle it gives another angle to receive the diagonal vault-rib, not very comfortably—indeed, the capital towards the aisle is not a success. On the wall side, this rib drops upon a carved boss, which makes the best it can of a junction with the return angle of an engaged abacus that is taken somewhat by surprise.

In the base of this pier the next step is already taken to get rid of harsh contrasts of circles and right angles superposed. The architect has cut off the salient right angles of all the plinths, not merely of the largest, as in the former case; and he makes every lower torus entirely oversail its plinth edge, except in the case of the side shafts, where periphery still just ranges with angles; and here, accordingly, the notched sinking is still retained.

The mouldings of the archivolt are changed with the same intention. The angles are still shaped into roll-mouldings as before, but the right lines adjacent to the roll are now replaced by a concave section or fluting.

The view down the aisle from the west is very fine; the pillars attached to the wall are all uniform and of general normal proportions, and convey an impression of the germ of a style never yet thoroughly and artistically wrought out of combining the colonnade and the vault, which causes a sense of regret as we turn to follow the course of development in another direction, promising, fruitful, as this may be; and so, again, it is not without regret that we feel constrained to assent to the sacrifice of the transverse coupled columns, which in themselves have certainly a very grand effect.

One word for the triforium. The arches of this, like the nave arches, are pointed throughout, and in both cases the solid keystones show that the reconstructor of the south-west piers is only answerable for his own decision. His changes of the triforium are marked enough. He gave more definition to the roll mouldings of the pair of super-arches; he inserted a blank quatrefoil in the head of each, and for their common central pier with face shaft substituted a triplet of shafts—foliage of capitals taking new forms, of course.

We have still to remark upon one cardinal change in the reconstructed bays,—it is that which we may recognise in the modifications of probably every altered Norman cathedral in England, and almost as constantly on the Continent; it consists in giving enhanced height to the opening of the nave arch. The exposition of the general principle involved in such change, and of the forms and limits of its application, belong to—would constitute—a treatise. It must suffice here to notice that it helped the law of subordination,—it helped the expression of lightness and loftiness so essential to the style.

In this case the new architect did not, as was so frequently the case, interfere with the level of the triforium string-course; but he took advantage of every inch that that limit allowed him, and fairly opens the arch up to a level with the crown of the aisle-vault.

As the line of capitals is also left undisturbed, the nave-arch necessarily becomes more acute. The acuteness is further enhanced by the contraction of the free span of the arch consequent on substitution of pier of broader axis for the coupled columns. Proportions, therefore, are revolutionized in every direction; and if the designer was right in securing at any rate an

* See p. 809, ante.

hanced height of nave arch, we are still bound to ask whether he made the best compromise or secured the best advantages possible for the disturbances in other directions: the height of the arch relatively to its span, and also relatively to height of columns become changed, and, very important, the proportion between the interval of piers and the width of aisles and nave, and the breadth of piers.

The characteristic expression of the cathedral was indeed threatened to be materially impaired. The unusual width of the nave harmonizes with the free opening into the aisles that is favoured by the pure transverse columns and the broad open span of the original nave arches, both seriously compromised in the new arrangement.

We leave much more to be said, as we left much more to be seen at Sens. We leave the *Salle Synodale*, with its noble apartment for debating theologians above, and its deep pit of a dungeon for others less at ease below; its memories of Becket refugee, and of Abelard in his defence. It is a place that may be pleasantly sojourned to for one of the shorter intervals of a traveller's fits of restlessness. About its sloping streets, with their abundant brooks of living waters, and among its avenues, he may meet from time to time a procession of a newly wedded pair of Galli Senones, doing homage to a custom of their country, by promeneading through one chief street of the city after another, in all the pomp of mauve gloves, and all the pride of white muslin, that is not at times very considerate of the complexities it is matched with; and if he is early he may sometimes recognise the same train on the morrow proceeding together in scarcely diminished decoration, to gather tribute of congratulation at the best frequented *cafés*. Roman remains are at hand for those who are ill content or jealous, either of the present or the future: for ourselves, restlessness had taken its rest, and was revived; and, following the course of Caesar, we departed on the top of a diligence, and arrived at Troyes, with nothing more to record of the journey than finding in "Hudibras,"—"what business had he there at such a time?"—the ingenious rhyme of "perpendiculars" for "briglayers,"—and an impression of the perfect satisfaction with political things as they are, conveyed by our driver's comment on some arrangements found more practicable in England than in France,—"*Vous n'avez pas tant de mauvaises têtes.*"

"BONNIE DUNDEE."

THE reply that a very blunt Milesian once made to a very consequential Madam, who was wont to boast of her youthful charms, "If ye ever were purty, ma'am, you must have greatly altered" may, in a measure, be applied to "Bonnie Dundee." Whatever the poet may have seen in it of erst its beauty, now-a-days, to me at least, seems very faint indeed. However, if it is not really handsome as a place, it has sundry items that in the aggregate go far to make it agreeable.

Dundee is an irregular, closely-built, and sinuous thoroughfare Scottish town, up to its eyes in business, and chock full of life and animation. Its radial arteries are two or three streets, called the Murraysgate, the Nethergate, and the Overgate: the former stretching respectively from the Hill-town and the Eastport, merging in a short wide open called the High-street, and again diverging, their continuations meeting once more at the end of the town on the Perth road. The Overgate, which is the direct outlet of the town in passing from the Murraysgate through the High-street, winds its way through the Scouringburn, the Westport, and on to the Hawkhill. The architecture of the streets in general is unrelieved by aught remarkable, if we accept its foci, the High-street and the new street at right angles from the latter, called Reform-street, which, in point of style, is certainly a reform, and is the only thoroughfare in the town properly deserving the name of street. The houses in Reform-street are all regular and apparently well-built edifices, the street level of all being devoted to shop-fronts and public offices. At the upper end of the street is the General Post-office; opposite which is a square piece of ground lately cleared of sundry *débris*, and allotted by the corporate body, for the erection of an Albert testimonial. In or about the High-street are the Town and Public Halls and other offices. *En passant* of halls, I may remark that Dundee, from its size, is not sparse of halls

for public accommodation: they can be had, large and small, tolerably good and cheap. Churches, too, are plentiful, and in variety.

The old staple trade of Dundee, that of weaving, is still carried on extensively; but the hand-loom is fastly superseded by the steam-loom; and the consequence is, that girls are in the ascendant over the men in number and wage, the latter only earning a miserable pittance at a trade which a few years since enabled them to live well, and to appear respectable. The factories and mills of Dundee absorb a vast amount of female labour, and an impression exists with some that the female portion of the population is three to one.

Baxter's mills is one of the largest of this class in the town. The interiors of these large factories, where such a vast amount of human labour, senses, sinews, and thews is at a tension, are a study. The ceaseless din, and whirl, and dust, and indescribable noises that are continually playing, are enough to dull the ordinary perception of the most rugged natures; indeed, I am assured that the necessities of the system and its operations have begot signs and symbols as mediums of communication between the workers and their overseers, as human language is almost inaudible amid such a deafening concert of discordant sounds.

The Scottish carpet trade is carried on extensively in the town; and the recent introduction of jute from the Continent has supplied the place of flax, or is used in conjunction, in the manufacture—not to the bettering of the article, I opine, but to the existence and cheapening of the luxury, I believe.

There are some iron foundries in the town, which do a tolerable trade. The port of Dundee is a thriving one, and considerable shipping interests are connected therewith. It has steam communication with Newcastle and London, and it is also the dépot or rendezvous of some whalers. The dockage, which certainly needed extension, is getting additions made thereto, and will need more, from the growing importance of the town and its trade.

The obstruction in its direct railway communication with the south is likely to be soon removed, it is to be hoped, by the spanning of the river Tay, from Dundee to Newport. When this is effected, in conjunction with that other great undertaking now commenced—the bridging of the Firth of Forth at Burntisland,—the prospects of Dundee will, or ought to be, materially altered for the better.

The hobbledehoy system by which the railway communication through Edinburgh to the north of Scotland is carried on, by the steam ferries at Granton and Broughty Ferry, ought long since to have been abolished.

The practical genius that bridged the St. Lawrence, that spanned the Thames, that lifted the Tyne high-level, that swung the suspension, that cast the tubular, that hung the Boyne viaduct, that ran the underground railway, could have long since bridged the Forth or arched the Tay, with straight or sinuous lines of metal, that knew no termini from King's-cross to Cromarty. Ay, truly, and it will be so. So be it!

There is a vast Irish contingent in Dundee, not less than 25,000 of a population mostly northern Irish. There are two places of Roman Catholic worship; one in Maxwell town, and the other in the Nethergate. It is strange that, as a body, they are entirely unrepresented in any public manner except in a religious point of view. They have no cemetery of their own, although as a class they are strong, and contribute immense sums yearly to the support of their church. A cemetery, I understand, was projected a few years since, by members of their own communion, and contributions were collected for a few years. Land was eventually bought for the purpose, and again resold, and the money pocketed by the principals, and Paddy was minus still a cemetery of his own. How was this? It would be advisable to know; but at present I shall not ventilate what the aggrieved ones circulate about the subject.

The working Irish are not very well housed in Dundee, nor are many of the townspeople either.

The sanitary condition of the town is far from irreproachable, particularly on the Hilltown side, on the north, and the sweltering Scouringburn district on the south. It is a miracle that mortality in the summer time is not greater than what it is in these latter places, for the poor inmates of many of those tenements are, of a verity, "cabinéd, cribbed, confined." The

pig is a domestic accompaniment with many struggling tenants on the northern side of the town, not for its agreeable manner, it may be judged, but as a back or provision whereby its sale may meet the half-yearly or yearly wants that are certain to occur. If "only in the regions of the blind the one-eyed become kings," Patrick does not stand alone as a rearer of pigs in the town: Sandy may be met with an occasional granter also in his safe keeping, of which the civic baillie is not troubled with the knowledge.

I do not know how many scavengers the council thinks it necessary to supply the town with, or whether they have appointed such a personage as an inspector of nuisances (perhaps it is thought such a "bonnie" place does not need one); but it were to be wished that the marks of the brush were more visible in the Hilltown and adjacent, and in the Scouringburn and its entries and environs. If the sewerage flushing-machine might be used in some of the lanes in the southern quarter with advantage, to send accumulating ordure and offal into its proper channel; or, perhaps, what might be better, a more frequent introduction of the shovel and broom, and gutter-cart.

In justice to "Bonnie Dundee," it must be said that its people are a pushing, thrifty, intelligent class, full of the spirit of business, and bent on making money. Where sanitary laws are disregarded, social life and morality must be lax. Drunkenness is rife enough in the town, and the "great social evil," so called, keeps pace with it. Nor is illegitimacy at a discount, either here or farther north.

I almost forgot to mention that the townspeople have the benefit of a very agreeable and tastefully laid-out enclosure, called Baxter's Park, after the generous donor, and which, in situation and in a sanitary point of view, is a great acquisition to the town.

C. C. H.

ART IN THE PELOPONNESUS.*

BOOKS of travel are becoming a drug in the literary market. Volumes descriptive of the scenery and inhabitants of every quarter of the globe are to be seen on all book-stalls for sale at ridiculously low prices.

But amongst this cheap and miscellaneous collection there are rarely to be found works which contain valuable information on archaeological matter—since these, from their solid, sterling, or, what some would term, their heavy qualities, retain their value through succeeding generations, and remain behind, while the lighter sort of literature is floated down the stream of time into the great gulf of oblivion. In the present day, as travellers are becoming better informed than formerly on antiquarian subjects, this class of books is fortunately on the increase, and many such have lately issued from the press. The travels of Layard, Newton, Smith & Porcher, and Sir Thomas Wyse, will long survive, and form text-books serving for reference to future travellers; and, from the exact nature of the archaeological matter contained in them, will furnish food fit to be digested by the future historian of art.

Greece, the prime abode of art and literature, and the seat of those superb demons who have been lately whitewashed by a masterly hand, and with a plentiful brush, has of all countries ever been first and foremost in the affections of the philosopher, the scholar, and the antiquary.

The pilgrims to her venerable shores and desecrated shrines have been numerous, and also fully competent to explore and describe them. Amongst the most illustrious on the roll of these names, are Chandler, Athanasius Stuart, Leake, and Gell. These have all left behind them interesting records of their researches. Now-a-days the pilgrims are becoming few and the pilgrimages less frequent; for there are few who will risk life, limb, or property in travelling through a country, the government of which is too feeble to put down brigandage. In this respect there has been little or no advance made during the last ten years. At the time of the Crimean war, officers who belonged to the allied regiments, stationed at the Piræus, were actually

* "An Excursion in the Peloponnese in the year 1858," by the late Right Hon. Sir Thomas Wyse, K.C.B., H.M.'s Envoy Extraordinary and Minister Plenipotentiary at Athens, from 1849 to 1882. Edited by his niece, Winifrede M. Wyse. Day & Son, Gate-street, Lincoln's Inn-fields, 1865.

carried off between that place and Athens; and we ourselves had evidence of the insecurity of life in the capital itself. As to the present day, we all know that an army was lately sent against Kitzos, a gentleman of the road, who affects the neighbourhood of Athens, and that he not only escaped scot free, but that he still frequents his favourite haunts, and sets the government at defiance. Those who wish to obtain a correct idea of the internal state of the country had better read About's "Roi des Montagnes," which contains an only too faithful picture of its lawless condition. Books descriptive of the interior of Greece are therefore scarce; consequently we welcome heartily the two volumes containing an interesting account of a tour in the Peloponnese by so accomplished a scholar as the late Sir Thomas Wyse, who passed through the length and breadth of the land at his leisure, protected by the arms which Britannia holds over her diplomatic servants wherever they may be, except in the mountains of Abyssinia.

Sir Thomas Wyse was accompanied by two ladies (it is the fashion for ladies to travel much now, and they are no useless travelling companions, as the success of Mr. Baker's late expedition to the Albert Nyanza was mainly due to his wife), one of whom was his niece, Miss Winifrede M. Wyse, who has performed the no light task of editing her uncle's writings in a most satisfactory manner, and whose numerous notes contain much valuable information. Mr. Digby, an *attaché*, and M. Lanza, artist, were also of the party. H.M.S. *Desperate* conveyed the party to Nonemvasia, where they saw a church, in which traces of Western style preponderated over those of the Byzantine, probably owing to the early possession of the town by the Venetians. After leaving this place they rounded the bleak Cape of Malea, and passed into the Gulf of Kolokythia, landing at Gythium. Hence they went northward to Sparta, and again met the *Desperate* at Kalamata. From Kalamata they went to Messene, and then due north to the Gulf of Corinth visiting the temple of Bassæ, the plain of Olympia, and the monastery of Megaspilion, on their way. After reaching Vostitza, they skirted the gulf to Corinth, and then crossed the isthmus to Athens.

The southern shores of Greece do not present an inviting aspect to an ordinary traveller,—a more barren, gloomy coast than that presented by the iron-bound cliffs about Capes Malea and Mutapan we never remember to have seen. Nor does the interior of the country differ much in character; there are few trees: there is but little cultivation; and few remains of antiquity are visible above ground. The travellers, therefore, did not find much of interest in that part of the country, beyond the theatre at Sparta, and the walls of Messene, until they reached the temple of Apollo, at Bassæ. Still, the first volume, which describes the journey thither is rendered valuable by the narrative of the observant and learned author. At Bassæ they came upon the temple high up in the mountains, and pleasant must have been the view from and around it. "From the spot where a small hollow, though still on a summit which commands southward the whole range from Tetrasi to the sea embracing the upper valley of Missenia, with its faithful accompaniment, the deep-purple head of Ithome rising behind. To the north, the line is connected with the masses of Lykaon, and with the many enfolding neighbouring mountains its foundations. The platform of the temple, small, and of rough rocky soil, crowns a point which, though not the highest of the rugged Cotyilion, is 3,400 ft. above the sea.

It is dotted with a few stubbornly twisted clumps of trees, which gradually thicken into wood along the descent. No village, no hamlet is near; no *καλὴ βίη*, nor even shepherd encampment. The temple sleeps in entire silence and seclusion."

After the Parthenon and Theseion this is the most perfect temple existing in Greece. It was built by Ictinus, architect of the former edifice. It is of the Doric order, with fifteen columns at the sides, and six at the ends. Three only of these columns are wanting. The friezes which adorned the interior were discovered by Mr. Cockerell and his party, and are now placed in the British Museum, where they are known as the Phigaleian marbles.

The author believes the temple to have been hypæthral for three reasons: first, because had it been covered in, the inner frieze would have been invisible; secondly, on account of the proportions of the internal Ionic columns; and,

thirdly, because the fragments found near it resemble those found in the hypæthral temples in Sicily and Italy. But we know that in order to determine the question of the mode of lighting ancient temples, it is necessary to examine carefully every stone that has belonged to the roof; and in no single instance has this ever been thoroughly done.

The most important site visited was the plain of Olympia. This was the spot where that peculiar regard for the body which was so characteristic of Greek institutions and the Greek religion, and which, we presume, we ought to consider the ante-type of muscular Christianity, culminated in the celebrated Olympic games. These attracted crowds from every part of the Peloponnese, and from them even the Greek era was calculated. To be a victor at these games was considered the highest distinction that could be attained by any man, and Socrates considered it the highest reward for a whole life's labour. The vast plain intersected by the river A'pheus, and surrounded by fine mountain scenery, was perhaps the most suitable spot in the Peloponnese for the social assemblages which congregated to view the games. There was no town on the spot, but a large temple, round which were grouped various public buildings, within an extensive temenos, and beyond its boundary stood the stadium, the hippodrome, and other structures necessary for the games. The temple was the largest in Greece, after that of Athens at Tegea. It was hexastyle, peripteral, and hypæthral, and measured 230 ft. in length, 95 ft. in breadth. The interior was richly adorned by statues, above all of which towered the huge chryselephantine figure of Jupiter seated, the *chef-d'œuvre* of Phidias, and the glory of the ancient world.

Until M. Hittorf and Mr. Penrose enlightened the world upon the subject of the polychromatic decoration of the Parthenon, bright colours employed for the adornment of buildings were considered to be in bad taste. A markish dislike for colour had spread throughout society; we shuddered at the sight of azure blue, as a mad dog shudders at the sight of water, and we showed as much abhorrence of red as does a wild bull. Nature, we considered, should not have been so vulgar as to deck the fields with vivid green, or spot them with coloured flowers. She should have draped herself in Quakerish drab; we ought to have had drab flowers, drab grass, and a drab heaven above us. Fortunately we are beginning to be alive to the beauty of colour, though there is so much of the old leaven left, that we never meet on festive occasions, but we are clad in funeral black. Coloured decorations were then as matter of course thought the reverse of chaste, and we believed that they could never have been applied in that most pure of all architecture—the Greek. Yet even if we had determined to close our eyes to nature's book had we read the *Perigesis* of Pausanias, we should have ascertained beyond a doubt that the finest interior in Greece, as far as sculpture combined with fine architecture went, owed much of its charm to polychrome. We should have ascertained that in the Olympic temple, upon a pavement of black marble edged with Parian, stood a throne which was "a constellation of gold and precious stones, of ebony and ivory, of painting and sculpture;" and that on the throne sat the great Zeus, also of ivory and gold, surrounded by "Assyrian hangings embroidered and dyed in purple;" and we should have acknowledged that it was no longer the perfection of Greek art to be destitute of colour. On this subject the author justly remarks,—"With our somewhat Puritanic views of Greek art, which, nevertheless, are not borne out by early practice, it is difficult to reconcile all the tawdriness—as our orthodoxy, accustomed only to white marble, would term it. Ivory, ebony, gold and marble, painting and sculpture, white, black, and as many hues as the imagination, led by Pausanias, chooses to admit;—statues and curtains, embroidery and drapery, to say nothing of the seats, and shields, and other offerings in the nave and pronaos,—unite here in the glare of day to form a combination scarcely tolerated in a Gothic church, and which is the very opposite of what one is taught to deem the standard of Hellenic propriety. But the Greeks considered otherwise."

In another respect we may learn something from Pausanias's account of Olympia. We have long been in the habit of hearing the opponents of Greek architecture rail at it for its sameness. The temple, they say, is the only building it has

produced, and all temples resemble one another, Pausanias enumerates at least six other kinds of edifices standing within the temenos, which here was unusually extensive. These were the Pelopion, an inclosure of stone, filled with statues of heroes: this was about half the size of the temple itself; the Hippodæmion, a somewhat similar edifice, 100 ft. square; the Philippiæon, a sort of family mausoleum of the Philippine dynasty; the Metroon; the Pyrtæneum, or hall for feasting the victors at the Olympic games; and the Bouleuterion, or place of assembly for the council, whose business it was to prevent bribery amongst the competitors—for it would appear that jockeyism was not unknown to the Greeks, and that occasionally "favourites" could be bought off. Here was a variety of buildings, certainly not in the form of temples, and all within a comparatively small precinct. Nor were they plain and unadorned, for we read that they abounded with statues.

In the plain beyond the temenos were the chief objects of attraction, the stadium and hippodrome, and also the treasuries. Here, also, was a house built for the descendants of Phidias. Artists were held in greater honour in those days than they are now. Who would not be astonished to hear of the nation presenting a house in Piccadilly to the children of a great sculptor? In these buildings, and ranged on the plain, there was literally "an army" of statues. Even after the spoliation by Nero there were no less than 3,000 remaining. Many of these may have been destroyed, many carried away, yet there must remain under the light alluvial soil deposited by the river Alpheus hundreds of fine works of art. And, as we have had occasion to remark in these pages, there is no field in the world which would yield so rich an art-harvest if it were properly delved and turned over. Many offers have been made to the Greek Government, but without avail. The French commenced excavating on the site of the temple, but were soon stopped. Prince Pockler Muskau not only offered to take the entire plain, and to apply every year a certain sum for excavation, but he actually proposed to give all the sculpture discovered to the Greek Government, to be placed in a museum which he was to build on the spot. The Prussians made a somewhat similar proposal; and Ross, the German architect and traveller, tried to interest the learned of Europe in the matter, and to raise subscriptions for the excavations. But the Greeks, following out their usual dog-in-the-mangerish policy, refused to listen to any one. Had any of these offers been accepted, not only would the results have been, in all probability, beneficial to art, but they would also indirectly have increased the prosperity of Greece by bringing shoals of visitors to its impoverished shores.

From Olympia, the party of travellers went northwards, through the richest district of Arkadia, by Paophis, to the vast convent of Megaspilion. Contrary to what might be expected, there is little Byzantine architecture there; the church having been rebuilt in a bastard Italian style, and thoroughly painted in 1653. Soon after leaving the convent, they came in sight of the lovely gulf of Lepanto, or of Corinth, which is bordered by the most picturesque scenery in Greece. The etching by Mr. Severn, from one of Sir Thomas Wyse's drawings (plate ix.), conveys an excellent idea of the character of the scenery at the western end of the gulf. At the eastern end, towards the isthmus, the hills soften down, and a more level country appears. Etching affords the best available method of rendering the excessively sharp outline of mountains as they are seen beneath the clearly-defining rays of the sun, and in the cloudless atmosphere of the Levant. The most successful etchings in the book are that which we have just named, and that of the valley of the Neda, forming the frontispiece to the second volume.

At Vostitza, the ancient Ægium, few traces of its former importance were visible. Indeed, few towns on this coast possess remains of any interest, as the heads, small statues, and all such portable property used to be carried off by passing travellers as soon as they were found. But the Greeks are now becoming alive to the importance of retaining those relics which attest their former superiority, and travellers cannot now obtain them for love or money. We once witnessed the repulse of an American at Patras, not very far from Vostitza. He saw a capital near the well of St. Andrew, and wished to carry it off to add to his collection in New York. So he first offered money to the custos of the

temple, they say, is the only building it has

neighbouring church, who refused to take it, and referred him to the eparch of the town; who told him, in an indignant manner, that he ought to be ashamed of himself for attempting to deprive the great Greek nation of the works of their ancestors, which were, in fact, the property of the Government. So curiosity-seekers will obtain little from Greece, either by the will of the people or the permission of the Government.

At Egira the walls of the town and the Acropolis could be traced; and at Sicyon the foundations of houses and the street-lines are "more wonderfully preserved than in any other site of Greece."

When the party of travellers came in sight of the columns of Corinth, they felt themselves at home; for, in the vast panorama which is seen from that model Acropolis, the Acrocorinth, the sister fortress of Athens, is a prominent feature. This view is, perhaps, the finest in Greece. It embraces the isthmus, which looks like a mere strip, dividing the Gulf of Corinth from the charming Bay of Salamis; Cape Sunium; the Piræus; Athens and its mountain back-ground, and the island of Egina; and, on the other hand, the plain skirting the gulf in the direction of Sicyon, and the picturesque northern boundary of the gulf. It is beautiful, even in the full glare of mid-day; and we can well imagine what it is in the rich light of sunrise or sunset.

The seven columns of Corinth are noted as being the earliest specimens of the Doric order in Greece. They are the only remains of the ancient city which stood below the Acrocorinth. We consider the columns of the archaic temple of Neptune at Assos to be still older, judging from the form and projection of the columns. Both temples probably date from the sixth century before the Christian era.

What most strikes the reader of travels in Greece is the fact of there being so few remains of its ancient grandeur, such as those described by Pausanias and other competent authorities, still visible; besides the ruins at Athens, the Temple of Basse, the columns of Corinth, the treasury of Atreus at Mycenæ, and the walls of some of its cities, all memorials of its cities and magnificent temples have disappeared. There are various ways of accounting for this. The country has been subject to invasions and incursions on all sides, and the conquerors must have not only pillaged the temples and carried away the spoils, but they must have destroyed them, and used the stones for the construction of their fortresses. If we look through Cornelli's "Memorie de Regni della Morea" we shall find representations of castles constructed or largely repaired by the Venetians at Nauplia, Malvasia or Novemrasia, Cape Matapan, Mistra, Passava, Chialfa, Larnata, Coron, Modon, Navarino, Tornese, Chialenza, Patras, and Corinth;—in fact, all round the shores of the Peloponnesus. The stones used in these constructions came from the ruins of neighbouring cities, and their walls would no doubt be rich mines to the antiquary, furnishing inscriptions, mouldings, and architectural members of every description.

In these times of improvements in artillery, these walls would be quite useless as fortifications, so it is to be hoped they may some day be pulled down for the benefit of the literati of succeeding generations; for they,—at least as many of them as we have seen,—are uninteresting as specimens of military architecture as well as inadequate for purposes of defence.

In conclusion, we recommend the perusal of these volumes to all who wish to be instructed as well as entertained,—who prefer substantial food for the mind to the light dainties which are generally alone to be found in the present literature of "peregrination."

THE PAYMENT OF ARCHITECTS.

SIR,—The coming together, in the *Builder* for November 4th, of two claims so sharply contrasted, in every way, as that of M. Leclaire, the building tradesman,—"*chef d'industrie*,"—and Mr. Thos. Harris, the "professional" British architect, led me to append to the answer you allowed me to give the latter, on November 11th, a remark on the strangeness of the coincidence; which, I said, led me to venture a "very practical" suggestion; meaning, not one for immediate practice, but one whose value and practicability in the nature of things, but impracticability while Mr. Harris, and "British architects" in

general, claim their present absurd position, would show forcibly the mischief of that position, and the practical value of overthrowing it. In short, I meant that, having till that last paragraph treated only of Mr. Harris's proposed problem, which might seem, for the general public, far from a "very practical" one (seeing small a class as the R.I.B.A.), it seemed good now to show, or briefly undertake to hint apologetically, that this has a bearing, and a very direct bearing, too, however easily escaping the notice of all present readers, on the most practical of all present questions,—even that problem of M. Leclaire (now first obtaining anything like its due prominence in your pages), which is daily more and more loudly declaring itself as the one all-absorbing problem of our century, and making it almost childish to call any disconnected one "practical" at all.

It would perhaps have been better to have suppressed that unlucky final paragraph altogether, than to have it mistaken, as "G. W." now quotes it, for my suggestion of what "we should do." On the contrary, as I was vain enough to hope I had made plain, it was a main part of the "real sore" that we can only look to do this last; after the seemingly unimportant, and therefore neglected step, of obtaining—what, according to "G. W.," the Americans appear to have obtained already,—a class of really "professional" architects; in other words, master-designers who are bound "not to be the contractors' partners." What "we should abolish" first, as I hoped I had clearly said,—or rather, what we must abolish, before the remotest chance of a real architecture,—is this partnership. In short, what we have to do, we—the lay public—is to insist, in the most absolute manner, even more pre-emptorily than "G. W." says his Yankee clients did, on having architects or engineers willing to reckon their remuneration (like men of all other pursuits) by some approximate proportion to their services;—to insist on a counter-institute, if need be,—an opposition I.B.A., to stand on the mere reversal of the Bedlamite R. I. B. A. proposition of 1862. Let all be free to charge, each by his own rule, on his own basis, and his own scale: one, if he please, according to the number of nails in a house, or the number of letters in a client's name, or the number of cats met in a day,—with this sole proviso, that it must not be by per-centage on outlay, or on any tradesman's contract (and I should add, that the architect must not choose or recommend any contractor). The former, I say, must be even more absolutely insisted on than by "G. W.'s" American client; for this reason,—if we are to have any chance of rational architecture, we must go a point beyond that Yankee's 'cuteness'—namely, to the point of insisting that, as architecture is pre-eminently the art of invention, we can expect no man to invent rational ways of doing things in our building who has shown incapability of inventing rational ways of charging in his own bills!

That is where I deduce, sir, from "G. W.'s" story, that his client's penetration fell short; and that, if it were a true sample of average Transatlantic smartness, the whole murder is out by Cousin Jonathan, much as his 'cuteness' may exceed John Bull's, has not yet been 'cute' enough to build less ridiculously. On understanding that the more "G. W." might make his building cost, the more his fee would come to, he guessed that wouldn't work, "any way you can fix it." Capital guess; but instead of stopping at it, he should have been led to add, "Britisher, I calculate we want architects with heads, but not the sort of heads into which it ever enters to make gravely the proposal you have entertained us with. Many thanks for your complaisance in determining to 'ponder on the rights of the thing;' but the precise difference between the kind of man we want and the kind of man we don't want for this purpose—between architect and no architect—is that the one ponders 'the rights of a thing' that he undertakes, without being forced so to ponder by any dead-lock or strike; while the other does not ponder them till he is so forced. We have learnt from you all we wished to know, sir. Good morning!"

An architect must be, in the broadest sense, an artist; and "what do we understand by an artist?" asks M. Trélat, in the opening address of the School of Architecture, reported in the *French papers* this week. By "an artist," says he, we mean to say, that he whom we so denigrate does not necessarily do exactly like everybody; but that whenever he undertakes a

thing, he says to himself not, '*How does my neighbour do this?*' but, '*How ought this to be done that it may be well done?*' Well, this vulgar sense, so generally applied to the epithet, artist,—really, gentlemen, this is the true criterion of the artist." Now, with much deference to American 'cuteness, sir, I believe that it will not suffice, nor will British, to procure decent architecture, till it learns at least the above lesson, and reaches to the point of asking, is it likely that men who do not "ponder the rights of" so prominent a thing as the mode of charging their own bills till forced thereto by absolute dead-lock and announcement that their entire business "won't work any way you can fix it," are the sort of men to enter spontaneously into the rights and logic of the innumerable things, great and little, that go to a real building design?

Without seeing any great objection to the method of payment to which "G. W." says he was driven in America, nor any necessity for an agreement of different artists on a common scale, or even a common basis, I am perfectly ready to surrender mine on the suggestion of a better: that basis is *superficial area of flooring*. If you take cubical measure, the designer will have a pecuniary interest in loftiness, and be unable to advise disinterestedly the heightening of any story, or room, or roof. So, again, if you take external measures, he will have a trade interest in thick walls. Internal covered floor-space is the final cause of every building, and "payment by results" (as the Revised Code has taught us to say), must therefore primarily include payment by the measure of this. We may divide buildings into these classes:—

1. Warehouses, stables, or such as are neither inhabited nor exposed to public view; for these, a charge per square of flooring alone.

2. The same buildings when exposed in towns, the same charge as above; and added to this (except where the architect puts his name on the exterior), a charge per lineal measure of the external plan of each story, omitting what adjoins other buildings or properties.

3. Inhabited and public buildings; a higher charge per square of flooring, with the same addition as above for perimeter of each story, and a price specially agreed on (after sketch made) for every variation design. Without this last, as the whole charge would be simply like that of "G. W." in America, for "all that was necessary to the completion" of a building; and it is plainly never necessary that there should be more than one form of capital (for instance) or one window-head, or one moulding throughout the whole; there would be no chance of any variety but from the architect's desire to advertise himself, or his pure love of designing, motives that abundant experience has shown us to be insufficient, even with a Pugin.

People would save any charge for external perimeter, by obliging the architect to put his name on the work; for when you force him to do this, you force him to design an exterior that he may not be ashamed of. On the other hand, when you either oblige or allow him to leave it anonymous, you must pay for any external beauty you may get, and not get so good either.

EDWARD L. GARRETT.

ARCHITECTS' CHARGES.

In mercantile business, and in some professions, where the profits made upon either a large or small amount of business are pretty nearly at the same rate, the successful man flourishes by means of doing a large amount of business. Thus a broker clears his percentage, and a merchant his profit, at very much the same rate, be the transactions of the year small or great; but a merchant or a broker can deal with a hundred thousand pounds without much more trouble than with five hundred pounds, and consequently the able and successful merchant or broker flourishes through the extension of his transactions, more than through his getting higher rates of profit upon each one.

In those professions, on the other hand, where nothing can be done by deputy, the able and successful man rapidly reaches the limit of work he can actually do, and his future progress is secured by his raising his rate of remuneration; so that those only who need his services very much, or at least are willing to pay for them very highly, get any share of his time. Thus, if I want a painting by Millais, or a statue by

Gibson, I must pay a very high price or I cannot have it.

An architect can, to a very considerable extent, get the routine work of his profession done for him by assistants; and therefore it appears to me fair, that, in all ordinary cases, an able and successful architect should, in the main, be content with that increase in fortune which the increase in the number and importance of the works intrusted to him brings with it, on the commission principle; but the moment he is called upon to render personal or mainly personal services,—i.e., when he sits as an arbitrator, which no one can do for him; or when he designs "works in which the art required is of a high kind and the expenditure mainly for skilled labour"—then, like the painter or sculptor, he values his time according to his standing, skill, and repute, and is paid accordingly.

There is, however, one step which I should like to see taken by some of the leading members of the profession.

After a time, in some cases, work has been known so to pour in upon an able and popular architect, that even with a very efficient staff he has not been able any longer to confine the portions of work done by assistants to what I have termed "the routine work;" but he is obliged to depute some of the designing, and more of the superintendence than is advantageous for the work, his time being almost wholly taken up by interviews with clients or correspondence. As soon as regular work has increased to this pitch, I should like to see an architect increase the percentage he charges. It would have the effect of increasing his income without overburdening him with a hopelessly embarrassing mass of work which he cannot possibly get properly through. It would sift from his *clients* those who cared for him least, and from his works those buildings he would least desire to have; and it would send to other architects a certain number of works which to them are of importance, while it would effectually mark the standing which any man who could afford to do it has reached.

With this alteration, I believe the operation of the system of commission to be much less open to objection than your recent correspondents seem to consider it. It has several points to recommend it. It is simple of application, generally understood, and, above all, universally recognised. I am not at this moment able to quote cases, but I think I am right in saying that the institute scale of charges has been again and again produced in court since its publication, and has been uniformly respected.

In its bearing upon the client, the system of commission has always seemed to me very fair. The advantage gained by the employment of an architect is, that such skill and technical knowledge as are wanted to make the building suit his requirements, are at the service of the employer. It may be of more importance to the public that a church should be well designed than a factory; but to the proprietor of the factory bad arrangement, bad lighting, and unscientific disposition of materials, are quite as likely to be ruinous as inartistic design, or ignorant treatment of decoration, might prove to the patron of the church. I hold, therefore, that the requisite skill is an element which may be held to be in all cases equally necessary, and on the whole its value to the purchaser of it may be held to bear a certain fixed ratio to the cost of the bricks and mortar. If this be so, the payment of a certain percentage upon that cost is a mode of meeting the matter which, under all circumstances, is fair to the employer. And I believe this is generally felt to be true by most persons who have been engaged in building in the capacity of employers.

If what I have advanced be correct, it appears that the common consent of the profession to the terms set forth in the Institute paper on professional practice is a matter on which those of us who are, like myself, proud of belonging to a body of which Mr. Garbett "repudiates the name," have cause to congratulate ourselves.

There is no mode of dealing with the subject not open to the objection that a dishonest man may endeavour to use it as a means of fraud, and a suspicious man may consider it open to question. Charge how you will, the rogue will contrive to run up an unjustly long bill; and the man who, instead of employing a man of honour and trusting him, desires to guard against his professional adviser's acting like a rogue, will always have cause, or find cause, to object. It is not so much to any architect's interest to increase outlay to a venustas degree, in order

thereby to increase his commission, while at the same time he "kills the goose which lays the golden eggs," as it is to go through his work with satisfaction to his employers; and this, I think, a sufficient answer to Mr. Denison's text and the commentary thereon furnished in Mr. Garbett's very remarkable communication.

May I add one word with reference to the charging commission upon the average of the tenders? It appears to me that the objection taken by "X. Y. Z." is quite unanswerable; but, if that be disposed of, an equally serious objection remains behind, and one which I am sure Mr. Harris must have entirely overlooked. Such a custom implies that the architect habitually gets his buildings done by the lowest tenderer, for less than they are worth. To do this intentionally and customarily would be nothing short of dishonest; and yet, if the contract is to be let at one figure and the architect's commission charged upon another, what else can we infer?

T. R. S.

CONCRETE FOR THE ISTHMUS OF SUEZ CANAL.

FOR constructing the concrete blocks for the jetty at Port Said, the contract was made on the 2nd of October, 1863. Since then, the installation of the necessary works has been completed. M.M. Dussaud, Frères, have set up the following machinery and plant:—

1st. A set of mortar-mills, comprising ten grinders, put into movement by a 60-horse power engine. Each grinder is able to deliver 35 cubic metres of mortar per diem, or at the total rate of 350 cubic metres, thus producing 35 blocks of 10 cubic metres each. This amount, at the rate of twenty days per month, gives 8,400 blocks per year. The workshops for making these blocks is established on a travelling-crane of large dimensions, connected by an inclined railway with the lime and sand depots, on which wagons are hauled up by another engine of 60-horse power. According as the ingredients are ready for the blocks, they are dropped down by a shoot into other wagons below.

2nd. Platform for the fabrication of blocks. These are arranged methodically in parallel lines, and at present number about 1,900 ready to be dropped in place. According as these are removed to their ultimate destination, their place is occupied by other blocks, newly made, so that the supply of material is constant. The time for setting is about three months; and at the expiration of that period they become sufficiently hard. In capacity 10 cubic metres, and weighing 20 tons each, they are composed of 45 per cent. of hydraulic lime from Thell, and 55 per cent. of sand and sea water.

3rd. The machinery for lifting, transporting, and dropping the blocks. This consists in a number of locomotives and stationary engines, which execute the transport in the most satisfactory manner.

4th. Cantilevers or cranes, for depositing these blocks in the sea, carried by lighters specially constructed for the purpose.

The sand for the concrete is furnished by the dredging of the port, in virtue of a convention passed between M.M. Dussaud and the contractors for the excavation of the canal bed.

The jetties will employ in all 250,000 cubic metres of concrete blocks, the first of which was sunk on the 9th of August last. Up to the end of August, 148 had been dropped.

The shipping returns of Port Said, from the commencement of the works up to the 1st of July, 1865, give as traffic for the harbour 2,037 ships, of the total tonnage of 359,548.

SUBMARINE DIVING.

ENDEAVOURS were made lately at Brest to float the English vessel *Columbian*, sunk in January last: the experiments are highly interesting as furnishing details concerning the difficulties encountered in deep diving operations. The diver was M. Casimir Deschamps, an experienced man, formerly *détaché* in the Crimean army, Member of the Committee of the Association of Inventors under the presidency of Baron Taylor. Clad in the impermeable dress, and covered with the casque, he descended at 3 h. 30 m., at the same time that the submarine lamp was lowered down the ladder.

At 30 metres (98-4 ft.) the lamp was no longer visible, and the men who held it felt its weight suddenly increased. At 3 h. 40 m. the diver reached the depth of 60 metres (196-8 ft.), when one of the air-supply pipes burst at the joining with the pump. Order was given to continue pumping, while the man was at once hauled up, the pump working while the engineer held the pipe to the pump with his hands bound round with a handkerchief. At 3 h. 44 m. the feed-pipe of the other pump burst also, and the lamp was then carefully drawn up; but it was found completely crushed in by the pressure, which amounted to 6 atmospheres, or 85 lb. per square inch. The cylindrical body of the lamp was unscathed and unsoldered, the flat glass had disappeared, and the lens was driven into the interior, where it hung by one screw. The diver came up safe and sound.

Fresh pipes having been put to the pumps, the courageous diver, paying no attention whatever to the accident that had happened, eagerly descended a second time.

At 4 h. 44 m. he commenced the second descent, under the pressure of two atmospheres: at 4 h. 46 m., at 25 metres (82 ft.) depth, the pressure was 3 atm.; at 4 h. 49 m., at 40 metres (131 ft. 3 in.), pressure 4½ atm. (here the diver called for *more air*); at 4 h. 50 m. 30 s., at 55 metres (180 ft. 5 in.), 6 atm.; at 4 h. 54 m. 30 s., at 60 metres, 6 atm.; at 4 h. 58 m. 50 s., depth, 60 metres, same pressure; at 5 h. 2 m., the diver gave the signal to be hauled up, which was obeyed very carefully, the pumps working. No air-bubbles were seen to rise on the starboard side. The captain, stationed on the bridge, perceived the diver floating on the surface, and at once sent a boat to his rescue, the pumps working with two atmospheres pressure. The man was lifted on deck in a very exhausted state; having fainted twice, he was ultimately brought round by being rubbed over the body with camphorated spirits of wine, ether, &c. He then slept, and at seven o'clock took some food. It was found that the diving apparatus (an impermeable one) had been broken in the interior, so that the water penetrated into the legs of the contrivance. The state in which the diver rose clearly proved that neither the man nor the apparatus could support with impunity a pressure of six atmospheres, or 85 lb. to the square inch.

THE CATTLE PLAGUE IN THE SOUTH OF ITALY.

It is extraordinary that, while so much interest has been excited, and so much has been said and written on the subject of the cattle plague, nothing has yet appeared connecting the present outbreak in England with that of the same character which took place in the south of Italy two years ago.

The passage of the plague has been traced by some from Russia or from Germany, but no one has observed the very natural course which it appears really to have taken from Italy over the east of Europe to England.

It appears to have prevailed first in the neighbourhood of Rome, and throughout the Papal territories, and thence it is reported to have proceeded south to Naples, being brought by cattle imported from Rome by sea. Owing to the wretched state in which the cattle are generally kept, and the numbers which are crowded together, the disease was much more fatal than it has been in England, while the character of the people, and the constant attempts which they made to defy the vigilance of the officers appointed to superintend the sanitary regulations, made it a much more formidable enemy to the public health.

The symptoms of the plague, as it broke out in the neighbourhood of Naples, were similar to those as they are now to be seen in England. The animal, apparently healthy in the morning, sickened and refused its food before night, and died in a few days under the same circumstances as among our cattle. But in England there is some chance for a healthy animal, while in Italy there was none. The accommodation which they are afforded is most miserable, being penned up together in a small, dark, and unwholesome shed,—out of which they may be said, without exaggeration, hardly ever to come till the day of their death. Unless an animal changes its master, or is to be brought down to the butcher, it is never taken from its stall from year's end to year's end; and, when it does come out, it is to be driven along the road by a couple of ropes

and surrounded by men armed with long poles. The feet of the unhappy beasts have, through want of exercise, become a pitiful sight, their hoofs being bent and curled up like a pair of Turkish slippers.

Being thus confined altogether, they had no chance of escape from the disease; and, if one were seized, the whole herd were sure to be destroyed.

Some masters, as soon as the symptoms appeared in any of their animals, did indeed separate them, and sent the healthy part of the herd up into the mountains; but in most cases this was done too late, and the loss was enormous.

The condition and keeping of the cattle rendered them much more liable to attack than in England; for not only were they confined, but their food at all times is most unwholesome. In the whole neighbourhood of Naples no pasture exists of any kind, and the staple of the food during the summer and spring, when the plague prevailed, was the refuse of the mulberry leaves, which are stripped from the trees in great numbers to feed the silkworms, who will only eat a portion of the leaf while it is fresh; and when these fastidious animals had cast them aside, they were considered fit food for the cows.

As soon as an animal showed signs of infection it was sold, conveyed into the hills, and slaughtered. It was then taken, by night, into the market, and the meat sold privately by the butchers as early as possible in the morning. The result was, a constant fight between the sanitary authorities and the butchers, while in some cases these officers connived at the practice, and placed the stamp which was required by the regulations before any animal could be sold, upon meat which either they had never examined, or which they knew to be infected.

This outbreak was in all respects similar to that which is now destroying our cattle, and, from its duration and effects some hints might well be taken. It lasted about a year, and destroyed an enormous proportion of the cattle; but no precautions of any kind were taken, no remedies used, and thus it was allowed to die out of itself, probably having lasted much longer than will be the case in England, with greater care and under more favourable circumstances.

If, indeed, there be any truth in the assertion, that such a plague is a forewarning of some plague about to fall upon the human inhabitants of the country, conclusions may be drawn as to the approach of the cholera in England, from the outbreak which has followed the cattle disease in the south of Italy, and which is now raging among the unhappy inhabitants of Naples.

A SHIP OF THE SECOND CENTURY.

"SHIPBUILDERS," said Mr. Donaldson, at the Institute, "are prone to call themselves naval architects," and here is something for them. In the course of digging a trench for military purposes, during the late Danish war, the workmen came upon boggy soil, and at a depth of 5 ft. discovered the remains of a very ancient ship embedded in the bog. The site is now some distance from the sea (at Wester-Satrup, in Sundewitt Bay); but at the time when it was deserted it was no doubt "run up" on the beach. It is of oak, but in so very defective a condition, that it had to be strengthened with iron bands before it could be removed to Flensburg, where it may now be seen. The keel is bent upwards at both ends, after the fashion of a modern gondola, rising to a height of 9 ft. 10 in. in the bows, and 10 ft. 11 in. at the stern. The total length is 79 ft. 10 in. by a width of 11 ft. 10 in. in the waist, by a height of 4 ft. 2 in. There appears to have been no deck, but several lockers were found, some of which contained bones of animals. Besides this were discovered a number of spears, bows, arrows, battle axes, wooden clubs, knives, &c.; but, what was more important, some coins were found, which give the date of the time when this ship floated, not only on the Baltic, but perhaps to the distant shores of Britain. The coins are Roman, and of the second century, A.C.; and there were also bracelets, rings, and other ornaments, besides cooking utensils, &c. All these articles are now in the Archaeological Museum at Copenhagen, but the ship itself the Danes were unable to get away before they had to give place to the advancing Austrians.

BERLIN.

THE base of the Victoria Column, on the Belle Alliance Place, has hitherto been much in the same unfinished condition as a certain column of our own, not a great many miles from Charing-cross; and the reason is not half so plausible as the necessity of making careful zoological studies: in the Berlin case it is simply neglect. Now, however, the four pedestals are to be filled each with an impregnation of those nations which composed that Belle Alliance, the end and object of which was the overthrow of the First Napoleon. The groups representing England and Hanover are now in hand in the studio of Professor Fischer.

To those who have had an opportunity of admiring W. von Kaulbach's frescoes in the New Museum, it may be interesting to know that the whole collection is now being published by Duncker, in Berlin. The engravings will be copper-plate, and will be contained in ten numbers, beginning October, 1865, and ending October, 1869. Price 10, 18, and 24 thalers. Four large engravings have already appeared, namely, "The Tower of Babel," "Homer," "The Crusade," and "The Battle of the Huss."

HAMBURG.

THE authorities of this city published particulars to competitors for a new Fine Arts Gallery in December, 1862. The total area was not to exceed 15,000 square feet for the present; but the designs were to include arrangements showing a further increase of 10,000 square feet. Messrs. von der Heide & Schirmacher were the successful candidates; and the building, which, when entirely finished, will have cost about 30,000*l.*, is being carried out under their supervision. The style is Italian Early Renaissance. Terra-cotta ornamentation is freely used with stone and brick, and would be effective but for the weakness and thinness which characterise the mouldings of the German school.

Mr. Scott's Church of St. Nicholas has now been opened for service some time, and the tower has this summer reached a height of 220 ft. A powerful crane and engine, supplied by Messrs. Moltrecht & Co., of this city, raise the enormous blocks of stone, some of them over 5,000 lb. in weight, with the greatest ease. The works are under the management of Mr. Wood, who has been clerk of works from very nearly the commencement of this handsome edifice.

THE INSTITUTION OF CIVIL ENGINEERS.

THE first meeting of the session, held on the 14th inst., was occupied by the reading of a paper "On the Telegraph to India and its Extension to Australia and China," by Sir Charles Tiltton Bright, M.P.

The total length manufactured was 1,234 nautical miles, weighing in all 5,028 tons. Five sailing vessels and one steamer conveyed the mass of submarine cable to Bombay, and the submersion was commenced by the author, on the 3rd of February, 1864, at Gwadur, on the coast of Belochistan, the whole being completed by the middle of May in the same year. The cables were laid for the first time successfully from sailing-vessels towed by steamers, by which a considerable saving was effected, compared with the cost of sending the cable round the Cape in steam vessels.

It was expected that the Turkish land-line, between Bagdad and the head of the Gulf, would have been completed simultaneously with the submersion of the Persian Gulf line. In this, however, much disappointment was experienced, owing to the Arabs, on a portion of the route, in the valley of the Euphrates, being in revolt against the Turks. In consequence of this, the opening of the entire line between Europe and India was delayed until the end of February in the present year, when a telegram was received in London from Kurrachee, in eight hours and a half. This was speedily followed by numerous commercial messages to and fro, and a large and remunerative traffic was now daily passing. The author, however, complained of the delays and errors arising upon the Turkish portion of the line, between Constantinople and Belgrade; the service on the portion of the line worked by the Indian Government, between India and the head of the Gulf, being performed rapidly and efficiently.

NEW PEAL OF EIGHT BELLS AT PENZANCE.

THURSDAY, the 31st ult., was a memorable day for Penzance. The lofty tower of St. Mary's was rebuilt, thirty years ago, in the Perpendicular style, of substantial granite masonry, with appropriate chambers for the reception of a good peal of bells; yet nothing but the ding-dong of a solitary bell has hitherto existed for summoning a goodly congregation of worshippers to their parish church, holding about 2,000.

By the active exertions of the incumbent, the Rev. P. Hedgeland, M.A., and the energetic churchwarden, Mr. Walter Edwards, and a committee made up of the chiefs of the town, a noble octave of bells, by Messrs. Taylor, of Loughborough, in E flat, weight 21 cwt., at a cost of over 800*l.*, has been provided; and on the 31st ult., they were inaugurated with all the ceremony which the authorities of the town could provide. The work of the day was well begun by an act of charity at the town-hall, where the mayor, Mr. Francis Boase, distributed the sum of twenty guineas, the gift by H.R.H. the Prince of Wales, for the poor of the town, at the time of his recent visit, and the disposal of which had been deferred till this time, to make the occasion of the opening of the bells a day of special rejoicing. The gift was so doled out that eighty-four aged and infirm persons of both sexes, and of the average age of seventy-three, received 6s. each.

A sermon was preached by the Rev. H. T. Ellacombe, M.A., rector of Clynst St. George. After the sermon, the Woolwich ringers ascended the belfry, and the assembled multitude were astonished to hear various touches of scientific change-ringing, such as were never before rung in Cornwall or Devon; for, strange to say, the science of change-ringing is not known below Bristol, though lately there are many clergymen and others turning their attention to it. All that the West-country ringers pride themselves upon is to ring plain rounds and rounds, and ups and downs, for which people who know no better are pleased to offer prizes, to be spent at the public-houses; and while such a practice prevails it is not to be wondered at, that, with a few exceptions, the ringers and ringing, and state of the bells, are in a lower and more degraded condition than in any other part of the kingdom.

After a dinner, the visitors adjourned to the largest room in the town, the Corn Exchange, which was crowded to excess. Over 1,500 persons were present to listen to an interesting lecture on campanology, by Mr. H. R. Trelawny, of Harewood. In the course of the lecture Mr. Trelawny repudiated the ringing for prizes or money; for while this was practised, ringing would remain at a low ebb. He recommended that young men of respectability and education should be the persons engaged in the belfry, and that ladies should practise hand-bell ringing.

The lecture was illustrated by a marvellous performance on hand-bells, by the company from Woolwich, and at the close they performed a selection of well-arranged music in such a manner as to surprise the audience.

PRESTON NEW INFIRMARY.

THE design for the new Infirmary which Mr. Hibbert was requested to make has been adopted, and he has been instructed to prepare the necessary working drawings for the erection. The pavilion for the reception of the sick will be on the west side of the present house, from which it will be separated for sanitary reasons by a corridor, 45 ft. long and 12 ft. wide. The pavilion will consist of two stories, each 16 ft. in height from floor to ceiling, and each floor will be exactly similar in arrangement. The limits of the land available for building upon determine the extent of the pavilion from north to south. The present house fixes the position of the connecting corridor, at the end of which is a spacious staircase ascending to the upper floor of the pavilion. The pavilion comprises on each floor a ward for twenty-four beds, 109 ft. long by 26 ft. wide; a ward for eight beds, 36 ft. long by 26 ft. wide, for casualty or other cases that may be considered desirable to be set apart; two small wards for special cases; nurses' room, and ward scullery, with the requisite baths, lavatories, and conveniences at the further end of the wards. The ground floor will be appropriated for males, and the upper floor

for females. At some future time a similar pavilion and corridor will be erected on the eastern side of the present house. The number of beds provided in the western pavilion will be sixty-eight. "In the deliberations of the committee," says the *Preston Guardian*, "sanitary requirements and hospital hygiene have received the foremost consideration. The recent improvements in hospital construction will be embodied, and the recommendation of the best authorities—Miss Nightingale; Mr. Robertson, of Manchester; the editor of the *Builder*; and the medical science of the locality—have been duly attended to." The floor space per bed averages upwards of 110 square feet, and the cubic space nearly 1,900 cubic feet. The baths, lavatories, and closets are separated from the wards by well-ventilated intercepting lobbies. The ventilation of the wards will be effected mainly by tripartite sash windows, the two lower sashes hung as ordinary sashes, and the top sash hung to a transom. The wards will be warmed by fire-grates, occupying a two-bed space, affording room for resort to patients who are able to leave their beds. The outer walls will have a cavity, and be faced with pressed bricks. Longridge stone will be sparingly used for dressings. The walls and ceilings internally will be plastered with the lime of the district, which is of a much harder and less absorbent nature than the chalk lime of the south. The windows will be glazed with plate-glass, and the boarding of the floors will either be of oak or red deal. The baths, lavatories, and closets at each end of the building, together with the staircase, are crowned with steep crested pavilion roofs, which give a French-Italian character to the design. The cost of the western pavilion and corridor, together with the re-adaptation of the present house, and the new one-story range of buildings in the rear, is estimated not to exceed 8,000l.

THE PROPOSED CENTRAL HALL OF ARTS AND SCIENCES.

In the recent address by Mr. Hawes at the Society of Arts, some information was given concerning the proposed Central Hall of Arts and Sciences, which will be erected on the north side of the Horticultural Gardens, on ground belonging to the Commissioners of the Exhibition of 1851. The hall is to accommodate above 5,000 persons, and will be available for the following objects:—For congresses, national and international, for purposes of science and art; for performances of music, vocal and instrumental; for the distribution of prizes by public bodies and societies; for *conversations* of societies established for promoting science and art; for horticultural shows, and for national and international exhibitions of works of art and industry; for exhibitions of pictures, sculpture, &c.; and for any other purpose connected with science and art. It appears that the funds for its erection will be provided, first, by the Commissioners of the Exhibition of 1851, who grant the site, at a nominal rent, for 999 years, the value of which is estimated at 60,000l., and also guarantee one-fourth part, or 50,000l., towards the cost of the building; and, secondly, 150,000l. will be raised by the sale of boxes and seats, to be held for the full term of the lease, 260,000l. being the entire estimated cost of the land, buildings, fittings, &c. The arrangements are at present under the management of a provisional committee, at the head of which is H.R.H. the Prince of Wales; but the management of the hall, when completed, will be vested in a governing body, under the authority of a Royal Charter.

THE CANYNGES SOCIETY, BRISTOL.

The annual meeting of this society, established in 1848 to assist in the restoration of the Church of St. Mary Redcliff, was held on the 15th instant with considerable success. It included a sermon and luncheon, the Lord Bishop of the diocese presiding with great geniality. A report, read by Mr. Chas. Clarke, showed what had been recently done:—

"The west front, so far as regards the nave and body of the church, but exclusive of the doorway and the tower, has been restored. The west door was omitted, it being considered unsafe to proceed with its restoration in the existing state of the tower. The stonework of the large west window has been completed, and is ready to receive the stained glass, kindly promised by Sholto V.

Hare, esq., so soon as the organ has been removed, which removal the committee hope may very shortly take place. The stair-turret, at the south-west angle of the church, is completed. Two windows at the west end of the south aisle are perfected. Three others on the east side of the south porch are in an advanced state, and the glazing will be completed in a few days. The restoration of the pillars in the north and south transepts will be shortly commenced. Out of twelve pillars, the cost of six has been provided for. One by Mrs. Randall, wife of our respected vicar, and another by his younger daughter; one by the Rev. G. F. Cook, curate; one by Mr. James Bush; one by Sir John Dorney Harding, bart.; one by Mrs. Marshall, of Kingston-hill, Surrey. The window at the east end of the north chancel aisle has been filled with stained glass, by the subscribers to the Handel Commemoration Fund. Another window in the lady chapel will also be erected in the course of the present month, in memory of a deceased benefactor. The committee have also the pleasure to announce that the ex-mayor, Mr. T. P. Jose, during his year of office, promised the handsome sum of 25l. towards the distinctive purpose of the restoration of the chancel."

The great object now is to raise money for the restoration of the tower, which is in a dangerous state of dilapidation, and the completion of the internal fittings.

Some very handsome donations were promised, including 100l. per annum for five years, by Mr. S. W. Lucas, of Birmingham, who has already given a very large sum; 500l., at 100l. val., by the Rev. H. G. Randall, the vicar; 100l. by Mr. R. P. King; and several others. Mr. Alderman Proctor, to whom so much is owing in carrying on this work, was warmly remembered.

COMPETITIONS.

Liverpool.—The committee for a Welsh church and schools, to be erected in Princes Park-road, asked for competition amongst local architects, limiting the cost to 5,250l., including seats for 1,200 persons, large school-rooms, and chapel-keeper's house. The premiums were awarded as follows:—1. Messrs. Audley; 2. Mr. C. O. Ellison; 3. Messrs. Duckworth, all of Liverpool. A correspondent asserts that the design to which the first premium has been awarded will cost 19,000l.

THE POLLUTION OF RIVERS.

Mr. RAWLINSON, Professor Way, and Mr. Harrison, the Commissioners appointed by Government to inquire into the pollution of rivers, have held sittings at Reading. The inquiry was attended by the mayor, ex-mayor, town-clerk, clerk to the Board of Health, chairmen of the waterworks and gas companies, and a number of the most influential inhabitants.

Mr. Rawlinson explained the object of the commission, and that it was suggested that their inquiry should include selected river basins, illustrating different classes of employment and population; and that the first of these river basins should be the Thames Valley,—both as an example of an agricultural river basin, with many navigation works, such as locks and weirs, and mills affecting the flow of water, and many towns, and some manufactories discharging their sewage and refuse into the stream from which is mainly derived the water-supply of the metropolis.

Evidence was then taken, from which it appeared that the river Kennet ran through the centre of the town, and communicated with the Thames. Sewage matter from a number of houses fell into the Kennet, the water of which was used for domestic purposes by some of the inhabitants; who, however, were supplied with pure water by the company if they chose to avail themselves of it. It was stated that the Board of Health took measures to avoid new cesspools emptying themselves into the stream, but that the powers of the Public Health Act did not enable the Board to deal with parties polluting the rivers unless the pollution amounted to a public nuisance, when it could be treated as any other nuisance.

Evidence was given to the effect that no thorough and complete system of underground drainage had been carried out in Reading, although there had been several discussions upon the subject, the clerk of the Board stating his belief that if a reasonable scheme was brought forward, and it could be shown that an outfall might be obtained, it would meet with favour.

Mr. Rawlinson gave some practical and valuable advice, the result of long experience, showing that the necessary works could be carried out at a sixpenny rate, and that the sewage could be carried off by engine-power. The idea of an outfall into a river must not be entertained, and the sewage must be disposed of on land.

ST. ANDREW'S, CAMBERWELL.

THIS church has been erected through the instrumentality of the Rev. Daniel Moore, of Camden Chapel, and has been assigned a district out of his parish. It was consecrated a few days ago by the Bishop of Winchester. The interior only is as yet complete, the tower and spire being still in progress.

The arrangement of plan consists of a nave 90 ft. long by 35 ft. wide; a north aisle 45 ft. long by 15 ft. wide, terminating at the east end in a transept 27 ft. in width by 21 ft. 6 in. long; the chancel, which is 24 ft. wide, is raised four steps above the level of the nave, and contains only the stalls for choir and the reading-decks, of which there are two, one on either side, being a continuation of the back row of choir stalls, but differing from them in design. Beyond the chancel is a sacristy, 18 ft. wide, with apsidal east end, and raised one step above the chancel, making the total internal length of the church 125 ft. The height of the west gable of nave is 56 ft., the tower 66 ft., and to the top of spire 140 ft. The organ-chamber is formed in the north-east angle of the chancel and transept, and with an opening into each.

Facing the transept in the south side of nave is a naile or passage, about 5 ft. wide, connected with the nave by two flat arches,—together the width of transept arch,—which affords, by a door at the western extremity, means of approach to the vestry at south of chancel, and exit from the seats at east end of nave.

There is a small west gallery across the nave. The tower is at the north-west angle of nave, and forms the principal entrance-porch, communicating to the west with a western porch or narthex extending the whole width of, and affording access to, the nave, and at the south-west extremity of which is another external door intended for exit only. To the north the tower communicates with a north porch, formed between the tower and north aisle, from which the gallery and north aisle are reached, and by an external door in the north wall, affording a direct means of exit from the gallery, and making, with the one at the south-east of nave, four distinct modes of exit.

The heating is effected by the use of three of Parrett's ground stoves, applied, however, with one or two additions to secure the supply of fresh air and a good draught in the flues.

The building is constructed externally of four varieties of stone, viz., Kentish rag walling, laid in "drop courses," and the joints raked; red Mansfield columns, and vousoirs in some of the arches; the general dressings being of yellow, with a small admixture of blue Bath, and bands of both Bath and red Mansfield stone. The roofs of nave, north aisle, transept, and chancel, are covered with bundled Staffordshire roofing-tiles of a small size, with a bright red ridge tile and cresting of special design; the roofs of western porch, spire, sacristy, and organ-chamber, are covered with blue and pink Bangor "ladies" slates. The hinges, together with the ornamental iron finials, brass altar-rail, and gas-fittings, have been executed from designs of the architect by Messrs. Hart & Son, of Wytham-street.

The five windows in the apse are of stained glass, by Messrs. Heaton, Butler, & Bayne, of Garrick-street, and embody one or two novelties of treatment, by which it has been attempted to secure at a small outlay a genuine and unpretentious effect. The success of the attempt is a matter of taste; the cost for the five windows has been 50l. inclusive of wire-guards and fringing.

The decorations have also been executed by the same firm, in the new "water-glass" process.

The subjects of the windows are the four evangelists and St. Andrew. The chancel-roof, which consists of twelve panels, contains in the centre of each the emblems of the apostles, surrounded by a border composed of those of the patron saint, St. Andrew. The nave arch contains amongst other decorations, the text, "The Lord is in his Holy Temple: let all the earth keep silence before Him." Over the organ is the text, "Let everything that hath breath praise the Lord."

The general wall surface inside is of stucco, all the arches, the walls of porches, chancel, and sacristy, and the spandrels over most of the arches, are of yellow malm and white Suffolk brickwork, neatly pointed in white mortar, except plinth 4 ft. high round porch, &c. which is pointed in black. Most of the spandrels and one or two broad bands of this brickwork are executed in various herring-bone patterns.

The choir-stalls, which are of an elaborate design, are of stained deal with columns of polished walnut, and carved capitals, amulets, and bases, of white holly.

The pulpit is of wainscot oak, with columns and other ornamental details of polished walnut, Japanese teak, white holly, and ebony, and will also contain three large pictures of various bright-coloured inlaid woods, representing, in half-length figures of Our Lord, Moses, and Elias, the Gospel, the Law, and the Prophets. This work, together with some subordinate-coloured wood inlay, will be executed by M. Steinitz, of the London Parquetry Works.

Only a limited portion of the carving is at present executed, and no more will be included in the present outlay.

All external columns are of red Mansfield stone, as also those supporting the four main trusses of the roof inside. Those supporting any main wall are, in every case, of polished granite, two varieties being used, viz. the grey and red. The two short columns supporting the chancel-arch are of polished green serpentine; and in the chancel, dividing a recessed arcade of three arches which will contain the decalogue, creed, and Lord's prayer, are two of polished alabaster.

The church will seat 900 adults, allowing 20 in. sitting space for each person, the seats being 2 ft. 8 in. wide. The total cost, inclusive of stained glass, the carving already executed, and the decorations in the chancel and sacristy, the inclosure of the site, and a bell by Warner & Sons, will be about £5,000. The organ was a private gift by two gentlemen on the committee; it is by Messrs. Bevington & Sons, has sixteen stops, and cost about £400.

Mr. Bassett Keeling, of Gray's-inn, was the architect; Messrs. Dove, Brothers, were the general contractors; and Mr. Simpson was the foreman of works, there having been no clerk of the works employed.

ST. JAMES'S TOWER, TAUNTON.

This fabric, it appears, is doomed. The result of a poll of the parish is in favour of rebuilding, and not restoring, although Mr. Perrey, the diocesan architect, and two others in the profession, were in favour of the restoration. It is to be hoped there are stronger reasons for pulling down the tower than these particulars seem to show. The work is entrusted to Mr. Spiller, of Taunton, who has offered to rebuild the tower for 3,170l. Sir P. P. Acland, bart., of Fairfield, has offered to present to the parish sufficient Wilton sandstone to complete the work; and that being the case, Mr. Spiller has offered to rebuild the tower for 2,870l. Mr. Davies, of Taunton, also tendered for the work, his estimate being 3,170l. Mr. Spiller offered to repair it for 1,406l.

HORSHAM CHURCH.

In a recent notice of the works going on here, we mentioned the new painted glass east window, designed and executed by the Messrs. O'Connor. We now add some particulars of the window. The principal figures are close upon 5 ft. in height, which in glass gives quite the effect of life-size. The arrangement of subjects is as follows:—Lower range of seven large openings: in the first two, Nativity of our Lord; in the second three, Crucifixion of our Lord with the Thieves; third two, Burial of our Lord. Upper range of seven large openings: in the first two the risen Lord appearing to Mary Magdalene; in the second three, the Ascension of our Lord; in the third two, the Descent of the Holy Ghost. These subjects are all enshrined in canopies of correct date, and the niches at their bases contain a beautiful treatment of the "lily," bearing upon the dedication of the Church to St. Mary. In the tracery colour and effect are the chief things attained, the openings being very numerous; the four largest of these, however, are occupied with figures of the four greater prophets; the remaining compartments containing the Twelve Apostles, and an arrangement of the vine and its foliage are intended to render the whole motif of the tracery of this window descriptive of the kingdom of the church. The west window subscribed for by the poor, Mr. O'Connor could not finish in time for the opening day.

A correspondent writes,—"While so much is being done to restore to its pristine beauty the

fine old church, at Horsham, it is to be hoped care has been taken to preserve from injury the one only good brass the church possesses. This brass is of small size, and is sadly mutilated, having now neither head, feet, nor inscription; but it is a very fine specimen, and is highly esteemed by "rubbers," on account of the peculiar arrangement of the robes, and the bold, yet delicate, ornamentation upon them. It is familiarly known as the "headless monk," and its position used to be on the pavement, a little space removed from the front of the altar-railings.

ROYAL STRAND THEATRE.

This favourite theatre has been remodelled and much enlarged during the last three months. The old roof has been removed and a new and substantial queen truss roof, 54 ft. in span, carried upon iron stanchions rising upon solid foundations, has been constructed. New property and dressing rooms are obtained between the queen-posts of the roof.

The new ceiling, which is 10 ft. higher than the old one, is panelled, with ribs of carton pierre, the whole forming an octagon. The panels are coloured light blue, and ornamented with a stencilled border in white and gold; the outline of the octagon marked by a darker stencilled pattern. In the centre of the ceiling a sunlight has been suspended. Over this, is a large iron ventilator rising above the roof, through which the heated air from the auditorium is carried off. Four air-shafts have been constructed, which assist in effecting ventilation.

The entrance from the Strand, which formerly admitted to pit and boxes, has been reconstructed and decorated, and set apart for a box entrance; a new covered pit entrance having been formed in Surrey-street. A new gallery entrance has also been obtained, with a stone and brick staircase up to the gallery. This, as now reconstructed, will seat about 800 persons. The dress-circle and boxes have also been re-arranged, and the old cumbersome partitions removed; and the passage behind is thrown into the dress-circle, which, with the boxes, is prettily fitted up.

New iron columns have been put in front of the circle and pit, with ornamental caps and bases. A proscenium arch, of original design, and dress-circle and gallery fronts, have been formed in carton pierre, coloured in light tints and picked out with gold; and the whole building has been repapered and painted, and refitted so as to insure the comfort of all. Considerable improvements and additions have also been effected on the stage and flies.

The building works were executed by Mr. Foster, of Whitefriars; the modelling and decorating by Messrs. Palby and Bradwell, from special designs by the architect. Mr. Brown acted as superintendent of the building; and Mr. Moore as clerk of the works for the architect. Mr. John Ellis, of Austin Friars, from whose designs and under whose superintendence the whole of the works and decorations have been carried out at a cost of about 7,000l.

It is understood that the theatre now gives seats for 200 more persons than it did before. The first night was a great success.

ART IN SHEFFIELD.

At the annual meeting of the School of Art, recently held, the statement of accounts read showed that the deficiency of the receipts to meet the expenditure had increased from 266l. 14s. 9d., the balance due to the treasurer last year, to 416l. 18s. 10d. From students' fees, 229l. 13s. 9d. had been received; and from subscriptions, 178l. 6s. The conversation this year figures on the wrong side of the account, its expenses having exceeded its receipts by 2l. The statement of accounts was approved, and the reports were adopted. The meeting also passed a resolution acknowledging the efficient manner in which the instruction had been conducted by Mr. Somes, the head master. The school has produced some good men; but the state of art in the town seems very low. The Theatre Royal displays some remarkable scenery, as, for example, the Armoury in "Arrah na Pogue," wherein a range of muskets standing in a rack are represented as increasing in size as they recede from the spectator. A new drop-scene, representing Chaucer's "Pilgrims," and concerning which a printed description is sold, though very well intended,

is a melancholy spectacle in a town where art ought to be aiding industry, and where, indeed, if art do not help, industry will, one of those days, find it has less to do.

SANITARY MATTERS.

Stone.—Some time since, in consequence of the great prevalence and destructiveness of typhus fever at Stone, special attention was called to its sanitary condition, and it was asserted by medical men that the deaths from the fever were mainly in those parts of the town where the drainage and other sanitary appliances were most deficient. Meetings called to consider the propriety of adopting the Local Government Act, resulted in the expression of an opinion very adverse to the proposal; but a committee was appointed to inquire into the sanitary state of the town, and a numerously-attended meeting has been held, at which it was stated that the committee had no conception before they entered on their labours, which had been very onerous, that many parts of the town were in so filthy a condition as they were found to be. The report described place after place, in which not only were the ordinary decencies of life outraged, but there was a total absence of means either to carry away refuse water, or to deal with the night-soil, and the picture drawn in detailed descriptions was truly terrible. Numerous cases of the blocking up of drains were named, and the accumulations of feces, the putrifying contents of cesspits and stagnant ditches and sewers, formed a picture from which the imagination recoils. The report contained an account of the existing drains in and near Stone, and the opinion of the committee on this point was that, with the exception of some districts, the town was well drained. The committee recommended that a deputation from the meeting be appointed to wait upon the Board of guardians of the poor, to represent to them the urgent need there exists for them to make use of such powers as are by law vested in them, in order to give practical effect, so far as they possibly can, to the suggestions contained in this report; and, further, that the surveyors of the roads be requested to do as much as in them lies to remedy the evils complained of. This was agreed to.

Alvechurch.—At a recent meeting of the Bromsgrove board of guardians, the medical officer of the union at Alvechurch reported by letter to the board that he had been attending ten cases of fever in one row of houses, the drainage of which was in a very bad state; and there was also a letter from Archdeacon Sandford, calling the attention of the board to a large number of nuisances.

King's Sedgemoor.—A report respecting various proposals that have been made for the more effectual drainage of King's Sedgemoor by Mr. Grantham, C.E., has been made to the commissioners of sewers for the district. The discussion on these has not yet been concluded.

Chorlton and Hulme (Manchester).—The sanitary condition of the townships of Chorlton-upon-Medlock and Hulme was the subject of discussion at a recent special meeting of the guardians of the union. It appears that continued fever is prevalent in the districts adjacent to the river Medlock and the Bridgewater Canal. These streams, which receive the sewage of a large tract of country, are almost stagnant in Hulme and Chorlton, and the consulting medical officer of the union compared the canal to "an elongated cesspool." Other sources of poisoned air are to be found in the narrow courts, the cellar dwellings, the back-to-back houses, and the neglected aspects of the townships. It was decided that a deputation should wait upon the mayor, who promised that prompt sanitary measures should be taken.

Leeds.—At the Leeds Police-court last week, Mr. Beardshaw, surgeon, appeared before the magistrates for the purpose of drawing their attention to the increase of fever in the town. It was principally owing, in his opinion, to the length of time some of the dead bodies were kept in the houses for viewing, and to the great want of cleanliness in the poorer houses. The magistrates regretted that they had no power to assist Mr. Beardshaw, but hoped the press would make it widely known that the keeping for days together of bodies of persons who had died of fever was really dangerous to public health; that crowding in rooms was bad; and that whitewashing and other means of cleanliness ought to be freely resorted to.



THE NATIONAL PROVINCIAL BANK OF ENGLAND, THREADNEEDLE STREET, LONDON.—Mr. JOHN GUSCO, ARCHITECT.

THE ARCHITECTURAL EXHIBITION.

Sir,—I need hardly say how gladly I would be spared answering such a letter as that signed "R. K." in your last number; but, as I fear I must plead guilty to having set the example, I cannot in justice to myself and my colleagues, allow it to pass without protest.

It is astonishing what different views two people can take of the same event. I thought the meeting business-like and suggestive, and felt that good had been done to the cause by calling it; but, perhaps, it is that I am getting old and dull of hearing. I did not hear the flourish of trumpets with which "R. K." says the meeting commenced, nor the "lugubrious deploring" with which it is said to have ended. Still less did I hear the denunciations of Mr. Hope. I only caught his name once when the secretary announced, as a matter of congratulation and good augury, that he and Mr. Raphael Brandon had joined the committee on the part of the council of the Institute, and I feel quite sure that no one connected with the Exhibition mentioned his name otherwise than with respect.

The only thing that caught my ears that seemed to interrupt the harmony of the proceedings, was some very irritating remarks and proposals by Professor Kerr, which led to some rather hasty discussions and expressions, which might as well have been omitted. Among the mildest of his propositions was a "hint,"—I quote from "R. K."—"that the right thing for the circumstances was to make a clean sweep of the committee." To make room for what? The alternative was not expressed, but every one felt what was intended; and somehow or other they did not seem to think it would prove a certain cure for all the ills exhibitions are heir to. But passing this, the meeting did not seem to think that the "clean sweep" was quite the fitting form of testimonial for those that for fifteen years had worked hard in the service, and supported the Exhibition through good and evil times. It was not adopted. — *"Hinc ille lacrymæ."*

But "R. K." says we have no constitution, and hold no meetings. If he would take the trouble of looking through the minute-books, which have been carefully kept from the beginning, he would probably find that this is not quite the case. While on this subject, I may incidentally mention that, according to our laws, the committee shall consist of twenty members, and no more; and this led to the dilemma which caused the four oldest members of the committee being called vice-presidents, in order to make room for two new members from the Institute and two from the Association.

With regard to meetings, "R. K." seems to have forgotten that a balance-sheet and report are annually submitted to the subscribers, and that it is always usual for the chairman or secretary at the first evening meeting of the session to make a statement of the position and prospects of the undertaking, and to invite remarks and discussion thereon. This has been found to answer. Twice the practice has been departed from.

In the early days of the undertaking a formal general meeting was convened, and the result was certainly not encouraging. The second was held on the 14th inst. As far as internal arrangements were concerned, it was a success; but as the public have only learned what passed from "R. K.'s" highly poetic, but very disparaging, account of the whole concern, it seems probable that the committee would have acted more wisely if they had adhered to their more usual practice.

Turning from this very disagreeable subject to what really concerns the Exhibition, I deny most emphatically that it has been a failure in any sense of the term. It does not owe a shilling to any one. It is established as one of the permanent art-exhibitions of London. For fifteen years it has afforded every architect who wished to avail himself of its advantages the means of exhibiting his works without charge and without favour. There are very few of the leading men of the profession who have not occasionally exhibited on its walls, and as few who have not, at one time or another, been connected with its governing body. It is good, and is doing good; but the committee felt, and feel, that it might be better, and might do more good; and it was with reference to obtaining aid in this last sense that the late meeting was called.

In furtherance of these views two new secretaries have been appointed, who are both able and willing to work, and a new committee or

council has been formed, who, I have no doubt, will work earnestly and harmoniously. If a committee were formed, comprising all the architectural big-wigs in Europe, they could not supply more space, distribute it more fairly, or administer the funds more advantageously, than this committee can, and I have no doubt, will do. The rest must be done by the public outside. The committee can no more make an exhibition without pictures, than the Israelites could make bricks without straw; but, if the profession will only second the exertions of the committee, I have no doubt but that, in a few years, the Architectural Exhibition will be all its promoters could wish to see it, and even "R. K." may be brought to feel sorrow for having written the letter to which this is a reply. J. F.

* * We have received a letter to the same effect, signed "J. E.," and numerous other letters *pro* and *con*, but cannot give them room. We have, for our own parts, very little reason to think highly of the corporate wisdom of the late committee.

HERALDRY AND ARCHITECTURE.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening, the 10th inst., at the House in Conduit-street; the president, Mr. R. W. Edis, in the chair.

Mr. R. Plumble (Hon. Sec.) read a letter which had been received from the Architectural Union Company, offering a prize of £1. to be competed for by members of the Association.

The Chairman observed, in reference to this handsome offer, that the subject to form the object of competition would be considered at the next meeting. Meantime he proposed a vote of thanks to the Architectural Union Company.

The vote having been unanimously accorded,

The Chairman said, that as no prize was given for drawings of old examples of architecture, he should have great pleasure in placing at the disposal of the committee a prize of five guineas for the best series of original sketches of existing buildings, Gothic or otherwise, in England or on the Continent.

On the motion of Mr. J. D. Mathews, a vote of thanks was passed to Mr. Edis for the prize thus offered.

Various gentlemen were elected members.

The Rev. C. Boutell then proceeded to deliver an address on "Heraldry in Association with Architecture." The Rev. gentleman explained, with the assistance of coloured diagrams, the language of heraldry, pointing out its origin, and tracing its progress from the earliest times to the present. Referring to its connexion with architecture, he observed that unless architecture could speak out, it was not worthy of its name; and that, if it was to have a significance peculiarly its own, it must make use of symbols to express its language. The building itself could not do this. A public building to tell its tale should disclose something of the history of the country; and a private building could in like manner be made to tell something of the family who had raised the pile. Admitting this to be desirable, nothing could so much help a building to speak, as it were, like heraldry. Heraldry originally grew out of the military history of the Crusaders. As the knights who fought for Christendom wore armour which completely covered their persons, it became necessary to distinguish them in some way, and hence the use of symbols by which it might be known who they were. By the use of heraldry architecture might thus be made not only to tell its uses, but to contribute in maintaining unbroken the annals of the country or of individuals. Architecture had, he thought, something to say as well as to do, but if the progress lately made in the science, great as it was, had not led to the development of a national style, the circumstance was to be traced to the fact that we had not paid sufficient attention to heraldry. No such neglect prevailed in olden times. In the interior of Westminster Hall, for instance, the architect of that day had endeavoured to show to whom the building owed its origin, as all round the stringing course might be observed the insignia of contemporaneous royalty,—the helmet, feathers, lion, and stag, the latter more or less reclining, but never in absolute repose, all pointing to King Richard II. There were in Westminster Hall 120 repetitions of those emblems, and so cunningly were they designed that in no case were

two of the stags exactly in the same position. With this fertility of resource in matters of design, the architects of ancient times were singularly endowed, and he had no doubt that if 200 repetitions had been necessary in Westminster Hall instead of 120, the architect of that building would have had no difficulty in executing them. These enrichments of Westminster Hall presented, in his opinion, a fine example of heraldry in association with architecture. Again, at King's Chapel, Cambridge, there were some fine shields of the arms of Henry VI. and Henry VII. At Beverley, too, there were the arms of England with the lions springing out of a shield, but all springing at different angles. Heraldry might be introduced with great effect and advantage in stained glass, similar to the specimens in the north transepts of the cathedrals both of Canterbury and of York, which were among the finest examples of stained glass in the kingdom, and which told in eloquent language the history of the great families of the period. Heraldry might also be introduced into carvings, panels of ceilings and roofs, pavements, &c. As an illustration of the want of knowledge of heraldry even among the most distinguished architects, the reverend gentleman referred to the shields in the new hall at Lincoln's Inn, which were represented on one side of the chamber with a notch on the right side of the shield for the spear of the knight to rest in. This was correct, because in the original the notch could only be made in the right margin of the shield; but in Lincoln's Inn Hall another row of shields was placed opposite to those with the notch in the right margin with the notch in the *left* margin, which of course could not have existed in the original. This, however, was done from a mistaken idea of uniformity. Then, in the case of the Queen Eleanor Cross in West Strand, it was, no doubt, right to put the arms of the queen and of her family in the panels; but he thought it would have been well to have placed one shield with the arms of Queen Victoria, to show in ages to come in what reign the cross had been put up. The best heraldry would always harmonize with the best architecture, just as the best sculpture would do. In conclusion, he recommended the students of architecture, in dealing with heraldic subjects, not to draw animals grotesquely, nor, on the other hand, with too close a resemblance to nature. If, for instance, a lion were to be represented, let it be modified in a heraldic manner. The lion and unicorn over Buckingham Palace ought to operate as a warning to prevent bad drawing.

In reply to questions, Mr. Boutell stated that he had not been able (indeed, he did not believe any one was), to trace the authority under which *Heralds' College* acted. All that appeared to be known on the subject was, that it was endowed by King Richard III. and that on payment of certain fees it granted arms to persons who were able to make good their claim to them.

At the conclusion of the discussion, a vote of thanks was passed to the reverend gentleman for his interesting paper.

THE BUILDING TRADES MOVEMENT.

Swansea.—The operative masons, carpenters, joiners, and plasterers, of Swansea, have made an appeal to their respective employers, for an increase of 6d. per day on their present rate of wages, in consequence of the increase in the price of provisions, house-rent, and things in general; also for a reduction of 3½ hours per week, the same to come into operation on and after the 1st day of May, 1866.

Penrith.—About six months ago a petition was presented to the master joiners in Penrith, by their workmen, requesting a reduction of two hours per week in their labour. At that time the masters intimated that, owing to the large contracts on hand, they could not then conveniently comply with the request, and suggested that the matter should remain in abeyance for six months. This request was agreed to, and the specified time having terminated, the men have asked for and obtained the required reduction. Hitherto the hours of labour have been from seven in the morning till half-past six in the evening, or ten hours in general; also for a reduction of 3½ hours per week, the same to come into operation on and after the 1st day of May, 1866.

By the new arrangement ten hours each day will be the maximum, Saturdays excepted, when labour will be suspended at four o'clock.

THE METROPOLITAN SANITARY ASSOCIATION.

THE new society to which we briefly referred some time ago has been launched. The sanitary condition of the metropolis and of the country at large, notwithstanding the legislation of recent years, remains, as our readers well know, in a condition which is far from satisfactory. In some respects the law requires amendment; but it is still more important that the existing Acts should be carried into effect with greater intelligence and vigour. The legal power for this purpose, in the metropolis, is placed in the vestries; and without their zealous co-operation little amendment will be really effected. The same applies to the guardians and other local authorities in the country. Much good would result from giving the clergy, churchwardens, medical officers, vestrymen, and others practically engaged or interested in administering the sanitary laws, an opportunity of conference and friendly discussion. They would thus be able to compare their experience; to impart and receive information; their efforts would be better directed; their difficulties solved, and their activity increased. It is to effect these objects, then, that the Metropolitan Sanitary Association has been established, and they may be briefly stated thus:—To promote all practical measures for the improvement of the sanitary condition of the metropolis; but more especially,—

(1.) To aid the efforts of public bodies and individuals, so that the full benefit of existing sanitary laws may be obtained throughout the metropolis.

(2.) Where those laws are defective, or other hindrances exist, to take part in suggesting or obtaining such further legislation as may be necessary, or in removing such hindrances by other appropriate means; and

(3.) To collect and disseminate information as to sanitary matters.

In order to give the advantage of attending their meetings to all, without exception, who are taking part in parochial sanitary work, the subscription for membership has been fixed at 5s. per annum.

We may note, as matter of record, that the first meeting of the Council was held on Wednesday, the 23rd inst., at No 1, Adam-street, Adelphi; Mr. Godwin (in the chair); Dr. Sanderson, Mr. Shaw, Mr. R. Rawlinson, Dr. Whitmore, Mr. Bosanquet, Mr. Rendle, the Rev. H. Whitehead, Mr. Martin Ware (who has acted as honorary secretary up to this time, in organizing the Association), and several other gentlemen, being present. Mr. Thos. Chambers, M.P., Dr. Druitt, and the Rev. Mr. Bailey, also on the Council, were unable to attend. We may add that the metropolitan officers of health, and the members of the committee of the Public Health Department of the Social Science Association, are *ex officio* members of this Association.

We cordially wish it success, and are disposed to anticipate that it will soon take large dimensions. Work, rather than talk, is the object the Association has at heart.*

THE PROGRESS OF LEICESTER.

IF we may depend on what is told us, Leicester is going ahead. A recent correspondent says,—“In Leicester, forty-five years ago, occasional employment was found for less than a dozen journeymen stone masons, at wages varying from 2s. 9d. to 3s. 6d. per day. At this time, thanks, principally, to the formation of railways, the case is materially altered. Neales, Osborne, Porter, Timms, and Johnson employ in the aggregate about 150; while the six or seven minor establishments in the town employ amongst them about thirty more, all at wages from 5s. to 6s. 3d. per day. Palatial factories and warehouses for the manufacturing and storing of immense quantities of shoes and boots, hosiery, and woollen yarns, have sprung up in different parts of the town; green fields have been broken up, and hundreds of dwelling-houses have been built upon them, within a few years, while hundreds of others are now in the course of erection, and, as fast as, and in many instances before, they are finished, become tenanted. A new town-hall, a new Unitarian meeting-house, two new churches, an extensive brewery, and a large building for a banking establishment, are in contemplation, and, no doubt, will in a short time

be commenced. There is to be a new post-office; the goods station of the Midland Railway Company, and the County Police Offices are immediately to be enlarged, and some thousands of tons of stone from Bath, Attleborough, Casterton, Matlock, Rowsley, Hollington, Wingerworth, Ketton, Mansfield, Bradford, the Isle of Portland, and even from Aubigny and Caen, in Normandy, annually find their way to the Railway Wharf, for the consumption of Leicester and its locality.

Building-ground in the vicinity of the railway-station, which, thirty years ago, exchanged hands at 10d. per superficial yard, has, within the last two years, been again sold at a fraction less than 20s. per yard. This prosperous town is bidding fair to become of importance.”

We have another tale as to the sanitary condition of some parts of the town; but never mind that just now.

VIEWS ON COMPENSATION.

EX PARTE THE CORPORATION OF LONDON, RE ROBINSON AND BARTRAN.

IN this case the question (which arose upon a compensation proceeding under the Holborn Valley Act) was as to the right to compensation for reinstatement of a trader in other premises. The claimants (Messrs. Robinson & Bartran, linen-drappers) claimed 34,000*l.* of which the sum of 15,000*l.* was claimed in respect of such reinstatement. At the trial of the inquiry before the Recorder it was proved that the claimants had used all proper means for discovering other premises fit for the purpose of carrying on their business, and that they had at last been compelled to take some premises which they had previously refused in consequence of the large price demanded for them, the rent required being 664*l.* a year, besides a premium of 15,000*l.* for the unexpired residue of the lease, seventeen years, and that the new premises would “not be more suitable nor so much so as the old.” On the other hand, it was elicited on the part of the Corporation that the market value of the premises to be taken was 6,848*l.*, and on the part of the Corporation it was contended that the market value only could be taken. The Recorder, however, told the jury, that they might give the value of the premises to the claimants; or, if they only gave the market value, then they might give fair damages sustained by the loss of them; so that, in one way or the other, he left it to them to give full compensation for the injury they sustained, and they had accordingly given 28,000*l.*—that is, 13,000*l.* for value, and 15,000*l.* for damage sustained.

Mr. Hawkins, Q.C. (with him the Common Serjeant and Mr. Maurice Powell) moved for a *certiorari* to bring up the question to quash it, contending that the Recorder had given a wrong direction to the jury to assess damages in respect of reinstatement. He urged that the claimant could only recover the market value and the damage proved, and that the expenses of reinstatement in other premises was not an admissible item.

Mr. Justice Mellor, however, said that it was a matter which the jury might fairly take into consideration. The claimant must find other premises, and the difficulty and expense of doing so could hardly be excluded from consideration.

Mr. Justice Lush put the case of a trader who had the residue of a lease (say ten years) worth 10,000*l.*, and unable to find any other premises than some held for the same period, and worth in the market 20,000*l.*, was not the trader entitled in one way or another to the difference?

Mr. Hawkins denied that he would be so entitled.

Mr. Justice Mellor, however, said that he thought the trader clearly would be so entitled. The jury were to assess the value as it appeared to them; and it must enter into the question as to what expense the trader had to obtain substituted premises. The Recorder had not told the jury that they were bound to give the whole difference in expense in respect of the cost of reinstatement; and, on the other hand, as it appeared to him, they were entitled to take it into consideration in assessing the value.

Mr. Justice Lush observed that according to the contention on the part of the Corporation they would give only the value which they got, not the value which the claimant lost. But the object of the proceeding was to assess compensation to the claimant for the loss which he had sustained.

Mr. Justice Mellor said, what the jury had to do was to assess the entire damage sustained. The court were all of opinion that there was no ground for interference. They could not interfere unless there was a distinct misdirection; that is, a direction to the jury to give damages in respect of an item not admissible, or to give damages on a wrong principle. The court did not sit here as a tribunal of appeal from the Recorder. If he had told the jury to give as damages the whole amount claimed for reinstatement, there might have been ground for interference. The Recorder, however, had only told the jury that they might consider it in their assessment. That was clearly correct, for beyond all doubt it could not be excluded. There did not appear to have been any misdirection on his part or any miscarriage of justice on the part of the jury, and therefore the court declined to interfere, and there could be no rule for a *certiorari* to bring up the inquiry.

The other judges concurred.—Rule refused.

METROPOLITAN BOARD OF WORKS.

THE SOUTHERN OUTFALL SEWAGE.

AT the usual meeting of the Board, a report was brought up from the Main Drainage Committee on the different tenders sent in for taking and utilizing the sewage on the south side of the Thames. The tenders sent in were five in number, from Mr. Rigby Watson, Mr. Shepherd, Mr. Kinsland, Mr. Smith, and Mr. Ellis. It stated that none of the parties had complied with the terms of the advertisement issued by the Board.

Mr. Ellis proposed to conduct the sewage by a brick culvert, 11 ft. 6 in. in diameter from the Crossness reservoir, to an outlet into the river at Higham-creek, about two miles below Gravesend, and about thirty miles below London Bridge. This culvert is to have a discharge into the river at the outfall at low water by gravitation, and is to take the drainage from Erith, Dartford, and Gravesend on its way. Near the proposed outfall a pumping station is to be erected, and the sewage forced through a culvert into the river at the outfall at an elevation of about 280 ft., whence it is to flow by gravitation through pipes to the area proposed to be irrigated, which is stated to comprise about 196,000 acres. At convenient points along the line of pipes the sewage is to be distributed by hose and jet, or by open channels. Mr. Ellis also proposed to take on lease about 4,000 acres of land for the purpose of cultivation, and on which to use any surplus of the sewage. The quantity of sewage was assumed to be about 8½ million cubic feet per diem, equal to about 98 million tons per annum, which would give 500 tons per acre in the area over which it was proposed to utilize it. Mr. Ellis estimated the cost of this scheme at 1,600,000*l.*, and the working expenses at 15,440*l.*

The committee, after mature deliberation, arrived at the conclusion that the plan of Mr. Ellis, imperfect as it was, was the most favourable, and was most capable of being so improved and developed as to meet the ends in view. The most important modification required was in the particulars of the outfall at Higham-creek. The Engineer was of opinion that the discharge of such an immense volume of sewage as proposed at low water would seriously pollute the river, and at a point only two miles below Gravesend would affect that town. It would therefore be necessary to construct a reservoir at Higham with pumping power, so that the discharge might take place as at Crossness, soon after high water. The Engineer thought Mr. Ellis's scheme the best as regarded the general scheme, and recommended that the latter be referred back to them to negotiate the precise terms upon which a concession should be granted to him.

After some discussion, this was agreed to by a majority of 28 to 6.

CONTRACT TO PURCHASE BY AUCTION.

IN the Court of Chancery, the case *Mortimer v. Bell*, was recently decided on an appeal from a decree of the Master of the Rolls for specific performance of a contract to purchase a freehold estate. The plaintiffs put up a dwelling-house, called Warren House, at Upper Tooting, for sale by public auction. The first condition of sale provided, in the usual way, that the highest bidder should be the purchaser, but no stipulation was made that any person would bid at the sale on behalf of the vendors, nor that any bidding would be reserved. The vendors, however, were determined that the property should not be sold below a certain price, which was ultimately fixed at 3,500*l.* The auctioneer, a member of the firm of Norton, Hogarth, & Trist, employed one person to bid; but he bid against the person whom he had appointed to bid, till the bid was up to 3,500*l.*, when the defendant bid 500*l.* No other bidding was made, and the property was knocked down to him at 3,500*l.* The question raised was whether the sale was void for “pulling.” The Master of the Rolls held that it was a good sale. The defendant appealed.

The Lord Chancellor stated it to be his opinion that the courts of law had held that in the absence of any stipulation for a reserved price up to which bids might be made, it was not bound by the vendors to run up the bids to a certain point. It was said, however, that courts of equity had held that there might be an implied stipulation for a reserved price, and that there was no fraud in running up bids, and that the present case came within the meaning of the rule. In this case there had been two persons bidding for the vendor, the auctioneer and his agent, and the bidding up to 3,500*l.* was a mere fiction, calculated, if not intended, to deceive persons who might desire to be purchasers. He could find no case in which, under such circumstances, a vendor could enforce the completion of the purchase, and therefore the bill for specific performance of the contract must be dismissed, with costs.

A NUISANCE.

SIR,—Knowing that the columns of your journal are always open to any communication that may affect the public health, I have the pleasure of placing before you the following particulars, at the same time asking your opinion on the subject. In one of the bye-streets leading from the borough-road is a bone-boiler's shop, which, when at work, gives forth a most obnoxious smell, to the great annoyance and destruction of health of the surrounding population, which, as a matter of course, causes a high rate of mortality. It is estimated one in twenty-nine persons dies every year in this neighbourhood.

Those of your readers who use the Metropolitan Extension of the Chatham and Dover Railway will corroborate me in the statement that I make above; for when the passengers get to the line near the Borough-road, they at once detect the unpleasant smell. I complain, particularly about midday, which smell is equally injurious to the travellers on the railway as it is to the inhabitants round about.

Some few years since a petition was got up, having for its object the removal of this bone-boiler, a stating it to be a nuisance to the neighbourhood. The argument brought forward by the proprietor of the bone-boiling establishment was, that he was there first; and, if parties chose to build about him, they must put up with the consequences. This leads me to ask a question, namely, does this argument hold good at the present time? If it does, are there any means whereby this nuisance can be stopped? In a matter like this, the public health ought to be studied and looked after.

AN INHABITANT OF THE BOROUGH-ROAD.

* Communications may be sent to No. 1, Adam-street, Adelphi.

CORPORATION BATHS, LIVERPOOL.

To your notice of the buildings of Liverpool, you might have added mention of the new baths in Cornwallis-street, belonging to the corporation. They are a credit and an immense comfort to the city, and vastly superior to London baths in every respect. I chanced to visit them while at Liverpool, and almost regretted to leave the town in consequence of this special luxury. Each private bath is provided with a shower-bath, in the form of a large watering-pot rose, projected over the foot of the bath; and when the bather has finished his tepid or warm ablutions, a door may be folded back to prevent the spray dashing on the floor, and then by pulling a string he enjoys a capital cold shower to finish off with. The way, too, in which the baths (of zinc, or something like it), are hollowed out is admirable. There are no angles or crevices, in which the dirt may accumulate, as in the London baths. I hope we shall some day overtake Liverpool in this respect.

A MARYLEBONIAN.

With no respect for the baths of his parish since seeing the above.

NEWCASTLE LITERARY AND PHILO-SOPHICAL SOCIETY.

On the 17th, Dr. Charlton delivered a lecture on "Runic Inscriptions: their Relations to History, Poetry, and Romance." In opening his lecture, Dr. Charlton corrected a common misconception. Runes, he explained, did not form a language, but were simply characters in which many languages had been written; just as shorthand was employed to write either one language or another. With this explanation the lecturer entered upon his subject, and made it, difficult as the enterprise might seem to be beforehand, most agreeable to his audience.

After a vote of thanks, says the *Newcastle Chronicle*, Sir William Armstrong referred to the many traces which exist, near his residence at Rothbury, of the ancient inhabitants of the district, in their camps, cairns, roads, and dwellings. He had lately explored the remains of a Celtic circular hut, but found nothing to reward his search save the charcoal ashes of the hearth. The day before yesterday, however, he had made a more important discovery. It was below the peat and heather, and among the accumulated debris, that the men were making their excavation; and at the depth of about 3 ft. below the peat moss, and of 3 ft. 6 in. from the surface, they came to the leaf-shaped bronze sword then lying on the table. It was perfect when found, but they broke it in two; and it had also become jagged at the edges after exposure, by the falling away of the corroded bronze. To one unique feature of this sword, Sir William called especial attention. Loose on the hilt, when taken out of the ground, were three rings of different sizes, the largest of which, and the nearest to the blade, was attached by insertion through one of the small perforated holes, and might have been employed in the suspension of the weapon on the person of the wearer; but what could have been the purpose of the remaining rings, which were loose and unattached?

FALL OF A BUILDING AT KILBURN.

DISTRICT SURVEYOR WANTED.

DR. LANKASTER held an adjourned inquiry on Monday evening respecting the death of George Riches, who expired from the effects of injuries he sustained through the fall of a house at the corner of a new street in the Carlton-road, Kilburn. It was intended for a public-house, and had a circular corner. Blame had been attributed by the deceased, while in the hospital, to Mr. Finch, the builder, for allowing the men to be on the scaffold when he was aware that one of the piers was dangerous, and had told the foreman it must be watched. Evidence was also given that Mr. Finch had ordered a crack in the pier to be filled up. George Barnes, a bricklayer, of Kensal New Town, who, with a man named Bigley, was engaged on the works, stated that the accident was not caused by the slipping of the foundation; the pier first bulged, and then fell. It had more weight to bear, and ought to have been as strong as the others. John Riches, of Canterbury-road, Kilburn Park, brother of deceased, was called, and positively swore in examination that he was

employed to lay the last five courses on the pier that fell; and that, when he proceeded to do his work, he observed that the pier had been built hollow, and rubbish shot in with a basket. Bigley, who had absconded, had built the defective pier. Mr. Bletchley, the surveyor, being questioned, said that, if the piers were built hollow, as stated, it was most "scampering" and dangerous work. The coroner, in summing up, told the jury that he did not think they could legally bring a verdict of manslaughter against Bigley, as no Act of Parliament had been broken. He thought it was a monstrous thing that, where some 800 houses were being erected, the lives of the public should not be protected because the district was just beyond the metropolitan boundary. The jury returned a verdict of Accidental death, but appended to that the following resolutions:—

"1. That the plans of the architect for the building of the house which fell and killed deceased were deficient in those details which would secure the safety and permanence of the various parts of the building. 2. That Mr. Finch, the builder, has displayed great neglect. He did not superintend with sufficient diligence the building of the piers which fell, and the basement which gave way and let down the rest of the house in Carlton-road. 3. That the man Bigley, who undertook to do the work of the piers, did not build them up in the manner required by the builder, and is open to the most severe censure for his dishonest conduct. 4. That the Act of Parliament which requires the services of a district surveyor for the metropolitan parishes should apply to all the parishes in the kingdom, as the value of life is as great in other parts of the country as in the metropolis. The jury request that the foregoing resolutions be forwarded to the Secretary of State for the Home Department."

RAILWAY MATTERS.

MANY of the great railway companies, such as the Great Western, the London and North-Western, the Midland, the Caledonian, and others, such as the Bristol and North Somerset, are issuing notices of intention to apply to the new Parliament for powers to form numerous minor railways, such as branches, branchlets, and junctions, all tending to ramify the railway system amongst the lesser towns, villages, and country districts throughout the country. Pneumatic railways in Manchester, and in Brighton and Hove, have been announced in similar notices; as well as a considerable addition to the number of metropolitan lines, including a Hampstead, Holloway, and Kingsland line, in connexion with the North London and the London and North-Western; Clapham and London Bridge lines, by the Elephant and Castle, in connexion with a Waterloo and Whitehall extension line from Waterloo to Newington Butts; a Crystal Palace and South London junction line; East London lines—South-Western extension—to Deptford, with junctions in Canberwell with the London, Chatham, and Dover, in Bethnal Green with the Great Eastern; and so on.

If any proof were required of the necessity of railway accommodation for the metropolis, and the remunerative character of such undertakings, it would be found in the result of the opening of the North London Railway Company's City Extension line. The published returns of that company for the week ending the 29th October, showed a total receipt from passengers of 1,956l., and for the week ending the 12th November (being the first entire week after the opening of the City branch), 2,957l., whilst the number of passengers is stated to have been 158,935, as compared with 85,982. So soon as the goods traffic of the London and North-Western Company is also conveyed over it, it must prove a highly remunerative branch. The prospectus recently issued for a line in connexion with the North-London to Highgate and Alexandra-park, will secure to inhabitants of the thickly-populated district of Kentish-town, Holloway, and Highgate the advantage of easy railway access to the City.

A new mode of lighting carriages with gas, patented by Messrs. Metcalf & Son, of Miles Platting, is being tried on the London and North-Western line, between Manchester and Leeds. By a small hydraulic blower, worked by a spring in connexion with a small apparatus beneath a seat of the carriage, common atmospheric air is driven through sponges moistened with petroleum or paraffine oil, and then sent to the jets, where it yields a light, it is said, equal in all respects to ordinary gas. This is rather a vapour light, however, than a gas-light; but that does not matter, if the light be good, and without risk, as is also said. The invention is being applied to ordinary dwellings.

The *Moniteur* publishes an imperial decree authorising Messrs. Brassey, Fell, & Co., to esta-

blish a railroad on the imperial road over Mount Cenis, between St. Michel and the Italian frontier, and to work the same by means of steam locomotives, on the system invented by Mr. Fell, until the entire completion of the railway from St. Michel to Suza, through the tunnel of the Alps. The portion of the railway already formed, and on which experiments were successfully made last summer, is about a mile and a half in length, and runs up one of the steepest gradients of the whole road.

The Pacific Railway, on the western side, will next year be extended to the summit of the Sierra Nevada mountains, 104 miles from the city of Sacramento, which is itself 2,700 ft. above city water. 4,000 men, chiefly Chinese, are now engaged on that railway, and the state of California has donated 2,100,000 dols. for its prosecution. To meet this, the railway on the eastern side of America now extends from New York to 200 miles beyond St. Louis, the border city between Illinois and Missouri.

CHURCH-BUILDING NEWS.

Whitbourne.—The church here, which, according to the *Hereford Journal*, has been closed for eight months, has now been re-opened: the cost of the restorations was estimated at 1,350l. The principal alterations consisted in the taking away a deep gallery, which extended some distance into the body of the church; in throwing out an aisle to the north; in the removal of the ceiling, and so restoring to view a fine old oak roof; and in replacing the high pews, by open varnished seats. The tombstones within the altar-rails have been removed, and replaced with coloured encaustic tiles. The work was carried out by Mr. Hurn, after plans by Mr. Perkins, of Worcester, architect.

Bootle.—The consecration of St. John's Church, Bootle, has taken place. The land on which it is erected was given by the Earl of Derby, as also was the stone with which the church is built. The total cost of the edifice will be about 5,000l. Sitting-room is provided for 860 persons, 400 seats being entirely free. The church is built in the Early Gothic style, from the design of Mr. Weightman, of Liverpool, architect.

Waterloo.—The church of St. John, Waterloo, has been consecrated. The church is built in the Early English Style, and has 600 sittings, of which 200 are free. A sum of 4,150l. has been raised by subscriptions and collections, and a further sum of 140l. is still needed. Mr. Culshaw, of Liverpool, was the architect.

Birmingham.—The repairs and alterations of St. Mary's Church approach completion. The stained window at the east end of the church has been restored by Messrs. Hardman, of Birmingham. The lead-framed windows have been removed, and something more modern introduced. The organ-gallery has been considerably extended, for the accommodation of the choir. The alterations will include a great amount of general repairs not apparent to ordinary observation. Several supporting-beams in the tower were, on examination, found to be in an unsatisfactory condition. The material used in the restoration is chiefly red brick, the dressing-bands, &c., being in stone. In the lower portion of the tower, which is used as a vestry, is placed a two-light window, the head being filled in with ornamental herring-bone brickwork. Above the vestry and in the lower ringing-chamber is situated, lighted by three long narrow openings, the jambs being executed in ornamental brickwork. Above these openings a pierced quatrefoil stone panel and cornice are introduced, from which is worked up a weathering, and here again the herring-bone brickwork is introduced. Eight brick buttresses are carried up against the upper portion of the tower, to strengthen the bell-chamber, and between which are placed a corresponding number of lance-headed windows, filled in with slate louvres, and having ornamental stone and brick arches, worked in with the cornice at the top of the tower, from which springs the octagon spire, of Bath stone, with worked and coloured bands, rising to a height of 75 ft., the total height of the tower and spire, from the ground-level, being 130 ft. The spire, with vane, will be about 45 ft. higher than the originals. Mr. James Cranstoun is the architect employed, and Messrs. Samuel Briggs & Son, the builders.

Bishop Burton.—All Saints' Church, Bishop Burton, near Beverley, has been re-opened. The church has been repaired, at a cost of

3,000l., by the high-sheriff. The chancel and vestry have been entirely rebuilt. The chancel-arch is also new, and room has been provided for an organ. The floor of the old nave and aisles were 3 ft. above the chancel-floor, but the pillars have been under-pinned and lengthened, to allow the floor to be lowered. The roofs of the nave and aisles are new. The seating of the church is also new. The whole of the alterations and restorations were designed by Mr. J. L. Pearson, of London. The works have been carried out by Messrs. Simpson & Malone, of Hull. The carpenters' and joiners' work was done by Mr. Brown, of Cave, and the plumbing and glazing by Mr. J. Halliday, of Welton.

Selby (Yorkshire).—Mr. Scott is about to prepare plans and estimates of the cost of the restoration of the Abbey Church of this town. He and Mr. E. Akroyd, M.P., have visited the edifice, and made a minute examination of it. It is proposed that the work of restoration shall include the pulling down and rebuilding of the south wall of the nave, the pulling down and rebuilding of the old tower, and the addition of a south transept, and two new towers for the west end, which, when completed, would, according to Mr. E. B. Denison, entitle the whole building to be called "The Beverley Minister of the West Riding." The cost is estimated at from 50,000l. to 60,000l. Mr. Denison, in a letter to the vicar, remarks that few people know that the church is the longest north of the Trent, and indeed north of Boston (except the minsters and cathedrals), or that it is the only one of the ten great Yorkshire abbeys, besides the other northern ones, which is not wholly, or for the greater part, in ruins.—One of the oldest parishioners in Selby, Mr. James Audus, has offered to the archbishop of the diocese to build a new church, at an outlay of 10,000l., which offer the archbishop has accepted. The site fixed upon is some ground now occupied as gardens at the south end of Audus-street, and on the west side of New-lane, within two or three hundred yards of the centre of the Market-place. By this means Selby will be divided into two parishes, one-third of the population being assigned to the new church, which is understood to be called St. James's, and the rest of the population to the Abbey Church, called St. Mary, and St. Germain. It is understood that the church will be built in the Gothic style.

Kilnwick.—The consecration and opening of Kilnwick Percy new church, have taken place. The old church was in a dilapidated state, although it had frequently been repaired, and at length it was determined to pull it almost entirely down and erect a new edifice in its place. Messrs. J. B. & W. Atkinson, architects, were instructed to prepare plans and drawings for the structure, and these having been approved of, the work of rebuilding commenced. Mr. Alderman Weatherley, York, being the contractor. Like its predecessor, the new church is Norman in character. The nave is 42 ft. in length by 21 ft. 6 in. in breadth. At the west end is a bell-turret, rising to the height of 45 ft. The whole of the edifice is faced with Bradford sets, with dressings of Whitley stone. The roof is high-pitched and open-timbered. The windows are embellished with zigzag mouldings, and filled in with embossed quarries. The east window is of three lights in stained glass, and is illustrative of the Crucifixion, with figures of the two Marys. In a circular light above, is a representation of the Lord's Ascension. The west window, of two lights, contains figures of St. Peter and St. Paul, and in a circular window above is an illustration of the Flight into Egypt. The whole of the windows have been filled in by Messrs. Hodgson, of York. The staining and varnishing have been executed by Mr. Pearson, of York. The new church will accommodate 130 persons. It has been erected at the sole expense of the Hon. Admiral Duncombe, M.P., the cost incurred being upwards of 1,000l.

Stowmarket.—The parish church has been undergoing some restorations of late, and has now been reopened. The total cost of the works amounts to upwards of 2,200l., and the contractors, Messrs. Betts & Rednall, of Stowmarket, have carried them out under the superintendence of Mr. R. M. Phipson, architect, who has endeavoured to restore the edifice as nearly as possible to its original condition.

Alderton.—During the last two or three years Alderton Church has been undergoing repairs and restorations of such an extent that it may now be said to have been almost rebuilt, and it is only by the tower, which has not at present been restored, that the present building can be

identified with the church which some three or four years ago was remarkable chiefly for its dilapidated appearance. The services of Mr. A. W. Blomfield, of London, architect, were engaged, and that gentleman prepared plans for the restoration of the church. The first thing which was done was to rebuild the chancel, and accordingly a new chancel in the Decorated style of architecture was built at a cost of some-where about 1,000l., the work being entrusted to Mr. Brown, builder, Alderton, by whom it was carried out. The chancel was completed and opened many months ago, and the restoration of the nave was shortly afterwards commenced, the work being again undertaken by Mr. Brown; and, it being now completed, the church has been re-opened for divine service.

Halfax.—St. Stephen's Church, Copley, has been consecrated. The church is a stone structure, in the Early Gothic style. It will accommodate about 500 persons. The cost of it will probably be upwards of 6,000l.

DISSENTING CHURCH-BUILDING NEWS.

Kentish Town.—The new Congregational chapel, Gospel Oak Fields, Kentish Town, was opened for divine service on the 2nd instant. It is designed externally in the Byzantine style, and consists of nave and side aisles, covering a space of 80 ft. by 45 ft. internal dimensions. It has a double set of clerestory windows, and these are supported, as well as the gallery below, on wreathed iron columns. The arch at the back of the pulpit has foliated capitals and keystone; the latter is worked out as a dove bearing an olive-branch in its mouth. Externally the building is carried out in Kentish rag, with Bath stone dressings; and a wheel window, 12 ft. in diameter, pierces the west gable. There is a shallow porch as an entrance to the vestibule. The cost of the building is 2,040l. It will seat at present 550 persons, and the galleries are formed, and ready for pews, and when so furnished it will accommodate 724 persons. The architect is Mr. W. Allen Dixon; the builders are Messrs. Manley & Rogers.

Southend.—The new Congregational church at Cliff Town, Southend, has been opened for divine service. The new church is in the Geometric style of the fourteenth century. It is built of Kentish rag and Bath stone. The tower and spire are about 80 ft. high. The entire cost is about 2,500l. Mr. W. A. Dixon is the architect.

Harlow, Essex.—A new Baptist chapel has been opened at Harlow. The edifice stands partly on the site of the old building, but its front is in advance of the old front about 20 ft. The general plan of the building consists of a simple parallelogram 78 ft. long by 35 ft. outside measure; both chapel and school being contained under one continuous roof. The chapel is 47 ft. long by 32 ft. wide, and is filled up with a deep end gallery, and side galleries of only two seats deep. The total accommodation is for 500 people. The style of the building is of a Venetian character. It was designed and superintended by Mr. R. Moffat Smith, of Manchester. The works were done by Mr. W. B. Nicholls, of Harlow, builder. The cost of the whole has been about 2,000l.

Walker (Newcastle-upon-Tyne).—The foundation stone of a new United Presbyterian church has been laid at Walker. Mr. Thomas Oliver, architect, Newcastle, prepared the plans; and Mr. John Dobinson, prepared the plans; and the edifice will be built entirely of stone, in the Gothic style, and will accommodate 350 persons on the ground-floor, exclusive of an end gallery, sittings being provided altogether for nearly 500 persons. The exterior of the building will present a Middle Pointed facade. The stonework, principally the entrance pillars to the door and those of the windows, will be relieved by red stone from Carlisle. There will also be a tower and a spire, nearly 90 ft. high, at the south-west angle of the church. The contractors for the works are,—for masons' work, Mr. Dodds; carpenters' work, Mr. George Waite; slating, Messrs. Sanderson & Co.; plastering, Mr. Charlton; ironwork, Mr. Donkin; plumbing work, Messrs. Russell & Davies. The total cost of the erection will be about 1,600l., exclusive of the grant of land on lease, kindly given by the Corporation of Newcastle, at one-half of its annual value. The church will be heated by Gill's stoves, whilst the lighting by gas will be by means of star-light jets.

Bradford Moor.—The new Wesleyan chapel is now nearly completed, and has been consecrated. The style is Italian, of a plain and unassuming character; the front to Leeds Road presenting almost the only attempt at anything ornamental. The external dimensions are,—length, 81 ft. 8 in.; width, 56 ft., exclusive of a recess at the north end, which contains the heating apparatus in the basement, the vestries on the ground-floor, and, on the gallery-floor, the organ. The height from floor to eaves is 35 ft. 3 in. The warming of the building is attained by a hot-water apparatus, fixed by the Low Moor Company. The following were the contractors: masons, Messrs. Cordingley & Peel, of Undercliffe; joiners, Messrs. T. Taylor & Son; slaters, Messrs. John Thompson & Son; plasterer, Mr. James Duckwork; plumber and glazier, Mr. John Schofield; painting, Mr. Edward Harland, all of Bradford, under the direction of Messrs. Milnes & France, of that town, architects. The total cost of the building, exclusive of the land, will be about 4,000l.

Stroud.—The foundation-stone of a new Congregational Chapel has been laid at Painswick Slad, about two miles from Stroud. The building is to be in the Gothic style, and will be 44 ft. 6 in. by 24 ft. 6 in. internal measurement. It will seat 150 persons, and, with the land, will cost about 400l. The interior will be open-roofed, and externally the front is to be gabled. The architect is Mr. Geo. Bidlake, of Wolverhampton, and the contract has been taken by Mr. Freeman.

FROM SCOTLAND.

Leith.—The plans of the new dock on the East Sands at Leith, prepared by Messrs. Rendal & Robertson, civil engineers, embrace extensive works necessitating the inclosure of sixty-two acres of the East Sands reclaimed from the sea, and involving an expenditure of 341,000l. The plans, as described by the *Scotsman*, include two docks—an outer dock and inner dock—with locks, bridges, and other constructions; but the outer dock only has been contracted for. The land necessary for this dock will be about thirty-four acres, with nineteen acres of wharfage; and the cost, according to the engineers' report, will amount to 223,000l. Mr. Scott, Kilmarnock, having entered into a contract for the construction of the dock, commenced operations eighteen months ago, since which time he has been carrying on the works with vigour. The whole area of thirty-four acres required for so much of the contemplated docks as is to be made in the mean time has been inclosed by a strong sea-wall, inside of which there has been built a puddled clay wall (5 ft. thick at bottom and 3 ft. at top), to prevent the tide flowing through the breakwater into or damaging the new works. A few weeks hence the excavation will have been commenced.

Dundee.—A meeting of the special committee appointed by the directors of the infirmary to confer with the provost, to consider the steps necessary to be taken in consequence of the great increase of fever in the town, has been held. It was stated at the meeting that fever had for a long time been exceedingly prevalent in the town, and that the number of cases were daily on the increase. At present there are 107 cases of typhus in the infirmary, and the fever wards were stated to be not only full, but overcrowded. A memorial embodying these facts was, we believe, laid before the provost by the committee of the directors of the infirmary, praying that he should take immediate steps to carry into effect the provisions of the Nuisances Removal Act, by memorializing the Privy Council to appoint a "local authority" under the Board of Supervision. The provost agreed to call a meeting of the sanitary committee without delay, and to lay the memorial of the directors before them. He also expressed his intention of instructing the clerk to the police commissioners to write to Glasgow, and ascertain what steps were taken there last year when fever raged so extensively. The principal centres of the disease in Dundee are said to be Gillan's Close, Overgate, the Yellow House at Dens-road, the Cats' Close, Scouringburn, and Fish-street. The whole of these localities are densely populated, and are rarely free from typhus. The house accommodation for the working classes is confessedly inadequate to the population.

Orkney.—The Kirkwall Harbour trustees, after much delay and difficulty, have succeeded in raising the funds for a new iron pier, which will

be accessible to vessels at all states of the tide. Messrs. Laidlaw, of Glasgow, are willing to abide by a former offer to complete the works for 10,490*l.*, and the trustees have resolved to close the contract. Messrs. Laidlaw are to commence operations early in spring, and bind themselves to have the pier completed by the beginning of October next.

Books Received.

"TABLES for Workmen's Wages." By Henry Laxton, C.E. London: H. Laxton, 34, Abchurch-lane, Strand. These very useful tables contain upwards of 7,000 calculations, simply arranged. They are published in plain covers, at 1*s.* for workmen, and in boards, at a small additional cost, for masters and others. They show the amount of wages per hour, day, week, month, &c., at various rates and in various ways.—*The London and Continental Times* (4, Ave Maria-lane, London), gives information for provincial and foreign visitors to London, and time-tables for travellers on all the great railway thoroughfares in Europe. The form is that of a full-sized journal, thus obviating the necessity of turning over many small and confusing pages, and the tabular arrangements are simplified and easily available for reference.

Miscellaneous.

HOUSE, WIMBLEDON PARK.—We are asked to add to our notice the intimation that Messrs. Ariss & Son, of Putney, are the builders of Torwood, in Wimbledon Park.

PAINTERS' BRUSHES.—A correspondent writes to extol foreign manufactured painters' brushes, and says,—“The inferiority of the class of goods made in England, and the high prices charged for the same, do not add to the national credit; and if not at present, it is to be hoped there shortly will be an importation of articles of this kind. I am sure there would be plenty of purchasers among the thousands of painters and builders in this country.” We give his observations for what they are worth, with a view to stimulate improvement.

"GREAT NORTHERN BRICK COMPANY."—Considering the price of bricks, and the immense demand for them, it is not to be wondered at that several companies are being started to manufacture them. The company named at the head of this paragraph is formed to purchase the well-known brick-fields at Arlesey, near Hitchin, successfully carried on for many years by Messrs. Dennis & Son. They consist of about twenty acres of freehold land, containing a supply of the finest clay, 200 ft. in depth, it is asserted. The bricks made from it are of the first quality. A line of rails connects the kilns with the Great Northern Railway, by which means the bricks are readily removed to the London or other markets. There is a wharf at King's-cross Station connected with the works, and the trucks run direct from the kilns to the wharf, at special rates, avoiding all cartage and unloading in transit. The directors have subscribed a large portion of the required capital. It certainly seems to us a promising speculation.

BUILDING ABOUT WORCESTER.—Among the country residences now in course of erection, in the vicinity of the city, is a mansion, which is being built by Messrs. Wood & Son, for Mr. C. W. Lea, on the east side of the Hallow-road, close to the two-mile-stone. The local *Herald* says:—"As it would be, of course, necessary to convey a large quantity of stone and other materials from Worcester, Messrs. Wood endeavoured to come to terms with Mr. Burch, the lessee of the turnpike tolls, and offered him 200*l.* for the right to convey all necessary materials through his gate, while the house in question was in course of erection; but Mr. Burch said he could not do it under 300*l.* He did not think of the river: the builders, however, did; and accordingly have adopted the easier and more economical plan of conveying all necessary materials by water. A brickfield stands on the opposite side of the river, and there trolleys are loaded, floated across in a barge, and hoisted by a derrick on to a tramroad to the river's bank, whence, by an easy ascent, the waggons are taken up to the house." Mr. Burch is thus a-clear 200*l.* out of pocket."

THE VOLUNTARY EXAMINATION CLASS, ARCHITECTURAL ASSOCIATION.—The next meeting will be held on Monday evening, the 27th inst., at eight o'clock. Subject, "Mason," by Mr. Arthur Asphitel.

TREATY FOR THE ST. PANCRAZ WORKHOUSE.—The treaty for the sale of this workhouse to the Midland Railway Company is re-opened. Mr. Lockyer is acting for the parish, Mr. John Clutton for the Railway Company.

THE NORTH STAFFORDSHIRE INFIRMARY.—The joint designs, by Messrs. Lynam, of Stoke, and Nichols, of West Bromwich, having been awarded the 100*l.* premium, these gentlemen agreeing to act together and re-arrange the plans, tenders were advertised for, and that of Mr. Alfred Barlow, of Dresden, near Longton, being the lowest, to erect the buildings and execute the engineering and other works for 26,964*l.*, was accepted by the building committee.

BURSTING OF THE WALSALL RESERVOIR.—A correspondent writes to us as follows:—"The embankment of the reservoir of the South Staffordshire Waterworks Company gave way about seven o'clock on Thursday evening. There was a breakage in the bank of about one yard in width, and the water poured in a stream towards a small village called the Pleck, covering acres of ground belonging to the Parks farm. The stops in the town were all turned on and so arrested the progress of the current in a great degree. Owing to the prompt measures taken by the officials no further damage was done."

WORKING MEN'S COLLEGE.—His Royal Highness the Prince of Wales has contributed, through Lieut.-Gen. Knollys, the sum of five-and-twenty guineas towards the erection of a new building at the Working Men's College, Great Ormond-street, which is intended to provide a meeting-hall and better accommodate the rapidly-increasing art-classes. We have before now said that this institution deserves the assistance of our readers. On the 18th inst. Mr. Ruskin delivered an address, at the College, as against mechanical art, in which he inveighed at some length against competition.

COMPETITION AT ADELAIDE.—The South Australian Government lately advertised for designs for the erection of a general post-office and telegraph station, in one design, but separate internally, the designs to be sent in by the 1st of January, 1866. The amount proposed to be expended on the whole building is 20,000*l.* The premium for the best design is to be 300*l.*; for the second, 150*l.*; the two designs becoming the property of the Government; and any of the other designs may be retained as the property of the Government for the sum of 100*l.*

RE-OPENING OF SPROTBOURGH BRIDGE.—The bridge across the river Don and the canal at Sprotborough have been closed from the 1st of September last, in order to effect repairs as well as to add further improvements. Sir Joseph Copley, bart., took the opportunity of making several alterations in the bridge and roadway. The centre arch had always a rather unfinished look, but has now been rendered more attractive by the introduction of ornamental lattice-work tracery into the spandrels. The balustrade was originally much too light, both in appearance and apparently in security. It is replaced by one from the Thorncliffe Iron Works. The alterations will cost 1,000*l.* The work has been carried out from plans, and under the direction of, Mr. B. S. Brundell, C.E.

RE-OPENING OF THE RELIGIOUS AND USEFUL KNOWLEDGE SOCIETY'S HALL, AT NORTHAMPTON. This lecture-hall has been re-opened, after having undergone a process of restoration and decoration. The lower part of the walls, as high as the substage, is painted a deep maroon colour, the skirting being black, with a green edge. The substage mouldings are a combination of blue, buff, red, and green, quietly toned, the colours of the wall being carried down into the base. The arcade round the walls is of a dark cream colour. The mouldings round the arcade are picked out in blue, red, white, and green. The walls are of a much lighter maroon than the lower portion. The domes and the groined work round the angle of the ceiling are tinted, the panels being of the same tint as the arcade on the walls. The painting has been done by Mr. Tozer, and the colouring by Messrs. Banks, under the superintendence of Mr. E. F. Law, of Northampton, architect.

MEMORIALS.—It is proposed to erect a statue of the Marquis of Westminster in the central square of the city of Chester. A committee, however, has been appointed to consider and arrange as to the form of the memorial, &c.—A church, with schools and parsonage-house, as a memorial of the late Canon Stowell, is to be erected in Manchester, and the memorial is also to include certain exhibitions to the University of Oxford.—A memorial of Lord Palmerston, at Tiverton, has been resolved upon, and a committee appointed to consider as to the form of it.

THE NEW SUBWAYS AND THE WATER COMPANIES.—The Metropolitan Board of Works, it seems, cannot prevail upon the Southwark and Vauxhall Water Company to make use of the new subway along the new thoroughfare from Southwark to Blackfriars. The company have so long been habituated to the destruction of the roadways, that they evidently feel indignant at this new-fangled endeavour to deprive them of the privilege of exciting a ferment every now and then amongst shopkeepers and cab and omnibus drivers. Quietly to lay their mains in a convenient subway, out of sight and out of mind, seems to be quite inconsistent with the self-asserting importance of a great water company. The Metropolitan Board have sent an account of the affair to every member of the new Parliament, and it is to be hoped this will put a spoke or two in the wheels of the movement for establishing an improved water-supply to the metropolis.

IMPROVEMENT OF ABERYSTWITH.—A scheme for extensive improvements at this watering-place, is being promoted by Mr. J. P. Seddon, who proposes the formation of a company to carry out these works, which he believes would render Aberystwith one of the finest of our watering-places. In the prospectus, amongst other improvements, Mr. Seddon proposes "to first fill up the gap between the Queen's Hotel and Craiglais, with a crescent of modern and noble houses, the ground for which he hoped the council would concede on fair and liberal terms;—to start a half crescent of villas on the rising ground from the Queen's Hotel to the North Gate;—these residences are proposed to be of a superior character, so as to induce permanent residents;—to purchase, from time to time, as the leases may fall in, or earlier, if practicable, the possession of the Marine-terrace, with a view ultimately to raise the existing houses, and substitute others, standing further back, of corresponding elevation to those to be first erected north of the Queen's Hotel;—also to erect a market house, public slaughter-houses, a laundry, and bath-house." &c. A church is also proposed to be built. The local authorities and inhabitants generally, appear to have entered into the spirit of the proposal, and have passed a resolution that it merits the utmost support of the town.

THE SITE OF CAMBODUNUM.—In 1824 the remains of a Roman building, buried under the soil, were uncovered at Slack, near Outlane, the site of the ancient Roman station Cambodunum. Since then, a society was formed, named the Huddersfield Archaeological Association, chiefly with the view of making excavations. Recently a number of men have laid bare the walls of a building, 68 ft. in length by 64 ft. in width, the outer walls of which are nearly 3 ft. in thickness. There are several internal walls, and there is also a paved court. In the space between the inner paved court and the front wall of the building, a gold ring was found, very much worn; and in what appears to have been the centre inner chamber were found a silver coin of Vespasian, and another of Nerva. Heaps of broken Roman pottery have been found, and a large quantity of bricks and tiles have been turned up. Some of them bear the inscription "COH III BRB." This shows, in the opinion of the council of the association, that this was the site of the garrison of the 4th cohort of the British legion. Excavations adjoining those described have led to the discovery of a hypocaust. The roof is of concrete; the side walls are of stone, supporting pillars of tiles; and the floor is of red tile, all in excellent preservation. Other cuttings have laid bare the outer wall of the camp, the funeral pyre, and the dark stratum of calcined bones and charcoal; also another hypocaust, in one corner of which was found, enveloped in wool, a large mass of galena lead ore. By the side of it were the remains of a human skeleton.

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The Builder.

VOL. XXIII.—No. 1191.

*The Familistery, or Workman's Home,
in Guise, France.*



NOT long ago, Mr. Tito Pagliardini brought to the notice of the English public, in our pages, an establishment founded in Guise by M. Godin-Lemaire.* In our present number we give a view and plan of the buildings;† and, that the undertaking may not be unexplained to those who are unable to turn to the previous account, we print the substance of a brief paper read by the conductor of this journal at the Sheffield Congress of the Social Science Association:—

Every earnest and well-considered attempt to provide for the working classes healthful and proper homes, is entitled to recognition and the most considerate attention. How much more so, then, an undertaking which professes, and with evidence of success, to add

to this advantage the means of cheap living, of wholesome recreation, and the education of the children; with, further, an interest of 6 per cent. on the capital employed to bring about this most desirable end. How the last result is obtained is not obvious to those who are acquainted with the proceedings of societies in this country, who have sought to provide for their fellow-countrymen only a portion of these benefits; but such is the assertion of M. Godin-Lemaire, who has built a handsome structure for his workmen and their families in Guise, near St. Quentin, France.

M. Godin-Lemaire is a large manufacturer of stoves and ranges, employing more than 700 men, and has realized a fortune. He desired to let his workpeople participate in his success; and the step he took with that end in view was the erection of two handsome and substantial structures, to give a strictly private home to each workman, and combining with it a nursery, where his wife, while engaged at work, may deposit her infant; an infant-school, where his children, between the ages of two and five, may be gradually prepared for the school, properly so called, in which their education may be carried on till the age of twelve, fitting them not only for their industrial calling, but for the right fulfilment of their other social duties; play-grounds, where, by healthful exercise, their physical development shall be insured without necessarily exposing them to the baneful influences of the street; stores, where provisions and garments may be procured at wholesale prices; reading-rooms, baths, wash-houses;—all, in short, that can render home healthy, attractive, and pleasant.

Another pile to be put up presently, and inclosing with those already erected a vast court, will complete the work. The buildings externally are architecturally designed, ornamented with coloured bricks, and made to take a dignified character. The principal block forms

the side of a square, and has in the centre of it a court about 148 ft. by 66 ft., covered with a roof to form a playground for the children, and having special means of ventilation. The gallery-plan, as we term it, with internal staircases, is adopted to give independent access to each set of apartments, and seems to be less known in France than here, as it is described as a novelty by those who have given particulars of the Familistery. The galleries are termed by them "hanging streets." They are formed in this building simply by carrying the joists of each floor about 5 ft. beyond the walls; boarding and a light iron railing at the edge complete them. It is a Medieval plan exemplified in many of our ancient Inns, and to which we returned some few years ago, when the movement was first made in England towards obtaining decent lodgings for the labouring classes of the metropolis.

Water is provided on every floor, allowing of the daily consumption per head of 18 quarts. Each set of apartments has store closets, with drawers and shelves; a shoot to the dust-hole below for the refuse, which is removed every day, and the use of a vault below the building. The fireplace in each room is supplied with air from without, and all the partition walls are of brick, so that one neighbour may not overhear another. On each landing are English water-closets. Liberty, privacy, and cleanliness are three of the chief points aimed at in the establishment. May God aid us and man be favourable, was M. Godin-Lemaire's invocation on laying the corner-stone of the building. He desired to give his workmen a home which should raise their self-respect, develop their personal dignity, and he has nobly carried out his desire.

Many further advantages, as I have said, are afforded; the wives are enabled to employ some of their time profitably in the general cleaning, apart from that required in their own apartments. A nursery, which he calls the *pouponnat*, is provided for children from their birth until about two years old, for such mothers as may desire at times to make use of it; a preparatory school (the *bambinat*) for children between two and five, and a more advanced school for those between five and twelve. The wives and daughters supply the nurses, and a highly educated young lady, a relative of the proprietor, has the general superintendence of these and of the school. A visit to her house on Sunday is one of the great rewards of the scholars. The school is carried on by a young professor from Paris. No one is bound to send his children to the school any more than he is bound to live in the establishment. The school and nursery cost the parents nothing, being included in the rent. And now what is the rent charged for these advantages? The unfurnished apartments are let at the rate of 8s. 9d. per calendar month for each room! A furnished room for a single man, containing an iron bedstead, two mattresses, chairs, table, washstand, slop-pail, looking-glass, two clean towels a week; the bed linen changed twice a month, the bed made and room set right every day, costs 6s. 8d. a month. While a separate bed in a dormitory attached can be obtained at 1d. a day!

How, then, say those who have built houses for working men and cottages for their labourers in the country, can any interest at all on capital invested be obtained, still less six per cent. as stated? The solution of the problem would seem to be at any rate aided by this; that on the ground-floor are retail shops where for a sum including a small per centage above the wholesale prices butcher's meat, vegetables, ready-made clothes, in fact every thing required by the tenants, can be obtained. The workmen are given fully to understand that nothing is gratuitous; they pay for all they have; but through good arrangements get comforts cheap,

and yet give the proprietor good interest for his money. I should add that there is a *restaurant* where the unmarried man can get his meals at the cost of from 8d. to 1s. per day. Baths and washhouses can be used at a small charge; a medical man calls every morning, paid by a mutual benefit society established amongst themselves; while a musical association of eighty of the tenants contributes to the general enjoyment. The picture is so charming that were it merely of what might be many would hesitate to admit the probability of its realization; but when we find that it represents what has been going on for four years, all must admit that it deserves, at any rate, to be further examined. It has been suggested that a deputation of members of the Association, who would make a journey to Guise, and report fully the result of their inspection and inquiry, would do good should their report confirm the truth of the statements that have reached us, by leading to the formation of similar establishments in this country. Meanwhile, let us do honour to the noble endeavour of M. Godin-Lemaire to elevate the condition and promote the well-being and happiness of those who, by the right discharge of their duties, contribute in their turn to his own prosperity.

THE PREVENTION OF STRIKES.*

In our last article, when we gave particulars of the provisions in the subsisting deed of partnership between M. Leclaire and his workmen, we alluded to the organization of the Provident and Mutual Aid Society, to a system of industrial education,—or for painters' work, and matters connected therewith,—and to printed regulations of the workshops and the works in hand, as all requiring to be taken into account in an estimatory view of the co-operative relations of intellect, capital, and labour, in the business-undertaking in question. Therefore we give here a portion of the necessary particulars of those several members of the structure or machinery of the "*Maison Leclaire*."

It may be said, there is nothing to be learned from France in the matter of Friendly Societies. That, however, might be a hasty opinion. It has been remarked in a recent work by M. Emile Laurent ("*Les Friendly Societies Anglaises*") published in Paris by Guillaumin, that some of the earliest of the societies in England were due to Frenchmen. One society was established by refugees, on the revocation of the edict of Nantes, under the title of "*Société des Parisiens*;" and in 1703, a society was established in Bethnal-green, the "*Société Normande*," said to exist still. M. Laurent, indeed, does not omit to speak of the immense growth of such societies with us; and he ascribes much of it to the national habits and character, to an inherent spirit of association; to the disposition to calculation, order, and economy; and to the perseverance in enterprises once commenced. Towards the amendment in management, needed for some of the societies, he proposes admission of honorary members, and abandonment of the practice of meeting in public-houses. But, both suggestions he might have derived from the system of the Society of M. Leclaire's establishment. The second suggestion he has been anticipated in, here. He adds a recommendation of the French practice of meeting in some public building, in a room lent for the purpose. With a proper development of working-men's clubs, there would be none of the present need of resort to the public-house. M. Laurent finds that the French friendly societies have realized better than the English, the ideal of such a Society,—which, as he regards it, is a union of organization for two different objects; but he admits that the French have much to learn from us.

The importance for our present subject, of the Society formed in M. Leclaire's establishment, is comprised in the fact that that Society is made up of persons who belong to a single concern, and are otherwise bound together,—the contrary system being that of the majority of the English societies. As our previously published particulars have shown, the members of the

* See p. 639, ante. † See p. 835.

* See pp. 737, 759, 774, 811, ante.

French Society have not applied, or thought of applying, any portion of its funds to strikes; but the Society possesses a library, and forms the bond in the educational system to which we have adverted as part of the constitution of the trade-establishment. M. Leclaire himself being the president of the Society, thus places himself in a position such as English masters have talked about for themselves, but, as far as we know, have not yet assumed.

The present rules of the Society were drawn up by M. Leclaire, in virtue of powers unanimously accorded to him by a general assembly of the members.* The approval by the Minister of the Interior, and the appointment of M. Leclaire, by Imperial decree, as president, took place, as we have said, in 1863. In the following year, 1864, certain slight modifications were proposed and submitted to the Minister.

The fifty-three clauses, or "Articles," into which the rules are divided, relate to the designation, duration; and composition of, and admission to, the Society; the resources; the help offered by the Society to all its members, and the formalities to be observed for obtaining the same; the retiring pensions, or annuities; the pensions to widows and orphans; the indemnity to be given to a member of the Society leaving the house-painting establishment, or dismissed from it; the administration, including the president, honorary members, council [*conseil de famille*], vice-president, secretary, treasurer, and visitors; and to discipline, and other matters. The Society is designated—"Société de Prévoyance et de Secours Mutuels des Ouvriers et Employés de la Maison Leclaire." Whatever modifications the title of the firm or trading-partnership may undergo, the title of the Society is not to be changed so long as the house-painting establishment exists. The duration of the Society is not limited: only, on the breaking up of the business-concern, the Society would take a designation referring to house-painters in general, of the Department of the Seine,—the rights of members who had been of the Society that was connected with the establishment, however, being reserved. The chief partners (*Associés*) in the house-painting establishment are, of right, members of the Society, but honorary, or other persons are to be named as honorary members, by the president; but only the workmen and *employés* can participate in the benefits. The men are not required to belong to the Society. The original conditions (afterwards slightly modified, as will appear) say, that when a workman or *employé* may wish to belong to the Society, he is to address a demand to its vice-president, who will send him a copy of the rules. The candidate is next, in the course of a month, to deliver, first, a letter from the heads of the establishment, showing that he has worked there for five years continuously; second, his certificate of birth; third, a certificate of his freedom from the military service; fourth, a certificate from the physician, showing the absence of any chronic complaint, and that he is neither infirm nor sickly; and fifth, the treasurer's receipt for 20 francs (16s.), his admission fee. These documents are to be produced a month before the meeting of the council. The council, after an investigation into the conduct and morality of the candidate, will admit or reject him, as their duty may require. Members may belong to two societies, including the one under notice. Persons who have undergone, or become liable to, judicial proceedings of a damaging sort, are excluded. Each member has a little book [*livret*], stating the date of his admission to the Society, the date from which will be reckoned his time for establishing his right to retirement, the payment of his admission-fee, the fines that he has paid; the gratuities that clients of the establishment, satisfied with the works executed for them, may have given, without being asked; the sums that he may have cost the Society; and the assets of the Society at the end of each year, the time of the general meeting.

The resources of the Society consist of,—1. The share granted it (as mentioned in our last article) in the profits of the business of house-painting, paper-hanging, gilding, glazing, and looking-glass making, of the establishment founded by M. Leclaire; 2. The gratuities given to the workmen, as above alluded to; 3. The fines inflicted on those of the members who do not observe clauses of the rules; and 4, the 20 francs that each member has paid for his admission. There is no contribution, be it observed, by the

members, to the funds of the Society, beyond what has been stated.

The next clauses relate to the help offered by the Society to all its members, in case of sickness, accident, or death, and relate also to forms to be observed in obtaining the assistance. When a member is ill or wounded, he can, in case of urgency, apply to a physician or surgeon other than the officer of the Society; and the Society will pay 3 francs for the one visit. In an ordinary case, the invalid sends a notification to the vice-president, and to the physician, in twenty-four hours. The vice-president, on his side, writes to the physician; and also he addresses to the visitor then acting, a visiting paper [*feuille de visite*] indicating the name and address of the invalid, as well as the day of his declaration of illness; and he at the same time desires the visitor to immediately commence his visits. The assistance that the Society accords to each invalid member claiming the same, consists of,—1. The visits of the Society's physician; 2. The medicines prescribed (the dispensing chemist, to get payment, making out his bill upon the physician's prescription); and 3. Pecuniary assistance, by a graduated scale, namely,—during the three first months of illness, two francs a day; during a year following the three months, one franc a day; and beyond that time, a similar allowance, or a modification of it, or the admission of the member to the position of an annuitant, as the council may determine. A member treated at the public hospital, has a right only to the help in money. A member of two societies will receive only one franc during such time as he may be in receipt of help from the other society. Should the other society diminish its contribution, owing to the long duration of the malady, the *Société des Ouvriers Peintres de la Maison Leclaire* will increase its assistance correspondingly with the diminution, only not so as to exceed the total allowance previously mentioned. The cost of medicine and advice would be shared equally between the societies. A member taking a physician unconnected with the "*Société de la Maison Leclaire*," to attend upon him, has no right to help in money unless he be engaged on work at a distance from Paris: this case is provided for further on.

In the case of illness lasting less than five days, the Society pays for the medicine and advice, but does not help in money; but if the illness lasts over the fifth day, there is help in money starting from the fourth day; and if the eleventh day be passed, the money-help is given counting from the day of declaration of the malady. Every member is bound not to quit his chamber during his illness, unless having obtained the physician's permission to go out, to hasten the cure; and that permission has to be dated, and given in writing upon the visiting-paper, and countersigned by the acting-visitor. Going abroad without the authority; taking medicines without knowledge of the physician, or diet contrary to his orders; or following a lucrative occupation calculated to hinder or retard the re-establishment of health, will deprive the member of further help. When two attacks of illness occur, one a fortnight after the other, the second is considered as a relapse; and the pecuniary assistance due is estimated accordingly.

The Society, "seeking to attain a moral at the same time as a benevolent object," gives no assistance in maladies produced by debauchery, or from drunkenness, and none for wounds received in a brawl where the member was the aggressor. The physician is bound to state on the paper, the malady that he is called to treat. Moreover, if from any of the causes above referred to, the member should become so infirm as to be unable to gain his living by work, he will not only have no right to the pension, but he will be dismissed from the Society.

On the death of a member, a vice-president, two members of the council, and twelve members of the Society, taken in their turn, are required to be present at the funeral; and those who do not perform "this sacred duty of confraternity," or who present themselves in a state indecent, or of drunkenness, will be liable to a forced retribution of 4 francs. The two members of the council are charged with the maintenance of order. The vice-president and the acting-visitor arrange with the family of the deceased, the ordering, at the expense of the Society, of the hearse of the last class but one, and the letters of convocation. If the family wish for a funeral of a superior class, the extra expense is borne by them. The reader may here be reminded, that funerals in Paris are

conducted by an authorised company, whose charges are rigidly prescribed. All that is necessary is to select the class of interment. The Society attached to the "*Maison Leclaire*," in the case of its deceased members, places a cross upon the grave; but it does not always necessarily end its duty there. Widows receive allowances; and are interred, as the members, at the expense of the Society.

The retiring pensions, or life-annuities, are granted to all the members of the Society under the following circumstances:—1. Every member prevented from gaining his living, whether through an accident whilst working for the establishment, or through infirmities, has a right to the pension: 2. Every member turned fifty years of age, and who can prove that he has remained twenty-five [since reduced to twenty] years, without discontinuance, attached to the establishment founded by M. Leclaire, has a like right, whatever the changes in the designation of the concern: 3. Every workman not a member, who in working for the establishment may have received a severe wound, making it impossible for him to gain his living, has a right. The pensions are:—

	Francs.
For the ordinary workman, and the chiefs of the first [or, rather, what we should call the lowest] class ...	300 (12l.)
For the chiefs of the second class ...	350 (14l.)
For the chiefs of the third class ...	400 (16l.)
For the <i>employés</i> whose remuneration is 1,500 francs (60l.) and under ...	350 (14l.)
For those of 2,000 francs (80l.) and above 1,500 francs ...	450 (18l.)
For those of 3,000 francs (120l.) and above 2,000 francs ...	600 (24l.)

The chief or *employé* not proving that he has been classed ten years, has right only to the pension of the class below that in which he finds himself when claiming his retirement. Members claiming their annuity after the fifty years of age, and twenty-five [or twenty] of service, will have to prove the facts. The pensions granted to each member, or one half of each amount, are reversible to the widows of members, and to orphans under age, as is mentioned in a subsequent division of the rules. The annuitant members, widows, and orphans, do not receive help of any kind in case of sickness: moreover, the members referred to, cease to have right to certain advantages mentioned in the rules for the workshops. They are not called to perform any duty; but if they attend the annual meetings, they may vote. Should an annuitant member who had been ill, or had received an accident, recover his powers, so as to gain once more his living, he would cease to receive his pension, and would have to acquire the claim to it afresh.

The pensions for widows and orphans are granted in amounts which are the halves of those to the workmen and *employés* themselves, thus,—1. To the widows of members who were annuitants, or who at the time of their decease would have been entitled to be pensioned; 2. To the widows of workmen and *employés*, whether members of the Society or not, having lost their lives whilst working for the concern; 3. To children of both the classes of parents mentioned, under age, and having neither father nor mother; and, 4, in reversion from a widow to her children left minors. All these pensions are regulated as will be here explained. The widow, without children, and having lived legitimately with her husband during the twenty-five [or, as now, twenty] years that would have given him the right to the retiring pension, or annuity, has a right to half such pension. But if the widow have so lived only during twelve years and six months, she can claim but one quarter of the pension, although her husband's engagement in the establishment may have endured the full required time. The pensions to widows placed between these extremes, are assessed in due proportion. The widow of a workman or *employé*, member or otherwise, who may have lost his life in working for the establishment, has a right to half the retiring allowance of the chiefs of the second class.

Where at the death of an annuitant, there are children under age, the moiety of the pension is paid, at the proper times, to the widow, without regard to the duration of her marriage; but on the majority of the youngest child, this half-pension will be assessed on the principles adopted for the pension of the widow without children. Should a widow, the mother of children, die before these have attained their majority, the half-pension that had been given to the

* "Règlement de la Société," &c. &c.

mother to assist her in bringing them up, is continued to them to the time of the majority of the youngest, if a girl; or to the period of the age of seventeen for a boy, if the youngest be a boy. There is a similar provision for children of an annuitant who may have been a widower; and the rules affecting children apply to those of non-members of the Society who may have lost their lives in the service of the establishment.

The pensions are paid out of the interest of funds invested in the *State Rentes*: the capital is not to be touched. Should the amount incoming be insufficient, the actual sum will be divided in proportionate shares, as far as it will go. The pensions, or annuities, commence from the first of the month following the decision of the council,—the necessary documents having been furnished to the vice-president, a month prior to the meeting of the council; and the amounts are paid at the counting-house, or treasury, of the Society, on four specified days in the year. In case of the annuitant having to send some one, with authority to receive the money, the treasurer can require a certificate of the annuitant's living a regular life.

Should a member die before having obtained his pension, or annuity, there will be given to his widow, 20 francs for each year that he has been attached without cessation, to the establishment; and the 20 francs contributed by the member on entering the Society, will also be returned. Children under age, losing their mother, have the same help given them, without regard to the number of the children. The rights are to be established within a month, a widow producing her certificate of marriage, and the minors their certificates of birth; the president, and he alone, may grant a delay of one month; but after that the Society will be free of all engagement.

Every member quitting voluntarily the establishment of the "*Maison Leclaire*," and by that reason the Society, will be reimbursed, first, the 20 francs, his admission-fee; and, second, 10 francs for each year of his connexion with the Society, without reference to the duration of his connexion with the concern of *Leclaire & Company*. But he must claim the amounts within a week after his time of leaving. Each member dismissed will be indemnified in the same manner; excepting that nothing can be claimed by those who are dismissed for dishonesty.

We should mention that the modifications, submitted to the Minister of the Interior, include this important addition,—that every workman, or *employé*, fifty years of age, who can show that he has been attached for twenty years uninterruptedly to the establishment, and who, from whatever motive, may not have been admitted into the Society, will be allowed to come into the Society in order to obtain the retiring pension to which he would have been entitled had he been previously admitted.

The offices of the Society are administered by a president named by the Emperor, (and who, at present, as we have said, is M. Leclaire himself), and by the council ("*Conseil de Famille*") of eighteen members. The latter include a vice-president, chosen from amongst the chief partners ("*les associés*"); a second vice-president, chosen from amongst the members not honorary; a secretary, or keeper of the documents, and a secretary, "*adjoint*," both chosen from the non-honorary members; a treasurer, to be always one of the "*Associés*"; a treasurer, "*adjoint*," chosen from amongst the members not honorary; and twelve members of the Society, taken turn by turn from amongst those not honorary, to perform during the year the duties of visitors. The offices of the vice-presidents, secretaries, and treasurers, are submitted every year to election; but the holders of the offices are re-eligible.

The president is the representative of the Society with the public authorities. Questions of the interpretation of the clauses, or "*Articles*" of the rules, are submitted to his decision. He appoints the physician. A statement of the questions to be submitted to the council, is sent to him a week before each meeting; and, within forty-eight hours after the sitting, a copy of the *procès-verbal* should be sent. Similarly before the annual meeting, the agenda are communicated to him; and he makes the modifications that he thinks necessary. He presides at the general assembly, or annual meeting; or he appoints some one to represent him,—a member of the Society or not; and the proceedings are reported to him, as in the

other case. Decisions of the council, and of the general assembly, are not valid without his sanction. A financial statement accompanies the *procès-verbal* of the annual meeting; and it shows the amount of the share of profits in the establishment of the "*Maison Leclaire*," that is coming to the Society. The president will intervene as the acceptor of donations and legacies. Proposals for modification of statutes require his sanction. Finally, should he resign, he proposes his successor.

The honorary members are called the natural protectors of the Society. They are not liable for any subscription or fine. They are convoked to the general assembly; and their functions seem to be comprised in the giving advice.

The council meets every three months, or oftener. It admits, or rejects, candidates for the membership, after examination of the claims as submitted; and it verifies and passes the treasurer's accounts, and performs the other duties of such a body. The duties of the principal vice-president, and of the other vice-president in the absence of the first, have been in part alluded to. The office is about the most important in the Society. The holder of it receives the applications and papers of candidates for membership, and the declarations of illness; he transmits documents; convokes meetings, and arranges the business; and generally watches over everything. The secretary's and treasurer's duties need not be specified.

The twelve visitors, besides their duties as members of the council, are charged, each one for a month, with the watching over and visiting of the invalid members,—but changing places with one another, as they may find necessary,—only always keeping the president aware who is on duty. On the first notice of illness of a member, the visitor is bound to visit the invalid within twenty-four hours, and see that the succour is promptly administered. He ought to renew his visit at least once every two days; and make a note of it, each time, on the visiting-paper which is left with the invalid. He will present to the treasurer the physician's report, and receive the pecuniary help due to the invalid, and bring the same to him within twenty-four hours, inscribing the payments and their date on the paper. He may renew his visit as often as he may think desirable for consolation of the invalid, or prevention of abuses. Especially, he is expected to redouble his surveillance, after having heard from the invalid that the illness is approaching its end. He is to be admitted immediately, and without difficulty, to the invalid: should he experience interruption, or perceive some abuse, he is at once to make the vice-president acquainted therewith. On the expiration of his functions, he is to communicate requisite information to his successor.

Under the heading "*Dispositions Générales et Disciplinaires*" in the code of rules, are some recommendations that might well deserve to be considered by workmen in this country. The "*Article 40*" says,—

"The workman who sufficiently esteems himself, ought to shun everything that can bring damage [*porter atteinte*] to his dignity. One understands that the father of a family, who, in want of work, has not bread to give his children, may put all susceptibility aside, and extend his hand in order that he may nourish those who are dear to him; but the man who has work should blush to beg drinking-money, or Christmas boxes; which most frequently have for their consequences, expenses that bring trouble into households."

The "*pourboire*" in France may not invariably be what the word would imply, and "*drennes*" (the other word used) are presents given on New Year's Day; but M. Leclaire's meaning has a melancholy applicability to what passes on this side the Channel. Monies not obtained for work done, or services rendered, are regarded by the recipient as so so much that he may spend on indulgences. When the working classes, here, begin to see the matter of Christmas-boxes, and treats, in the true light of a degradation, as M. Leclaire well puts it, there will be hope of a position for them, and an appreciation of them, such as now they do not in general conceive the idea of.

The members of the "*Société des Prévoyances et de Secours Mutuels des Ouvriers et Employés de la Maison Leclaire*" prohibit themselves from any such proceedings as we have alluded to, in their relations with the clients of the establishment; and, when offers of the kind are made to them, they are bound to state that they are quite disposed to accept with thanks the gift offered, not under the colour of *pourboire* [drinking-money] or *drennes*, but for the account of the

Society "*de Secours Mutuels*," &c., of the "*Maison Leclaire*."

The entire payment of the sums received, into the hands of the treasurer, is to be made in a week, under penalties afterwards mentioned,—unless the member should be working in the country; in which event, the payment must be made within a week after his return.

A member having complaints or demands to make, or measures to propose in the general interests of the Society, is to address them to the vice-president, to be submitted to the Council; whose decision will be made known to him.

When a member working in the country is taken ill, and cannot be removed to Paris, an indemnity may be accorded to him for the medical assistance that he has required; and the pecuniary aid will be given on production of the certificate of the physician called in, authenticated by the mayor of the district. In case of death, the interment will be conducted as before described, excepting that the members of the Society will not be called to attend.

Every member who at the time of his admission may have knowingly deceived the Society by a false declaration, or who may not have paid faithfully and entirely to the treasurer the sums pertaining to the joint fund; or who, during his period of belonging to the Society, may have obtained pecuniary assistance by fraud; or who in his quality of visitor may have knowingly rendered himself party to such fraud, will be excluded from the Society, and struck out of the registers; and he will lose his rights to the pension and to all indemnity.*

ARCHITECTURE AND ORNAMENT.†

WITH a view rather of affording motives for fresh design than models for reproduction, Mr. Waring has on sixty plates brought together a large number of sketches from buildings of several styles in many countries, ornamental carvings, statuary, and metal work; and, on ten other plates, drawings of plants, suitable for application in carved work. There are in all, as we count them, more than 400 sketches etched on copper by the artist himself. Though treated picturesquely, being intended to convey impressions of effect, they are for the most part beautifully drawn, and the book forms, we do not hesitate to say, a storehouse of suggestions of great value. Fifteen or sixteen of the plates are devoted to Romanesque work, and include some elegant and suggestive bits. Some of the iron-work is quite fresh and very good. Each plate is accompanied with brief descriptive letter-press, which contains many interesting notes. In defence of one of these, to which exception has been taken by some of his critics, we allow Mr. Waring to speak for himself, and add for ourselves that we agree with him as to the influence in the rise and development of sculpture exercised by Nicolo Pisano, truly a great genius.

The author of the book before us, whose ability in particular lines must be known to many of our readers, as well from his published works as from his labours in connexion with more than one of our great industrial-art exhibitions, makes some observations with reference to professional success which well suggest inquiry. Arago has written that,—"*En Angleterre, un médecin, s'il ne veut pas perdre la confiance du public, doit s'abstenir de s'occuper de toute recherche scientifique ou littéraire qui semble égarer à l'art de guérir*;" and as touching architecture Mr. Waring goes much farther, and would have it thought that the pursuit of the very studies which are necessary to form an architect serves to retard his progress in the practice of his profession. When pointing out the importance of obtaining an acute sense of the peculiar beauties of outline and character observable, for example, in fruit, flowers, and leaves, he says,—"*In fine, though my own studies have proved a drawback to employment in my profession, such being generally regarded with jealousy by men in the same business, and with distrust by the uneducated public, still there will remain to all who can afford, or who care to make, the sacrifice, the pleasure of a consciousness that they have done well in loving Art rather than Money, and Improvement rather*"

* To be continued.

† "Illustrations of Architecture and Ornament." Drawn and etched on Copper by J. B. Waring, Author of the "Arts connected with Architecture in Central Italy," &c. &c. London: Day & Bon (Limited), Gate-street, Lincoln's-inn-fields.

than Success." And at the close of his preface the author writes that,—"In the present volume he gives various notes, made in the hope of some day being enabled to apply the lessons taught by them to buildings of his own design; that hope is now passed, and he presents them to his fellow-architects for such use as can be extracted from them." This assertion of failure in a desired object naturally interests, especially as made by one known to possess in an eminent degree some of the acquirements that go to make an architect. It is, nevertheless, not to be hastily inferred because one known to be a superior draughtsman, and possessed of considerable antiquarian knowledge, has failed to obtain employment as an architect, that it was *because* of these studies. Before any safe opinion on the subject could be arrived at, it would be necessary to inquire what evidence of his power of design, of his knowledge of construction, of his business habits, and of half a dozen other requisites, he had given the public. In the present case we shall not make that inquiry, or, indeed, permit its discussion; preferring to consider that the want of success complained of has in this particular instance resulted in spite of the possession of all the requisite qualifications. But in the face of the general assertion and challenge thrown out by Mr. Waring, we were forced to say what we have said to prevent any of our younger readers from supposing that they are likely, by obtaining a mastery of the pencil and making a diligent study of the beautiful forms of Nature, to lessen their chances of success in their profession. They must do that; but they must also do much more.

ECCELESIASTICAL DILAPIDATIONS.*

WHEN a clergyman becomes the happy possessor of a new benefice, one of his first duties is to make a claim for dilapidations from his predecessor, or, if deceased, from his nearest representatives, often his widow and orphans. This apparently harsh necessity is, in fact, as fair and just an arrangement as can be made under the circumstances. There would be scores of ruined parsonage-houses if it were not for the law of the land, that requires that the possessor of the benefice should leave the dwelling-house in thorough repair. Absentees, the incumbents of small livings with expensive families, could easily suffer serious damage to accrue without much scruple, and their successors would find a decaying fabric to repair, instead of a comfortable house to step into. The law is, however, clear upon this point: it requires that an incumbent should leave his dwelling-house in thorough repair. Five hundred years ago, Edmund, Archbishop of Canterbury, ruled, "If the rector of a church, at his death, shall leave the houses of the church ruinous and decayed, so much shall be deducted out of his ecclesiastical goods as shall be sufficient to repair the same and to supply the other defects of the church. If the rector has expended his ecclesiastical revenues in improving his own patrimony, or if he has attended too much to his own patrimony, or if he has attended too much to his own worldly affairs, and neglected his ecclesiastical affairs, to the injury of the church, his private property is liable for dilapidations." A much more modern authority, Burn, in "Ecclesiastical Law," says, "A bishop, as soon as he is installed, and a rector or vicar, as soon as he is inducted, ought to procure persons skilled in building to view the dilapidations, and write down for what sum a workman will or may rebuild or repair (I would say re-instate) the same; for after this inspection shall be made, such bishop, rector, or vicar, may commence his suit for dilapidations when he pleaseth." Should an incumbent therefore, from ignorance of this fact, or want of professional advice, overlook any decay, he makes himself liable for that condition as much as for any fresh damages that may accrue in his own occupation. The late Lord Campbell very lucidly explained the intention of the law, in a celebrated judgment to which we shall hereafter refer, was that the parsonage and glebe, provided for the decent and suitable residence of the incumbent, should be maintained out of the revenues of the benefice; and that a deceased clergyman leaving his house at all out of order, is supposed

to have committed a wrong, for which, owing to the peculiar holding of the property, no one can sue him, but for which his heirs or representatives are answerable. The case of Bishop Aymer, tried in the Court of Arches, who suffered his palace and cathedral to fall into dilapidation, that a large fortune might accumulate for his son, shows that even a mitre cannot always set at naught the temptation to pennuriously withhold needful repairs; and a statute of Queen Elizabeth speaks of ecclesiastical persons who had allowed their buildings to become so decayed that they were falling to the ground. Everyday experience proves that the holders of livings still fail in many scores of instances to preserve the fabrics entrusted to their care with due solicitude. The octogenarian possessor of a rich living, in an exposed position in the northern counties, long located in a snug parish deep south, can scarcely be expected to pay much attention to his curate's report that his floors in the north are getting shaky and his roof leaks. The least possible expense is incurred, just to keep the rain out, till time at last sends down a new vicar to take possession. It is obviously incorrect that the new comers should find the house too rickety to live in for the mere reason that the last incumbent deputed a curate to perform his duties, and lived hundreds of miles away. Again, the principal landowner in a parish, once a younger son, but rapidly promoted by death to the head of his house, sometimes becomes both squire and vicar. He resides, of course, at the Hall, and the old parsonage-house is let at a low rent to any quiet tenant he can get. A quiet tenant never mentions such words as "damp," rotting woodwork, loose slates, cracks, &c. He may ask permission to build a lean-to for cows against the vicarage wall at his own expense, but that is all. The little place becomes as unecclesiastical as it well can be, and as out of repair as neglect can make it; besides this, it is saddled with the cowbyre, which does not belong to the next vicar, but to the person who built it. If the law insisted upon a terrier with plan of church property being kept in every parish, and copy deposited with the dean and chapter of the diocese, such abuses as the last-mentioned could be easily rectified.

Mr. E. G. Bruton has been at some pains to give, in a little handbook, a definite idea of the broad principle which governs the question of ecclesiastical dilapidations. Those not already familiar with the subject can learn, without further reference, the main points of departure between these and ordinary "tenants' repairs," as well as the priority given to dilapidations so shortly summed up by Sir Simon Digge in the sentence,—"As the common law prefers the payment of debts before damages for dilapidations, so the ecclesiastical law prefers the damage for dilapidations before the payment of legacies." Mr. Bruton, however, does not confine himself to this explanation. He proposes, as the Archdeacon of Oxford had done before him, a scheme of insurance to meet the expenses of dilapidations. In the Bill introduced into the House of Lords, 1861, by the Bishop of London, and subsequently abandoned, proposing a periodical inspection of parsonage-houses and chancels by surveyors appointed for the purpose, provision was made for compulsory assurance against fire. Mr. Bruton suggests insurance against fires and dilapidations as a mode of providing against the only real difficulty in the way of the law, namely, the frequent inability of the representatives of deceased clergymen to meet the claims of the new incumbents. Provide a fund by a small annual sacrifice, and the great nightmare of many a poor clergyman's dread is disposed of. Mr. Bruton makes a calculation, based upon the University Life Assurance tables, in which he shows that a young clergyman, aged twenty-five, could assure 1,000*l.* in case of fire, and 300*l.* as compensation for dilapidations, for 11*l.* 2*s.* 9*d.* per annum; or a person of a more advanced age, say fifty-five, could make the same provision by the annual payment of 20*l.* 1*s.* 6*d.* Should an incumbent repair or rebuild his premises, he could have recourse to a new valuation, and his policy amended. Mr. Bruton would have these surveys decennial, as well as at every change of incumbency, and conducted by a specially appointed surveyor, whose fees should be paid by the insurance office. He urges that as the uncertainty that pervades all matters dependent upon the duration of human life would cause the surveyor to take due care that his estimate was sufficient to cover the contingency, any sum over and above that required when the actual claim

was made could be handed to the assured or his representatives. The only difference between this plan and that of ordinary life assurance beyond that of a specific purpose for the sum assured, is that, should the presentation of a better living call for the vacation of a somewhat ruinous dwelling-house, the insurance money is then and there available, though how this would be calculated for by the companies is not very clear. The amount having been approximated, the retiring incumbent need not be at the expense of further advice, unless the claim disagrees with this approximation very materially. Mr. Bruton considers a decennial visitation less vexatious than the inspection every fifth year proposed by the bishop; and the linking of the survey with the incumbent's own interest, namely, the scheme of insurance, likely to facilitate the arrival at a fair estimate. The removal of heavy pieces of furniture, and taking up of carpets to inspect timbers, can be easily effected with the owner's co-operation, but would be always a delicate task without it.

Concerning emblems and their exact nature (the right of spiritual persons to emblems was established by a statute of Henry VIII.), Mr. Ferard is laid under contribution for a piece of definite information. In the crops on a glebe there are some things that are emblems and some things that are not. "It is now fully established," says Mr. Ferard, in his "Law of Fixtures," "that not only corn and grain of all sorts are emblems, but everything of an artificial and annual profit that is produced by labour and manurance. And hops also, although they spring from old roots; because they are annually manured and require cultivation." An exception is made against grass being considered an emblem, or clover, after the first crop. To remove these profits of the soil, the law gives a right of entry,—egress and regress,—to cut and carry them away.

But among the cullings of Mr. Bruton, after those setting forth the unmistakable intention of the law that all clergymen leaving the houses of the Church in decay are liable for dilapidations out of their private property, the most valuable are the various actions that have arisen out of the questions, what are fixtures, and by what rule are dilapidations to be estimated? We must give two of these as highly luminous. One of them is an old case, *Wise v. Medcalf*, 1829, but it is supposed to contain within itself an exposition of the whole law of ecclesiastical dilapidations. The defendant was the executor of a deceased rector, the plaintiff, of course, his successor. For the defendant, it was urged that he was only bound to do such repairs as an ordinary out-going tenant would have to perform, the cost of which was estimated at 75*l.* 11*s.* For the plaintiff, it was argued that the premises ought to be left in the condition in which they ought to be kept, including painting, paper-hanging, and whitewashing: the amount of this estimate was 399*l.* 18*s.* 6*d.* A second estimate, of 310*l.*, was furnished by the plaintiff, which only compassed such repairs as would be claimed from a lay tenant, bound by covenant to leave his premises in good and sufficient repair: the paper-hanging, painting, and whitewashing were excluded in this sum. The jury awarded the largest estimate, 399*l.* 18*s.* 6*d.*, subject, however, to the opinion of the court. The learned judge, after looking at the matter from every possible point of view, came to the conclusion that though bound to maintain the parsonage and chancel in good and substantial repair, even restoring and rebuilding when necessary, the deceased rector was not bound to supply or maintain anything in the nature of ornament, such as painting (except where necessary to preserve exposed timber from decay), paper-hanging, and whitewashing. It being referred to the Master to calculate the damages upon this principle, they were estimated by him at 369*l.* 18*s.* 6*d.*, and judgment entered accordingly.

The second case we select as comprehensive in its bearing is, that of *Martin and Another v. Roe*. In this the former position of the disputants is reversed; the executors of a deceased rector being the plaintiffs, and the new incumbent the defendant. The late incumbent (called Mathews in one place and Martin in another, somewhat confusingly, as Martin is the name given to the contending executor), the late incumbent indulged his horticultural tastes by the erection of two large hot-houses in his garden, at some distance from his house. One measured 72 ft. in length, the other 47 ft., and both were laid on low brick walls, on which mortar was spread. All the glasswork slid up and down

* "Ecclesiastical Dilapidations: a few Words on the Law thereto," by E. G. Bruton, Esq., Barrister at Law, and Surveyor to the Dean and Chapter of Christ Church, and All Souls' College in Oxford. Oxford and London: John Henry & James Parker, 1865.

the wooden framework on pulleys. The cost of them both was 600*l*. At his death, his executors removed these frames of glasswork as carefully as possible; doing no damage except to the layer of mortar on the low brick walls on which the frames had been laid. But the new rector demanded them as his property. When taken into court it was found that no previous case of a similar nature could be quoted; so Lord Campbell considered it, he declared, on principle. "In the first place," he said, "it seems clear that had the testator in his lifetime done what the plaintiffs have done since his death, the defendant would not have had a claim for dilapidations; the character of the building would have justified the incumbent in removing the whole of it; only he must have restored the garden to its former condition if in the removal he had occasioned any injury to it amounting to waste; for the duties of the present and the right of the succeeding incumbent, as such, are reciprocal; and as to any matter of needless expense, or luxury, or ornament, by which the present incumbent has gratified his own taste or increased his own comfort, he is not only not bound, but he ought not to transmit it to his successor. If the successor may recover damages from the executor after such things have been removed by the testator, there can be no doubt he in his turn must maintain it, and if he must maintain it he must also restore and even rebuild when decayed; so that the benefice might become permanently saddled with a useless burden. Hot-houses, pineries, and conservatories, do not in this respect differ from observatories, menageries, and aviaries, which are equally in contravention of the Constitution (of Edmund Archbishop of Canterbury) of 1236, and are called *impense voluptuose*, as distinguished from *necessarie*."

After laying considerable stress on various points,—such as the unsuitableness of hot-houses, nearly 70 ft. in length, as permanent fixtures on a small benefice; the fact that had the deceased left them out of repair, the defendant could not have claimed dilapidations for them, nor would he have been obliged to keep them in repair; that the testator had committed no waste; that he had merely left on the glebe that which he might have removed, and which being left imposed no duty on his successor, and which, if he had removed, would have reverted to his personal estate, or gone to his personal representatives,—his lordship gave judgment for the plaintiffs.

It used to be, in a limited sense, an open question whether perpetual curates were liable for dilapidations. An argument was used in their favour, to the effect, that as actions for dilapidations were sustainable by the common law of England, which was founded upon immemorial custom, and perpetual curates had originated within legal memory, they could not be deemed liable by immemorial custom. The case of the curate of Orpington absolved curates at will from liability. The Court held, that being but a curate at will, and not instituted and inducted, he was not an incumbent, nor liable to dilapidations. And the case of the perpetual curacy of Marrick as definitely decided the liabilities of perpetual curates, who occupy the church-property and are not removable at the will of the patron. It was argued that if the buildings and lands belong to the curacy, his interest in them is in right of the curacy; and if he cannot be removed he has a freehold interest, and may properly allege that he is seised: and, being seised, he becomes liable.

Mr. Bruton makes a good note to the effect that it is a common practice for an incumbent to choose a surveyor,—or, more commonly still, a valuer,—from his immediate neighbourhood, regardless of his qualifications, from an idea that a more experienced person brought from a distance would make a higher charge. In point of fact, much of the legal and structural knowledge required to be brought to bear is not often possessed by such persons. To what extent the walls, floors, or ceilings have suffered during the occupancy of the last tenant requires some nicety of judgment; and, whilst saving a few shillings in expenses, an employer of an inexperienced person may be, in the end, the loser of a great many pounds. It will thus be seen the little work is intended for the clergy as much as for the professional man; and, there is but little doubt, that should the Bishop of London's Bill be reproduced in an amended form, several of Mr. Bruton's suggestions will be utilised. With regard to his scheme of decennial visitation of church property, we must differ from him so much as to say that a more frequent authorised

inspection would be better to preserve careless persons' premises in repair. A few loose slates, defective spouting, stopped-up drains, overflowing water-buts, with no water-channel, may do a great deal of mischief if not attended to; whereas a stitch in time would save a great many more than nine.

ON BUILDERS' HARDWARE.

WINDOW FURNITURE, GASFITTINGS, AND FIRE-GRATES.

RECENTLY we attempted to point out the importance of paying due regard to the efficiency and beauty of door fixings. Not less important is it that our window furniture should possess the characteristics of security and durability. The professional burglar selects the window as the point of entrance to a building, almost as frequently as the door, and it is notorious that in many instances the window presents little or no obstruction to his nefarious designs. Everybody knows what a burlesque on security is the common sash-fastener. A square inch, cut skilfully from the window pane with a diamond, is sufficient to enable an outsider to open the sash, and effect an entrance, with much less trouble than attempting to pick the lock of the door. What is there to prevent the more frequent use of sash locks, or some other contrivance which may render our windows quite secure? We notice with interest in a recent communication from America, that our Transatlantic cousins have preceded us in this respect, an invention having just been patented there for a new sash-fastener, which acts also as a lock, and thus renders the window on which it is fixed free from intrusion. As regards ornamentation in these articles, the same remarks will apply which we made respecting locks, no attempt at artistic design being apparent except in the fasteners made for French windows, some of which are suitably decorated. As a rule, however, sash-fasteners are inadequate to their important use both as regards their contribution to the security of a building, and their adaptation in a decorative point of view to the conspicuous portions of the erection to which they are affixed.

Sash pulleys, as commonly used, are made of cast-iron, and consequently most liable to rust, the results of which are painfully familiar to us all. There is neither ornament nor durability connected with these articles. The former is not, perhaps, of much consequence, seeing that the pulley is imbedded in the sash-frame, but the latter is of the greatest importance. The cost of having a good brass or wrought-iron pulley, is so slight an addition to the outlay in erecting a building, that we wonder at so much patient endurance of inconvenience, resulting from the very inferior articles which are being poured into the market, and as eagerly bought up by ironmongers and contractors. How frequently occur wholesale smashes of plate-glass in consequence of the sash-frame being supplied with a pulley which after a few months' wear ceases to work! This is only an addition to other instances of the "penny wise and pound foolish" principle, so common in this age of competition.

Respecting gasfittings, our attention has been called to a little hand-book containing many valuable suggestions on this subject, not only for the gasfitter to whom they are mainly addressed, but also for the builder and general public.* Gas mains, Mr. Mason properly observes, should be buried in the earth at least 18 in., to insure them from damage by vehicles passing over them. [We have before now suggested that some such regulation as this is also desirable for the branch pipes of water-works, to prevent their being frozen up, and thus stopping the supply of water to our homes.] Gas ventilation is a subject to which we attach importance, and which mainly concerns us here. Burning gas without making provision for carrying off the effluvia is as improvident as making a fire without a chimney to carry off the smoke. Modes of effecting it we have often pointed out. Chandeliers, as now constructed, are the great redeeming feature in gas-fittings, both as regards decoration and suitability. Designs recently introduced, both in glass and metal, are certainly creditable to the skill of the producers, and form an exception, in point of excellence, to many other departments of builders' hardware. This proves the theory that a demand for art in

union with manufacture will insure an adequate supply. Every year the popular appreciation for the combination of beauty and usefulness in gasfittings has been made more prominent.

In coming to the question of fire-grates, we approach a subject second to none in importance, as relating to domestic comfort and convenience. "A smoky chimney and a brawling wife" are said, by a shrewd observer of men and things, to be the greatest domestic trials which can afflict humanity. Whether or not a fire burns briskly is of course due in a great measure to the construction of the building, but it is also determined in part by the style of the grate. During the past few years considerable improvement is manifest, in the design of domestic fire-grates, both in their appearance and service. The old Bloomsbury grate, that sent all the heat up the chimney, and all the cold air into the room, has been superseded by grates which act on the reverse principle. All sorts of contrivances have been submitted to the test. We have had the Romford stove, the rotary grate, grates for putting on coal from beneath, grates to blow the smoke down, and grates to pull it up; the *Builder's* fire ignited at the top, and fires which only require feeding-once a day. After much loss of temper, and much sacrifice of comfort, during which all these have had a fair trial, Paterfamilias can at length rejoice in the possession of a grate whose ornamental appearance and cheerful service render his fireside complete in its attractiveness: but to get it he must exercise discrimination.

The back and sides of the fireplace should be filled in with firebrick, terra cotta, porcelain encaustic tiles, or majolica, thus reducing the ironwork of the grate, absorbing less heat than polished steel, reflecting heat equally well, giving less trouble in cleaning, and being less expensive. The present cumbersome form of grate might profitably be reduced to much smaller proportions, without in any way interfering with its efficiency. The general arrangement of the fire receptacle should be that of a dish-form in firebrick. The length of the bars should be regulated by the size of the room; and the depth within the bars should depend upon the coal likely to be used.

We cannot help expressing the hope that the subjects to which we have briefly referred will receive more attention than hitherto on the part of the building trade. We have touched only a few leading examples, to prove a theory which applies as a rule to all branches of builders' hardware, viz., that it is not keeping pace with the progress of art and science as applied to manufacturing industry. There is much which is cumbersome, and requires simplifying; much which is too simple, and requires additional security or strength; and much which is lamentably deficient in grace and elegance, usefulness and durability. It requires only an effort on the part of consumers to remedy these defects, by demanding superior articles; and they may thus contribute simultaneously to their own credit, to that of the producer, and to the increased comfort, safety, and gratification of society at large.

SANITARY REPORT ON EDINBURGH.

THE medical officer of health for the city of Edinburgh, Dr. Henry D. Littlejohn, has prepared a Report on the Sanitary Condition of the City, which has been presented to the council and printed. It extends to 120 pages royal octavo, besides 72 pages of appendix, chiefly in the form of statistical tables.

Edinburgh, says the Report, has never been regarded as an unhealthy city. Its death-rate, although subject to considerable annual variations, will bear favourable comparison with that of other large towns, which do not labour under its special disadvantages. It is, however, peculiarly exposed to the ravages of epidemic diseases of all kinds, on account of its dense and badly-housed population; and whether the epidemic be cholera or fever, the poorer inhabitants living in the crowded districts of the Old Town suffer in a marked degree. During the last five years, the health of the community has been good, and among the working-classes food and work have been unusually plentiful. The average death-rate for that period was 21 per 1,000.

The district most liable to attack by epidemics is the Grassmarket, where fever, however, has been far more prevalent in past years than cholera, on account of the overcrowding, chiefly by poor Irish, among whom fever always first

* "The Gasfitter's Guide," by James Mason, London: John Eill, 54, Murray-street, City-road.

appears. The lodging-houses, however, are not so crowded now as they once were, and epidemic fever is, therefore, not now so deadly as in former years. The following table gives the mortality per cent., in 1863, from fevers, diarrhoea, and dysentery, in six Scottish towns:—

FEVER.			
Leith.....	24	Perth.....	15
Glasgow.....	23	Paisley.....	12
Glasgow.....	17	Edinburgh.....	9
DIARRHŒA AND DYSENTERY.			
Perth.....	1	Paisley.....	07
Glasgow.....	08	Edinburgh.....	07
Glasgow.....	07	Leith.....	06

The condition of the poor and their miserable dwellings has engaged the attention of the charitable in Edinburgh.

"The movement which originated in London,—that centre of all noble schemes,—for erecting suitable houses for the working classes, has extended to this city. In 1851 the first block of houses was built, and named Ashley-buildings, after the nobleman who had taken such a prominent part in the operations of the Metropolitan Association. No better site could have been obtained for the structure in question. It was placed in the Fion district, in which overcrowding prevails to a great extent, and on all sides it was surrounded by decaying houses, tenanted by the poor. It not only afforded to the industrious workman a greatly improved habitation, but, from its situation, formed an example to surrounding proprietors and tenants of the manner in which such houses should be built and kept in a permanent state of cleanliness. To secure a site, old property had to be removed; and thus, while benefiting the working classes, the Association directly ameliorated the condition of the Old Town by the erection of houses in its midst, built according to the most approved sanitary plans.

The average rent in the whole of these buildings is from 6s. 10s. to 7s. Such a sum is a good index of the class which has been benefited by such associations. It was that of the well-to-do industrious workman, who, how much soever he may have suffered from the imperfect houses in the Old Town, could not fail to be an acquisition to the neighbourhood in which he lived, from his notions of cleanliness and propriety. When attracted elsewhere for a dwelling, a vacuum was left, so to speak, in the Old Town, which was quickly filled up by the freemasonry of poverty; and, without exaggeration, it may be affirmed that the locality was left worse than it was before. Rents necessarily fell, and a poorer population crowded in to supply the places of the former inhabitants. That the working classes, as a body, have been greatly benefited, there can be no doubt; but the question is forced upon us,—Is a class which can afford to pay such rents not capable of being provided with suitable accommodation on the ordinary principle of supply and demand? A noble example was shown by Dr. Foulis, years ago, of what was required, and the best method of helping the poor and the poorer localities. He took a close in the Grassmarket, gutted it, cleaned it thoroughly, and repaired it, in no expensive manner, but in such a way as to afford comfortable housing for the poor. This close,—the Warden's Close, No. 139,—has thus been reclaimed. It is placed under such supervision that the inhabitants are taught cleanliness; and should a new comer not be susceptible of the lesson, after patient trial, he quickly leaves. To this hour, the close in question stands out an oasis amidst the wretchedness and filth that are to be met with in the other closes of that well-known locality."

An interesting question connected with the distribution of the population of Edinburgh, is the heights above the sea-level at which the inhabitants are found grouped in the largest numbers, and the effect of elevation on disease, whether sporadic or epidemic. There are remarkable inequalities in the ground on which Edinburgh is built; and, in a table given by Dr. Littlejohn, the whole of the population within the Parliamentary boundary, numbering 168,121 persons, has been arrayed in successive elevations from 50 ft. up to 450 ft., according to their residence. In parallel columns the mortality for the year has been distributed in a similar manner, as also that caused by fever and diphtheria during 1863, and two epidemics of fever and cholera, along with the calculated results per 1,000. This general table, it appears, was constructed at a considerable expense of time and trouble. Each district was taken separately, and a similar plan was followed in the enumeration and calculation. From the nineteen separate tables thus prepared, the one given was arranged. From this table, it appears that as we proceed from a lower to a higher elevation, there is a regular diminution in the death-rate of 1863, and also in the rate of cases per 1,000 of the population affected in the great epidemics of fever and cholera. The character and respectability of the population vary, however, with the height at which they live, and there is a marked difference in this respect between that portion of the Cowgate included in the district of St. Giles, lying at a comparatively low level, and the higher localities of the High-street, Castle-hill, and the Castle, where the inhabitants live in greater comfort, and enjoy life under better hygienic conditions.

The cesspool nuisance in Edinburgh has become so clamant as to demand a thorough remedy. In reference to this system, Dr. Littlejohn says:—

"From one of its worst effects,—viz., the contamination of water for domestic use, from the soaking of the soil,—we are luckily preserved. We have no private wells

into which the drainage from our defective cesspools can escape, to contaminate, in the most insidious manner, the water,—even communicating to it an attractive sparkle, but at the same time poisoning the system, which never becomes habituated to its use.

Builders and architects, however, still uphold the necessity of cesspools, even in crowded cities; but their reasoning is, in my opinion, fallacious. That the system should find favour amongst smaller tradesmen is not to be wondered at. The cesspool demands planning and material, in addition to the skilled labour required for its construction. The laying of a few tubular drains, with a direct communication with the main sewer, is comparatively a cheap operation."

The irrigated meadows in which the sewage is made use of are regarded in the report as a source of disease.

"When spread over the land, the sewage quickly disappears; and this part of the process, unless the weather be warm, is attended with little inconvenience. But if the privilege be claimed of monopolizing the sewage of a city like Edinburgh, it is surely incumbent upon proprietors to diminish, by every means in their power, the evils attendant upon irrigation, especially when carried on in the immediate neighbourhood of a dense population; for Edinburgh, from its situation, is peculiarly exposed to suffer from the effects of the emanations from these meadows. The easterly are our most prevailing winds, which pass across these meadows before they sweep over the New and the more elevated portions of the Old Town. And it has been plausibly conjectured that the insalubrity of these winds depends largely on this contamination. But, at any rate, a city surrounded by swamps cannot be regarded as in a sound sanitary condition; and it is highly probable that a great part of the mortality of the Abbey, and some of the poorer districts of the Old Town, is, in a great measure, owing to the unhealthy character of these rezees, which blow so continuously during many months. It is difficult otherwise to account for the high death-rate of the district of the Abbey, in which there is little overcrowding, and where only a small proportion of the population can be said to belong to the poorest class."

Dust and solid refuse are removed from the houses twice a day, and the corporation derive an income of 7,000*l.* a year from this source. The system adopted was described by Dr. Littlejohn in a paper "On the Cleansing Operations in Edinburgh as compared with other Towns," which was read before the Social Science Association in 1863. The author of the paper recommends the system for adoption in other towns. In Edinburgh, it is a matter of comparative necessity, from the prevalence of the "flat" system of dwellings, and the want of space for dust-bins.

The following are the suggestions offered in the Report for the sanitary improvement of the city:—

1st. The satisfactory paving and draining of the closes.

2nd. The improvement of the house accommodation of the poor, by insisting on the introduction of water and gas, the cleansing of common stairs, and the performance of necessary repairs.

3rd. The diminution of overcrowding of the population, by limiting the number of persons in each apartment, by lowering the houses in height, and by removing all tenements in a ruinous condition.

4th. The opening up of the worst localities by the widening of such contracted thoroughfares as the Cowgate and St. Mary's Wynd, and by the formation of new streets, which should pass at right angles to the long and unwieldy closes, and give increased facilities for their thorough cleansing. Such new communications would also afford sites for improved dwellings for the poor where they are most required, and would form an era in the sanitary history of Edinburgh."

PROPOSED MUSEUM IN ATHENS.

THE want of an archaeological museum has long been felt in a city and neighbourhood where every inch of ground is of historical interest, and where scarcely a trench can be dug, or the soil of a garden turned, without bringing to light some remnant of ancient Greece. The Archaeological Society of Athens, now some twenty years in existence, has done much in preserving and clearing the Acropolis, the Temple of Theseus, and other monuments, of the rubbish and ruins caused by the war against the Turks, and have set up in their proper and original positions many objects found amid the debris. But many things of extreme interest and of great antiquity have from time to time been found to which no such places could with propriety be assigned, and here the want of a museum was chiefly felt. Mr. Bernardaki, a rich Greek merchant, residing at St. Petersburg, was the first to take an active step in the matter, by offering the sum of 200,000 francs to begin with, promising a like sum if the building were actually commenced. This handsome donation, together with subscriptions expected from others residing and

trading in London, Paris, &c., gave promise of a speedy execution of the project, and in 1859 a competition amongst architects was advertised. But the Academy of Arts at Munich, to whom the awarding of the decision was referred, reported unfavourably of all the plans submitted. Then Professor Lange, of Munich, sent in a plan not based upon the "instructions," but on his own experience and independent ideas. This plan was approved of, but still delays took place, chiefly on account of the question of site. Then came the revolution and the flight of King Otho, and the whole scheme seemed utterly abandoned, when, on the 24th of February, 1865, came a decree ordering the commencement of the Museum forthwith, granting a site on a hill known as that of St. Athanasius, and ratifying the approval of Prof. Lange's plans. The building, which is partly three stories high, is nearly square on plan, each side measuring about 300 ft. The ground-floor, which contains sculpture, is entered from a peristyle, running along the entire chief front; and the arrangement of the various objects exhibited is such, that the visitor, by turning to the left on entering, can pass successively through the different "periods." These are the heroic period; next, that of Phidias and Praxiteles; then the Macedonian; the Roman; and, lastly, the Byzantine periods. Side-rooms contain the casts of such works as are possessed by foreign museums. The centre is occupied by the grand staircase, having a large glass-covered court, about 100 ft. square, on each side. The first-floor is divided into smaller rooms and cabinets, to contain collections of coins, vases, ornaments, weapons, &c. The central portion only is to be carried up to a second floor, and is intended to receive an archaeological library. There are also various offices, store-rooms, unpacking-rooms, and work-rooms, where restorations, &c., can be effected.

WATER COLOUR SOCIETY'S SKETCHES.

THE Winter Exhibition of "Sketches and Studies" by the Society of Painters in Water Colours consists of 416 specimens, and includes, it is scarcely necessary to say, many charming works. We might especially name some by John Gilbert (34), E. Duncan, J. Nash (a series from Canterbury), F. W. Topham, E. Lundgren (65 and 363), Carl Haag, Josh. J. Jenkins (some charming landscapes), G. H. Andrews (114), Brittan Willis (really "sketches"), Jas. Holland (with the same note), S. P. Jackson, F. Taylor, F. F. Shields ("The Orphans"), Birket Foster, and G. P. Boyce. Some of Mr. Burne Jones's heads have much beauty as sketches.

Many of the works exhibited are neither one thing nor the other: they are not sketches; and they are incomplete drawings, not so good as the artist could make them, prepared purposely for this second opportunity for sale. And herein lies the danger of the scheme. The public, nevertheless, enjoy it.

THE LATE MR. T. J. PETTIGREW, F.R.S.

WITH unfeigned sorrow we record the death of Mr. T. J. Pettigrew, which took place at his residence, in Onslow-crescent, Brompton, on the 23rd ult., after a long and painful illness, during which he had been attended in a singularly exemplary manner by his daughters, Lady Dillon and Miss Pettigrew. Mr. Pettigrew was born on the 28th of October, 1791, so that he was in his 75th year, and had passed a most active and industrious life. Of late years he had devoted himself mainly to archaeology, and had been most heard of in connection with the British Archaeological Association, of which he was the moving spirit. The "Bibliotheca Susexiana," published in 1827 and 1839, "The Medical Portrait Gallery," completed in 1840, and his history of Egyptian Mummies, are amongst his earlier and most esteemed works. We may find an opportunity to give an account of his career as an archaeologist. We lament him personally as a friend.

WATERWORKS FOR SHOREHAM.—Surveys are being made for the purpose of supplying Shoreham with water by a company. The supply is to be derived from a spring near the town, which, it is said, will yield a million gallons a day.

NATIONAL PORTRAIT EXHIBITION
IN 1866.

SIR.—Lord Derby's proposed National Portrait Exhibition at South Kensington—that is, in London—in the season of 1866, is now happily an accepted fact, and the world is quiet. Arms are inimical to Art. The Exhibition will unquestionably open under the auspices of her Majesty's Committee of Council on Education—the direction, control, and presidency of the Earl of Derby; and in better hands it could not be, for full guidance to success, than in those of Edward Geoffrey Smith Stanley, Earl of Derby, K.G., counsellor to King William and Queen Victoria—a great orator and a “noble author,” in a sense beyond Walpole's aristocratic interpretation of a questionable title.

The exhibition is based, we are told, upon suggestions made by Lord Derby in a letter dated so recently as the 6th of May last. As the words of the Chancellor of the University of Oxford ran direct to the point, I ask permission to reproduce them:—

“I have long thought that a National Portrait Exhibition, chronologically arranged, is not only possible, but of great historical interest by bringing together portraits of all the most eminent contemporaries of their respective eras, but might also serve to illustrate the progress and state of various periods, of British art. My idea, therefore, would be to admit either portraits of eminent men, though by inferior or unknown artists, or portraits by eminent artists, though of obscure or unknown individuals. I have, of course, reasons of knowing or estimating the number of such portraits which may exist in the country, but I am persuaded that, exclusive of the lay collections, many great houses, there are very many scattered about, by two and three, and in private families, the owners of which, though they could not be persuaded to part with them, would willingly spare them for a few months for a public object.”

Of this there cannot be a doubt. “On Stanley, on,” continues thus, and still direct to the point:—

The question of one, two, or three exhibitions in consecutive years would, I apprehend, be mainly decided by the result of future inquiries as to the probable number of pictures which could be obtained, and the space which could be found for their exhibition. But whether the period over which exhibitions (if more than one) should range, be longer or shorter, the point on which I should set the greatest value, in an historical if not an artistic point of view, would be the strict maintenance of the chronological series.

I shall be very happy if any suggestion of mine should lead the Committee of Council to take up seriously and carry out, with such alterations of detail as experience might suggest, a scheme which, I think, could hardly fail of being generally interesting, and I should have much pleasure in placing temporarily at their disposal any portraits in my collection at Knowsley which they might think suitable for their purpose.

Lord Derby's sensible letter determined the Committee of Council on Education that the exhibition should take place. A committee of some 150 noblemen and gentlemen were at once named, and Mr. Samuel Rodgrave, “to whose valuable labours the successful formation of the collection of British miniatures is chiefly due,” was requested to take “special charge of directing the exhibition.”

In many ways Mr. Rodgrave's appointment is extremely satisfactory. He has, however, a heavy though a pleasant labour before him, and not much time to know in full what he should ask for, what he can get,—how to remove, how to hang, and how to catalogue. I know by bitter experience at Manchester—for my proposition (and it was mine alone, as Mr. Deane well knows) of a British Portrait Gallery in the Art Treasures Exhibition of 1857 in that Lancashire city was not taken up by the cotton lords in the same historical spirit that the lord of “Knowsley Hall, near Prescott, in Lancashire,” and the fourteenth earl of his house, has “long” viewed it, and has now given to it in the “imprimatur” of his illustrious name. But a better testimony (Lord Derby will possibly pardon me) to the interest sure to be felt in the National Portrait Exhibition that is to be, may be found in an incidental letter from Sir Walter Scott to Mr. Harding, of the firm of Harding & Lepard, the publishers of “Lodge's Portraits.”

“Abbotsford, 23th March, 1863.
Sir,—I am obliged by your letter, requesting that I would express to you my sentiments respecting Mr. Lodge's splendid work, consisting of the portraits of the most celebrated persons of English history, accompanied with memoirs of their lives. I was at first disposed to decline offering any opinion on the subject; not because I had the slightest doubt in my own mind concerning the value of the work, but because, in expressing sentiments, I might be exposed to censure, as if attaching to my own judgment more importance than it could deserve. Mr. Lodge's work is, however, one of such vast consequence, that a person attached, as I have been for many years, to the study of history and antiquities, may, I think, in a case of this rare and peculiar kind, be justly blamed for refusing his opinion, if required, concerning a publication of such value and importance.
Mr. Lodge's talents as an historian and antiquary are well known to the public, by his admirable collection of

ancient letters and documents, entitled ‘Illustrations of British History,’ a book which I have very frequently consulted; and have almost always succeeded in finding, not only the information required, but also a great deal more as I went in search of it. The present work presents the same talents and industry, the same patient powers of collecting information from the most obscure and hidden sources, and the same talent for selecting the facts which are the rarest and most interesting, and presenting them to the general reader in a luminous and concise manner.

It is impossible for me to conceive a work which ought to be more interesting to the present age than that which exhibits before our eyes our ‘fathers as they lived,’ accompanied with such memoirs of their lives and characters as enable us to compare their persons and countenances with their sentiments and actions.

I pretend to offer no opinion upon the value of the work in respect to art; my opinion on that subject is literally worth nothing in addition to that of the numerous judges of paramount authority which have already admitted its high merits. But I may presume to say, that this valuable and extended series of portraits of the illustrious dead affords to every private gentleman, at a moderate expense, the interest attached to a large gallery of British portraits, on a plan more extensive than any collection which exists, and at the same time the essence of a curious library of historical, bibliographical, and antiquarian works. It is a work which, in regard to England, might deserve the noble motto, rendered with such dignity by Dryden, —

‘From hence the line of Alban fathers come
And long glories of majestic Rome.’

I will enlarge no more on the topic, because I am certain that it requires not the voice of an obscure individual to point out to the British public the merits of a collection which at once satisfies the imagination and the understanding, showing us by the pencil how the most distinguished of our ancestors looked, moved, and dressed; and informs us by the pen, how they thought, acted, lived, and died. I should in any other case have declined expressing an opinion in this public and almost intrusive manner; but I feel that when called upon to bear evidence in such a cause, it would be unmanly to decline appearing in court, although expressing an opinion to which, however just my name can add but little weight.

I am, Sir, your obedient servant,
WALTER SCOTT.”

Sir Walter's letter contains a noble testimony to the value of Norroy Herald's work. Nor, I will here remark, should the accompanying Memoirs be overlooked. They are written with accuracy, animation, and grace. Lord Derby's national portrait biographer might take a lesson from them.

Wishing heartily well to the coming Portrait Exhibition, I have thought that, through your columns, I might, from time to time, point out portraits, but too little known, where good portraits are showing us by the pencil how the most distinguished of our ancestors looked, moved, and dressed; and informs us by the pen, how they thought, acted, lived, and died. I should in any other case have declined expressing an opinion in this public and almost intrusive manner; but I feel that when called upon to bear evidence in such a cause, it would be unmanly to decline appearing in court, although expressing an opinion to which, however just my name can add but little weight.

Finally, I should like to know on what principle of selection or rejection Lord Derby and his fellow-committeemen propose to proceed. I have a longing to see Jane Shore and Nell Gwyn; Perkin Warbeck, Guy Fawkes, John Felton, and Titus Oates; Peg Nicholson, John Bellingham, and Arthur Thistlewood; and with the questionable hero of the political Cato-street conspiracy I would stop.

PETER CUNNINGHAM.

IRON SHIP BUILDING.†

The first iron-built vessel was probably a canal-boat about the beginning of the present century. There were such in Staffordshire in 1812 and 1813; and from that time to the present iron boats have been successfully employed on canals. The first sea-going iron vessel was the *Aaron Manby*, which was built by the Horsley Company and sent to London in sections, reconstructed in one of the docks, and navigated across the British Channel to Havre, whence it sailed up the Seine to Paris. The late Admiral Napier had the distinguished honour of navigating this first iron sea-goer across the Channel. In 1830-1 Mr. Fairbairn was employed in improving iron canal boats; and about the same time an iron vessel, the *Manchester*, 84 ft. long and 14 ft. beam, with recessed paddles on the stern, was built in Manchester and navigated

* The Marquis of Hertford and the Duke of St. Alban's are both acreases and houseless in Hertfordshire. The Duke of Marlborough, as Baron Sandridge, has property in Hertfordshire, but no house in the county in which he resides.

† Treatise on Iron Ship-building; its History and Progress. By William Fairbairn, C.E., LL.D., &c. London: Longmans & Co. 1865.

through the locks of the Mersey and Irwell Navigation to Liverpool, whence it sailed by sea to Greenock. This is believed to have been the second iron vessel intended to take a sea voyage; but a light iron boat, the *Lord Dundas*, performed the same voyage in 1830. The *Manchester* was employed as a coaster in carrying goods and passengers between Port Dundas, Greenburgh, and Dundee. About the same date, 1830-1, or shortly after, Messrs. Laird built the *Albion*, a small iron vessel, which was taken out to Africa with the Landers and Mr. Macgregor Laird, for the exploration of the Niger.

“The strength and sailing qualities of the whole of these vessels,” says Dr. Fairbairn, “were confirmatory of the great superiority of iron over wood as a material for ship-building; and we have only to refer to the extensive use and enormous increase that have taken place in its application, not only in this country, but in every maritime state of the globe, to be convinced of the soundness of the principle, and the great superiority of the iron ship.”

Great improvements have been of late years made in the construction of iron ships, and in these improvements Mr. Fairbairn took a prominent part. He removed this department of his Manchester establishment to Millwall, near London, where he built upwards of a hundred iron vessels, some of them above 2,000 tons burthen, but he afterwards personally retired from the business. Since then, as he remarks,

“Great and varied improvements have taken place in the construction of iron ships, and it has been clearly shown that vessels of large tonnage and great magnitude may be safely constructed of iron. For the extent to which this application has been carried of a hundred to the late Mr. Brunel, Mr. Scott Russell, of London; Messrs. Laird & Co., Mr. Vernon, of Liverpool; Mr. Robert Napier, and several other eminent builders, of Glasgow. To the Clyde builders may be referred some of our most important constructions, and there is probably no part of the United Kingdom where greater energy and enterprise in this branch of industry is displayed.”

Notwithstanding that thirty years' practice in iron ship building must have improved the principle of construction, numbers of vessels have been built and are now building of inferior material as well as defective in principle, thus impairing their security and rendering them unfit for service on the open sea. Much has yet to be done to rectify these mistakes, to raise the character of the iron ship-builder, and ultimately to establish in the public mind perfect security in the strength of vessels of this description.

With regard to ships of war, as Dr. Fairbairn, in his treatise “On Iron Manufacture” remarks, “The future destiny of nations seems to be involved in the consideration of iron, and its application to an entirely new system of construction in vessels of war, calculated to unite with equal facility the powers of attack and defence.” To combine this force and power of resistance in one construction, is a desideratum not yet attained; but every effort is now being made by the Government of this and other maritime nations, to approximate as nearly as possible in the construction of ships of war to that desirable object.

The work under notice treats mainly of the history and progress of iron ship-building as comprised in a series of experimental researches on the laws of strain; the strengths, forms, and other conditions of the material; and an inquiry into the present and prospective state of the navy, including the experimental results on the resisting power of armour-plates and shot at high velocities. The results of his analysis of experiments on the strength and other properties of plates, angle-iron, &c., are chiefly taken from his own experiments, published in the “Philosophical Transactions,” part ii. (1850), p. 677, and of which an account has already been given in our columns, as well as of those of the late Professor Hodgkinson, to whom Dr. Fairbairn also acknowledges his obligations in the work under notice. These experiments embrace almost every known mechanical property of iron,* and the knowledge thus obtained has furnished data for the construction of ships, and other structures employed in the useful and industrial arts. The ultimate powers of resistance of iron to tension, compression, torsion, &c., are taken from the same source.

The joining of iron plates, and the form of joints required in ship-building, is another important question. The author has endeavoured to show what kind of riveted joint is requisite in order to attain the maximum powers of resistance in the longitudinal and transverse joints. A single defective joint may endanger

* Mr. Kirkaldy published, a few years since, a detailed series of experiments on iron and steel, in which will be found much useful information on the strengths and other properties of these materials.

the safety of a ship; how much greater, therefore, must be the danger if the principle throughout be unsound, and the whole of the joints of an imperfect character!

It has been found that the union of plates by riveting is far stronger and more endurable than by bolts, as the rivets are generally put in hot and then hammered, or, what is decidedly preferable, compressed by the riveting machine into the holes prepared for their reception. A good rivet requires a head on each side, the same as a bolt and nut; but there is this difference,—that the rivet becomes, when carefully inserted, part and parcel of the plate; and, when they are duly proportioned as to size and number, become equal in strength to the plate itself, minus the parts punched out for the rivets. It is therefore desirable, in every case where plates have to be joined, that they should be united by rivets.

On this subject the author says,—

"In the pursuit of the foregoing inquiry I was naturally led to the consideration of the best proportions and best forms of riveting plates together. I investigated this subject with great care; and, from my own personal knowledge and that of others, have collected a number of practical facts, such as long experience alone could furnish. From the data I have been enabled to compile the following table, which for practical use will be found highly valuable in proportioning the distances and strength of rivets in joints requiring to be steam or water-tight."

Table exhibiting the strongest forms and best Proportions of Riveted Joints, as deduced from the Experiments and actual Practice.

Thickness of Plates in Inches.	Diameter of Rivets in Inches.	Length of Rivets in Inches.	Distance of Rivets from Centre to Centre in Inches.	Quantity of Lap in single Joints in Inches.	Quantity of Lap in double-riveted Joints in Inches.
.125 = $\frac{1}{8}$	.38	.88	1.25	1.25	
.15 = $\frac{3}{16}$	.50	1.12	1.50	1.50	
.1875 = $\frac{3}{8}$	.625	1.38	1.63	1.88	
.25 = $\frac{1}{2}$	.75	1.63	1.75	2.00	5.5
.30 = $\frac{3}{4}$	.875	1.88	2.00	2.25	
.375 = $\frac{3}{4}$	1.0	2.12	2.25	2.50	1.5
.50 = 1	1.25	2.38	3.00	3.25	

The figures 2, 1.5, 4.5, 6, 5, &c., in the preceding table are multipliers for the diameter, length, and distance of rivets, also for the quantity of lap allowed for the single and double joints. These multipliers may be considered as proportional to the thicknesses of the plates to the diameter, length, distance of rivets, &c. For example, suppose we take 1 plates, and require the proportionate parts of the strongest form of joint, it will be—

$.375 \times 2 = .750$ diameter of rivet, $\frac{3}{8}$ in.
 $.375 \times 4.5 = 1.688$ length of rivet, $1\frac{1}{2}$ in.
 $.375 \times 6 = 2.25$ distance between rivets, $1\frac{1}{4}$ in.
 $.375 \times 5 = 1.875$ quantity of lap, 2 in.
 $.375 \times 6.5 = 2.438$ quantity of lap for double-riveted joint, 3 in.

.75, 1.68, 1.87, 2.06, and 3.48 are therefore the proportionate quantities necessary to form the strongest steam or water-tight joints on plates three-eighths of an inch thick.

In the construction of iron ships, Dr. Fairbairn strongly urges the advantages of the cellular system as first exhibited in the construction of the Britannia and Conway tubular bridges, and more recently in her Majesty's ship *Bellerophon*. This system, together with a double bottom, renders a ship so constructed a

really unsinkable ship; and there is a reason for the adoption of such a system in iron ships which Dr. Fairbairn might have also urged,—namely, that such ships do not float for any time when seriously damaged below water-mark, as wooden ships frequently do; but sink precipitately, to the far more serious loss of lives and property.

In shielding our ships of war from the effects of an enemy's shot, the author confesses that, taking into account the progressive improvements in the power of guns, which have kept pace with the increased resistance of plates,—we are now, as nearly as possible, in the same relative position as the navies of this and other countries were fifty years ago; and, as it appears that we cannot cover and protect the whole of a ship with a sufficient thickness of plates, the next best thing to do is to take our chance, and let the shot go right through. This, under certain conditions, he has recommended to be done; but with a saving clause, that the vessel should be protected by a line of thick armour-plating above and below the average line of flotation, and that exclusively for the safety of the ship.

Although Dr. Fairbairn regards iron, from its superior tenacity and susceptibility of being worked, as decidedly preferable to any other material with which we are acquainted for the construction of ships, he is of opinion that due-

ties steel of uniform quality will entirely supersede the use of that material.

"We are of opinion," he says, "that steel must eventually supplant the present manufacture of iron, establishing in its place a very superior quality of material, which, applied to ships, boilers, bridges, and other similar constructions, will give nearly double the strength with the same weight of material."

As the complete iron-clad ship is a ponderous and sluggish mover, as well as a plunger at sea, the Admiralty, it seems, intend to try the principle of a modified system of protection, by a narrow belt of thick armour-plating above and below the water-line, so as not to embarrass or retard the speed of the ship; and with that view they intend building four swift vessels, with heavy armaments,—not armour-plated, but trusting entirely to their speed; or, as Lord Clarence calls them, an "improved class of *Alabama*s, calculated to outstrip every other description of vessel carrying the same number and weight of guns."

we had twa o' them yesterday." Now, however, Kemnay is one of the most flourishing, as it is one of the most picturesque, villages in Aberdeenshire. Not only can it boast of having its baker, its grocer, its butcher, and its postmaster, it may be said to have reached the period of ease and luxury, if the presence of a doctor, a chemist, a watchmaker, a station-master, and a village librarian within its borders, may warrant the term. Indeed, the ambition of the inhabitants will be satisfied with nothing short of streets, which, we are told, already exist on paper. The first thing that strikes the visitor to Kemnay is its bran-new appearance. There is not an old erection to be seen,* much less a dilapidated one. The "aid call biggins" have all disappeared, and in their stead have sprung up, and are fast springing up, modern cottages of tasteful design, and semi-detached two-storied houses of commodious and substantial structure. It was satisfactory to learn, that many of the quarrymen of Kemnay

* We except Kemnay House (itself, a grim old mansion which has been the family residence of the Bannetts of Kemnay for three or four centuries. The grounds surrounding the house appeared to us to be in a very neglected state; but the front approach to the mansion lies through a magnificent avenue of elm trees.

"whose bonnets are moss'd with age,
 "And high tops bald with dry antiquity." This is said to be one of the finest avenues in Scotland.

are taking advantage of the immense facilities which the district offers for building, with the best possible material at the lowest possible price, and are building their own houses. The house accommodation is at present infinitely insufficient for the requirements of the place, numbers of the workmen having to walk several miles to their homes; but as every inducement is held out to the men, by Mr. Fyfe, their employer, as well as by the proprietor, to build, this inconvenience is only temporary. The houses, which are, of course, built of granite, present a remarkably fresh and cheery appearance, each with its white "harled" walls, blue-tiled roof, and small garden plot.

All these changes, as we have said, have taken place during the last six years, and are due to the opening of the quarries in the neighbourhood.* The principal quarries in the vicinity of Aberdeen were, until recently, the Rubislaw and the Dancing Cairns. Both, however, are now pretty well exhausted; and the Kemnay Quarries may be considered amongst the largest and most important of the Aberdeen granite quarries. They have this other important advantage, that while the stone found here is equal in grain and durability to any other granite, it can be laid down at Aberdeen at a lower cost than either the Rubislaw or the Dancing Cairns stone, though the latter place is but four miles, and the former only two miles from the Granite City. This is owing, we believe, to the very favourable terms on which the quarries have been leased. The quarries are situated on an elevation known as Paradise Hill, about half a mile north of the village, and occupy several acres of ground. At present they employ two hundred men as quarriers and masons, but this number will be increased as the works progress. The hill has been opened in two separate places, forming a larger and a smaller quarry. The one has 40 ft. of a working face, the other 70 ft. These cuttings are being worked into one another, and will ultimately have a working face of 100 ft. There are five steam cranes continually in operation, each capable of lifting ten tons weight; and it may be mentioned as a proof of the quality of the rock here, that blocks of granite, measuring 30 ft. in length, and weighing 100 tons, are occasionally met with. Twelve hundred tons of granite, principally for the London market, leave the quarries every month. The stones consist of curb and paving stones, and building stones. We were informed that at this and other quarries in the district, as many as 700 hands are regularly employed in making stones for the streets of London alone. We were also shown a number of beautifully finished pieces of coping and pillar work, intended for the balustrade of the Thames Embankment. It may be added that Mr. Fyfe has expended many thousands of pounds on his machinery and plant, which seem to be in excellent condition, and that the supply of stone can be exhausted only by future generations.

We cannot take our leave of the pleasant little village of Kemnay, without remarking that it is a singular exception to every other village of similar size in Scotland, inasmuch as it contains neither inn nor public-house. "Whiskey, whiskey everywhere, and not a drop to drink" at Kemnay. When we consider the general character of the class which forms the staple of its population, as well as the nature of their occupation, the circumstance is indeed a singular one. Thrifty souls, who may be inclined to fiddle, must go four or five miles to find the waiter; and it might be questioned for a dram be Scotsman's proverbial preference for him to undertake such a journey for such an object. But be this as it may, so far as we could learn, a fondness for "Kissing the Baby," as the Americans say, is far from being a "national vice" in Kemnay. The quarrymen, as a class, are as sober as they are industrious. If they be not all teetotalers—which it would probably be too much to assert—

—Kemnay has undergone changes in more directions than one. The new Established Church is a very fair edifice, as country churches go in Scotland. The former building, however, for a long time was in a most wretched condition; a fact which, perhaps, could not be better illustrated than by the following incident. The swallows, as in the days of the psalmist, "therein had built their nests," and were in the habit of making their entrance and exit through the roof. One Sunday the minister (the late Dr. Mitchell) was much annoyed by the snoring of a country fellow who had fallen asleep in a pew directly opposite to the pulpit; his head had fallen back, and his open mouth was directed upwards. The annoyance had continued some time, when a swallow, in leaving its nest, loosened part of the clay, which dropped into the open mouth of the sleeper, who started up "wi' a snother" much to his own consternation and the congregation's amusement.

THE KEMNAY GRANITE QUARRIES.

ABOUT sixteen miles north of Aberdeen, and on the immediate line of the Great North of Scotland Railway, stands the village of Kemnay, famous for its granite quarries. Kemnay enjoys a delightful situation on the slope of the valley of the River Don, which murmurs quietly and dreamily at its foot. Overlooking the river towards the north, you have Bennochie, rising majestically to a height of 1,440 ft., and inclosing a landscape which might have charmed the soul of Claude or Turner. Little more than half-a-dozen years ago, Kemnay was a rude, insignificant hamlet, containing only a few scattered cottages, and a purely agricultural population. Its post-town was Kintore, four miles distant, and, we believe, it could boast of neither a grocer, a baker, nor a butcher's shop. To quote a common Scottish saying, "There was really nothing doing in the place." It must indeed have been a stagnant locality, if we may credit the following anecdote which is related of it:—A tourist, struck with the weebone aspect of the village, halted at the "smiddy" (blacksmith's shop), and put this question to the smith—"My good man, this is a confoundedly slow spot; do you ever by any chance see anybody here at all?" "Weel," replied the rustic Vulcan, "it's a-nae sae dull after a'. There was a horse an' cart passed about an hour ago, and

they certainly must, like the Baron of Bradwardine, carry their drink discreetly. However, we understand that the true cause of the absence of a public-house in the village is a disinclination on the part of the laird to sanction one. If those specially interested do not feel aggrieved, it is not for anybody else to quarrel with the arrangement; quite the reverse. All we shall say is, may Kenmay continue to flourish after her own fashion.

NEW PUBLIC BUILDINGS FOR ABERDEEN.

THREE or four years ago, in consequence of the extremely unsatisfactory accommodation in the present court-houses of Aberdeen, they were examined by Mr. Matheson, of her Majesty's Board of Works, and on his report the Commissioners of Supply resolved to have a new building, and invited Mr. Mathews, Aberdeen; Mr. Smith, the architect of Balmoral Castle; and Messrs. Peddie & Kinnear to prepare competing designs. When these had been examined, the plans of Messrs. Peddie & Kinnear obtained the preference. Before steps were taken, however, for carrying out the building, a project was brought forward for erecting new municipal and county buildings, and it was proposed to take advantage of the necessity for new court-houses to erect a large public building which would contain accommodation for all these objects. This scheme being resolved upon, Messrs. Peddie & Kinnear were instructed to prepare designs. The site selected is the finest in the city, being at the east end of Union-street, having a frontage of 200 ft. to that leading thoroughfare, and of 115 ft. to Broad-street. The main object of the architects, in the external plan, seems to be to make the building resemble, in general character, the town-halls of Belgium and France, the style used being Gothic, but strongly impressed with the well-known characteristics of the old Scottish architecture, although generally it is of the French type. The building is treated severely in the details, in consideration of the granite material of which it is to be composed, but its great mass and extent, with the picturesque arrangement of the parts, will, it is thought, secure it against that flat and tame appearance which so much strikes one in the modern buildings of Aberdeen.

The most striking feature of the building will be an immense tower, 28 ft. square, standing at the angle of the building forming the intersection of Union-street and Broad-street. The tower rises, without a break, to the height of 72 ft. At this height, four corbelled-out turrets at the angles rise to a height of 36 ft., where the masonry work of the building terminates. The turrets are surmounted by high-pointed conical roofs, lighter and more acute than is usual in old Scottish buildings. From the same level from which these roofs spring, the roof of the tower tapers upwards to a height of 27 ft., from which altitude springs a lantern gablet, pierced with double lights on each of its four sides, and having a high-pointed roof over it, terminating in a vane at the height of 190 ft. from the ground. The front towards Union-street, which terminates in the tower at the west end, terminates at the other end in the existing old tower and gateway of the court-house, which it is intended, on account of its antiquity, to retain. The front to Union-street exhibits a line unbroken, except by projecting turrets which divide the length into three portions, of which the centre one is the larger. These turrets are supported on shafts rising from the ground, and extend to the line of the roof, where they finish in conical roofs. The portion of the building between them is appropriated to the great entrance to the building, on the ground-floor, and above it, to the great hall common to the town and county. This hall is 76 ft. long by 46 ft. wide, and will be 48 ft. high, from the floor to the apex of the roof, which is to be of open Gothic timber-work. It will accommodate about 700 people. The frontage towards Broad-street is finished at each angle by a corbelled turret. The whole extent of the front to Union-street and Broad-street, with the exception of the entrance-gateway and the great towers, presents an arcade formed of columns attached to the wall, and standing about 12 ft. apart. Above this, and forming the first floor of the building, is a long arcaded range of smaller arches, separated from each other by small piers, the arches being about 3 ft. in width. Except where the great hall is situated, the rest

of the frontage is divided into two stories, the lower one having square-headed windows of a plain character, and the upper having windows with arched heads. The hall is lighted by arched windows equal in height to the two stories, the tops being filled with cusped tracery. The roof is relieved by a range of ornamental dormer-windows, corresponding in number to windows below. Behind the building just described, there is the court-house proper, connected with the front building by a grand staircase about 40 ft. square, leading in double flights to the hall. The east prison of Aberdeen stands immediately behind the court-house, and there will also be cells for prisoners in connexion with the new police office.

The cost of the whole building, inclusive of the site, is estimated at 60,000l. The requisite Parliamentary notice has been given for powers to acquire the property needed, and for powers also to raise the money required, by assessment.

THE NEW THEATRE ROYAL, HULL.

This building is now rapidly approaching completion; its opening is fixed for Boxing-night. The theatre stands upon the foundations of the old one, and will have its principal front in Humber-street. It is not intended to complete its exterior decorations this year, as the coming winter would interfere with the work. The front will be in the Italian style, with arched portico over the main entrance, above which is a saloon fronted by a balcony. The entire area to be occupied by the theatre, including auditorium and stage, is 101 ft. by 72 ft.; this space, however, will be surrounded by staircases, retiring-rooms, shops, scene-room, workshop, dressing-rooms, &c., forming a block of building 140 ft. by 72 ft. The theatre is approached by five distinct entrances. The box-entrance is in Humber-street, with portico and vestibule, and stone staircase. The pit and upper box staircases are on either side of the box-entrance. The pit has two exit corridors into Humber-street, and one into Wellington-street at the back. All are paved with stone, and have stone steps. The stage and gallery entrances are in Wellington-street. The latter is of ample width, opening to a stone staircase, divided into short flights, with large square landings. The diameter of the circle is 25 ft., with a depth of 53 ft. from the proscenium wall to the back of the pit. The length of the stage is 43 ft., the width of the proscenium 27 ft. There is room above the stage to take up a whole scene if necessary, and equally good facilities for sinking in the cellar below.

THEATRE ROYAL, EDINBURGH.

The new Theatre Royal, on the site of that which was burnt down a year ago, is now almost completed, and the lessee is to enter into occupation this month.

The exterior does not possess the characteristics looked for in a building of this description; it is tame and ineffective, though not devoid of a certain neatness in the principal elevation. The architect, Mr. David Macgibbon, has concentrated the whole architectural effect on the eastern facade, towards Broughton-street, leaving the side elevation towards Little King-street as a plain wall pierced here and there by a few windows. The better course to have followed would have been to have made the angle at the junction of these two streets the principal point of decoration, seeing that it is the most prominent part of the building as viewed from the broad expanse of Leith-walk. The chief feature of the Broughton-street elevation is a portico, supported by four pillars, of plain Italian character, which forms the entrance to the boxes; on either side of this are two small shops, and at either angle the entrance to the stalls and amphitheatre, the entrance to the galleries being on the south side. The remaining decorations of the east elevation consist of pilasters, with decorated capitals, arched windows, and four niches, in which it is proposed to place allegorical statues of Tragedy, Comedy, Music, and Dancing; above this is a frieze, pierced with mezzanine windows and circular panels, in which are to be placed medallions of Shakespeare, Moliere, Goethe, and Scott. The wall-head is furnished with a cornice and balustrade.

The interior arrangements are a great im-

provement upon the former building; and the decorations are very elegant and effective. The ceiling is formed into a circular dome, having a rise of only 3 ft., and is divided into twelve panels, diminishing towards the centre, from which depends a large cut-glass chandelier; the coloured decoration consists of a blue ground, spangled with gilt stars; and surrounding the dome is a cornice with groups of Cupids. The spandrels formed by the junction of the dome with the proscenium are filled in with musical trophies, masks, &c. The front of the upper gallery is decorated with the acanthus and laurel; that of the amphitheatre, which is ogee in section, is covered with a raised diaper, with acanthus-leaves superimposed, mingled with flowers, and is finished with a bold cable enrichment. At intervals groups of Cupids support crystal gaseliers. The box front has a rich scroll running round the centre of it, divided at intervals by circular panels having alto-relievo groups of Cupids, the remaining portion being a raised diaper similar to that on the amphitheatre. Fixed to the lower edge of each of those galleries is an imitation fringe, which will be very liable to injury, and is the least tasteful of the decorations. The prevailing colours used are blue and gold, and the effect is rich and harmonious.

There are no private boxes, except four in the proscenium; on the side of these, next the stage, is a pilaster ornamented in low relief; and on either side of the boxes is a spiral column, round which runs a band of laurel-leaves: life-size figures on each side of the lower stage-boxes support the upper tier. The soffit of the proscenium is enriched with scroll-work, having the Royal arms in the centre.

Precautions have been taken to guard against fire; an iron shutter is provided for shutting off the stage from the audience part of the house, and the different stairs are of stone.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

At the opening meeting of the session 1865—66, held at the rooms of the Institute, 212, Great Brunswick-street, on the 23rd ult., the following officers were elected for the ensuing year:—Patroness—The Queen; Vice-Patron—His Excellency Lord Wodehouse; President—Charles Lanyon, R.H.A.; Vice-Presidents—Jacob Owon, G. Wilkinson, Park Nevill, C.E.; Council—Sir Thomas Deane, R.H.A.; Sir John Benson, C.E.; F. V. Clarendon, J. B. Carroll, J. M'Curdy, J. J. McCarthy, R.H.A.; W. G. Murray, R.H.A.; G. C. Ashlin, E. H. Carson, W. F. Calbeck; Honorary Secretary—James H. Owen, M.A.; Assistant Secretary—Charles H. Brien; Treasurer—Sandham Symes; Auditors—W. Fogarty, Charles D. Astley.

The hon. sec., Mr. J. H. Owen, then read the annual report of the Council.

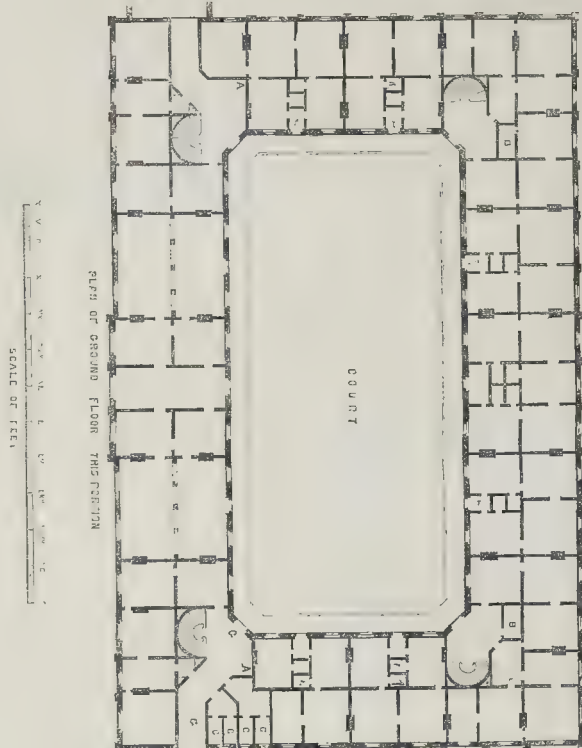
The routine business having been disposed of, Mr. Thomas Drew, fellow, said that at the first meeting of the class of architectural study, the proposed study for the evening would be an exercise in a design for a mortuary chapel or mausoleum, or a churchyard cross or lych gate. Some discussion ensued, in the course of which Mr. Charles Geoghegan and others expressed a doubt as to the propriety of beginning a course of instruction with an exercise in design, and advocated the study of free-hand drawing in preference. In reply, it was urged that for a time at least the working of the Association would be of so experimental a character that an exercise in design in subjects admitting of so varied, and, at the same time, so elaborate or simple a treatment as those proposed, would be the most practicable way of making a beginning.

Mr. Wilkinson expressed a wish to address to the Institute, on a future occasion, some practical remarks on the soundness and durability of white fire-brick and other white bricks, an inquiry into which was much called for, he conceived, in consequence of the extensive use which was being made of this material. He referred, as an instance of its successful application, to the spire recently erected at Castleknock Church.

IMPROVEMENTS IN GLASGOW.—The City Corporation of Glasgow intend applying to Parliament for powers to form no less than thirty-five streets, besides widening, altering, &c., about ten or eleven more; and to build, let, and sell houses for the labouring classes, lay out public parks, &c.

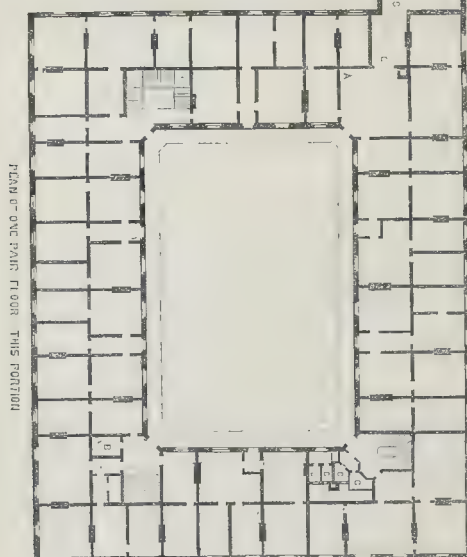
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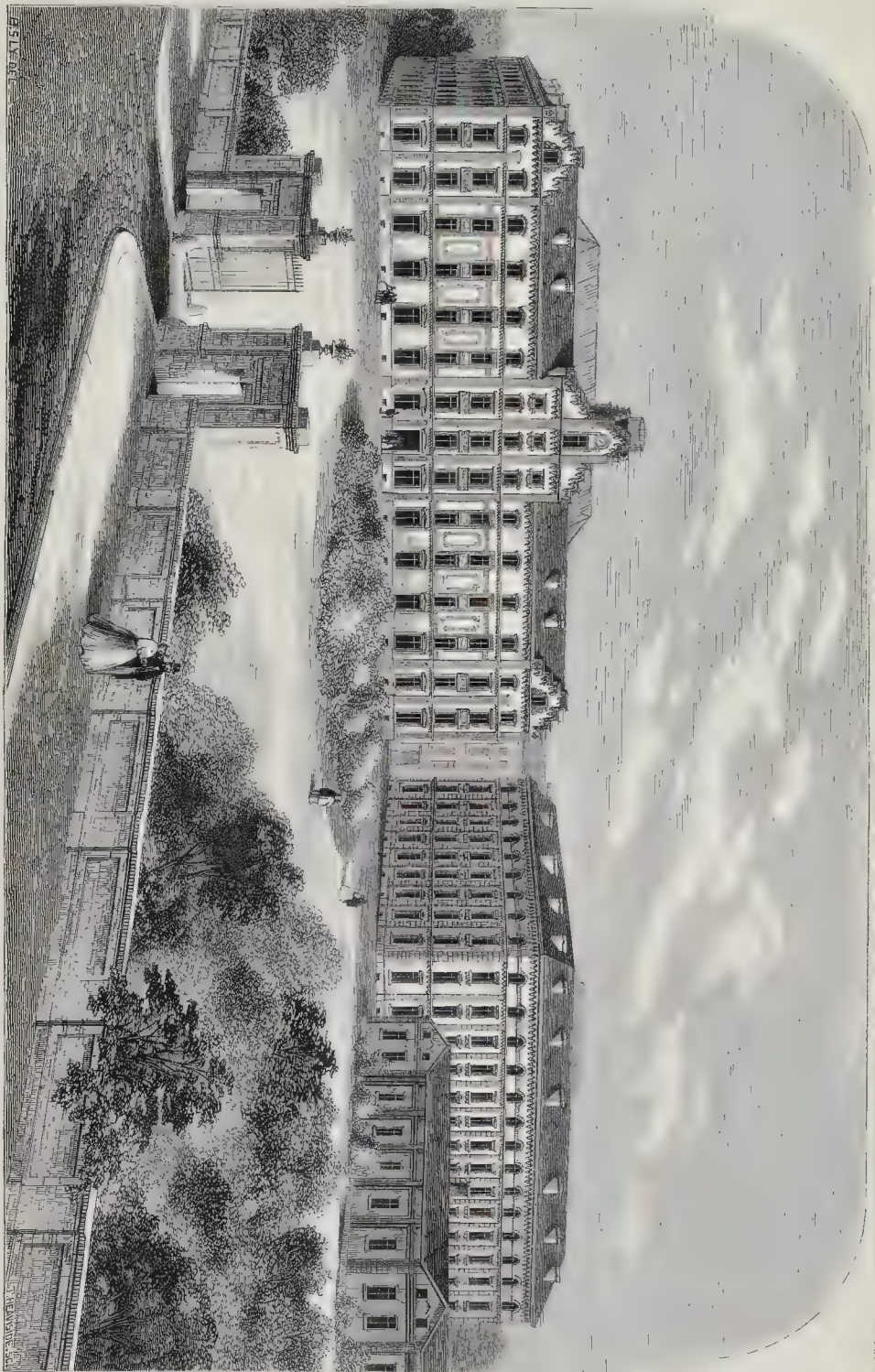
A.A. Drinking-fountains on each story: the water is raised by steam-engine in the cellars.
 B.B. Shafts for dust and refuse, communicating with G.G. Communication from one building to the other, receptacles outside the building.
 The view shows the two blocks already erected. The glazed roofs of the inner courts are seen above the other roofs. The low building at the side, of which part only is shown, contains the school.



SCALE OF FEET

THE FAMILIESTY AT GUSE, NEAR ST. QUENTIN.





THE FAMILISTEY, OR FAMILY HOME, FOUNDED AT GUISE, NEAR ST. QUENTIN, FRANCE, BY M. GODIN-LEMAIRE, MANUFACTURER.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening, the 24th ult., at the House, in Conduit-street.

The chair was occupied by the president, Mr. R. W. Edis. Various gentlemen were elected members.

Mr. J. D. Mathews (honorary secretary) announced that the committee had decided that the subject for competition for the annual prize accorded by Mr. Tite, M.P., should be the elevation of a shop-front and house (not corner), to be five stories in height, and to be erected in a street 40 ft. wide.

The prize of 5l. offered by the Architectural Union Co., and a prize of 3l. offered by the Association, would be given for the best and second-best designs for a pair of dwelling-houses, the cost of which should not exceed 700l.

The President's prize of five guineas would be awarded for the best drawing of any public building, either in the United Kingdom or on the Continent, of a date anterior to 1700, either Gothic or Classic. The drawings to be sent in between the 1st of March and 30th of September next. Some other prizes have been promised.

The Chairman observed that the Association would have more prizes to give away in the current session than on any previous occasion since its formation, and that he hoped there would be a greater number of competitors than ever, in order to show that the prizes were really appreciated by the members of the Association.

Mr. Lacy W. Ridge then read the report of the committee on the proceedings of the Association during the last (the twenty-third) session. It stated that 71 members had been admitted during the session, making the total number on the books 316. The attendance of members had also been more regular; and the average number present at each meeting showed a satisfactory increase as compared with former years.

The Chairman, referring to the voluntary examination class, expressed his opinion that it had not been as successful as was to be desired; at the same time he hoped the members would not give it up, because they could not get all that they wished from the Institute. The Association had done all it could to obtain for the younger members of the profession some recognition, in the shape of a certificate or diploma, of their ability to practise their profession; but the circumstance that the examiners might be of opinion that the time had not yet arrived for conceding what was asked was no reason why they should not continue to meet for mutual instruction and advantage. They should remember, that in preparing themselves for examination, they were not only labouring to qualify themselves for a diploma, but they were also working with the view of improving the status of the whole profession. For his own part, he believed that the diploma would sooner or later come, but they must wait until perhaps their numbers were greater and their influence wider. In the case of the doctors, they had asked for a diploma long enough; but when they became 500 strong, and went to the Crown, and urged the absolute necessity of a diploma, in order to keep out the quacks, they made so strong a case that they got what they wanted. If the members of the Association would persevere in like manner, the probability was, that the justice of their demand would also be admitted and conceded.

Mr. R. O. Harris urged the desirability of giving a certificate, and ultimately a diploma. He agreed with the chairman as to the desirability of continuing the voluntary examination class, as a valuable means of assisting those who proposed to present themselves to the Institute for examination.

Mr. J. Lemon suggested whether it might not be desirable to do away with the voluntary examination class, and merge it in the class of design. He did not, however, give any notice of motion on the subject.

Mr. T. R. Smith called attention to the library of the Association, expressing a hope that members would, when possible, present donations to it. He also suggested whether it might not be possible to make additions to it by the purchase of books out of the common fund.

The report was then read and adopted.

Mr. J. D. Mathews presented the annual statement of receipts and expenditure, which showed that 141l. 17s. had been received, and 131l. 2s. 4d. expended; and that the Association, so far from being in debt, as in former years, had a balance in hand of 10l. 14s. 8d.

Some discussion ensued with reference to arrears of subscription, in the course of which a suggestion was made by Mr. Lemon, either that there should be an entrance fee, or that the annual subscription should be doubled.

Mr. Ridge and others, however, objected to either alternative, and after a short debate the subject dropped, the feeling of the great majority of the meeting being against disturbing the present arrangement.

Mr. Judge read the report from the class of design, which stated that the number of sketches submitted during the session was 135, contributed by thirty-one members.

Mr. C. H. F. Lewes read the report on the library, announcing that eighteen new subscribers had joined, and that the library had been open twenty-one evenings during the session.

Mr. T. R. Smith read the report of the delegates from the Association to the Architectural Alliance, in which it was stated that the scale of charges, as sanctioned by the Royal Institute of British Architects, had been generally recognised wherever the influence of the Alliance extended; and that, in the opinion of the delegates, much advantage had accrued from the annual meeting of representatives from the associated societies.

In reply to a question, Mr. Smith stated that the diploma question had not been mooted at the meeting of delegates.

Some formal business having been disposed of, the meeting adjourned.*

THE ARCHITECTURAL EXHIBITION.

THERE is nothing remarkable in the circumstance that the parties who have hitherto managed this adventure to so little purpose should remonstrate against any interference with their prerogative of harmonious repose; and this especially when they are disturbed in the very act of crowning each other with fresh honours. Neither is there any reason why the present controversy should be an exception to a certain universal rule—the weaker the defence, the more violent the indignation. I only regret that the champion of let-alone should be a gentleman whose powers are worthy of a better cause, and who, I am sure, would agree with me in every particular were it not for a chivalrous feeling, which is, of course, honourable to him.

But the question remains. It is a matter of business, and let us deal with it as men of business. Is it desirable, and if so is it possible, to establish amongst the annual art-exhibitions of London an *Architectural Exhibition* worthy of the name? There are some who hesitate to admit that it is desirable. There are others who fear it is not possible. But there are many whose minds are fully satisfied on both points, and who differ only on the means to be adopted. This difference now turns on one palpable pivot, namely, the precise policy which has hitherto been pursued. Some half a dozen persons, whose policy it is, are the defenders; I may say all the world else (except J. F.) are the assailants.

First let us understand distinctly what is the acknowledged position of affairs. I quote from the "Report" published by way of invitation for the notable assembly of the 14th ultimo:—

"Notwithstanding these favourable circumstances, the committee cannot conceal from themselves that the Exhibition has not of late years received from the profession that amount of support to which they think it is entitled."

It will be the business of the meeting to consider any proposition that may be made for increasing the attractiveness or usefulness of the Exhibition, or for rendering it more worthy of the noble art which it professes to represent."

In plain words, the adventure has failed; and, in order to put the acknowledgment of failure in the most substantial form known in such cases, we are told, that "some change will probably be deemed indispensable, in consequence of the present secretaries having announced their intention of resigning."

Now there are three particulars which seem to me to be essentials of success in such an undertaking:—No. 1, an adherence to constitutional principles of administration; No. 2, an exalted, or at any rate unabashed professional aim; No. 3, an executive composed of men who can command the public confidence.

As regards the first of these, let us quote from the letter in your last number,—"In the early days of the undertaking a formal general meeting was convened, and the result was certainly

not encouraging. The second was held on the 14th instant" (after an interval of nearly fifteen years) "and it seems probable that the committee would have acted more wisely if they had adhered to their more usual practice." That is to say, if they had continued to conduct the business of a public institution supported by annual subscriptions without any sort of periodical account of their stewardship, as doubtless they would have continued to do for an indefinite time, but for the awkward circumstance that the secretaries desired to be relieved of their hopeless task. I venture to say, that if such a principle has been positively accepted by the committee, this of itself, in its indirect effects, is quite enough to account for the want of support complained of. The annual general meeting, of universal English custom, may often appear to be of little service; but the want of it can only produce disaster sooner or later.

Secondly, with reference to the unabashed purpose to which the undertaking ought to be severely confined. Is it, or is it not the fact, that hitherto the real working receipts of the "Architectural Exhibition" have come from exhibiting the wares of advertising tradesmen? In the absence of periodical accounts duly audited, much mystification may be thrown about this question; but one thing which ought to be insisted upon is, that if "the noble art which it professes to represent" cannot depend upon the liberality of its own professors and friends for the insignificant expenses of such a display as the Conduit-street Rooms will hold, it should at least be no longer held up to reproach as the poor cousin of Higgins's patent kitcheners, Wiggins's syphon pans, and Diggins's drain-pipes.

Coming, lastly, to the third point, I must premise that it is a difficult one to handle. When we speak of an executive to be composed of men possessing the public confidence, it is certainly an ungracious thing to say to any one that, although he is very well in his way, he does not yet command such confidence; but every one understands the practical truth of the suggestion. Even a militia man must be 5 ft. 2 in. The strength of a structure is the strength of its weakest point; and the weight of a committee of management, in the balance of the public confidence, is the weight of its inferior numbers. When I ventured to say as much on the 14th, the rejoinder afforded a very good illustration of the fact. The meeting was informed that certain eminent architects whom I proposed to nominate for the new council had all been tried and had all "refused to work." Even I myself had been tried, and had refused to work. The speaker remembered one day when I had attended as a member of the hanging committee, and, finding my colleagues engaged in their shirt-sleeves, had speedily disappeared. The deponent did not further state whether my colleagues had tucked up their shirt-sleeves, or whether they were sustaining muscular effort by the use of a powder pot; but he gloried openly in the display of linen, as the true test of good service. Now what I beg leave most respectfully and reluctantly to suggest is, that if we are to possess an architectural exhibition worthy of our profession, the managers ought to be of the class of gentlemen who do not work in their shirt-sleeves. I know I shall be told that the list of the committee contains a good half of well-known names; but this is no answer; as some one very prettily put it on "the 14th," when returning thanks for the honour of vice-president conferred upon him for his services as secretary during fifteen years,—"he had done nothing to deserve it, for he had only lent them his name." Perhaps it is the least he can do now to lend them his pen. But will he permit me to say that if he would lend them a little of his plain common sense, this would be at the present moment a loan the best of all?

I hope I am not to be led any further into a paper war about this matter. I only offer a suggestion, in all humility; and here it is, in few words. Let such gentlemen as I named at the meeting be intrusted with the formation of a new administration; and I feel sure they will easily succeed in accomplishing the following results:—

1. The divorce of the architecture from the syphon-pan business.
2. The abundant supply of the best exhibition material in future.
3. The proper collection of funds.
4. The desired attraction of visitors.
5. The acquisition of unreserved public confidence by constitutional dealing.

R. K.

* The next meeting of the Voluntary Examination Class will be held on Monday evening next, subject, "Estimating Artificers' Work," by Mr. T. M. Rickman.

GUNPOWDER IN HYDE PARK.

The fact that, under the wisest human agency, a sudden combustion of gas may destroy large and valuable ranges of buildings, and extinguish human lives by wholesale, will doubtless occasion strenuous efforts by the affrighted public to remove all gas-factories to less populous places.

There are, however, other and more perilous stores of highly-inflammable material, which have at various times exploded, and dealt ruin around. Powder magazines at Erith, at Hounslow, and elsewhere, may be cited as examples of what has happened, and may again occur, either through inadvertence, mismanagement, accident, or natural causes. If, then, exception be taken against the location of gasworks in cities, how much greater is the necessity for withdrawing all stores and magazines of gunpowder and explosive materials from the densely-peopled districts of London?

There is a magazine in Hyde Park, the choicest centre of London. It is protected by lightning conductors and military guards; but were a spark unhappily to fall within its chambers, it is fearful to contemplate the havoc that must ensue.

Perhaps there may be only a few tons of powder in store there, and that only the sergeant's guard and the ranger's house might suffer: if so, then so small a quantity could easily be supplied from Hounslow, or some 15 miles off on any side; but if there should be a store—a reserve equal to that at Erith, then woe to the mansions and palaces,—and they are many,—within less than half-a-mile distant.

That there is no necessity for any powder magazine, nor, therefore, for any sergeant's guard, in the centre of the people's park, is as manifest as that the space they occupy is so much abstracted from this the most valued liberty of all our citizens; whereas the endless growth and spread of London needs rather the enlargement than the further restriction of recreative grounds. In fact, no portion of Hyde Park ought, under any pretence or for any purpose (even the most popular), to be withdrawn from this invaluable and rural range of public recreation and enjoyment. Besides that, the concession to the people of these inclosures in the most retired position of these incomparable sylvan reserves, might be more than an equivalent for any outlying or border appropriations, which might repay the Governmental authorities for the removal of old and galling blots on the park.

Marginal spaces are peremptorily required to widen Park-lane, and mayhap, also, to enlarge the narrow defiles of the Knightsbridge and Kensington roads. These could be spared, if the unhappy inclosures within the park were thrown open. The care bestowed by the Chief Commissioner in embellishment and tasteful plantation attracts increasing crowds, and makes unsightly inclosures only the more palpable.

Q.

ON WATER SUPPLY TO VILLAGES.

Mr. J. BAILEY DENTON, member of the Institution of Civil Engineers, read a paper, last week, on "Water Supply,"—especially to small towns and villages,—at the Society of Arts, Adelphi. The remedy he recommended for the present objectionable condition of the water-supply in their small towns and villages, in summer, was the storage of water discharged in winter. If the quantity of rain which had been allowed to run waste in October last, in the midland and south-eastern counties, had been stored for the use of next summer, the quantity collected would have alone afforded sufficient provision against a repetition of drought.

There are few small towns and villages, he remarked, which have not in their origin had some reference to the existence of water, in the shape of a spring or a stream. When the relative height of the brook and the town will not allow of a reservoir being filled directly by the former, recourse can be had to a wheel or ram, to raise, in winter, the summer supply. The best-formed hydraulic rams, made by Messrs. Easton & Amos, or Freeman Rowe, with an available fall in the stream of 7 ft., will raise to the height of 30 ft. one-eighth of the quantity that sets them in motion; and assuming a reservoir formed above the village, to receive the water raised, a stream discharging twenty-three gallons per minute, during the winter and spring, will be sufficient

to raise, in 180 days, 720,000 gallons, for use during the summer and autumn. A turbine or an overshot wheel might take the place of the ram with advantage when the quantity of water to be raised is greater than that stated. But, of course, the expense of either ram or wheel and attendant works would be saved in those instances where water can be brought from a height and conducted into the service reservoir, with an overflow to discharge the excess when the reservoir is filled. But in many instances, even where streams exist, a better supply may be obtained by the under-drainage of land in the neighbourhood; and if we resort to it we have data which will quite satisfy the most fastidious inquirer, showing that the minimum discharge will afford a sufficient quantity of the very best water, if the area of drained land be sufficient, and it is surprising how few acres will suffice.

Assuming the average population of rural villages to be 400, and that each inhabitant required ten gallons of water per diem, it would require a supply of 480,000 gallons for the summer. That quantity was taken on the assumption that for 120 days, or four months in the year, there would not be a supply from ordinary sources. To secure that net quantity a considerable allowance should be made for waste by evaporation, and 50 per cent. on the quantity required should be added to meet this loss. A reservoir, or basin, to hold 720,000 gallons would, therefore, be required, and that quantity of water should be stored. He calculated that the total cost of the reservoir would be 240*l.* Iron pipes from reservoir with stop-cock, well, and brickwork, 155*l.*; four stand-pipes and taps, 20*l.*; total outlay, 415*l.* Assuming the figures to be correct, the cost per person would be 1*l.* 0*s.* 9*d.*; and the cost per house, assuming the number of houses to be 100, would be 41*l.* 3*s.*

In course of the discussion which followed, Mr. Rawlinson said he had listened to the paper with pleasure, but also with some degree of disappointment. He regretted that Mr. Denton had not taken notice of the labours of persons who had gone before him. Mr. Denton might have fairly stated that the Government had not altogether ignored the question, but had directed their attention to the pollution of the waters of rivers by sewage and dyeworks. The state of their villages was worthy of attention, and during the last summer the inhabitants of many of those villages had to go to a distance to obtain even stagnant water. Although the reservoirs proposed by Mr. Denton might not give water that was altogether unobjectionable, they would certainly give them water in more abundance and of better quality than they could now obtain. He thought Mr. Denton's estimate of the cost was far too low.

Mr. Benjamin Shaw urged the propriety of communicating with Government for the purpose of inducing them to direct an inquiry respecting the supply of water in villages and small towns.

Mr. Denton, in reply to Mr. Rawlinson, said he was quite aware there was a Government Commission to deal with the purification of rivers, but it did not deal directly with (however indirectly it might reach) the supply of towns and villages with water.

Mr. Rawlinson: The Commissioners are directed to look to the supply of pure water.

Mr. Denton proceeded to add that he did not ignore the existence of wells where they could be obtained cheaply. He merely proposed that the conservation of water in reservoirs should supersede deep wells. It was better to have a reservoir of 7*l.* ft. than to obtain the supply of water as at present. He would rather increase the depth hereafter than now make a proposal too expensive to be adopted.

PROVINCIAL NEWS.

Prestigein.—The new market here has been opened. The new building has been erected at the corner of Broad-street and Hereford-street, at a cost of 1,500*l.* The building comprises an open market-hall, about 40 ft. square, over which is an assembly-room of the same size, with a recessed orchestra in addition, attached to which is a retiring-room. The assembly-room is approached from the street by an independent entrance or vestibule, over which rises, to the height of about 50 ft., a campanile, the summit of which is decorated on the four sides with ornamental tablets, for the reception of clock

faces. There is constructed above the roof of the campanile an octagonal open turret, for an alarm or fire bell. In addition, there are ladies' and gentlemen's retiring-rooms, and the area of the market-hall is vaulted underneath as store-room accommodation. The style is Venetian Gothic. The building is brick built, with free-stone dressings, the vousoirs of the arches of the arcades and windows being constructed with pink, white, and grey bricks. A stringcourse and cornice surround the building, and a decorated niche is contrived at one corner, for a drinking-fountain. The works have been carried out from the design and under the superintendence of Mr. Thomas Nicholson, of Hereford, architect, by Mr. Bowers, builder.

Liverpool.—The new hospital for the treatment of cancer and skin diseases at Islington-flags has been opened to the public. The new building will afford accommodation for nearly 300 out-patients, and about twenty beds can be made up in five wards. On the ground floor there is a large, well-lighted operating-room, a consulting-room, and a waiting-room. At the back of the building is a plot of land, containing 400 square yards, upon which additional accommodation may be provided as occasion may arise.

Blackburn.—The foundation-stone of new public baths has been laid at Blackburn. The building will cost from 4,000*l.* to 5,000*l.*, and will contain one large swimming-bath and forty-two private baths.

Hartlepool.—The foundation-stone of a new Mechanics' Institution has been laid at Old Hartlepool. A plot of ground was presented to the managers by the late Duke of Cleveland, which is said to be worth 5,000*l.* Messrs. Pritchard & Sons, of Darlington, were chosen as the architects, and prepared suitable plans. The design will be made complete for about 2,000*l.*, inclusive of fittings, furniture, &c.

Scarborough.—The foundation-stone of a new gaol for the borough of Scarborough has been laid by the mayor. Mr. W. B. Stewart is the architect, and Mr. Thomas Petch the builder.

Newcastle-upon-Tyne.—The Newcastle Savings Bank, in Westgate-street, has just undergone the process of an interior decoration and cleaning. In the course of erecting the scaffolding, &c., a few months back, some portions of the flooring showed evident signs of decay, to so great an extent, indeed, in some places as scarcely to bear the weight of the scaffolding. An examination was at once made, when it was discovered that the whole of the flooring was more or less affected by dry rot, the cause being ascertained to have arisen from an entire stoppage of the ventilation, coupled with its being covered with kamptulicon, so that this case illustrates what has been recently said on the subject in the *Builder*. A partial repairing of the floor was found to be out of the question, and the consequence was that the whole of it, together with the joists—many of the latter being eaten completely through,—was taken out and replaced with new. The work was done by Mr. Hardwick, and the ventilation is now free. The extensive bank hall ceiling and its panels, beams, mouldings, and the various members have been illuminated in colours and gilding. The prevailing colour of the panels is a rich tint of apricot, the mouldings being variegated in a combination of tints, producing a prismatic effect, the quantity of gilding used aiding the general effect of the ceiling. The arched beams fall on the trusses, and these having a share of gold and colours aid in uniting the ceiling to the walls. The plasterers are painted in imitation of Sienna marble, the mouldings being in white, whilst the bases are painted in malachite. The colour of the walls is a warm neutral tint, the angle mouldings to the window arches, &c., being coloured a tint of apricot with lines of red to separate them forcibly from the wall colour. The basement is painted rose-coloured granite, having a portion in relief of grey granite; whilst the plinth of the basement is painted porphyry. The decorations were done by Messrs. Richardson & Co., of this town.

Pendleton.—The chief stone of a new town-hall for Pendleton has been laid near St. Thomas's Church. The building will contain on the ground-floor the various committee-rooms and offices for the transaction of the district business, including the police department. The principal entrance will be from Broughton-road, with another entrance in the Broad-street front, the entrances communicating with corridors leading to the grand staircase. These corridors will be paved with encaustic tiles, and the walls will be lined to a height of 4 ft., form-

ing a dado of the same material. The principal staircase will be approached through a colonnade of arches, carried on polished Aberdeen granite columns, with carved capitals. This colonnade will support the landing above, leading into the large assembly-room. The staircase will be constructed with a centre flight, and continued right and left. The ceiling will be divided into panels, having a cornice, with centre flowers and pendants for sunlights. The staircase will be lighted by a large semicircular-headed window, which will be filled with medallions, having the arms emblazoned in coloured glass of the principal corporate towns of the county; the centre compartment having a figure of the Queen in full regal costume, as Lady of the Manor of Salford and Duchess of Lancaster, the royal arms and supporters emblazoned above. On the first floor the principal apartment will be the assembly-room, measuring 85 ft. by 39 ft. 6 in., and having a clear height of 30 ft. The ceiling will be panelled. At the Broad-street end a movable platform will be constructed, and a wood dado will run round the room, all the woodwork being stained and varnished. The whole of the basements will be celled, and here will be situated the large kitchen, heating apparatus, lava-ories, &c. A feature in the design will be the circular-headed coupled windows and pilasters, with carved caps, supporting the entablature with frieze, and carved festoons and medallion heads. In the spandrels over the coupled windows will be medallions, with a variety of shields. Springing from the cornice in the centre of the Broughton-road elevation, will be an attic story, surmounted by a pediment containing the corporate arms, &c. The apex of the pediment will be crowned by an allegorical figure, carved in stone, and the acroteria will have vases, also in stone. Over this pediment will rise a domical roof, sustaining a clock-turret, with balcony round. The roofs will be pitched high, and have turrets surmounted with cresting at the four angles of the main streets. The principal entrance doorway and portico will have coupled Corinthian columns on each side, and cornice with circular pediment filled with carving. The design has been drawn by Mr. A. Darbyshire, architect, and is in the Anglo-French and Italian style, freely treated. The contractors are Messrs. Cochrane & Co.

MIDDLE-CLASS CO-OPERATION.

THE various co-operation stores, especially those in the manufacturing districts, appear for the most part to prosper, and are not only the means of cheapening the food of the working classes, but also afford a source of yearly profit to the shareholders. While these establishments have been attended with so much success, it seems strange that the plan has been but little supported by persons of more education, and who appear to hold a higher position in society. There are thousands of persons in the metropolis alone—curates of districts, clerks in the post-office and other public establishments, wood engravers, artists of various kinds, and a host of others, who have families to support, and whose incomes are not more than from 100l. to 150l. a year: many have not so much even as this: and to this class every shilling is of consequence. To this portion of the population, co-operation in the purchase of food and other necessities of life would be of great value. We are glad, therefore, to learn that a movement is being made in London. The persons who have chiefly directed their attention this way are Government clerks and other officials. They have not opened stores, as in Manchester and elsewhere, but associated together in considerable numbers. They communicate with respectable tradesmen, for the purpose of buying their goods at co-operative prices. As a single instance of the advantage of this, we are told that members have been supplied with hats, by a West-end tradesman, for 18s. each, which under ordinary circumstances would cost 23s. Notwithstanding, the tradesman is not left without a profit. We should have thought, indeed, that perfectly good hats might be had for less than the lower price named. In the matter of clothing, butchers' meat, and various other articles of food, there can be little doubt that a saving of not less than 7 per cent. may be made, especially in the western parts of the metropolis; and still the shop-keepers will not come to ruin, particularly if the abominable plan of paying fees to servants be done away with.

REVIVAL OF SCULPTURE IN EUROPE DURING THE THIRTEENTH CENTURY.

AS some misapprehension appears to have arisen relative to my remarks on Nicolo Pisano, as the reviver of the antique, in my late work, "Notes on Architecture and Ornament," I am anxious to say a few words in explanation. On looking over what I wrote in that book, I find Nicolo described as the reviver of sculpture throughout Europe, when I should have restricted his influence to Italy; but that does not affect my opinion that the revival of sculpture both sides of the Alps, in the thirteenth century, was due to the influence of antique models. However ingenious the idea of Messrs. Crowe and Cavalcaselle may be as to Nicolo being of Southern Italian origin, and as to a good school of sculpture being already in existence in Apulia at the time Nicolo commenced work, it does not alter the admitted fact of his Pisan naturalization, of his genius and his influence on subsequent works executed by his scholars and descendants in various parts of Italy. I cannot enter into detail; for to do so properly and with effect would form a little treatise. Regarding the rise of a good school of sculpture this side of the Alps, it must be admitted that so early as the close of the twelfth century fine examples of a style widely dissimilar and greatly superior to the lanky, rigid, close-robed figures of the Byzantine school—those prevalent in France and Europe generally—are to be found, among which the statues of the English monarchs at Fontevrault present notable proof. The earliest of these, Henry II., was carved in the year 1189, and the latest (Isabella) in 1218. Good examples also are to be seen in the Temple Church offices, executed between the years 1220-41. It will be remarked that these are Norman; and proper investigation would elude the fact, I am convinced, that the Pointed style, and this revival of sculpture, are both due to Norman influence and patronage, originating, as I believe, from their connexion with their fellow countrymen in South Italy and in Sicily; and that antique models, as regards sculpture, were the source of their artists' style and evident superiority in conception and design—broad, simple, and massive. There is an unmistakable impress, to my mind, of the influence exerted on their sculpture by Greek and not Roman models. That influence formed a school, which gradually spread throughout Northern France and England; throughout the lands occupied by the Normans, or adjacent to them, as may be seen by the fine works of Northern France,—especially the sculptures on Rheims Cathedral (thirteenth century), in which we may note close reproductions of good Grecian models, both as to attitude, costume, and style; the Phrygian cap even of ancient Greece being retained. The same remark applies to the fine sculptures in the spandrels of the choir at Lincoln, where the style is clearly of good Grecian character, though the faces are unmistakably French, or of that French school which originated with the Normans, and finally overpread the country. I feel sure that every impartial mind will allow, on comparison the striking similarity of style and general character between the best sculpture of the twelfth century in Northern France and England, and the examples of ancient Greek art which are now so well known to us. Indeed, no two styles in the whole history of art bear so close a resemblance to each other; and that similarity, I hold, was not fortuitous, but may be reasonably supposed to have arisen from the later development being founded on the old models, many of which were still extant, and were more likely to be known and appreciated by the Normans than by any other people of the time.

J. B. WARRING.

PROPOSED UNIVERSITY DEGREES TO STUDENTS IN ARCHITECTURE.

WHILE our universities are conferring degrees in music, to the great advantage of that noble art, it does not seem to have been urged that similar results might be secured, by similar means, to students in architecture. Architecture, not only as an æsthetic science, but as a necessary practical art, now occupies a large share of public attention, and will certainly continue to do so in the age on which we are entering. The large number of cathedral restorations, as well as the ever-increasing amount of new churches, seem like a call to our universities to give a right

direction to the study, and encourage and promote the art itself, independently of the boon which would be conferred on real architects, as distinguished from mere pretenders or tasteless builders. For the degrees in music at Oxford, it is understood that all persons are eligible who can produce a certificate signed by two or more trustworthy persons, stating that the candidate has devoted himself to the study of that art for seven years, whether at the university or not.

Why may not a similar arrangement be made in behalf of that large class of able young men who are now pursuing the study of architecture, Gothic or Classical, to enable them to obtain degrees in that important science, including not only the history of the art and its practical development, but also construction and figure drawing? If, in addition to this, a scholarship or prize could be founded, after the example of the Hulsean prize at Cambridge, for the best dissertation on the subject, confined to those who are candidates for a degree, or who have already taken a degree, no doubt such an arrangement would secure for architecture what the Hulsean prize has for theology. It would stimulate the industry of the slumbering and draw forth the latent talent of the studios. There could be no difficulty in appointing from among the architects of the day a competent Board of Examiners; and as to the mode of examination, the fees to be paid, and other subordinate details, all this may be safely left to the university authorities. G. G. J.

ART IN SHEFFIELD.

SIR,—My attention has been drawn to a short but severe article in your last issue, headed "Art in Sheffield." I think it scarcely just that the authorities of the School of Art should be accounted responsible for the quality of the scenery at the Theatre Royal. For a long time previous to the last two seasons, we have been accustomed to witness very fair scenic productions at that establishment, and the only reason I can give for the remarkable deterioration which has taken place in the pictorial department is, that lack of support has not only compelled the lessee to reduce his prices of admission, but at the same time necessitated the substitution of cheapness for quality as regards the scenery. I, for one (as a Sheffielder), am extremely obliged for your fearless and outspoken criticisms on our manners and tastes, but I consider you are in fairness bound to give the bright side of the picture as well as the reverse. At the theatre which was burnt down here some months ago (the Surrey), scenic illustrations by Telbin and Fenton were placed on the stage, and were fully appreciated by us "semi-barbarians;" and at the present moment the music-hall in which the principal meetings of the Social Science Association were recently held (the Alexandra), exhibits a most lovely picture as an act-drop. This is also the work of Mr. Telbin, whose position in London as an artist should be a guarantee of the correctness of our taste in admiring the excellence of the production, which alone has drawn crowds to witness it during the last few weeks. A SHEFFIELDER.

LADDERS.

SIR,—According to the papers,—

"On Saturday, James Jorson, a painter, was at work on a ladder at Newington-green, when it suddenly snapped in two, and he fell upon the spikes below, the points of which penetrated his body. He was conveyed to the hospital, where he remains in a dangerous state."

The cause of ladders "snapping" in two is very easy of explanation; and the sooner our makers of ladders are enlightened upon the subject, the safer will it be for those who are compelled to use them.

Ladders, by the professed manufacturers, are made of a pole cut down the middle; each side is then bored for the insertion of the rungs, and the rungs being in their place, the ladder is knocked together; holes are bored through the thick part of each side right through the rung, and a pin is then driven in to tie the ladder together. Now, in this last boring lies the mischief; and if ladders were made without these borings and these pins, and were simply tied together at intervals by small riveted bolts placed under the rungs, I feel sure fewer accidents from the "snapping" of ladders would result. W. H. C.

THE ROOD-SCREEN AT THE PRIORY CHURCH, CHRISTCHURCH.

PART of the committee directing the works at the Priory Church, Christchurch, desire to remove the stone rood-screen erected in the reign of Edward III., and the Earl of Malmesbury, as lay-rector, writes a strong letter of protest against the act. In 1848 the screen was restored at the cost of 600*l*. :-

"Seventeen years after this decision and outlay on the part of the subscribers, many of whom are still living, you propose to demolish their work. Who will say that if we were to act upon your present views another committee seventeen years hence will not have the screen rebuilt? I protest against playing with our ancient monuments in this capricious manner.

I felt this so strongly that I wrote to Mr. Ferrey, the distinguished architect who has hitherto superintended our restorations, putting to him questions the sense of which you will easily guess from his replies, which I now quote from his letter.

He says:—"The subject on which you write (the removal of the rood screen) is one of great interest to me, and one upon which I hold very decided opinions. I will not attempt within the compass of a letter to state the several reasons I could urge against its demolition, but for the present purpose will content myself by answering the questions suggested by your lordship in the order you have placed them in :-

1. The architectural appearance of the church would not be improved by the removal of the rood-screen. There are very awkward parts in the construction of the contracted piers of the chancel where they are corbelled over, which are admirably masked by the screen as it stands.

2. In an archaeological sense it would be a most culpable act, and utterly destroy the ancient arrangement of the church. There are but few examples of such stone rood-screens in this country, and certainly none in design superior to the one at Christchurch.

3. I believe that the screen as now built into the piers of the centre tower does afford strength to the piers and arches, and could not be removed without some risk.

I know well the admiration of Christchurch as a complete building of its kind, and the desire of all archaeologists that it should be preserved intact. There seems to me no sufficient reasons whatever for desiring the destruction of the screen."

It should be added, that both the Society of Antiquaries and the Ecclesiological Society have entered their protest against the suggested removal of this screen. The peculiarities of its construction and connexion with the lantern piers, are well described by the Rev. Mackenzie Walcott, B.D., in a guide to the Priory Church published in 1862.

RESTORATION OF WINCHESTER HIGH CROSS.

WYKEHAM'S STATUE.

SIR,—On more than one occasion observations have appeared in your columns about the faulty statue of William of Wykeham. Nearly four months have passed, yet the architect, though repeatedly asked, has not favoured us with his report thereon. I complain that, having had this fact brought under his notice by Mr. Baigent, who is a most competent authority on the point at issue, he has not moved in the matter.

At our late civic banquet, the Warden of Winchester College expressed a hope that this question would speedily be settled. This hope has not yet been realised, though the warden and fellows, our Wykehamical friends, and our many supporters and fellow-citizens, know full well that I shall not let this question slumber.

HENRY MOODY.
The Museum, Winchester.

SUB-FOOTWAY AT REGENT CIRCUS.

SIR,—Owing to the large carriage-traffic at Regent's Circus, Oxford-street, foot-passengers experience much difficulty in crossing at any point there. A remedy may be applied by making a sub-footway, 6 ft. wide, round the Circus; the footway to be open outside the present footways, and covered at the crossings; the walls to be lined with white glazed tiles, the bottom paved with York paving, and a drain and gas-jet placed at the centre of each covered portion; the open parts to have strong dwarf railings, with gates at the entrances, which may be open from eight a.m. till ten p.m. daily, and a policeman to be always on duty. Persons entering the footway at any point would walk right or left down the open part, and out on to the covered portion of the open part, and out on to the present footway opposite. A similar plan may be adopted at other places in the metropolis, where the crossings are dangerous from the traffic.

JOHN PHILLIPS.
* * * What about the sewers, water-pipes, &c., &c.—Ed.

THE FALL OF A HOUSE, KILBURN.

SIR,—I was on the jury summoned to inquire into the cause of the death of a poor man who was killed, as already mentioned in your pages, by the falling of a new building in Carlton-road, Kilburn, not in Paddington parish, although it is eastward of Kilburn Gate. I feel sure that, if the evidence given on that inquiry were made public, it would do much good in enlightening the public how they get bad houses, and would also astound good builders how fearfully bad work can be done. Evidence was given that the pier which gave way was hollow, and only filled up with rubbish, and, although built in cement, was erected on a basement wall with straight joints, built in common mortar; and that, although a round-cornered house, the ends of the brestsommers resting on this pier, and which had to carry about 50 ft. of brickwork, were not secured by any iron dogs; neither did the surveyor think any were requisite. The public will be surprised to find that this spot, within a threepenny ride of Charing-cross, is without a district surveyor, although some thousands of houses are being built. Nay, more: that the surveyors for the freeholders who visit the buildings constantly to certify the value per measurement of the work these speculative builders have put on the ground, so that the freeholders can advance three-fourths of the value, look rather to the quantity of the work than the quality; so that, virtually, the buildings are carried up by men ignorant of the principles of the building art, and without any supervision of a practical nature. I do trust, sir, you will agitate this important subject, and that Government will take immediate action and have all buildings in this neglected parish subjected to a rigid and proper inspection.

ONE WHO DOES NOT INTEND TO RESIDE
IN WILLESDON PARISH.

DISTRICT SURVEYOR WANTED.

THE remark, a "District Surveyor Wanted," caused by the accident at Kilburn, is applicable to other parts outside the metropolitan districts. Just beyond Highbury New Park quite a new town is springing up, but there is no district surveyor to look after the interests of the public. Now that nearly all the districts are filled with houses, and town can be reached by railway from any part, it is highly desirable that, as habitations are extended, so should the Metropolitan Board of Works increase the number of districts and appoint surveyors thereto.

BRITISH ARCHEOLOGICAL ASSOCIATION.

At the meeting at No. 32, Sackville-street, Piccadilly, on Wednesday evening, the 22nd ult., some leaden seals were exhibited by the Rev. E. Kell, considered by him to be Roman merchants' seals, and found at Gurnard's Bay, in the Isle of Wight, along with undoubted Roman pottery, and with a beautiful little bronze-gilt figure of Mercury, which he also exhibited. The same gentleman read a paper on a series of about 140 Roman coins, collected by the late Mr. Drayson when employed on the Titch Commutation Survey; and, from the occurrence among them of about twelve Greek colonial coins, all from the Isle of Wight, and of the lead seals above referred to, he endeavoured to show that a trade, carried on by Greek merchants, had been conducted between that island and the Continent. Mr. Syer Cuming read a paper on "Superstitions connected with the Cure of Diseases of Cattle," which was listened to with much attention, and was full of curious information. Mr. Gordon M. Hills read a paper on "Croston Abbey, Staffordshire," illustrated by a set of drawings made by Mr. Redford, of Manchester, for one of the prizes offered by the Institute of Architects in 1864. He drew an almost complete history of the erection of the buildings from a hitherto unpublished manuscript in the British Museum (Cotton MS., Faustina, B. 6), and produced a restored plan of the abbey according to this authority. The loftiness and simplicity of the lancet windows of the church, the richness of the doors, the apical end to the church, and other peculiarities, made the subject one of much interest.

METROPOLITAN BOARD OF WORKS.

VESTRIES AND DISTRICT BOARDS.

THE streets committee recommended that the chairman be requested to address a communication to Sir George Grey, in reply to his letter, respectfully intimating the opinion of the Board that, although there may be some matters on which the appellate jurisdiction of the Board might be advantageously extended, the Metropolitan Local Management Act has, on the whole, worked well, taking into consideration the many difficulties with which the several vestries and district Boards have had to contend, and the shortness of the period during which their powers have been exercised. The Board is therefore of opinion that a consolidation of the vestries and district Boards is uncalled for. The report was adopted by large majorities in the face of two amendments.

"LIGHT AND AIR" CASE.

EQUITY COURTS, SATURDAY, NOVEMBER 25TH.
CLARK v. CLARK.

THE facts of this case appear fully in the Lord Chancellor's judgment.

Mr. Giffard and Mr. Everett appeared for the plaintiff; Mr. Amplett and Mr. T. H. Terrell for the defendant.

The Lord Chancellor said that this bill was filed in September, 1864, to restrain the defendant from erecting or continuing to erect a building so as to obstruct the plaintiff's light and air. It appeared that the parties were neighbours, at 27 and 28 in the same street, and the building was of wood, in the garden of the defendant, to about the height of 16 ft., and the same distance from the garden wall, which rose to a height of 7½ ft., the ground being of a sloping character. There were always questions of degree, difficult to deal with, depending on the special circumstances of each case, and impossible to be dealt with generally. Persons in towns could not expect the same amount of light and air as those who lived in the country; and the steady spread of building gradually but surely obstructed the light and air. On the evidence, the window in question was a lofty one, 10 ft. or 12 ft. high from the ground, with a south-west aspect upon a garden, 25 yards by 5 or 6 yards, and the sun must therefore shine over the left-hand wall, so that the building obstructed the sun until it got high enough to shine over it. It appeared that the only complaint was in winter, and Mr. and Mrs. Kelly, and Miss Kelly, made important affidavits, namely, that whereas the sun shone theretofore continuously, from eleven to half-past one, in winter, it now only did so for twenty minutes, at eleven and one o'clock; and Mr. Kelly at first said that he could not read or write as formerly, but in a subsequent affidavit, with a winter's experience, he did not repeat that.

His lordship thought that this did not entitle the plaintiff to what he asked: it might render the room less cheerful, but the obstruction was not such as to cause a nuisance, and the room was not shut out from the open sky, so as to necessitate the use of reflective light. There was no such interference with the ordinary occupations of life as to make the court's interference requisite. This was not a case of a building opposite the window, but standing obliquely, although, no doubt, that did not prevent the question of obstruction arising. The scientific evidence had not much bearing on the question, because it was a question of ordinary convenience. The bill must, therefore be dismissed with costs.

NON-LIABILITY FOR ACCIDENT TO WORKMAN.

In the case of Brown v. The Accrington Co-operative Cotton Spinning Company (Limited) the company had commenced erecting by contract a mill and manufactory, and appointed a clerk of the works to see that the contractors carried out their contract. The plaintiff was engaged to work on the building, as a stonemason, by the day. The original plan of the building had been altered by the clerk of the works, and the building, by his direction, was carried two stories higher, whilst the pillars on which it rested were made of smaller dimensions, and of weaker materials than the engineer who

designed the building had originally planned; and it was alleged that, in consequence of these changes, and also of some of the pillars not having been set "plumb" by the clerk of the works, a floor of the building fell in on and injured the plaintiff, who was then at work therein. It was held by the Court of Exchequer, on the above facts,—there being no evidence bringing home personal negligence to the company, or to any person acting under their orders, for which they were responsible, either by their having given specific direction how the work was to be done, or by their having reason to suppose that the clerk of the works was incompetent to perform the office of superintendent of works,—that the action was not maintainable.

THE STRENGTH OF SERPENTINE.

A CORRESPONDENT sends us the following notes on this subject by the late Mr. C. H. Smith:—The unsoundness of serpentine marble is no unusual occurrence. At the Museum of Economic Geology, Jermyn-street, there is a great quantity of serpentine in small plasters, entablatures, &c.; and I really believe there is not a specimen but what has been in pieces and stuck together, and cramped in various ways. This is the case with almost all coloured marbles; and it is rather vexatious that generally those marbles which are most beautiful are also most subject to cracks and other defects. Irish green, Devonshire, and Derbyshire marbles are, for most purposes, expensive and troublesome to work, on account of their being so very unsound, full of cracks, and liable to come to pieces—probably just as the workman may have completed his job. Unless at a very great sacrifice—probably as many broken as sound—I do not imagine that anybody could undertake to supply even small work of any kind in some coloured marbles without many defects; and if they are well mended, the fractures are not observed. The French specimens at the Great Exhibition of '61 were mostly very choice, and selected with great difficulty: the same remark applies to what may be seen at the Jermyn-street Museum: these are rare specimens. If you were to give an order to the same party who exhibited, they would not be able to furnish you with a quantity equal to the examples exhibited.

There is a carefully-written paper on the subject of coloured marbles by Mr. Smith, in Hunt's "Handbook of the International Exhibition, 1862."

CHURCH-BUILDING NEWS.

Sydenham.—The foundation stone of the new district church of St. Saviour's, Sydenham, has been laid by Lord Eliot. The land upon which the church is to be erected, together with the parsonage-house and schools, has been given by the Earl of St. Germans. The church will contain nearly 1,000 sittings. The cost of construction is estimated at 4,000*l.*, which amount is being raised by contributions.

Teddington (Middlesex).—The new church, dedicated to St. Peter and St. Paul, at Teddington, has been consecrated by the Bishop of London. It is built of yellow stock bricks, with red moulded bricks in cornices and strings, and Bath stone used in arches, piers and windows, &c. The nave is paved with tiles from the Poole architectural pottery, the chancel with Minton tiles intermixed with white marble and yellow Mansfield stone. None of the walls are plastered in the interior. The style is Early Pointed, and the design was furnished by Mr. G. E. Street. Mr. G. Jacklin, of Twickenham, was the builder; and Mr. Maplesden, of London, was clerk of the works.

Burton Latimer (North Hants).—The re-opening of this church has just taken place, after the completion of the first part of the contemplated works, viz., the re-building of the tower and spire. The church is of various dates, but the greater part is First Pointed; and of this date is the tower. It is rather low in proportion to the church, and has three stages. The middle stage has on each face an arcade of three arches. The upper, or belfry stage, has on each side two windows, with deeply-recessed and moulded arches resting on clustered columns. The filling-in of these is Third Pointed in character. The parapet and the lofty spire were added in the fifteenth century. The tower has been, from the first, in a defective state, owing to bad founda-

tions; this had caused the sinking of the stair-turret, which had almost detached itself, and consequently dislocated the walls. When the spire was added, it was built on very insufficient squinches, which, thrusting laterally, had not only failed themselves, but pushed out the walls, and thus had rendered the condition of the whole extremely dangerous. It was considered absolutely necessary by the architects, Messrs. Slater and Carpenter, to take the whole of the spire and tower down, and rebuild it on solid foundations. Every old stone of the arches, windows, columns, strings, angles, &c., and the whole of the spire, were arranged in order, and numbered, and finally reinstated in their old positions. No new-cut stonework has been used except where absolutely necessary, such as the upper few feet of spire; this is of Ketton stone. The walling generally is of Weldon stone. Bunds are introduced of red ironstone. This stone had been introduced in the original arches, windows, &c., and has been inserted as before. The work has been executed by Mr. Henson, of Kettering; Mr. W. Thompson is the clerk of the works. Contracts are now being made out for the complete restoration of the chancel. The restoration of the nave and aisles is not yet undertaken. The roofs are of rich Third Pointed character, and all the old timbers will be preserved and replaced where practicable. The seats will follow, to some extent, the type of some of the old benches which remain; very fine early wall paintings remain in the south aisle, illustrative of the life of Solomon; these will be preserved; and the original Early Pointed windows will be restored.

Maidenhead.—The corner-stone of St. Luke's Church, North Town, has been laid. The church is designed in the Early English style. It will consist of chancel, vestry, nave, north and south aisles, north and south porches, and tower, and will accommodate 800 persons. It is intended at present to erect only the chancel and a portion of the nave and aisles (unless sufficient funds be forthcoming for carrying on the work towards completion). The walls will be faced with Bath stone. The roof will show the timber framing, and be covered with red and grey slates. The seating will be open. Mr. G. R. Clark, of London, is the architect; and the builders are Messrs. Griffiths, of Eldersfield, Worcestershire.

Wilton.—The church has now undergone all its contemplated improvements. The nave has been restored, with a new timbered roof, open and lofty, designed with arch ribs, springing from fluted corbels up to the collar-beam. The walls, stonework, and carving have been divested of the old plaster and whitewash. The floor is laid with red, black, and buff tiles, in an ornamental pattern. The pews are of solid oak, with moulded backs, and panelled ends filled with tracery. The south porch is new, and of open wood, with stone benches. The pews are all open, and at least four-fifths of the sittings in the nave are free and at the service of the poor. The whole work has been done according to the plans, and under the superintendence of Mr. R. Hutchinson, architect, Huntingdon.

Cambridge.—The reredos which has just been erected in the University Church, by the Rev. J. B. Lightfoot, D.D., Hulsean Professor of Divinity, consists of a centre and two wings, under canopy work. In the centre is our Saviour on the Cross, at the foot of which are laid the emblems of science; on the right is St. Paul preaching at Athens; on the left, Samuel in the School of the Prophets. The carvings are executed in alabaster by Mr. Armistead. The rest of the work, in white stone, is by Mr. Farmer. Coloured marbles are inlaid here and there.

Haylesbury (Wills).—The ancient collegiate church of this town is about to undergo a renovation; but the original plan of the building and style of architecture will be adhered to. An aisle is to be added to each side of the chancel; new windows are to be made, and old ones, that have been blocked up for centuries, opened. The galleries are to be pulled down, and the old-fashioned high-backed pews are to give place to modern seats. The tower will be entirely re-constructed, and the arches will be widened so as to admit a view of the chancel and east window from the west end of the nave. The present roof of stone and lead is to be superseded by one of slate; and, in fact, the church will almost be re-constructed. The estimated cost of the work will be about 5,000*l.*, most of which sum, we understand, will be given by Lord Haylesbury, the lord of the manor.

Mr. Butterfield is the architect; and Mr. Wm. Strong, of Warminster, the builder.

Dudley.—After many months spent in the work of restoration and alteration, the district church of St. Edmund's has been re-opened. The Earl of Dudley has given 500*l.* towards the alterations, on certain conditions. One of the stipulations, to which the congregation assented, was that the high pews with doors should be cut down and thrown open, and this being done, the church is now seated in a uniform manner. The fabric of the church, roofs, &c., has been examined and renewed: all the plastering has been removed from the walls and ceilings which have been replastered by Mr. Z. Round. The beams on the under-sides of the galleries have been removed, and a complete set of new windows introduced. The new window of stained glass, presented by Mr. John Fisher, is the work of Mr. Wailes, of Newcastle-on-Tyne. It represents the Appearance of the Angels to the Shepherds announcing the Birth of the Saviour. The cost exceeds 200*l.* The organ has been removed from the west gallery to the nave, and is now placed in a chamber on the south side of the chancel. The chancel is seated with oak stalls, and the whole floor is raised above the nave. Mr. Bourne was the architect, and Messrs. Hollands the builders engaged.

Cheltenham.—Mr. Middleton has been directed to prepare plans for a new church, in the Early French style. Land has been purchased in a central situation, and the conditions exacted by the Ecclesiastical Commissioners have been complied with, in reference to the transfer of the ground. The church will be built to accommodate more than 1,000 persons.

Southmolton.—The old parish church has been re-opened, after having been closed for sixteen months, for the purpose of restoration, at a cost of about 3,000*l.* The church had fallen into a state of decay, many of its seats were dilapidated and practically useless, while the galleries were unsightly, and the roofs disproportioned to its size, with hideous skylights, through which the rain often found its way. Two stained memorial windows, with designs from Scripture subjects, are being prepared by Mr. Bere, of Exeter, to be placed at the east end of the chancel aisles, the gifts respectively of Mr. J. E. Pearce, of Southmolton, and the Rev. J. Thorne, of Bishopnorton, and Mr. and the Misses Thorne, of Southmolton. The architect employed was Mr. C. E. Giles, of London.

Churston Ferrers (Devon).—The church at Churston Ferrers has been re-opened, after considerable works of restoration, including new roofs of the chancel, new windows, and a rearrangement of the seating, with entirely new woodwork, excepting some old oak bench ends, which have been adapted to the chancel and chancel aisles. The work is chiefly Perpendicular, and the old windows and other details have been followed. A new vestry has been built. The bells have been re-hung in a new case. There is a new window, by Mr. Wailes, to the memory of the late Lady Buller; and some old heraldic glass has been formed into another window by Mr. Bere, of Exeter. The outlay is about 1,700*l.* Mr. Ashworthy, of Exeter, was the architect employed; and the works have been carried out by Mr. Chudleigh, of Newton Abbott, builder. Regret has been expressed that three curious screens—a roof screen and two parclooses; the latter illuminated—have not been restored. A reredos on the east wall having texts, and the decalogue, have been executed by Mr. Welsh, of Bovey Tracey.

Hockworthy.—The church of this parish, after having been entirely rebuilt, with the exception of the tower, has been consecrated for divine service. The old fabric was in the year 1863 found to be in a very dilapidated condition, and it was resolved to pull it down, and erect on its site a new and commodious edifice, capable of accommodating an additional number of persons. The church is built in the Early English style, by Mr. Davis, of Taunton, and contains a nave and side aisle, with oak pews, stained and varnished. The roof is light, and the chancel is divided from the body of the church by a Gothic arch. At the east end is a stained-glass window, on which are portrayed scenes in the life of the Saviour, the centre piece representing the Crucifixion. The tower is open to the body of the church.

Liverpool.—The scheme for extending churches and schools, as propounded by the Rector of Liverpool, progresses with a degree of rapidity and success for which we were hardly prepared. In a single week the subscriptions mounted up to

32,325*l.*; and it is thought not unlikely that they may reach 50,000*l.*, or near that amount, by the close of the year. Thus far the sums are in general large ones; but there is no doubt that many sums of 50*l.* and under will yet be given.—The foundation-stone of a new chapel has been laid on the north side of, and in connexion with, the Northern Hospital, which is to be erected at the sole expense of Mr. J. Pemberton Heywood. It will be in the Gothic style, with an open roof, and apsidal chancel, and will accommodate eighty persons. The architect is Mr. G. E. Grayson, and the builders are Messrs. Roberts & Robinson: the estimated cost is 500*l.* The chapel is expected to be completed in about four months.

DISSENTING CHURCH-BUILDING NEWS.

Llanelli (Carmarthenshire).—Park Congregational Chapel has been opened. The chapel is in form a parallelogram, 58 ft. 6 in. long, and 38 ft. wide (inside measurement), exclusive of the lobbies in front and the apse in the rear. On the lower level there is a school or lecture-room 44 ft. long by 38 ft. wide. In the rear of this lecture-room there are a deacons' vestry and an infants' room. On the upper level is the chapel, having for the main feature a central tower and spire, under which is the principal entrance, 5 ft. 6 in. wide and 10 ft. high. The accommodation at present to be provided on the ground floor will be for 366 adults, and in the gallery 112, besides 60 children, making a total of 538, with opportunity for two additional galleries holding about 150, exclusive of space for organ and choir. The form of the ceiling is waggon-headed. The style is Early Decorated, and the materials used are furnace dressed rubble, with Bath stone dressings. The spire is formed chiefly of rubble, relieved with bands and quoins of Bath stone, surmounted by a finial, the whole 104 ft. high. The architects were Messrs. Lander & Bedells, of London; and the works have been executed by Messrs. Joseph Douglas & Co., of Llanelli, for about 2,200*l.*, including boundary-walls, paths, &c. The gas-fitting was done by Mr. George, of Llanelli. An organ, by Mr. Robson, has been placed in the apse, with case of appropriate character.

Wombwell.—The foundation-stone of a new Congregational church and school, to be erected at Wombwell, has been laid. The building is to be geometrical. It will be 58 ft. long by 45 ft. wide, and, with an end gallery, will be capable of accommodating 560 people. The roof in the interior will be of open timber work, and the exterior of blue slates. The walls will be of local stone, with Bath stone facings. Owing to the character of the site, which, selected at the junction of what is called New-street with Wombwell main street, has a fall from back to front of several feet, it is found convenient to provide the school-room on the ground-floor, with an entrance from Wombwell-street, and the chapel on the upper story, which having a separate entrance from New-street, on the higher level, will require but a slightly-raised approach. The architects are Messrs. W. G. Habershon & Pite, of London; and the contractors Messrs. Pullen & Smith. The cost of the building is estimated at 1,850*l.*, and the land has been purchased for 240*l.*

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Abingdon.—The church of St. Edmund and St. Mary has been opened for divine service. The edifice has been recently completed, at the sole expense of Sir George Bowyer, bart., at the extremity of whose estates, adjoining Abingdon, it is situated. The architect of the edifice, or rather group of buildings, the presbytery, cloisters, and church being all in connexion, was Mr. Goldie, of London; the builder being Mr. Samuel Simpson, of London. The cost of the whole has been about 5,000*l.*, and the buildings have been completed without any items for extras. The church consists of a chancel, lady chapel, chapel of St. Joseph, nave, and aisles, the style being the Decorated Gothic of the fourteenth century. The high altar is only temporary, and will be replaced by one of stone and marble; but that of the lady chapel has some carved finishing, and the chapel is ornamented with a statue of the Virgin Mary. The stone has all been obtained from quarries on Sir George Bowyer's estate.

Swansea.—The foundation-stone of a new church, about to be erected at Greenhill, in this town, immediately adjoining the existing convent, has been laid. The new church will be in the Norman style. All the ornamentation will be within, the exterior of the building being as plain as possible. Internally it will be a simple parallelogram, 100 ft. long by 36 ft. broad; the height of the ceiling, 36 ft. Underneath the church is a large hall, 100 ft. by 30 ft., intended to be used as a school-room, lecture-hall, &c. The total cost of the building will be 1,200*l.*, toward which amount the sum of 500*l.* has been contributed by Count Torlonia, the Roman banker. The architects are Messrs. Richards & Bucknall, of Swansea.

Birkdale (near Southport).—The foundation-stone of a new church has been laid on a site presented by Mr. T. Weld Blundell, in York-road, Birkdale. The edifice is to hold about 500. Mr. Pugin, of London, is the architect, and Mr. Livesey, of Scarisbrook, the builder.

Halifax.—St. Marie's Church, having been renovated and restored at a cost of 2,000*l.*, has just been re-opened. Its appearance is entirely altered. The church has a square parochial tower, adapted for a peal of bells. The lantern over the organ has three traceried windows, intended for stained glass. The roof is entirely new. The stained-glass memorial windows east and west of the altar are the production of Messrs. Edmundson & Sons, of Manchester. There is a new stone and alabaster altar, designed by Mr. G. S. Beasley, of London, and executed by Mr. Earp, of London. The decorations of the altars and organ have been carried out, in gold and colours, by Mr. Edwin Taylor, of Halifax. The general contractors for the several works were Messrs. Anghton, Ambler, Walsh, and White. The architect employed was Mr. Ralph Nicholson, of Halifax.

STAINED GLASS.

Dunmow Church.—A stained glass window, by Messrs. Clayton & Bell, has been placed in the south wall of the chancel of this church, as a memorial of the late vicar. The two compartments have a bold quatrefoil above, displaying an angel holding a crown of glory. The eastern compartment shows St. Peter kneeling, and receiving his mission from Christ. In the western compartment is represented the day of Pentecost, the Holy Ghost descending like a dove upon the Apostles, who appear each with a cloven tongue, as of fire.

Witham-on-the-Hill Church (Bourne).—A stained glass window has been placed, as a token of respect to the memory of the late General W. A. Johnson, in the chancel of this church, the funds for which have been subscribed by the tenants and friends of the deceased. The window is one of three lights. In the first compartment is represented the "Adoration of the Magi"; in the second, the "Crucifixion"; and in the third, the "Resurrection." The work is by Messrs. Heaton, Butler, & Bayne, of London.

All Saints' Church, Enscote.—The windows of this little building have just been enriched by the addition of a figure of St. John the Baptist, with a subject representing the Baptism of Our Saviour, the tracery above being filled with angels bearing emblems, scrolls, &c. The work was executed by Mr. Dury, of Warwick, to whom the other decorations of the church were entrusted.

SCHOOL-BUILDING NEWS.

Nottingham.—The foundation-stone of St. Saviour's Church Schools has been laid. Mr. Sutton is the architect of the building.

Newmarket.—The committee for the erection of congregational schools received seven tenders from tradesmen in the town and neighbourhood. The highest was 981*l.*, and the lowest 750*l.* The latter (which was accepted) was from Mr. Thomas Whitmore, of Gazeley, and Mr. Thomas Andrews, of Newmarket. Mr. Richard Arber, of Newmarket, has undertaken the stonework. The tender next to the lowest was from Mr. Mills, of Cambridge, 777*l.*

Worsley.—The school chapel of "The Holy Rood" has been opened. This building, which has just been erected by subscription, stands amidst a cluster of houses in the Old-lane, near Worsley. It will seat for divine service about 290 people, and accommodate, when used

as a school, nearly 200 children. The contract was taken by Mr. Grundy at 514*l.* The outline of the school is a parallelogram, with a boiler-room, coal-house, and offices projecting from the north wall, at its eastern end; and from the south wall a brick-built porch with openings pierced at its sides, and finished in front with an overhanging barge-board. On a week day, whilst the building is being used for school or other secular purposes, the chancel is screened off by a curtain. Outside is an open timber belfry containing two bells; one for church and one for schools. Mr. J. Medland Taylor has designed the building and superintended its erection.

Ongar.—New school and lecture rooms have been built and opened in connexion with the Congregational church, in Ongar. It had long been felt by Mr. Conway and his people that for the due accommodation of their much-increased Sunday school, for their week evening services, and for various other purposes, a much larger and better building was required than the old one which had formerly existed. A design was gratuitously furnished by Mr. J. C. Gilbert, of Nottingham, architect, and the execution of it was intrusted to Mr. F. Noble, builder, Ongar, by whom the work has been carried out. The buildings are erected in the rear of the chapel, and occupy the whole of the available space afforded by that portion of the chapel property which is there situated. The Gothic style has been adopted as the basis of the design, but it is treated in a free manner. The building is of grey brick, with red brick bands and dressings. The main room is 34½ ft. by 21 ft., with a semi-octagonal apsidal end, in which are placed the library, the superintendent's platform, and a reading-desk. The main entrance is at the south end, and over it a porch, with bell gable, &c., has been placed. On one side of the building are three class-rooms; the centre one, the largest of the three, being 16 ft. by 9 ft., and so constructed as to be capable of being thrown into the main room when required. One of the smaller class-rooms is to be used for the minister's vestry. The total cost was upwards of 400*l.*

Prestwick.—The chief stone of new national church schools has been laid here. The buildings will consist of boys' and girls' school and library. The dimensions of the boys' school will be 32 ft. by 60 ft.; and of the girls', 30 ft. by 55 ft.; of the library, 22 ft. by 45 ft. There will be two ample class-rooms, of 22 ft. by 20 ft. each. The boys' school-room will also form a public lecture-room, and beneath it is a heating apparatus, by Messrs. Haden, of Trowbridge. The building generally will be of red brick, with Yorkshire stone dressings, and will be in the Early Pointed style. The library will be somewhat recessed from the road, and at the angle of the girls' school-room there will be a square brick tower, with a high-pitched slate roof. The architect is Mr. A. Waterhouse; and the builder, Mr. Joseph Robinson, jun. The cost will be about 2,800*l.*

PATENTS CONNECTED WITH BUILDING.

FORMATION OF EMBANKMENTS, SEA WALLS, BREAKWATERS, &c.—*W. E. Newton.* Dated 10th February, 1865.—The patentee claims the formation of embankments and other similar works, such as those above stated, by means of shallow open frameworks placed and secured one upon another from time to time as the sand accumulates therein, so that the sand and other earthy matters may be caught and retained within the frameworks as they are built up, and thus in time form a solid embankment up to high-water mark, as set forth.

APPARATUS FOR HEATING AND COOLING ATMOSPHERIC AIR AND OTHER AERIFORM BODIES, AND FOR HEATING OVENS, &c.—*J. T. Harris.* Dated 7th March, 1865.—The patentee claims the use of tubes sealed at both ends, and containing water or other volatilisable liquid, in heating and cooling atmospheric air and aeriform bodies, in heating ovens, and in heating and ventilating buildings, as described.

IRON DOORS ESPECIALLY ADAPTED FOR USE IN ORDINARY BUILDINGS.—*J. T. Harris.* Dated 9th March, 1865.—Apertures to suit the size and number of panels desired are cut out of flattened sheets of plate iron of any required thickness, leaving the stiles and rails defined as in ordinary framed doors. Each plate thus prepared is riveted, or otherwise secured, to sufficient angle iron, of a dimension equal to about

half the desired thickness of the door when completed; any number of panels, as may be arranged in first cutting or stamping through the plate, are formed with the pieces then cut out, or other similar pieces, which are also riveted or otherwise secured to angle iron suitable to the required depth of the panels. Cast or wrought mouldings, of any requisite pattern, are dropped into the panels, and the whole firmly attached to the stiles and rails by screws or rivets put through the plate panel and angle iron into the moulding from the back. Two entire plates thus panelled and prepared are placed together and held in position by two or more riveted pins, passed through four or more pieces of angle iron attached to the muntins and rails inside; and then the two complete plates, or entire half faces of doors, are thoroughly secured by a continuous band of hoop or other iron, screwed or otherwise attached to the angle iron around the entire outer edge of the stiles and rails. Hollow stiles, rails, and panels are thus formed to each door, which may be filled with fire-resisting composition when desired. The panels need not necessarily be sunk, but may be flush with the face of stiles and rails. The doors may be fitted with mortice or rim locks and furniture, as ordinary wood doors, and may be hung folding or otherwise, or made to slide. The doors may be hung in wood, iron, slate, or other frames, as desired. These doors may also be made with a cast ground or frame-work.

Books Received.

LETTS'S "Rough Diary or Scribbling Journal," gives good room for each day, with blotting-paper between the leaves. The paper composing it could scarcely be bought for the eighteenth-pence it costs.—Farrington, of Doctors' Commons, publishes a penny Monthly Remembrancer or Diary, useful for the waistcoat pocket.—The first number of "The Argosy," with contributions by Charles Reade, Alexander Smith, Miss Isa Craig, and others, is certainly cheap at 6d.—Smiles's "Lives of Boulton and Watt" (Murray); "Flemish Relics," by F. G. Stephens (A. W. Bennett); "The History of the City of Rome," by Thomas H. Dyer, LL.D. (Longmans); and several other books, wait for notice.

Miscellaneous.

THE ALBERT MEMORIAL IN HYDE PARK.—The Albert Memorial in Hyde Park is moving again. A quantity of granite is now on the ground, and a steam-engine has been set up to work the machinery for polishing it. A number of columns of red granite, and a quantity of other pieces, have been forwarded from Scotland. The whole of the brickwork and masonry connected with the lower portion of the work has been completed.

ST. MARTIN'S SCHOOL OF ART.—The annual distribution of prizes to the students of the St. Martin's School of Art took place on Wednesday night, at the Institution, Castle-street, Long-acre. Some highly creditable specimens of the works of the students were exhibited in the room in which the distribution took place. Mr. E. Westmacott, R.A., F.R.S., presided, distributed the prizes, and addressed the meeting. Votes of thanks to the head master (Mr. William Casey) and to the assistant master, concluded the business.

MONUMENTAL.—We understand that Mr. W. D. Keyworth, jun., of London, has been commissioned to execute the statue of Andrew Marvell, to be presented by Mr. Councillor Winship to adorn the new Town-hall at Hull. Mr. Winship, with a view to assist him in his final determination, has, it is said, been in London consulting some of the most eminent artists of the day, all of whom assured Mr. Winship that he might with safety place the statue in Mr. Keyworth's hands.—The subscribers to the Leeds memorial of the late Sir Peter Fairbairn have resolved to accept the offer of Mr. Noble to execute a bronze statue for 1,000*l*. The statue will be the same height as that of the late Sir Robert Peel, near the Post-office. Mr. Noble was the sculptor of the statues of the Queen and the late Prince Consort, in the vestibule of the Leeds Town-hall.

PROJECTED REMOVAL AND EXTENSION OF ST. PAUL'S SCHOOL.—The Mercers' Company have given notice of their intention to apply to Parliament next session for a bill to enable them to enlarge and improve the education of St. Paul's School. Among the principal objects are the acquisition of powers to sell, pull down, or remove the existing school premises in St. Paul's Churchyard, and erect new school-houses in or out of the metropolis, or to enlarge the existing school premises.

THE CO-OPERATIVE SYSTEM IN VICTORIA.—The Union Fishermen's Institution of this colony lately held their first anniversary. We learn from the *Society of Arts Journal*, that this Association was organised twelve months ago, in the face of many difficulties and disappointments. There are now about ninety members, and their fishing extends from Port Arlington to King's Island. During the year they sold about 5,000*l*. worth of fish. The men get the full advantage of open markets in Ballarat and Melbourne, and each receives the full benefit of his own efforts. They are paid at least 25 per cent. more than under the old system; the middlemen are put aside, and the fishermen and public are the gainers. The boats, nets, &c., are so improved as to be worth at least 3,000*l*.

PROPOSED EXTENSION OF THE UNIVERSITY OF OXFORD.—At a meeting held in the hall of Oriel College, to consider the question of the extension of the University, with a view especially to the education of persons needing assistance and desirous of admission into the Christian ministry, various propositions were made, one of which was, that a separate college or hall should be built capable of accommodating 100 students, and that a sum of 100,000*l*. be raised for the purposes of purchase of site, building, and endowments, by public subscription; and another, that the University, out of their own funds, build and endow a college, giving a sufficient number of exhibitions and scholarships to enable young men of very limited incomes the opportunity of graduating free of cost. The meeting was unanimous in resolving,—"That a committee be appointed," and, "That each college and hall have power to name one member from each to form a committee, with power to add to their number, to consider what steps shall be taken with a view to the extension of the University."

DISCOVERY OF ROMAN REMAINS NEAR WINDSOR. An interesting discovery has just been made upon the Crown lands near Old Windsor. While a number of workmen were engaged in some drainage works upon the farm of Tykeshead, they came upon two large Roman tombs, the chambers of each forming a cube of about 4 ft. The remains were about 2 1/2 ft. below the surface of the soil, and when the first of the tombs was discovered, the drainers took it for an old drain, and the top of it was broken to pieces. This tomb contained a fine glass bottle of elegant form, charred human bones, but no urn. About 18 in. from the first tomb, another of a similar description, but quite perfect, was found; and on its being opened it was found to contain an earthenware cinerary urn of half-baked clay, with charred human bones, while by the side of the vase were the fragments of a fine terra-cotta bottle. Both the tombs had been placed in positions, due north, east, south, and west. Neither of the tombs contained any inscription, coin, or ornament, but the remains are supposed to be between 1,500 and 1,600 years old, the site upon which they were discovered being probably on a Roman by-way leading from the camp on Bagshot-heath through Bracknell and Datchet.

CARLISLE SCHOOL OF ART.—The annual meeting of subscribers to this school has taken place. The mayor opened the proceedings, and the secretary read the report, which was of a very favourable character. The school was increasing in number, especially in the junior students; but the morning class for young ladies was not so well attended. On the whole, the committee congratulated the subscribers on the healthy state of the school, which they believed was principally owing to the unremitting attention and earnestness of the master, Mr. Lees. The regulation reducing the number of medals given to successful drawings, the committee thought would have a very discouraging tendency. Through the kindness of Mr. Potter, however, the committee had been able to offer valuable prizes to the students. At the last examination of works held in London, the Carlisle pupils obtained twelve medals.

GAS.—The Oriental Gas Company have held a meeting at which, out of an available balance of 6,596*l*., a dividend at the rate of 8 per cent., free of income-tax, was declared.

CAERNHUN SLATES.—A new company has been formed under the title of the "Caernhun Slate Company, Limited," with a capital of 30,000*l*. in 10*l*. shares, for the purpose of purchasing and working a portion of the Cwm Eigia Slate Property, situated near Bangor, in the parish of Caernhun, Carnarvonshire, North Wales. The quarry is side by side with, and forms part of the same vein as, that now being worked successfully by the British Slate Company, who have been, for some time past, it is said, paying their shareholders handsome dividends.

SALISBURY CATHEDRAL AND MUNICH STAINED GLASS.—Mrs. Campbell Wyndham lately proposed to set up a painted glass window in this cathedral, and some correspondence has passed on the subject as to the character and style of the painting. The donor, who is prepared to bear all the expenses, would desire—in fact, makes it a *sine qua non*—that the work should be done by a Munich artist. The authorities, on the other hand—that is, the dean and chapter—are in favour of the work being executed by an English artist, and chiefly for this reason—that in the opinion of their architect, to whom they are bound to defer, the Munich glass painting is out of harmony with the architecture of the thirteenth century, of which the cathedral is an example. So matters stand, the architect having declined to give his sanction to the introduction of a Munich window.

ALARMING ACCIDENT AT A PAPER STAINING WORK.—An accident of a very serious nature occurred at Messrs. Potter, Snape, & Co.'s paper-staining works, Livesey-fold, Darwen, on Thursday night. In the stock-room, on the second floor, were stored about 100,000 pieces of stained paper, and on Thursday night the beams gave way, and the floor went down with a sudden crash, breaking the main gas-pipe, which threw the whole works into complete darkness. A man, named George Entwistle, and George Pinder, a boy, were in the room at the time and had a most miraculous escape, neither of them being materially hurt. A large number of work-people had only left the room about ten minutes before the floor gave way.

THE BALLAST OFFICE, DUBLIN.—Extensive alterations and improvements have lately been completed at the Ballast Office premises, in Dublin, the whole of the interior on the ground-floor having been remodelled, and the hall, waiting-room, passage, and staircase, thrown into a spacious public office, communicating with private offices, strong-room, pay-office, new stairs to board-room, and offices in upper floors, besides other improvements which have also been made. The new system of framed shoring, invented by the architect during the building of the Royal Bank, is said to have been found effective during the removal of the internal main wall, 28 ft. long, for the introduction of beams and columns, the works having been carried on without interruption to the Board, who held their ordinary meetings during the process of shoring and setting the beams, &c., in the story under the board-room. The contract has been carried out by Messrs. Beardwood, under the direction of the architect, Mr. Charles Gheoghan.

FURTHER DISCOVERY OF STONE KISTS OR COFINS IN SCOTLAND.—Mr. Hutchison, of Carlisle, who, about two years ago, discovered a large number of ancient stone coffins near the "Cat-stane," and who some time later found, on Craigie-hill, the remains of an old city, has come upon two other kists in the vicinity of his own house. One of the kists presents similar features in construction to those lying around the Cat-stane. The other coffin found is what is termed a short kist, and points to a more remote date than can be assigned to the other one. It is composed of the same rude freestone slabs, placed edgewise, so as to form walls around the body—which would appear from the measurement and shape to have been doubled up together in it, as is known to have been the custom at a very early age in this country. It is an interesting circumstance that the lid, which was a good deal broken, shows the remains of several series of incised circles. Similar ones were found inscribed on a kist long overhanging the road to Crumond in the cutting through the Cloven Cliff of Craigie-hill, and which, for the safety of travellers, had to be removed last year.

BIDEFORD.—The Local Government Board of this ancient and much-frequented place have resolved to procure a supply of water for, and to serve, their town under the direction of Mr. Baldwin Latham, C.E., of Croydon.

THE DRAINAGE OF HASTINGS.—The St. Leonards' Commissioners and Hastings Town Council have amicably agreed on appointing Mr. Bazalgette consulting engineer for the proposed new drainage of the two towns. No tender for any contract will be accepted except upon his recommendation.

POOR-RATE ON DOCKS.—By a recent decision of the House of Lords, the Mersey Docks have been adjudged liable to poor-rate, and the amount of the parish claim against the Mersey Dock Board (swelled by arrears) is between 20,000*l.* and 30,000*l.*

CHISENHOLE BRIDGE, LIVERPOOL.—The foundation-stone of the new bridge across the canal at Chisenhole-street, in Vauxhall Ward, Liverpool, has been laid. The new bridge, according to the *Journal*, will be built of parbold stone and cast-iron girders, and will have a roadway of 28 ft., considerably more than double that of the old one, and the incline from the middle towards each end will be so easy as to be scarcely perceptible. It will be a single arch, with a span of 39 ft., and the cost under contract will be close on 4,000*l.*, but, including the land and approaches, it will amount to 4,500*l.* Mr. Wells is contractor for the mason-work, and Mr. Sampson Moore for the cast-iron work.

FALLING IN OF A RAILWAY TUNNEL.—A mishap has occurred in the tunnel running underneath the Old Tiverton-road, near Exeter, on the London and South-Western Railway. The tunnel is about 400 or 500 yards in length. A heavy fall of rain is said to have burst through the brickwork, all but destroying the whole structure. The tunnel was blocked up by some two or three hundred tons of debris, and the traffic suspended.

RAILWAY MATTERS.—Amongst the projected metropolitan lines, as we may term them, are a "Metropolitan, Wimbledon, and Richmond Railway," from Kingston to Putney, Wimbledon, and Richmond; and a "City, Kingston, and Richmond Railway," from Streatham and Clapham to Kingston-on-Thames and Petersham, with short connecting lines with other railways. The Pneumatic Despatch Company intended applying for power, *inter alia*, to purchase and use cellars and vaults under the public streets, without the necessity of purchasing the houses or buildings with which they are connected.

THE PROPOSED PURCHASE OF RAILWAYS BY GOVERNMENT.—This subject was introduced on Wednesday night at the Society of Arts, Adelphi (Lord Lytton in the chair), by Mr. W. Hawes, F.G.S., the chairman of the council. The attendance of members and visitors was numerous. The paper (a very lengthy one, which if printed *in extenso* would fill too many of our columns) controverted "the proposition that Government should purchase and take the management of the railways," and, taking the recent publications of Mr. Galt and Mr. Chadwick as "embodying all that can be said in its favour," was in fact a reply to those gentlemen. Mr. Chadwick, as one of the persons attacked by the paper of Mr. Hawes, moved the adjournment of the debate, in order that he might have an opportunity of replying, which was agreed to.

NEW RAILWAY STATION AT YORK.—The station at York is condemned. The directors of the line have come to the conclusion that the entire plan of the structure is radically wrong, and that the proper form of station for their purpose is not the *cul de sac* standing east and west, but a structure built on the line of the direct route outside the city walls. The new edifice is, with its belongings, to cost 200,000*l.*: its platform is to be 1,200 ft. in length.

REGULATION OF THE CITY TRAFFIC.—It is understood that the City authorities are about to apply to Parliament for a new Bill to regulate the traffic of London, the Act of 1863, although useful as far as it went, having been found too limited to effect the various reforms demanded by the public. The new Bill will include a clause authorising the construction of foot-bridges over the most dangerous of the street-crossings. Thus a suggestion repeatedly made in the *Builder*, at first many years since, appears at last likely to be realized.

VALUE OF PROPERTY IN ENGLAND AND WALES. The union valuation lists of property in England and Wales from the Poor-law Board have been issued. In the revised lists for Middlesex the value is 963,661*l.*, being an increase of 63,367*l.* on the preceding year. The largest increase is in York. The value in 1864 was 3,245,117*l.*, and last year 3,542,580*l.*, being an increase of 297,468*l.*

EXTENSION OF THE NATIONAL GALLERY.—The Commissioners of her Majesty's Works and Public Buildings have effected the purchase of the land required for the contemplated enlargement of the National Gallery, situated on the north side of Trafalgar-square, bounded by Hemming's-row on the north, by St. Martin's-place on the east, by Duke's-court on the south, and by Castle-street on the west. The purchase includes St. Martin's Workhouse, with Archbishop Tenison's Grammar School, and the sum the parish of St. Martin is to receive for the concession is 86,000*l.*

SAFFRON WALDEN.—The operation of reducing the hill in High-street so as to make the approach to the railway station more gradual, has been begun. The main drainage work has lately commenced near the market under the able superintendence of Mr. Ford, the town surveyor: the work is performed by labourers residing in the town, which acts thus beneficially in providing some with employment during the winter season when there is often a slackness. We have no doubt that the drainage, when completed, will be a boon to the town, and although the rates may be heavy on the ratepayers for a time, yet in a few years there may be found a lasting benefit accruing therefrom.

THE PARIS EXHIBITION: UNIVERSAL INDUSTRIES.—The Commission say they hope to present to the view of Europe, Laplanders making fishing-tackle; Ural Tartars employed in the preparation and ornamentation of skins and carpets; the Kabyles of Algeria making the glazed pottery of Bjerdjara, carvings in the wood of the fig-tree, ornaments in silver and coral, and carpets of Oran and other districts; natives of Morocco weaving silk, cotton, and woollen fabrics, making fez caps, saddles, and arms, and preparing shagreen; negroes of Soudan producing cotton cloth, morocco work, and pottery; the half-castes, or *Petits Blancs*, of the Isle of Bourbon, making sacks for sugar and coffee; Anatolians weaving Smyrna carpets, silks, and cloth of gold; Syrians fabricating tinsels and arms of Damascus, Aleppo, and Lebanon, mother-of-pearl work of Bethlehem, and gold work of Beyrout; Persians at work on Kurdistan carpets, silk embroidery, Kirman shawls, and silks and cottons of Yerd, enamelled tiles, and damascened arms; Indians weaving muslins, embroidering cashmires, engraving ivory and wood, and twisting threads of gold into bangles and other ornaments; Cambogians fabricating boxes and toys from sandal-wood; Siamese carving rhinoceros horn; and, perhaps, Chinamen carving a nest of ivory balls; Japanese painting their incomparable lacquer wares; Mexicans turning their perfumed pottery; and red-skins composing head-dresses of feathers and bead-embroidered mocassins.

LABOUR-SAVING MACHINERY IN AMERICA.—The manufacture of newly-invented machinery, known as harvesters, mowers, reapers, and headers, gives employment to a large amount of capital and labour. The introduction of this class of machinery has brought about a revolution in labour as applied to agriculture, and pending the war released a large proportion of the farming classes to bear arms. Last year, the number of reapers and mowers made in the United States, according to the *New York Journal*, was not far from 89,000; but of the stock of machines on hand at the opening of the present season, fully one-quarter, and perhaps one-half, remains unsold. This year, at least 100,000 machines have been made. There are two principal patents in the United States in favour among farmers. One is the "open finger" guard, from which the patentee secures a royalty on every successful machine, say 2 dollars 50 cents each, or an income estimated at 200,000 dollars per annum. The other is the "hinged floating finger bar." The income from the latter is between 100,000 dollars and 200,000 dollars. There are about 225 manufacturing firms solely engaged in making agricultural machinery, and they are pretty evenly distributed through the country.

CARVING IN SHREWSBURY.—At the Roman Catholic church, the whole of the carving has been lately executed. The church was built about eight years ago, from the designs of Mr. Pugin, and the sculpture has now been carried out under his direction. In the nave capitals are carved natural flowers and foliage, arranged conventionally, such as the primrose, ferns, lilies, roses, the oak, the passion-flower, the apple, &c.; and in the foliage to chancel are introduced the Tower of David, the Gate of Heaven, the House of Gold, the Ark of the Covenant, the Star of Bethlehem; and in the side chapel, in the foliage are arranged, the Pelican feeding her Young, the Lamb of God, the Loaves and Fishes, the Manna from Heaven, &c. Over the chancel-arch is placed a statue, nearly life-size, of our Lord on the Cross. The corbels supporting the roof are also carved in foliage, and the heads and bosses to all the doors and windows are about 150 in number. The whole has been executed by Mr. Boulton, of Worcester, sculptor.

PATENT METALLIC GLASS HOUSES.—Mr. Beard, of Bury, according to the local *Post*, has at the Victoria Works, a large conservatory, on his patent principle, the temporary erection of which, previous to its removal to its destination in South Wales, has just been completed. The dimensions of the house in question are,—length, 35 ft.; width, 16½ ft.; height, 13 ft. to the apex. The lines of its roof are curvilinear in form, being in segment of a polygon in a circle, surmounted by an A-shaped ridge, the sides of which form the upper ventilators. The lower ventilators run along the sides next the floors, both series being opened and closed by the endless screw, which forms a feature in Mr. Beard's patent top and bottom ventilation. At each of the angles of the roof the lower vertical sash-bars are made with a shoulder, against which the upper pane of glass rests. This ensures a firm and weather-tight junction of the squares, while at the same time the evils of overlapping panes are obviated, since the upper forms an angle with the lower, which it overhangs. A process of covering the ironwork with enamel-paint, so as to reduce the cost and trouble of repainting to a minimum, completes the structure.

TENDERS

For the sewerage works to be done for the Plumstead District Board of Works, being Contract No. 3 for the sewerage of the parish:—

Person	27,003 0 0
Bloomfield	5,197 10 0
Hill & Reddell	5,173 0 0
Breston & Routledge	4,667 0 0
Lewis	4,287 0 0
Loneragan	4,350 0 0
Matthews	3,678 0 0
Tongue (accepted)	3,899 0 0

For the erection of a warehouse, 3 and 4, Little Love-lane, City, for Messrs. Charles & Thomas, Mr. H. Ford, architect:—

Patman & Fotheringham	43,485 0 0
Hardiman & Sandon	3,412 0 0
Adamson & Son	3,410 0 0
Rawlin	3,353 0 0
Myers & Son	3,361 0 0
Hill & Son	3,265 0 0
Henshaw	3,208 0 0
Browne & Robinson	3,073 0 0
Brass	2,837 0 0

For a Baptist chapel, in the Birkbeck-road, Holloway, Mr. J. W. Reed, architect:—

Williams	2,633 0 0
Lamble	617 0 0
Carter & Sons	573 0 0
Watson	539 0 0

For sewers, Wandsworth Parish, Wandsworth Board of Works. Mr. A. Dobson, surveyor:—

Wainwright	25,500 0 0
Bretton, Routledge, & Co.	21,000 0 0
Dethick	18,600 0 0
Thirst	18,390 0 0
Hill & Reddell	17,698 0 0
Rison	17,728 0 0
Robinson	16,770 0 0
Niblett	16,500 0 0
Blackmore	16,750 0 0
Crockett	15,000 0 0

TO CORRESPONDENTS.

J. P. C. N. A. J. R. M. H. A. C. H. V. P. L. B. S. F. M. P. C. H. T. L. B. W. W. L. L. C. H. W. P. L. S. W. S. H. M. J. S. J. W. R. T. W. P. C. R. J. R. W. P. & K. W. H. (if tenders are stated, so certainly that there would be an difference). L. M. D. (the sewers would interfere with such tunnels). In type, "The Builder of Wales."

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the names and addresses of the sender, not necessarily for publication.

Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

The Builder.

VOL. XXIII.—No. 1192.

The Development of Norman Architecture.

DISSERVICE done to the world by the Vandalic treatment of Mediaeval remains in the last generation, almost on a par with the defacement and destruction of the works them-

selves, has been the inducement of a reactionary worship of all antiquity without discrimination. The conscientious preservation of remains as venerable has been with many excellent consequences so persistently inculcated that the possibility of a distinction between the venerable, on account of age and historical testimony and associations, and the admirable, in virtue of beauty and of truly artistic treatment, has been almost lost sight of. So far as this unqualified respect has conducted to the preservation of the ancient, there is little to be regretted. Experience has taught us how difficult it is to keep restoration from sliding into substitution—how dangerous are the risks of the lottery that decide the details of modification so soon as we concede the principle. But Mediaeval antiquities are not alone objects to be admired; and even from this point of view it is no slight disaster that sensibilities should be blunted or depraved, but they have also become models of imitation, precedents for practice. Nothing but severe and accurate criticism can save us, in this case, from availing the crude and the sophisticated reproached with aggravation, and what our fathers are up as mistakes and were ashamed of, coming back in dire visitation upon their sons long after the canonical tale of generations.

In architectural criticism, therefore, of whatever age, as in other matters, we must ponder boldly, and give in to no base abandonment of reason, unless we are willing that technical archaeology should finally stifle all the efforts of invention of which the essence is independence, we postulate the admission of innovators. The desire of the student and the aim of the professor must be for more than registering criticisms for distinguishing styles and determining dates and ages; they must venture boldly—student and professor together—into the outer ocean of inquiry; be eager to rejoice over discovery, no less eager and prepared to discern and declare in their discoveries the limits of the good and the evil.

No modern can be a severer critic to the Mediaeval architects than they found among each other. Each was prepared to make such a change in continuing or repairing a cathedral as pointedly condemned his predecessor. We shall usually do both injustice if we suppose such changes were made simply in obedience to style taken in the sense of fashion; they were for the most part commenced on the basis of taste, of a theory very often but by no means infallibly and universally right, of a failure in effect in the earlier design, and of the most apt correction of it. Critical correction opened the door that led in competitive development; and then it often occurred, from the surprising luxuriance of invention, that a style of great power and promise was superseded rather than corrected and perfected. The alterations applied brought in new suggestions and motives that carried the suc-

cessor far away indeed from the original, and still more frequently the immature unity of a design was still further impaired, was sacrificed, by the intrusion of changes by men who had it not in their power to remodel all, and had it not in their natures to suppress the novel conception that was urged upon them from within. Thus we have many a single bay of a design far finer than the completed design, where it has gained place as an interpolation. And generally there are, perhaps, finer things in the germ in Gothic architecture than ever were executed, conceptions that were still not beyond recovery, if we are prepared to give that full value to the best inspirations that binds us to resolute appreciation of the less happy; and if, moreover, it must be added, we can only succeed in rendering refined theory,—especially of proportion, again as ancillary to taste as once in the world's history was done in Greece.

To exemplify these remarks. No round-arch, or so-called Norman cathedral exists; none, so far as appears, ever has existed, and it is just possible that not one was ever designed which realized all the sublime effect of which the style was certainly susceptible. By such an enunciation we are not bound to the flaws and faults, and vagaries that belong to particular examples, to bad masonry, coarsely-executed ornament, or clumsy proportions: we should not be, though Norman remains did not exist, exempt from all these unhandsonenesses.

The main constructive basis is as uniform through all the styles of Gothic as the type of the skeleton common to all the vertebrata, and it was received as directly from the Roman Empire as the Latin element of modern languages. We have but to look at the elevation and pass under the arcades of the Coliseum to recognise the leading elements, motives, and combinations of half the cathedrals of Christendom; while such a church as that dedicated by Justinian to St. Vitalis, at Ravenna, goes far to give an account of the other half; and indeed, if history did not interfere with the nomenclature of art, would scarcely escape from the category of Gothic churches. The pier, simple and compound; the columns, single, grouped, or attached; the arch, the successive orders of arcuation, the arches grouped under the super-arch, the groined vault, and the transverse archivolts at least, if not the diagonal rib, these are the features which were varied in arrangement, and freely modified in proportion by the Mediaevals, till their originals would own them no longer; but their antique origin is still self-evident. Architectural forms, of developed elegance and settled type, were treated with no more scruple than the traditional elegances of language in pronunciation and inflections. But in either case the primary requirement, the initial impulse that had generated elegance, and distinctness, and order before, was not annihilated, but was active still to preserve the cardinal combinations from entire resolution, and to reduce all at last to an operative arrangement.

The rudest forms to which architecture found itself reduced in the course of transition, are probably to be seen among the Norman churches and cathedrals that were built in such abundance and on such a scale all over England within a century of the Conquest. A certain motive for unwieldy massiveness existed in the feeling that a church, no less than a private dwelling, might have to answer the occasions of a fortress. Beyond this, there certainly was the feeling for mass as essentially dignified, as well as being the one source of distinction under command; and, lastly, the very indifferent workmanship that could in many cases alone be counted on, not only compelled renunciation of finished detail, but led to attempts to give stability by that bulk which too frequently defeated its own object. The Norman towers that are now standing bear

but small proportion to those that have fallen; and even when, as at Winchester, the fault was sought to be remedied by better masonry, the masonry was still in excess.

More worthy workmanship was, however, sooner or later, forthcoming. So in the piers at Hereford, a stone of solid quality is employed in courses which, though not quite uniform, vary but little in height, and have horizontal joints close and continuous through the entire piers and their attached shafts. In the same cathedral, the plain vousoirs of the nave arches are uniform, and there is a joint in the old work between each several zig-zag, a refinement neglected with manifest ill consequence in the restoration.

Construction, distribution, proportion, and ornament, these are the heads under which the characteristics of a structure may be arranged. In ordinary Norman construction, the employment of the round arch must be considered essential. It is no doubt the fact that Pointed Norman arches occur unquestionable as to date, —occur so positively, that we are not disposed to yield the zig-zagged Pointed arches of St. Bartholomew-the-Great as modern reconstructions from old materials. But without quite excluding a possible variety of Norman in which pointed and round arches should concur, it is clear that the predominance of either would make a distinct variety; and that the pointed variety of the Norman has never been consistently elaborated, is an illustration of our primary assertion of the undeveloped resources of the style. In the style as it prevailed, therefore, a pointed arch is intrusive in character, and is to be marked as a lapse of the architect, not adopted and recognised as a feature of the style. Brilliant as may have been the ulterior results of the infringement, from the earlier point of view we must adjudge artistic superiority to the architects who did not fly to the pointed archivolts, but succeeded in a harmonious union of narrow stilted semicircular arches when occasion arose to make them range in height with others of broader span, and who kept in check both lust of novelty and temptation of facile execution for the sake of unity.

It would be perfectly fair to say in support of our thesis, that most of the characteristics that illustrate later Gothic are susceptible of being carried back into Norman, and of receiving Norman treatment; but, in truth, if we look narrowly, most of them are already there,—most of those that admit of full transference, while of the rest we find the unmistakable germs.

It is too true, again, that most of the English cathedrals of this period were built to receive wooden roofs, warned by defectiveness of masonry, invited by plenty of timber; and in so far as this was the case, the architects were parties to the infringement of unity at the most vital point,—to an incoherency and contradiction. But vaulted roofs are not only found recognised as appropriately available, but the plain groins of earlier vaulting even received enriched moulded ribs. That smaller intervals should be elaborately bridged by arches, while the larger are crossed by plain aid of timber, cannot but be a gross breach of conformity, and the display of such construction aggravates the insult which it would be a mark of grace to resort to artifice to modify or conceal. The most objectionable cases are those in which the structure of the walls is so ponderous, that when left unloaded by a vault, they look meaningless, idle,—at once arrogant and otiose.

In the small chapel in the White Tower, London, we have a plain barrel vault,—in other examples, as in some Spanish churches and French, which belong to this style, or to its period, we have the barrel or wagon vault crossed by transverse flat band ribs. There does not appear to be much artistic, that is expressive, value in mere flat band ribs on a barrel vault in

any case, whether descending upon plain wall, corbel, or capital of pilaster. They may relieve the eye by dividing large blank space, but the eye is but ancillary to the reason in matters involving constructive responsibilities, and reason is checked and disappointed when they stand alone.

The strengthening of such transverse bands does not in any way indicate a transference of strength to the intervening sections of the wagon vault, and in so far only intimates a suggestion of the requirement of it. When the intermediate space is groined, they become consistent; but then consistency immediately demands that the lines of the groins should also be emphasized by ribs or bands.

The grand feat of such structures is the covering of the nave; and with the scheme, whatever it may be, that is applied here, the rest of the analogous architectural feats should harmonize. Thus, if the principle of subarcuation be applied in the pier or side arch, so much the more should the like system, even further enhanced, be applied to the transverse arch of nave; or, taking the order which should be that of reflection instead of construction, if systems of ribs which are subarcuations be not required for the vault of the nave, construction helping itself otherwise,—by this otherwise it will do well to provide for the subordinate exigencies of the pier arches, and so avoid suggesting a resource which it has no need or intention to lean upon.

All the varieties of vaulting apart from the detail of the point, are as available for Norman as for any other Gothic. Even fan vaulting, not fan tracery, which is another matter entirely,—nay, we are disposed to think fan vaulting especially, from its pronounced circularity, and it may be said its proclivity, to the ponderous,—would harmonize with the Norman style.

On the expression given, failed to be given or misgiven, to the dependence of the vaulting of the nave and aisles upon the vertical support, depends generally the most important effect of all. The sheer vault may fall upon the sheer wall surface, or ribs or groins may descend on corbels, or upon capitals of attached shafts, longer or shorter, that rest upon corbels, or string-course of clerestory, or of triforium, or on capitals of triforium-grouped shafts or of nave pier, or that descend in front of nave pier, and have proper base on the common plinth.

The latter system, no doubt, of the vaulting-shaft continuous from pier base to spring of rib, is the most expressive, and susceptible of most beauty; when it is applied, the side shafts of the nave arches that answer to subarcuated mouldings, are vindicated in their significance, and the foundation is laid for most effective gradation. This motive, however, was very curiously taken up, lost again, and then again resumed, treated timidly, bravely,—and of course at last abused.

The cathedrals and churches of Spires, Worms, Mentz, St. Germain-des-Près, exhibit a feeling for this propriety; and in early churches in Normandy it is still more remarkably pronounced,—in the Conqueror's churches of St. Stephen and the Abbaye des Dames, at Caen;—and compare St. Saturnin, at Toulouse. The scheme appears to have developed itself more freely in those forms of Gothic which were developed from piers with attached columns, than from the cylindrical or columnar pier. But our own cathedrals are full of incoherencies at this point. At Rochester, we see the nave pier with a face-shaft, on which is superimposed another, somewhat smaller, that reaches the triforium string-course, which rings itself to make way,—but there terminates.

At Peterborough and Ely, face-shafts rise consistently from base upward; but only to pass even beyond clerestory windows, and so to be disappointed of the vault, which it seems was never intended to be conferred upon them, as they continue to wall-plate at higher point than an arch would spring. At Hereford, there are paired face-shafts attached to massive cylindrical piers, which at present stand idle and unheeded, matching, no doubt, the pair that are towards the aisle, that are scarcely to be seen in combination with them; and, if so seen, would but shame them by displaying due reception of a function, though in subordinate position. Wyatt, it seems, obliterated these shafts when he warred with the nave generally; but it does not appear that he found any answering shaft above them, to warn him from the wickedness as done, not only to archaeology, but to art. It might be imagined that, like the paired shafts

on the face of the piers at Bayeux, they were intended originally to receive another suit of mouldings to the pier arch. The enormous cylindrical piers of Gloucester have no preparation whatever for vaulting shafts.

The small shaft descending upon the pier capital was often adopted, but has certainly an effect of harsh contrast; and this, perhaps, caused it to be renounced on trial at Hereford, while still no better contrivance occurred by which to alleviate the harshness. For this end it was above all things necessary that the face vaulting shaft should be the architect's standard of commencement, and that he should bravely modify all other details and magnitudes that fought with it. For this even the builders of the Early English did not find themselves readily equal; at Lincoln the shafts come almost within reach of the face shafts of the piers, but are uncomfortable in projection, and finish timidly on a foliated corbel, and so the nave loses half the effect of even what height it has. At Lichfield certainly a bolder man carries a triplet shaft from base to spring; but he was still embarrassed by the contrast of its slenderness with the large blank spandrels it had to cross, and he did a bad thing in endeavouring to cover up the shame by an applied quatrefoil circle.

The Cathedral of Durham presents an effect already half achieved, that might have disclosed the value of a better principle. It is truly vaulted in quadripartite divisions, but with bold transverse ribs between the alternate pairs of diagonals, not as in sexpartite vaulting proper through their intersection. Each of these cross springers then, with its associated diagonals, descends upon the capital of a group of face shafts which rise without break or band from their bases on the pavement, and correspond with the similar but larger groups that end the nave at the porch and at the crossings. The intervening pair of diagonal ribs finish on a corbel, and the alternate nave piers below them are mighty cylinders, of varied surface carving, with no attached shafts. The same scheme is continued into the choir.

The principle of varied alternate piers is consistent when two bays of the nave are comprised in quadripartite vaulting, of which no division answers to the intermediate pier, or when in sexpartite the alternate piers are charged with additional responsibility of a pair of diagonal ribs instead of a single cross springer; but neither of these reasons—which themselves were soon found better dispensed with—applies at Durham, and the scheme is therefore to be marked as so far inapt and anomalous.

The Norman Waltham Abbey church is very similar in scheme to Durham, in its alternation of piers and cylinders. Here the piers have attached pilaster strips, which run from base to springing, and break the string-courses. One of these pilasters bears a complete face-shaft: of the other, the face-shaft terminates somewhat below the string of triforium, either cut off from below or it never descended further. In the intermediate spacing there is an attached shaft which descends, and finishes upon the triforium string-course instead of on a mere corbel, as at Durham, and in so far has a better justification.

Compare also Lindisfarne Church, Durham, and St. Peter's, Northampton.

The Norman part of Romsey Church (Britton) has face-shafts on each pier, embraced by carved moulding of triforium string-course, and diminishing upwards telescopically; that is, in broken stages and unhappily. Abundant instances, and worthy of all laud, occur of the tall attached shafts, single or paired, that run up without a band or break to carry the archivolt of the great arches under the tower of the centre or of that between the western porch, bay, and nave.

In the churches of the Conqueror at Caen, a face-shaft is assigned to every pier for the service of the transverse ribs of the vaulting; and even the diagonals have in some cases like consideration.

The awkward elongation of such shafts, even as attached, when they appeared alone or in a less degree when paired, was no doubt a cause of their reprobation by architects, who should have appreciated their propriety too highly not to have preferred making attempts to resolve the discord that marred its due effect. Nothing can be worse than the piled-up shafts,—the stories of columns individually conserving normal proportions, but disabled for joint co-operative expression,—which Gothic construction was so long in getting clear of. The discord was

finally reduced by the architects, who either grouped several tall and entire shafts together, making each a member of a mass normally proportioned, or attached one or a pair to piers or pilasters with margins and projection of such decision as to enhance the value of the shaft. Many and instructive are the experiments we may trace to adjust the conflicting claims of contrast and gradation; and though many, no doubt, were the failures, successes were brilliant.

We will carry on the subject in another article.

THE PROPOSED PALACE OF JUSTICE.

At a recent meeting of the Social Science Association, Mr. Thos. Webster, Q.C., read a paper on "The Site, Approaches, and Arrangements desirable in the Proposed New Courts of Law." Some of his remarks may be found valuable with reference to the designing of Law Courts generally; and we, therefore, print portions of the paper. The steps to be taken for obtaining a design will have to be settled by the new Government.

Situation and Area of Site.

Within the district bounded on the north by Carey-street and Lincoln's-inn, on the south by the Strand and the Temples, on the east by Bell-yard and Temple-bar, and on the west by New-inn and Clement's-inn, is the site on which the Palace of Justice is to be erected, and the Courts and Offices of Judicature are to be concentrated. Its clearance will be commenced forthwith. The approaches and appropriation of the site are the questions in which the public and the profession are now most interested. The site, when cleared, will be found to be about 20 ft. higher on the north, or Carey-street, than on the south, or Strand side, and to have a gradual inclination from the north-east, at the corner of Bell-yard, towards the south-west, at the church of St. Clement's Danes,—a circumstance not to be disregarded in considering the approaches to the palace, as it is from the south-west side alone that we must look for an approach terminating in the Palace of Justice, and presenting a *coup d'œil* worthy of the subject. It is too much to hope and expect that this opportunity may not be lost, but that the fullest advantage may be taken of it,—that the noble example of the Emperor of the French may be followed; that, while the citizens of Paris rejoice in seeing their principal buildings placed at the end of newly-created and imposing thoroughfares, the citizens of London may not be denied a similar satisfaction. The approaches from the north and north-east, though capable of great improvement, cannot be adapted to an approach of the kind suggested, without an interference with a property already exclusively devoted to the profession, and extremely valuable; as, for instance, Lincoln's-inn, the New Record Office, and Rolls House; Serjeants'-inn, the Law Institution, and other buildings in Chancery-lane. A good access to the Palace of Justice from the level of Chancery-lane for carriages, and over and under Chancery-lane for passengers, may be obtained; but a grand approach, such as may be presented on the south-west, is peculiarly impracticable on the north-east side; and its attainment would render the site a great thoroughfare for traffic having no occasion to resort to the Palace of Justice. The difference of 20 ft. in the levels of the ground between the north and the south may be taken advantage of to afford an extra floor on the southern portion of the site, and a saving of 20 ft. in the ascent to the principal story,—the floor of the Great Hall of the Palace of Justice,—from the northern and western side.

Level of the Site and of the Thames Embankment.

The relative levels of the site and of the Thames Embankment, present advantages not to be disregarded. The Strand at St. Clement's may be taken to be about 30 ft. above the level of the roadway of the Thames Embankment, below which, at a depth of say 20 ft., are the Metropolitan Railway and the Low Level Northern Sewer.

Subways under the Strand, Fleet-street, and Holborn.

Thus access may be obtained to the basement of the Palace of Justice, and, by an easy incline to the level of Carey-street, by a subway under the Strand in the neighbourhood of St. Clement's Church, and the traffic to and from the Palace of

Justice may be separated and isolated from the traffic between the level of the Strand and other parts of the metropolis. Thus the great stream of traffic using the Thames Embankment en route to or from other places than the Palace of Justice, and the traffic to and from the Palace of Justice may be rendered independent the one of the other, and prevented obstructing the approaches to the Palace of Justice from the north-west, north, and north-east. Such approaches from the Thames Embankment may be connected with the approaches from the west and north on the western side of Lincoln's-inn-fields; from Covent-garden on the west, and Holborn on the north; they would remove one of the greatest plague-spots in the metropolis, lead to the purification and improvement of the district of Clare-market, and the territory almost unknown, except to those who pass between Lincoln's-inn and the west, lying between Great Queen-street, Lincoln's-inn-fields, Drury-lane, and Clement's-inn.

Appropriation of the Site.

The appropriation of the site must depend on various considerations, amongst which the area to be dealt with, and the requirements of the courts, are the most prominent. The area of the site may be taken at $7\frac{1}{2}$ acres. The difference of levels of Carey-street and the Strand will give an extra floor of about one-half that area, without extra excavation. Let us start from the level of Fleet-street and the Strand, at the Temple-bar entrance to the Palace, and assume the basement of the building to be 20 ft. below that level, or 10 ft. above the level of the road of the Thames Embankment, or 30 ft. above the level of the rails of the Metropolitan Railway, and of the Low-level Sewer in that embankment. This basement of $7\frac{1}{2}$ acres (without deducting the space necessary for areas for lights and passages), has been proposed to be appropriated to strong rooms, for the preservation of original wills and other documents of value. For the wills alone it has been said that upwards of three acres will be required. To this basement access may be had by subways under Fleet-street and Chancery-lane, so as to connect it at once with the Temple, Serjeants'-inn, the Rolls, and new Record Office. The basement will have a depth of about 40 ft. next Carey-street, or on the north side, should it be thought expedient to carry it throughout at that level; and if Carey-street can be relieved from the through traffic by which it is now encumbered, by reason of the obstruction at Temple-bar, the arch of which is too low to permit the passage of the high-loaded vans and waggon, a portion of that street may be made available to widen the area for the lights to the basement. The ground-floor of the Palace, or that on the level of Fleet-street, at Temple-bar, would be about 20 ft. below the level of Carey-street; and assigning 20 ft. for the height of the rooms on the ground story, and 20 ft. for the height of the next, we arrive at the level of the floor of the Great Hall, about 40 ft. above Fleet-street, and 20 ft. above Carey-street.

Arrangements of Courts and Offices about the Great Hall.

In the arrangement of the courts on the sides and at the ends of or around the Great Hall, the principles of separation and isolation are essential for the convenient and economic administration of justice. In this respect it may be well to imitate the arrangements of the new Assize Courts at Manchester, in which those principles are applied to the extent there required.

The precise arrangement of the courts will be matter of detail for after-consideration, but the general principles may be indicated.

For the purpose of illustrating the arrangement of the courts and offices in connexion with the Great Hall, let us suppose a series of four concentric circles, the inner representing the Great Hall; that in the space between the circumference of the first and second circles are arranged the courts and offices immediately connected with them; that the space between the second and third circles is a passage or corridor, for communication with the courts and offices arranged between the first and second circles; and that the offices are located between the third and fourth circles. Access to the courts will then be obtained from the Great Hall on the one side, and from the corridor between the second and third circles. Access to and from the Great Hall will of course be open to all, but access by the corridor will be strictly confined to the judges, officers, jurors, professional men,

witnesses, and parties actually engaged in the business of the courts, or passing to and from the offices located between the third and fourth circles.

Thus the general public and parties engaged, or whose attendance is necessary to the conduct and progress of the cause, may be separated and isolated from each other, but able to intermingle in the Great Hall, and entering and leaving the courts by different routes.

The courts and offices immediately connected with the courts as the retiring-rooms of the judges and the jury, will be arranged in the space between the first and second circles, each court with the offices immediately connected with it presenting substantially the same arrangement, but differing only in details according to the requirements of the business to which it is devoted. The interval between each court, or each set of courts, will be available for access between the Great Hall and the great corridor, by rising, as in the courts at Manchester, to a level above the level of the floor of the Great Hall. This elevation, of say 4 ft., will give the means of access to the bench and the retiring-rooms of the judge, and to the jury-box and retiring-rooms for the jury, while a descent of 4 ft. will give access to parties and witnesses engaged in the cause, and afford the means of separating the witnesses on either side from each other, in convenient waiting-rooms immediately accessible to the court. This level of the floor of the judges' rooms, which may be conveniently designated the level of the bench, forms a most important feature in the new courts at Manchester, and in the arrangements hereafter mentioned, especially in reference to the suggested entrances to the courts. The indiscriminate manner in which the witnesses on either side are permitted to intermix, during the progress of a cause, with each other and the general public, and the difficulty with which they are introduced into, and withdrawn from, the witness-box, are serious defects in our administration of justice; and any scheme for the courts in which this was not amply provided for, would be most seriously defective. It is of the greatest importance also that the jury should be provided with accommodation wholly independent of the access of the public, and that their retiring-room should be convenient for communication with the judge.

The offices of the Masters of the several courts should be in immediate connexion with and contiguous to the several courts, and it may be sufficient to have indicated and illustrated by imaginary circles, situations suitable for their location on the level of the Great Hall and courts, while the floors immediately below that level will afford space for the Writ and Record Offices, with convenient accesses to the offices of the Masters of the respective courts. The contiguity of the several Writ, Record, and Judgment Offices to the Masters or the courts is of less importance than bringing them all into as close contiguity as possible with each other, with the view of a general consolidation and concentration of such offices for all the courts.

Internal Arrangement of the Courts.

The construction and internal arrangement of the Courts would appear to have received little consideration, many being most inconveniently large or small, and none presenting that separation and isolation by which the convenient administration of justice may be so much facilitated. In many, the position of the witness here is so inconvenient as to lead to its abandonment, and to placing the witness in some new position more convenient for the judge and jury and counsel, but most inconvenient to the witness. The inconvenience of ingress and egress, and the manner in which all parties are intermixed with each other and with the public, is matter of universal complaint whenever circumstances of interest give rise to a crowded court.

To the relative position of the judge with a jury-box on either side of the court, arranged with three seats holding four each, and of the counsel, no exception can be taken. The great defect is in the position of the witness-box, and the difficulty of ingress and egress for the witnesses, professional men, and others necessary for the progress of the cause. Accommodation for jurymen in waiting, for students, short-hand writers, and reporters, must form an essential part of the arrangement. The witness under examination naturally turns to the counsel by whom he is examined; the reply to the question will be naturally addressed to the same counsel; and consequently, according to the arrange-

ments adopted in many of the courts, from the judge and jury, by both of whom the witness should be heard and seen. The witness, if placed near to, and a little below and on the right hand of the judge (assuming the jury to be on the left of the judge), that is, on the opposite side of the judge from the jury, will speak across the judge, be seen by the jury, and heard equally by the jury and examining counsel; from whom he will be about equally distant. The position of the witness-box in the Courts of Queen's Bench, Common Pleas, and Exchequer, is an illustration of this; but the witness might with advantage be nearer the judge than in any of those cases. If the witness be placed between the judge and jury, his back will generally be turned on one or the other, and he will sometimes get engaged in conversation with some of the jury, a most objectionable and inconvenient practice. None of these courts present convenient or isolated ingress or egress for the witness, who must struggle and be intermixed with the general crowd, with whom he is intermixed both before and after his examination. Nor are the jurors, counsel, attorneys, or parties any better off, as the experience of those attending the courts at Westminster, and other courts in the metropolis, will affirm.

This may be wholly avoided by a passage under or on either side of the seat of the judge. Assume the floor of the judicial bench to be 4 ft. above the level of the floor of the court, by steps descending to a level of 4 ft. below the floor of the court, ingress and egress may be obtained under the bench, and communication effected with suitable separate waiting-rooms, in which the witnesses of either party, prior to their examination, may be kept together, ready to be called as required. The witnesses, after examination, may be permitted to pass into the court by a passage under the upper seat of either jury-box, and intermix with the general crowd. This ingress and egress under the floor of the bench may also be made available for counsel, attorneys, and other parties immediately engaged in the cause. The floor of the court between the bar and the bench would afford (the witness-box by which it is usually encumbered being removed) ample space for short-hand writers and reporters, with seats and small desks under the jury-box; the centre part being kept clear for ingress and egress and the exhibition of models and plans, in the introduction and exhibition of which great inconvenience is frequently experienced. The seats reserved for students might be immediately behind the bar, the access to the first and second row of bar-seats being from the floor of the court under the bench, and to the third and other rows at each end next the jury-boxes by passages under the upper seat of the jury-boxes, or direct into the Great Hall; the seats for the public being behind, at either angle, with entrances only from the Great Hall. Thus the angles of the rectangular courts would be utilised, and the hearing improved; and I would suggest whether the shape of the courts should not be rectangular and hexagonal in all cases; the part occupied by the bench and jury-boxes being rectangular, and the other part three sides of a hexagon. The seats for the bar and the public should be slightly raised, so that every person may be able to see and hear without difficulty; for, unless this be the case, it is almost hopeless to attempt to preserve the quiet of the court.

THE PREVENTION OF STRIKES.*

It will have been already understood, that the member voluntarily ceasing to work for the concern founded by M. Leclaire, or dismissed therefrom, will not form part of the "*Société de Secours Mutuels*," &c., from the day of his leaving. The causes of a dismissal from the concern, and consequently from the Society, are: 1. Drunkenness; 2. bad execution of work; and, 3. the making claims for time badly employed, and as though legitimately due; also all causes calculated to be of prejudice to the concern or to the Society. But, ordinarily, before the delinquent is sent away, these penalties are inflicted.—1. A warning, or caution (*avertissement*); 2. A second warning; 3. After the two *avertissements*, a fine of five to ten francs; 4. After the former fine, one of from 10 to 20 francs; 5. The final dismissal of the individual. In the extraordinary case of dishonesty clearly shown, the dismissal takes place at once; and the indi-

* See pp. 737, 769, 774, 811, 845, ante.

vidual, as before stated, has no claim to be indemnified his admission-fee. Mention is made on the Society's registers, of the date of the dismissal, as well as in the *procès-verbal* of the following sitting of the council.

Every member changing his residence is to make a declaration to the secretary, in forty-eight hours afterwards, on pain of a fine of 1 franc 25 centimes; should he be the holder of any office; and of a fine of 75 centimes, if otherwise. Members of the Council not present at the opening of a sitting, pay each a fine of 1 franc 25 centimes; whilst the vice-president, secretary and treasurer, or their *adjoints* duly called to replace them, if absent during the whole sitting, pay each 2 francs 50 centimes instead of the other fine. However, in the latter case it is mentioned that there are legitimate motives of absence, such as known illness, works at more than 10 *kilomètres* from Paris, and the service of the national guard. A visitor is fined 1 franc 25 centimes for each dereliction of duty.

Each member has the right,—and it is at the same time specified for him as being a confraternal duty,—to visit a comrade who is on the bed of pain, to fortify him in his sufferings, and console him in his affliction. But the extra-official visitors are to record their visits upon the paper.

Every infraction of the rules, and all injury done, by one or many members, to the interests of the Society,—as all prevarication on the part of a functionary,—against which there is no penalty clearly set down in the rules, is submitted to the Council; who may inflict a fine of 50 centimes to 4 francs.

The general assembly, or annual meeting, is convoked on the last Sunday in March, or first Sunday in April, to receive the report of receipts and disbursements. Respecting meetings of this character, held on the Sunday,—as they are very commonly,—it should be observed that the "desecration of the Sabbath" is not exactly the offence that it would be with us; since there are religious services every day, in the churches. On the occasion of the meeting, the requisite documents are handed to annuitants; and the vice-president, secretary and treasurer, and their *adjoints*, will be elected. The ordinary members and visitors not attending, will be fined 2 francs; or the superior members of the Council, 4 francs.

Finally, under "*Dispositions Particulières*," after mentioning what has been already referred to about the non-dissolution of the Society, whether by the death of M. Leclaire, or the extinction of the concern founded by him, there is the "*Article*" reserving the rights of the workmen and *employés* of the establishment, and of their widows and orphans.

The "modifications" of the rules, submitted in 1864, refer to some seven or eight different matters, and chiefly to some that have not before been mentioned. By these modifications, recompenses in the form of medals would be granted by vote of the general assembly, to the workmen, *employés*, or apprentices, members of the Society or not. To these medals would be attached, exceptionally, allowances of money,—whether each in one sum, or as an annual subvention, or annuity; of which the *minimum* would be 10 francs, and the *maximum* would not exceed the amount of the pension to which the individual would have had a right had he been a member of the Society. Medals of this kind would be given to a pensioned member, having at his charge a family for whose wants his pension would not suffice; to the widow of each member, should he die; and to the children, become orphans; also to a workman, not a member of the Society, who after long services given to the establishment, might find himself unable to work, before having reached the age that would have given him right to the pension; and, finally, to apprentices distinguished by their good conduct and capacities.

The same document mentions eighteen years of age, as the time whence the years of service giving right to admission to the Society could be counted. It states that the workman or *employé* called to serve his country, would not be considered as having quitted the establishment,—his time of absence being simply deducted from the years giving right of admission. It also specifies the register of marriage as sufficient for the admission; whilst it still requires for bachelors, the register of birth. The president of the Society, after M. Leclaire, proposed to, and named by, the Emperor, is to be a stranger to the house-painting establishment.

The document also mentions the library,

formed for the Society; and from which, all the members, as well as workmen and *employés* of the establishment not members of the Society, can have books for home-reading. This library contains about a thousand volumes. Some of them were given by the Minister of the Interior and other persons; but the general number were purchased following the catalogue of a society, the *Société Franklin*, called after the founder of popular libraries; and which has for its object the propagation of these institutions in France. The library is situated in the Rue Cardinet, No. 54, in the seventeenth *arrondissement*; and there, have been commenced the courses of lectures and instruction, already spoken of; and to which we may again refer.

A tabulated statement before us, gives an exact picture of the results of the Society's operations. Thus there were last summer, fourteen persons, including one widow who had been attached to the "*Maison Leclaire*" for more than twenty years, who had become pensioners; and there were ten others, members of the Society and non-members, who had acquired the right to the pension, but had not claimed it. It results from the rules of the Society, that all workmen of the establishment are not necessarily qualified to belong to it; but there are rules, nevertheless, giving to the individual, not a member, who has injured himself in the service, a certain assistance, and to one who has exhausted his strength, having remained attached to the establishment for twenty consecutive years, and having reached fifty years of age, the same right to a pension as if he were a member: only in case of illness, the latter would not receive the two francs a day, the medicines, and the visits of the physicians.

Amongst the fourteen pensioners, "*rentiers*," or annuitants, there is first the widow, "*Madame Veuve Poulain*," of the "*Rue du Chemin de Ronde de la Gare d'Ivry*," 78. Her half-pension, 200 francs (8*l.*), was granted on the 23rd of January, 1862, after the decease of her husband, whose pension was of 400 francs. Then comes "*M. Esau*, Rue de Chevreuse, 3, à Issy," whose pension, of 300 francs, was granted on the 1st of March, 1862, (he being infirm prior to the age giving him a right to a pension); whilst it is stated that his wife having become powerless at the date of the 27th of May last, there had been temporarily voted a supplementary pension of the same amount, or so as to make in all 600 francs (24*l.*). "*M. Bonry*, Rue des Sept-Voies, 3," having been (masters and workmen, pray note the fact,) thirty-two years in the service, a pension of 400 francs (16*l.*) was granted him in 1862; and being no longer able to work, a supplementary pension of 400 francs was voted temporarily, or making up equal to 32*l.* The next two on the list, after twenty-eight years of service each, continue working: one has a pension of 300 francs, and the other of 450 francs. A workman named Conerbe, after the same length of service, received a pension of 400 francs on the 1st of February, 1864; but as he was not in possession of all his faculties, a supplement of 400 francs was voted temporarily. We need mention only another instance, that of *Mademoiselle Lise Hutinel*, cashier,—for, in France, a woman can earn an honourable livelihood by something else than needlework and teaching, and has a head for arithmetic: this lady, after twenty-seven years of service, had a pension of 450 francs (18*l.*) granted her on the 1st of August, 1864. She has now retired from her duties. The ten workmen having the right to, but who had not in June last claimed, the pension, have been at work in the establishment for periods ranging from twenty-five to twenty years. Some of them are not yet fifty years of age. Each year, other workmen will arrive successively in the position of having the right to the pension.

We will not examine to the bottom of a question that may have presented itself to some readers, in going with us through the particulars of this Provident and Mutual Aid Society that is constituted of the members of M. Leclaire's establishment,—namely, whether the power which the benevolent founder of the Society has felt obliged to retain in his hands, would in this country be deemed not of the colour of constitutional government. The Frenchman, it has been well said, demands first, and before either sort of government, to be governed: if there be a manifest governing, he is tractable; and, truly, where aims and judgment of the acting powers are good, he cannot fail to reap some benefit from the state of things. The Englishman, on the contrary, has to think for himself: he is edu-

cating himself in the course of the thinking; but he is apt to take wrong courses,—in the presumption of his ignorance. We therefore cannot yet say whether M. Leclaire's rules could be exactly applied here. In the view of the immediate "*Prevention of Strikes*," we might wish they could: in that of the training of men, we might be told that the longer course, not free from stumbling-places, could present the most material of self-improvement to be gathered by the traveller that way. Still we cannot help thinking that there is a light of suggestion in which M. Leclaire's regulations are to be regarded. The almost absolute power of management, both in his own establishment, called the "*Maison Leclaire*," and in the Provident Society, has been accorded to him by the workmen, in a correct view of the individual master, and of their interests. Do the facts tell both ways in the question as to co-operation as a remedy for the evil of strikes? The inquiry must be answered for our readers, for themselves. The head of the Leclaire establishment has multiplied the guarantees for good conduct of his workmen; but probably never since strikes were invented, were there instances of men attaching themselves to a master, and being so much elevated by their relations to and with him, such as the instance we have here. The men must surely have felt satisfied with their position. That position allows them to receive something out of profits, beyond what they receive as wages; and, above all, it establishes, in every way, a bond with the master, instead of a prospect of being cast adrift. What have been some results of the position, apart from the absence of strikes,—or results on the men themselves,—the testimony to M. Leclaire, heretofore quoted by us, has shown. The tendency of all the particular rules is to allow no place for men of inferior character or skill; but much of the effect must be due to the co-operative principle. The old relation of master and servant may exist, and be required for long time to come; but the inferior workmen will be found in establishments preserving that relation, and the superior in those of another class, just as Mr. Mill has predicted.

NOTES ON SOME OF THE CASTLES AND OTHER BUILDINGS OF NORTH WALES.

That branch of the antiquary's research which has for its object the examination of our ancient edifices, is one that is closely allied with the pursuits and studies of the members of the architectural profession; and for the archaeologist, few districts possess greater attractions than that which lies between the cities of Conway and Carnarvon, along the shores of the Menai Straits, with Druid Anglesey on the one hand, and the wild passes of Penmaen Mawr on the other. One word here, however, respecting archaeological studies; the true value of which appears to me to consist not so much in supplying architectural standards from the works of the ancients, to be copied line for line in the buildings of to-day; as in the power they possess of giving a proper direction to art-labour, and eliminating those grand and unchanging principles upon which all true architecture depends; for the mere abject copyism of forms and outlines can never impart new life to modern art; but the gentleness, the vigour, the patience, the suitableness of means to their ends, that may be derived from such studies, are the elements which should invest them with a living interest and practical value. In our ancient buildings there exists a delightful element of self-abnegation that is truly refreshing; and who does not love to linger in the old aisles, and shadowy cloisters, and on the lichen-bannered castle ramparts. Do not the grey walls and the green soft garth delight and refresh the wearied vision after the peopled city and its flustering streets? How much might be done for our modern towns by the infusion of some little of the ancient art-spirit into them! How very charming, even in decay, are all our old Gothic cities; for when the law of self-preservation compelled our forefathers to reside within their walls, and suburban villas were an impossibility, the thoughts of the architect were directed to the great aim of rendering the street forms which were ever before the eye pleasing and lovely, honest and true; and these remarks have special reference to the garrison towns founded in Wales by King Edward I., and also to the lordly castles erected by him for his own and their protection. While leading the Crusades

in the East, Edward had become imbued with an enlightened passion for architecture, and a desire to liberate it from the severities of the feudal ages. An intense morose selfishness characterizes most of the earlier strongholds; and the English castle had heretofore been made to possess as grim an aspect as the situation would permit: from the portcullis, with its spiky teeth, to the frowning watch-tower, with its spectral beacons, all was alike heavy and forbidding. With Edward I. the tendencies of the age became more municipal, and art, whose movements had in England up to this time been regulated by the narrow principles of feudalism, dawned with a brighter promise, and began to flourish, as she ever does, with and for the liberal and the free. In founding the towns of Conway, Beaumaris, Carnarvon, and building their stately castles, with their beauty of outline and dignity of aspect, Edward I. broke through the ancient barrier and inaugurated a new era in the architecture of our country. He had but just returned from the Crusades, and in the act of destroying had learned the art of building a more commodious description of castle than that of which Roman, or Saxon, or Dane, or Norman, had left the vestiges in our island. And although a great English bard has addressed Edward's memory in the words,—

"Ruin seize thee, ruthless king, at which
Stout Gloster stood aghast in speechless trance."

we architects must, at least, do him the justice to say, that for his castles in Wales, and the beautiful crosses in memory of his queen, the devoted Eleanor, we owe the memory of this monarch a lasting tribute of gratitude and praise. Foremost among these structures is the glorious Castle of Conway (anciently called Aber Conway). As we approach it, the effect produced upon the imagination is peculiar and overpowering; one seems to be suddenly borne back to an earlier age: that grey-green tone of colouring which invests it, made up of lichen and ivy, and the cranny-loving wallflowers and graceful dancing ferns; the arching and almost unbroken enclosure walls of both castle and town, ramping, as they do, boldly from slope to slope; the great birds alighting confidently upon the nodding turrets; the soft fallow grass of the terraces; and the quiet vastness of the whole, speak to the mind otherwise than of modern hurry, modern noise, modern meagreness of conception and smallness of endeavour. And is not the contemplation of such structures calculated to exalt the mind to loftier standards of thought and purpose? They are, indeed, like the old cathedrals—vast, absorbing, inspiring, profound. To sit down here, in student fashion, and sketch these noble towers and gleaming turrets,—these shadowy window ranges, giant corbels, and vast, deep gateways, cannot fail to bring one's old feelings into sympathy with the great elder brethren of our glorious craft.

Conway Castle and city form a vast group, still possessing intact all the characteristics of a strong military station; the enclosing walls are a mile and a quarter in circuit, with four gateways and twenty-one small towers, built at bow-shot range apart, the whole being encircled by a deep wide fosse. Let your imagination supply the drawbridge and portcullis, and enter the castle with me, by the great western gateway, and, *en passant*, observe the little Sally-port opening into the fosse, or ditch, of the balium. King, in his interesting work on ancient castles, informs us, that sometimes the sly old castle builders inserted in their outer walls the imitation of an old blocked-up doorway, or Sally-port; and that, in a position where the walls were in reality the thickest, strongest, and best protected, so as to mislead their assailants, who, supposing that they had there discovered a vulnerable point, brought their moveable towers, catapults, petards, battering-rams, war-wolves, and saw-machines, to bear upon the quasi-doorway, while the besieged were gaining time within, and strengthening the really weak and unprotected portions of the fortress. We pass the enormous machicolated and embattled gateway, telling of showers of molten lead and huge stone missiles hurled down upon the assailants; and the first tower or outwork we come to is the barbican, transposed, no doubt, from an Eastern word "barziane," in the mouths of the Crusaders. This tower, built so as to command the approaches to the place, had wide stone seats for the warders, and those keeping what was called "castle guard." Here, in the walls of this outwork, were crenelles, or eyelets, for the discharge of missiles, most of which openings

were deeply splayed inwardly, and some curiously constructed, so as to arrest the whizzing arrow's barb and brazen featherings.

Suddenly we come upon the spacious terraces with their softest carpeting of fallow turf, enamelled by the peeping "eyes of day." That gateway and those terraces were traversed in their turn by Edward I. and the fair Eleanor; by the hapless Edward of Carnarvon; and afterwards, by the still more hapless, and soon afterwards crownless, Richard II., flying from Henry Bolingbroke. At this period the Castle of Conway was kept, we are told, by fifteen men-at-arms and six archers; and here, after the lapse of ages and the change of dynasties, the Round-heads, under Mytton, raised their stern shouts of victory and sang their wild hymns of praise. Sauntering along, we come to the remains of the spacious banquet-hall, planned to follow the curving rock whereon it stood. The dimensions seem to have been 130 ft. long by 30 ft. wide, and from 25 ft. to 30 ft. high, with three vast fireplaces, where the giant yule-logs blazed. In this great hall Edward and his queen kept Christmas in 1290, only six years after the building of the castle.

This hall was lighted by nine windows, of goodly proportions; the three opening to the court-yard being, as was usual, much larger than those which were in the outer walls, and so exposed to attack. Underneath the great hall were the vaulted cellars, cool, deep, and reverberating, where the mighty vats were tilted, and the giant sirloins hung.

The noble towers,—one called the King's Tower and the other the Queen's Tower,—must be in turn visited, and, in order to realize their prodigious proportions, measured, examined, and surveyed. Here, also, are the remains of other stately apartments; and above, that charming little groined room called Queen Eleanor's Oratory.

On the outside of the castle we counted eight enormous towers, having their specific appellations; as the Tower Llewellyn, the Broken Tower, &c., &c. The towers are circular on plan, 40 ft. diameter, with walls from 12 ft. to 15 ft. in thickness, all grouted and as compact as adamant; the overhanging tower near to the King's Tower is unsupported, and owes its preservation entirely to the tenacity of its materials. The keep or donjon, always the last refuge of the besieged, is in the second tower on the south side adjoining the great banquet-hall, where doubtless many a captive pined within hearing of the sounds of revelry and mirth.

At the east end of the inner court stood the reservoir, 20 ft. deep and 15 ft. in diameter. When we take into consideration the skill shown in adapting the castle to the peculiarity of the site, the sumptuousness of the outline, and the many strategical excellences it displays throughout, we are forced to the conclusion that the designer must have been not only an accomplished engineer, but also an artist of no mean ability. After standing the brunt of four centuries, the impetuous charges of the Welsh under Llewellyn and Madoc, the wars of the rival Roses, and the battering of the Parliamentary army under General Mytton, the castle suffered its chief spoliation at the hands of the Royalist Earl of Conway, who, in 1665, took away the timber and the lead, under the pretext of repairing some of the King's castles in Ireland. Had Cromwell melted the lead into bullets to slay cavaliers, as was his wont, we should not have wondered so much; but certainly such an appropriation of the materials was neither creditable to the Earl of Conway nor to his master. But, ruin as he left it, it is still a delightful place to spend a summer's day: to repose on the velvety grass, and transfer the castle's wondrous outlines to one's sketch-book, to look over pleasantly in quiet hours hereafter, is in itself an occupation calculated to impart a poetic afflatus to even the most prosaic of minds.

The city of Conway has also much to interest: the Plas-mawr, with its great turret, built in 1585; the college; the church, with its decorated screen and "font-stone;" and the graveyard, and its strange inscriptions; and, more wonderful still, Telford's gossamer bridge, and Stephenson's marvellous tube, the descriptions of which have already formed the subject of many a long and elaborate paper.

Between Conway and the Ormshead are scattered many interesting remains. Dyranwy Castle, the home of the early Princes of Wales, and afterwards the site of a fortress built by Hugh Lupus, Earl of Chester, demolished in

1262 by Llewellyn: the lines of the moat may still be traced, and also the positions of the walls. There is Llanrhos Church, cruciform, with oak roof and carved font. Gloddath House, on the territory once belonging to Gruffydd ap Rhys ap Gruffydd ap Madoc Gloddath ap Madoc ap Jerwerth Goch of Creiddyn. There are also Capel Trillo, and the ruins of Gogarth Abbey, on the Great Ormshead, once the residence of the bishops of Bangor. In fact, this neighbourhood is overflowing with archaeological treasures, and must at one time have been a great centre of civilization and political activity.

A not very difficult ascent from the fashionable watering-place of Llandudno, which is again peopling this long-deserted corner of Wales, brings us to the ancient church of St. Tudno. Here, perched on the edge of the wave-worn cliffs, this little mountain-oratory carries us back to those days when, as a modern writer has said, "The chalice were of wood, but the priests were of gold." The dimensions of this little church are 67 ft. by 16½ ft. Although there are some portions of earlier work, that of the fifteenth century seems to predominate, as in fact it does in most of the ecclesiastical structures along the shores of the Menai Straits. Small and unpretending though they may be, they have all a history, and some marked characteristics, well worthy of the investigation of the archaeologist.

In sailing from Llandudno to Beaumaris, where we shall find another of King Edward's castles, we pass Priestholme or Puffin Island (called from a migratory bird of that name). *Punch*, in his cruise, calls it a C. J. Upon this island stand a solitary tower, and the ruins of a church. There exists a tradition that anciently there was a ford at this point across the Lavan Sands from Carnarvonshire to Anglesey, and that portions of a paved way have been discovered at low tide. On the Anglesey shore, as we sail towards Beaumaris, may be seen several ruins; the most conspicuous being the Monastery of Franciscans, called "The Friars," now partially restored. It is said to have been erected by Llewellyn the Great over the grave of his consort, the Princess Joan, daughter of King John of England; there is also Penmon Priory, founded by Maelgion Gwynedd, Prince of Wales, in the sixth century.

The stone used in the suspension and tubular bridges was obtained from the quarries of Penmon. As we approach Beaumaris the scenery is very grand, and looking around we are constrained to exclaim, "How very appropriate the ancient name of Beaumaris," which was "Beau Marais," or beautiful marsh; as also was the name of Teg-Engl, or "Fair England," applied by the British to the country about Abergele.

In 1295 Edward I. built the castle of Beaumaris; it is surrounded by a massive breastwork, having a walk on the top called the Gunner's Walk. This wall has ten circular towers at intervals, looped and embattled; within this wall was a fosse encircling the castle, with the usual accompaniments of drawbridge and hersed portcullis. A carpet of verdure now covers this fosse, where many a hand-to-hand fight occurred of yore, and the arrows flew briskly from the bristling loopholes. Upon the eastern side of this breastwork, it is said, supplies for the castle could be landed by means of a canal communicating with Beaumaris Bay, upon the shore of which, the castle stands; and there is still an old rusty hawser-ring for mooring ships, to be seen near the great eastern, or "sea-gate," as it was called. The castle proper, which stands within the fosse, does not possess either the altitude or picturesqueness of outline that characterizes the castles of Conway and Carnarvon, about halfway between which it is situated. Respecting these ancient fosses, there was an ordinance to the effect, "that every man should make a good substantial faggot 13 ft. long, without leaves, for crossing the castle ditch, and that every seven gentlemen, or men-at-arms, should make a good and sufficient ladder, on pain of being chastised at our lord's will."

Beaumaris Castle has huge circular towers at the angles, and intermediate ones of somewhat less dimensions, though any of them appear to have been of the kind that might have "laughed a siege to scorn."

The great banquet-hall is 70 ft. by 23 ft., but from the elliptical shape of the heads of the windows, that light it from the court-yard, it would appear to have undergone alterations at a date posterior to the Edwardian period.

The chapel has a solid-looking groined ceiling,

the only one left in the castles built by Edward I. in Wales (excepting that to the little oratory at Conway); there are lancet windows, one in each bay, of three sides of the octagon; the details are much mutilated. There are clustered shafts in the angles, and a moulded string running around the chapel, about 5 ft. from the level of the floor; between the string and the floor is some decorated arcading with trefoil spandrels. There is one peculiarity here: where the entrances to the chapels are opened through this arcade: the string-course is slightly raised, so as to give additional headway at this point.

There were at the Castle of Beaumaris, when garrisoned, a captain, whose pay was 12l. 3s. 4d., and twenty-four soldiers; the constable's annual stipend being 40l., and the porter's 9l. 2s. 6d. Close to the castle is a street called Rating-row, because the market people used to bring the provisions to the garrison here before offering them for sale in the town. If the sellers were not dwellers in the town, they could demand immediate payment; if they were, it was customary for them to give credit for a period not exceeding forty days. There can be no doubt that Henri de Erieton, the architect employed by Edward to design his Welsh castles, possessed not only excellent constructive skill, but also much taste, as evidenced by the use of the variously-coloured stones forming bands and quoins, battlements and embrasures relieving the stern monotony of the strongholds. This is the case at Beaumaris; and, glancing for a moment by anticipation at the massive and really grand piers of the suspension and the tabular bridges, one feels disposed to regret that there had not been a little more of Henri de Erieton's spirit infused, when the materials were at hand and the directing eye of taste alone wanting. The Castle of Beaumaris is now the property of Sir Richard Bulkeley, whose ancestor held it for Charles I. in 1643; and it stands upon the confines of his domain, Baron Hill, and forms a foreground to such a picture as Nature only produces when in her happiest of moods: the shadows of the vast fleeting clouds of autumn seeming to chase one another over the hills, and revel in their wild deep gorges, which here face us on the opposite side of the straits, where are the sister-hills of Penmaen-bach and Penmaen-mawr (literally, the greater and the lesser stone-ent), and between them the heather-clad frontlet of Voel Lwyd.

Baron Hill House, by S. Wyatt, is situated upon sloping ground in the rear of Beaumaris Castle, backed up by gorgeous woodlands. "A centre and wings" are its chief architectural characteristics; but owing to the grandeur of the site it has a somewhat imposing aspect. In a little temple near the mansion, under the shadows of the spreading oak-trees, is to be seen the stone coffin which once contained the mortal remains of the Princess Joan, in 1195, buried at Llanfaes, as before stated, but which is said subsequently to have served as a watering-trough for cattle; but what of that?—

"Imperial Caesar, dead and turn'd to clay,
May stop a hole, to keep the wind away."

There is a charming *bijou* at Nant, or Lady Bulkeley's fairy cottage. You enter by a trellised porch (covered with beautiful climbing plants) a small vestibule, from which opens a pretty room, having its walls and ceiling lined with flowered chintz of exquisite design. This apartment bears the commonplace title of dining-room, though we thought that the fairy dictionary should have afforded a more appropriate designation. This room is furnished in good taste, and looks deliciously cool and *inviting* (all perfectly appointed rooms ought to look *inviting*); but the second room you come to is, *par excellence*, the gem: it is also lined in chintz, the ceiling having a curved form, and running up to the apex of the roof of the one-storied cottage gives the appearance of space and lightness to these apartments. They are crowded with a rare collection of genuine majolica and Sèvres wares, Manheim glass and clear Venetian, sparkling little cabinet pictures, with a vast number of art's loveliest toys, brought together from many a far-off land, to grace this sweet domestic shrine; and flowers, gay flowers, all around. A French casement opens under a rustic arcade, upon which the windows of the rooms look; outside these windows have dressings of bright glossy-green ivy, rooted in vases bracketed upon each side. There is a beautiful garden beyond the arcade, with a glittering fountain lavishing its cool and sparkling showers

over a tazza filled with exotics, approached by a light, fairy-looking bridge; the parterre, if you go in summer or autumn, is a blaze of colour, and hedged round by dahlias and stately hollyhocks, with their balls and ropes of state.

Returning to the town, where we will spend half an hour before proceeding to the other great Edwardian castle at Carnarvon, and on the way shall find many interesting remains to visit.

In Beaumaris there is a curious old building, called the Hen Blas (or old palace or place). It was once the mansion of the Bulkeleys, but is now let off to families of poor folk, at a rental of about twenty shillings per annum. On a beam at the entrance to the Hen Blas is the motto, "If God be with us, who shall be against us?" as if to say, more potent safeguard at our portals than the fourfold portcullis or the bastion-towers of a former age.

There is a very peculiar ceiling in one of the apartments. It is formed of wood and plaster, and Elizabethan in character. It has pendants, from which rise carved coxes, slightly emulative of fan-tracery. These are in rows over the whole plafond,—or, rather, they were so until recently, for, not many months back, the present denizens of the Hen Blas were alarmed by half the ceiling coming to the ground with a fearful crash in the night, with a sound like an army of pent-up goblins. The falling of the ceiling has revealed the original roof timbers, consisting of oak principals, which, being well moulded up to the apex, 6 ft. or 7 ft. above the level of the plaster ceiling, suggests the idea that this apartment had originally been a chapel to the mansion, afterwards, in "plaster-and-whitewash age," ceiled as described, and turned into a banquet-hall for the Bulkeleys; and the little cusped Early Gothic windows in the wall, and arched entrance doorway, built up with masonry, add force to this conjecture. The room is now used by a carpenter as his shop; and if his carpentry turns out half as good and strong as the oak roof above his head, he will have laboured to some purpose in the old Hen Blas.

Beaumaris Church is called in a local "Guide-book" "a chaste and elegant structure." Alas! alas! for the prophecies of local criticism!

It is a grey old square-towered and embattled building, the windows at the east end painfully flat-arched, with rigidly perpendicular tracery. Like most old parish churches, it is rich in the memorials of the generations that have departed, both inside and out. The chancel is crowded with monuments; and in the vestry is a well-preserved tomb, with two sleeping figures recumbent, and lined round beneath with coats of arms in bold relief. By heralds it is supposed to have been erected to the memory of Sir Richard Bulkeley, Chamberlain of North Wales, and Lady Bulkeley, of Elizabeth's time. The church was anciently called "the Chantry of our Lady of Beaumaris." On a plain stone near the east entrance to the churchyard, we noticed this inscription:—

"MEREDITH DAVIES,

Who has been our parish clerk
Full one and thirty years, I say;
Must here, alas! lie in the dark
Bemoaned for ever and for aye."

From Beaumaris the road leading to the village of Menai, following the windings of the straits, abounds in the most luxuriant woodland scenery, every turn revealing some new beauty. There are steepes raised, and "clearings" formed at such points along the road, as are considered locally to possess the greatest attractions for the tourist; but every lover of nature will discover for himself many others of equal loveliness: several handsome and costly mansions have been here built on the margin of the straits, between the midway road and the shore; they do not all, however, appear to belong to the scenery, as all really successful and characteristic buildings ought to do. One, however, we noticed, that appeared to satisfy this condition, and when afterwards viewed on our way to Bangor, along the opposite shore, it seemed to group boldly with those jutting heather-clad rocks and rich hanging woodlands; its grey stone walls, high-pitched and quaintly domerred roofs, circular-angle turrets and shining vanes, salient oriel, and timbered galleries, seemed thoroughly in *rapport* with its surroundings, and unlike the incubi that one sees springing up hideously along the banks of many a fair English lake, and shining Scottish river, looking unlike homes of taste, comfort, or common sense.

After tracking four pleasant miles of this

road, with many a long loitering and fond-looking pause, we arrive at the pretty little village of Menai, with its cottages having their walls and roofs whitewashed. It is a lovely, straggling, hill-side village, with here and there between the houses a bold heathery frontlet of rock, peering down into some deep and shadowy ravine, and the views it affords both up and down the straits are superb. Here we see the suspension and tabular bridges in all their magnitude, but ere crossing over Telford's Marvel, let us pay a visit to the little primitive church of Llandysilio: it is built upon an islet of the Menai Straits, and approached by a winding pathway through a thicket of sombre fir trees, then across a ford which, being dry at low tide, changes the island into a peninsula; but when the waters of the straits have risen, all communication excepting by boats is cut off. Tradition reports, that on one or more occasions a bridal party have been tide-bound in this sequestered little shrine of Llandysilio. Though originally the parish church, it is now used as a mortuary chapel; our guide, a bright-eyed Welsh girl of thirteen summers, insisted upon this edifice being 1,300 years old, and after a careful inspection, we felt how much more easy it would be to believe than to dispute our pretty little guide's authority. This church possesses a very characteristic (or, as the geologists would say, typical) roof, but of extremely simple construction, having deep principal backs resting at foot, upon the walls, with neither corbel nor hammer-beam; they have a slight *crisp* at the apex, and a collar cut out of the solid (some giant oak it must have been) to a curved line, the ends radiating and dropped down into notches in the backs, and looking like enormous keys to a semi-circular timber arch; the whole is secured by oak pins. All the edges are chamfered, with little square pyramidal-shaped blocks, or wooden nail-heads, left at intervals of eighteen inches along the chamfers, and taking away the monotony of the lines. The east end has a two-light decorated window, being very much buckled, and seeming very much out of square with itself and everything besides, suggests the idea of its having been from the spoil of some demolished neighbouring church, inserted here by the bungling and unskilful hands of the spoiler.

H. H. VALE.

RESTORATION OF THE CHAPTER-HOUSE OF WESTMINSTER.

THE meeting which was held on the 2nd of December, in the Chapter-house of Westminster, at the summons of the President of the Society of Antiquaries, will not readily be forgotten by any of those who had the privilege of being present. The worthy object of the meeting, the appropriate character of the spot where it was held, the numerous and noteworthy audience, and the unusually happy character of the speeches, were such as in every way to justify the vote of thanks which was so cordially given to the First Commissioner of Public Works for the loan of the venerable building, and to the Very Reverend the Dean of Westminster for the manner in which he presided.

Dean Stanley opened the proceedings by a clear and succinct *précis* of the history of the building in which the meeting had assembled, the restoration of which to its original architectural magnificence was the object contemplated. Eight hundred years have passed since the original chapter-house was built by King Edward the Confessor, and the existing walls, or, at least, as much of them as does not consist in the unsightly walling-up of the ancient windows, are of the time of King Henry III. The spot has been the cradle of the English Constitution, the meetings of the House of Commons having been held therein from the first existence of that branch of the legislature as a separate chamber, exactly 600 years ago, to the time when the suppression of monasteries rendered the vacant chapel of St. Stephen available as a more convenient site.

The Act of Supremacy and the Acts for the Dissolution of Monasteries were passed in this

* The church was dedicated on Innocent's Day, 1066—*"Res Eduardus cum basilicum S. Petri apud Westmon. dedicari fecit in die S. Innocentium,"* &c. The first assemblage of the Commons as a confirmed representation, took place in 1265. Cola asserts, however, that the term *parliament* was used even as early as 1041. The first clear account of a partial representation of the people (by twelve persons) is dated 1258.—Ed.

very chamber. On the constitution of the new Chapter of Westminster, after the dissolution of the monastery, the chapter-house was not made over to that ecclesiastical body, but remained in the custody of the Government, the meetings of the new chapter taking place in the Jerusalem Chamber. The Chapter-house then entered on the third period of its history as a storehouse for public records, and the late removal of the records to a more appropriate place of safety has left this ancient building in a state of decay and dilapidation, for which, not the Dean and Chapter of Westminster, but her Majesty's Government, are responsible.

Mr. G. G. Scott gave an interesting description of the architectural features of the building, and exhibited a view of the proposed restoration, concerning which and the present condition of the building we have often spoken. So much may be traced of the old work as to render the renewal of the building not a question of opinion, but of care and labour alone; not excepting the details of the parapets and the buttresses being left to the fancy of the architect. Beneath the present building, the walls of which are 5 ft. thick, is a crypt with walls of the enormous thickness of 17 ft. From a straight joint which separates the lower wall into two concentric portions, Mr. Scott is of opinion that the bulk of the subterranean masonry is of the date of the Confessor, the foundation having been enlarged for the new chapter-house of King Henry III., which was co-eval with the Sainte Chapelle in Paris.

Lord Stanhope moved the first resolution, deploring the neglected state of the edifice, and explained that as a national, not an ecclesiastical property, the Chapter-house should be restored by a Parliamentary grant. The Dean of St. Paul's very eloquently and very heartily seconded the motion, and referred to his own association with the precincts, as so long a canon of Westminster, and to the vision which he had long cherished of the restoration of this noble edifice in the character of the vestibule of a *campo santo*, which the Chapter in his time was not indisposed to originate. He said that our two great metropolitan churches were now so full that there was not room for another monument, and that, in the belief that our race of great men was not extinct, it was for the nation to provide a place in which to record the memory of those yet to come.

Mr. Beresford Hope warmed the deserted and chilly structure by his usual genial good humour. He spoke of the objections which, in this utilitarian age, the economists would be likely to raise even to such an expenditure of public money as was necessary for the decent preservation of this cradle of the House of Commons. "But why," said he, "do individuals economise? Public economy must be of the same nature. Is it that they may be misers? or is it not that they may have money to spare for proper uses? Let the financial reformers, then, economise from any source they can a sum of 20,000l. or 30,000l. for the perfect restoration of a national monument of such unrivalled interest."

Sir W. Peto Wood recalled an anecdote which Dean Stanley had mentioned, to the effect that, on the night of the fire which consumed the old Houses of Parliament, Sir Francis Palgrave and Dean Ireland were anxiously watching the progress of the conflagration from the roof of the Chapter-house. At a moment when the flames seemed to threaten to turn in that direction, Sir Francis besought the Dean to let him take at least Domesday Book from its unsafe repository, and place it in the Abbey. The Dean replied that he must write to Lord Melbourne for permission! Sir William spoke of the intense anxiety that was evinced by the crowd of spectators, among whom he was one, when the flames seemed to threaten Westminster Hall, and of the cry that rose on such occasions,—"Oh, save the Hall!" The same feeling, he doubted not, would pervade the whole people of England when they knew that they were called on to preserve, and to hand down in its pristine splendour to their posterity, a building sacred to all who prized constitutional liberty or spoke the English tongue.

Mr. Tite, M.P., and the Dean of Chichester having spoken,

Lord Lyttelton wound up the series of very pointed allusions to the presence of the First Commissioner of the Board of Works which had been made by preceding speakers, by saying that the gratitude which was expressed, by the resolution which he seconded, to that gentleman, was of that class which was the reward of future

favours; and that, now the right hon. gentleman had learned his duty from that meeting, he had only to go and do it.

This called up the Honourable William Cowper, who said that, if he had attended the meeting in his official capacity, he should, no doubt, have been as cold and unresponsive as the walls themselves. He was glad that the building should have been made useful for one day in the year, by being lent for this occasion to the Society of Antiquaries. As a private individual, he took a warm interest in the restoration of the edifice, for which he trusted that some means would be devised; but he counselled the committee who were about to bring the subject before her Majesty's Government or before Parliament, to endeavour to connect its restoration with some purpose of practical utility. He thought a Mediæval structure unfit to be the repository, or the vestibule to the repository, of modern monuments; and he thought the proposals to make the restored Chapter-house the closet for containing some of the few priceless records of the past, such as Domesday Book, or the place of meeting of learned bodies, would not induce the House of Commons to vote the requisite funds. If, indeed the public intelligence, or that of the House of Commons, were sufficiently advanced to recognise the value of great public monuments as an important part of public education, the object of the meeting would be victoriously attained. But whether this was the case, the right hon. speaker could not say. The meeting, however, separated under the evident conviction, which was expressed more or less freely by every speaker, that the time had come when, by one means or by another, this most interesting public monument should cease to be a national disgrace.

That this feeling will be contagious with every man of cultivated mind who becomes acquainted with the facts laid before this most respectable meeting, there can be no doubt; not a single expression of dissent or difference of opinion disturbed the cordial unanimity of the speakers and of the audience. To this end, however, we must be permitted to add, that one circumstance was highly conducive. The curious inspection of these precincts, usually so strictly concealed from the public gaze, of which many attendants at the meeting seized the occasion, some of them sketch-book in hand, to avail themselves, took place after the close of the proceedings. Had it been made at an earlier date, there is one remark which some speaker could not have failed to make, which would have rendered the position of the Very Reverend Chairman somewhat less enviable. All honour to Dean Stanley for calling on the Government and on the nation to repair the ancient Chapter-house of Westminster, which has so long passed from the jurisdiction of its predecessors. But in whose charge and custody are those equally ancient and equally neglected cloisters to which a grained and vaulted passage yet leads from the octagonal hall where the meeting was convened? The curious visitor who strayed from the scene, his mind full of enthusiasm for the noble design of Mr. Scott, and of indignation at the vandalism of so many successive Governments, and of the unnatural regard of the House of Commons for the very cradle of their rights, passed through a vaulted passage into the damp and neglected courts of a building of co-eval date and of equal architectural interest to that which he had been summoned to defend. The doorway which opens from this vaulted passage into the cloisters is of the utmost beauty and very highly enriched. It is probably the gem of the cloister. But it is left in a state worthy of the filthiest monastery of Southern Italy, corroded with the sulphureous smoke of centuries, a reproach, a humiliation, and a shame to whomsoever it may be that is its custodian. Let not an appeal so just and so worthy as the present run the risk of temporary rejection by the invitation of some utilitarian member of Parliament that the House should inspect the cloister of Westminster before they reply to the summons of the Dean, and the meeting over which he so worthily presided, to restore the Chapter-house.

PROPOSED HAMPSHIRE MONUMENT TO LORD PALMERSTON.—At an influential county meeting in Romsey Town-hall, it has been resolved to erect a monument to Lord Palmerston at Romsey; and a committee has been appointed to carry out the purpose of the meeting.

COMPETITIONS.

New Congregational Church, Halifax.—A new church is about to be commenced on a plot of land near the People's Park, above the new residence of Sir Francis Crossley, bart. A limited competition took place between Messrs. Paul & Ayliffe, of Manchester; Messrs. Pritchett & Son, of Darlington; Mr. James, of London; and a local architect. The design selected was that sent by Mr. Joseph James, the architect of Square Church, Halifax, erected seven years ago, and a view of which appeared in a former volume of the *Builder*.

MANCHESTER ACADEMY OF FINE ARTS.

The annual meeting was held on the 30th ult., in the Royal Institution, the president (Mr. W. K. Keeling) in the chair. The chairman said the council had great pleasure in presenting a report which gave unmistakable evidence of steady improvement in the general character and working of the Academy. Some little dissatisfaction had been evinced by some of the students on account of nude models not being provided for their study. The council had considered the question, and were making such arrangements as would remove all cause of dissatisfaction. The honorary secretary (Mr. S. Rothwell) read the report. In it the council stated that the position of the Academy indicated continued success. The number of students had increased during the year, and greater interest was being manifested by artists and architects of this city in their respective professions. The treasurer's account was in a condition more satisfactory than any former year's had been. The adoption of the report was moved by Mr. C. Mercier, who said the Academy's influence might extend if lay members were admitted into the council. After many years' experience, the Liverpool Academy of Art had adopted that plan, and by so doing, had introduced into the council a business element which proverbially artists did not possess. He would suggest that an opportunity should be given for the enlargement of the funds of the Academy, by the admission of annual guinea subscribers as in Birmingham. The chairman said the council would consider the suggestion.

THE CONDITION OF THE PUNJAB EXHIBITION BUILDING.

WHEN the Punjab Exhibition had terminated, and the building been emptied of the rare articles with which it had been stored, it was made over to the committee of the Lahore Museum. The *Lahore Chronicle* now says,—

"Two years have elapsed since that event, and in that time the curator has had to re-arrange his specimens no less than five times, sometimes having to remove them partially from the building altogether, in order that it might be repaired, or rather patched up. Upwards of a lac of rupees have been expended on the building from first to last, and yet it is not habitable. The last item of expenditure was Rs. 20,000 to make the 'Hall of Wonders' water-tight and weather-tight, and an entirely new roof was accordingly substituted for the original, which having necessarily been put on in a hurry, was not warranted to keep out rain; but the new roof, although constructed at leisure, leaks to such an extent that during the past rains it was feared it would tumble down in a heap, when the building and all its contents would have been carried away by the flood. Until a roof of corrugated iron be put on the top, we recommend that everything of value be removed back to the old Museum, which, although a mere mausoleum hundreds of years old, is both dryer, stronger, and safer than the Palace of the Great Exhibition Building of the Punjab."

A correspondent from India calls upon us to inquire under whose professional superintendence the faulty structure was erected; and one in London having apparently received the same complaint by the same mail that brought it to us, writes,—"This does not reflect much credit on the Punjab railway engineer who designed and superintended its erection, but is another of the many instances, in India particularly, of the ignorance among railway engineers of the ordinary details of construction. It is a pity, also, to think that such a sum should have been wrung from the pockets of the native population for such a trumpery work."



MATLOCK BATH CONGREGATIONAL CHURCH.—MR. W. HULL, ARCHITECT.

MATLOCK BATH CONGREGATIONAL CHURCH.

THIS church, now being erected in the immediate vicinity of the numerous hydropathic establishments of Matlock, is to meet the requirements of a large and rapidly increasing population. The old church, situated near Matlock-green, being unsuited to the altered condition of the district, as well as in other respects exceedingly defective, will remain for school purposes.

The new church, as shown in the accompanying engraving, will accommodate 440 persons on the ground-floor, and 100 in the gallery, allowing ample room to each, the internal dimensions being 72 ft. by 34 ft., and the transept adding 23 ft. by 10 ft. on each side. There will be a large meeting-room under, with approach through lobby in the lower portion of the tower. The gallery is approached by staircase in the upper portion of the tower. The church is built of local stone (known as Derby grit stone), with dressings to doors and windows; and all mouldings and tracery are similar stone, of a superior quality.

The principal entrance is from the raised terrace at the south end, the doors opening into a large lobby, and communicating with aisles. At the north end will be a stained-glass three-light window. There is a carved stone pulpit, near to the right of which is the minister's vestry. The roof timbers, gallery front, and pewing will be of Petersburg red picked deal, varnished.

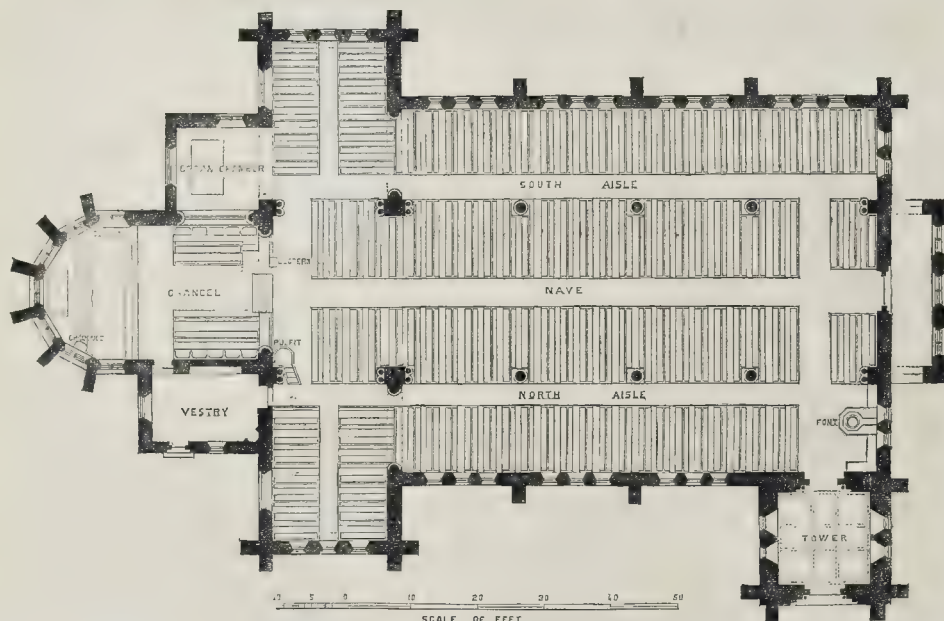
The lighting will be by star-burners, and the warming by apparatus of Messrs. Blake, of Coventry.

The cost of the works, including all usual charges, will be about 2,100*l*.

Mr. W. Hull, of Northampton, is the architect.

ST. JOHN'S CHURCH, MIDDLESBROUGH.

THIS town, situated at the mouth of the river Tees, has in thirty years grown from three houses to a population of upwards of 25,000. This rapid increase is owing to the discovery of ironstone in the Cleveland hills, and to the erection of extensive ironworks. But, as is usual in such cases of rapid growth, the accommodation required for the spiritual wants of the town has not kept pace with the increase of population. There was but one church in the place, contain-



ST. JOHN'S CHURCH, MIDDLESBROUGH.—Plan.



ST. JOHN'S CHURCH, MIDDLESBROUGH, YORKSHIRE.—MR. JOHN NORTON, ARCHITECT.

[illegible]

In witness's room the flooring was laid level on the ground: there were no rafters. The floor was the height of a table beneath the level of the yard. Three children were the greatest number she ever had living at one time. The jury, after medical and other evidence, returned the following special verdict:—"That George Anson and his wife, Margaret Anson, died from typhoid fever; and that the filthy condition and overcrowded state of the premises engendered such fever, and the jurors further say, that more prompt measures ought to have been taken with respect to the said premises by the district authorities."

In the course of the evidence, Dr. T. Sarvis said that he was called in to the two deceased persons on Saturday week, and found them both delirious in one bed. They had typhoid fever. There was an accumulation of vegetable and other refuse outside the door; the passage and stairs were extremely dirty, the walls dilapidated and filthy; the closet was in a disgraceful state, and the flooring was partly destroyed. The water was quite unfit to drink, through the foul exhalations from the drain and closet. The two persons ill were so surrounded by unhealthy influences that he considered there was not a chance of their recovery while they remained there. Mr. Turner cross-examined Dr. Sarvis with a view to show that it was an actual advantage not to have a dust-bin on the premises, as the rubbish, being thrown into the street, would be removed when the streets were swept three times a week. The witness said that as a matter of fact the same heaps of rubbish were seen by him in the street near the front door unremoved from Saturday week until Thursday last. Dr. Letheby also testified to the filthy and insalubrious condition of the place. The inmates informed him that the water could only be used for washing purposes, and there was no tap to the old tar-barrels, which they had themselves supplied. Mr. Isaac Batram, assistant-inspector under the Whitechapel Board of Works, said that he had served a notice some time back upon a Mrs. Wearing with reference to this house; but it turned out that it was Mr. H. F. Wearing, of 450, Hackney-road, who was the owner of the property. He was served with a notice on the 24th of October, and with a compulsory notice on Thursday last. There were four house-owners named Wearing, and they gave much trouble. He had served them with nineteen notices since the 16th of August last. Dr. John Liddle, medical officer of the Whitechapel district, said that he had three inspectors under him, and that every house in the district was visited and inspected. Grey Eagle-street was the worst place in the district. Fever and diarrhoea prevailed much there. He had to complain of the conduct of Mr. Wearing with reference to the state in which he kept his house property.

As to overcrowding, this is a most material point in every such case; and they who promote overcrowding are morally inclusive amongst those who commit this wholesale manslaughter which is going on. Railway companies are amongst the greatest of these criminals at the present time. They have of late years been demolishing hundreds of the dwellings of the poor without replacing them, although they might do much to mitigate the evil were they compelled to do so. And why should not they? By the compulsory erection of an equal number of such dwellings, with proper railway access to them, a great deal of overcrowding would be prevented. As it is, the already overcrowded become still more overcrowded; and we need not be surprised if a fearful pestilence break out in the east of London which will rapidly embrace the west itself in its skeleton arms. In Naples, during the prevailing pestilence, members of the highest classes of society have been attacked as well as the lowest, and isolation was found to be impossible, almost every third house having had its patient.

The clerk to the Board of Works for the Whitechapel district, in a letter to the *Times*, says:—"Filth and overcrowded houses unfortunately abound in all parts of London, and it is almost impracticable to get rid of the one or prevent the other. To do so would require more frequent visits of the sanitary inspector than of the rent-collector; and I am not exceeding the fact when I state that in many parts of this district the attendance of the one at times is as constant as that of the other."

Why should so many visits be requisite? This must surely be from want of power or want of will on the part of the authorities. What we more especially wished, by this quotation, to point attention to, is the fact that, although, unfortunately, filth and overcrowding do abound "in all parts of London," west as well as east, it is notorious that Bethnal-green and Spitalfields are by far the worst parts of London, as

our own personal examination of these, as well as of many other districts, recorded in the *Builder*, has long since proved.

We cannot conclude without adverting to yet another of those death-dealing causes which require a heroic remedy. Why should the rich in the west end of London sit at ease in their pauperless parishes, while the poor in the pauper-teeming east are left, not only to "bury their dead," but to support their living? Why should it be the poor who support the poor, and not the rich, who should be compelled to do it? Why should not the pockets of the rich be relieved a little by the relieving officer of poor Spitalfields? Till this be done, the deaths of thousands of those who expire in their miserable homes in the east rather than go to a workhouse, lie, partly at least, at the doors of the elegant mansions of the west end of London. And this, too, is an evil which, like various others but too intimately connected with our subject, urgently demands legislative interference.

THE BUILDERS' BENEVOLENT INSTITUTION.

A GENERAL meeting of the friends and subscribers to this charitable Institution took place on Thursday (30th ult.), at the London Tavern, Bishopsgate-street, for the purpose of electing three pensioners, two males and one female, on the funds of the institution. Mr. Joseph Rigby (the president) occupied the chair.

The Chairman, in opening the proceedings, stated that they had been called together to elect three persons from a list of seven candidates, and regretted that the funds did not permit them to elect all the applicants on that day. That was not his good fortune, but he trusted that some future president would have the pleasure of knowing that there were sufficient funds placed at the disposal of the committee to elect all the applicants for relief from that institution. Having referred to what had been done by the Institution, in promoting in some degree the happiness of declining years, he asked the friends of the institution to exert themselves to the utmost in finding out those who had not yet subscribed, and advising them to render help to the good work which had to be done. Amongst the various branches of the trade, consisting, he believed, of about 16,000 persons, there were numbers who had not associated themselves with the Institution, and he therefore thought that the building trade had not done its duty. He had expressed on a recent occasion that the Builders' Benevolent Institution should be self-supporting, and that the resources should be ample for the exercise of the committee in the careful carrying out of the good work they had at heart; and it was desirous that none who applied for the benefits should go away unsuccessful. Unfortunately that day, out of the seven candidates only three could be elected; but he hoped that those who lost on this occasion might be elected on the ensuing, which would be in May next; and he urged upon them the necessity of exerting themselves individually, for no person could plead so well as the person in such a case affected. There were several gentlemen, he said, who, he thought, might very reasonably be invited to assist them, for they really were connected with the building trade. He meant civil engineers and architects. Having further referred to the large resources of the trade, he again urged that renewed exertions should be made to obtain new subscribers; and, after some cheering words to the candidates, he concluded by declaring the poll open.

The following were the successful candidates:—Joseph Trevelthan, aged 71, carpenter and builder. He was incapable of working through paralysis, and was entirely dependent on relatives and friends for support. Joseph Seaman, aged 68, bunney, &c. Age, infirmity, and loss of business caused his distress. Lydia A. Goodwin, aged 74, widow of a late pensioner. She was unable to work from inward disease.

Mr. George Keyes, in the absence of the chairman, announced the result. He congratulated the institution on its present position, and referred to the comfort which his being connected with a company that had almshouses, and two of the pensioners on the Builders' Benevolent Institution, a man and a woman, were inmates; so that from the combined benefits they were exceedingly comfortable. He wished the Institution every prosperity, and hoped that, through the energy recommended by their worthy chairman, they would obtain a large number of new subscribers.

Mr. Joseph Bird having returned thanks on behalf of the successful candidates, The usual complimentary votes were passed, and the proceedings closed.

ARCHITECTS' CHARGES.

SIR,—On turning over my file of *Builders*, after prolonged absence, I have been amused and instructed on perusing consecutively the correspondence relating to architects' charges. An insinuation appears to have been thrown out by some anonymous correspondent that the practice of charging on the average of tenders, instead of on the lowest, was not perfectly right according to the universally accepted rule which govern all architects' proceedings. Whereupon Mr. T. Harris candidly states that he charges on the average of tenders; what is more, justifies it; and moreover, wishes the question of architects' charges to be thoroughly ventilated. Thereupon, Mr. E. L. Garbett occupies four columns with quotations from books, and lawyers, and auctioneers, and brokers, with much intensely virtuous indignation of his own as to the verbiage (verbiage, by the way, in a double sense) of "professional" men, and "clients," and "traders," in contending that architects should charge, not according to the expenditure and the trust implied by such expenditure,—not according to the market value, which regulates other matters (even a "Paradise Lost" by 51 instalments), but according to the proposed or actual (query which) "results," no criterion whatever being given by which the employer and employed could not do otherwise than agree (considering what gratifying harmony prevails in artistic estimation) in the valuation of the "results" as they do in that of the per-centage on cost. Well may "G. W." write:—"I have laboriously sought the full meaning of his remarks, so as to draw some practical inference for individual guidance," and ask for "an intelligible remedy,—one capable of immediate use, suited to the ways of the world as we find them, and so truthful in principle as to admit universal application." To which Mr. Garbett gravely replies:—"Let all be free to charge, each by his own rule, on his own basis, and his own scale: one, if he please, according to the number of nails in a house, or the number of letters in a client's name, or the number of cats met in a day,—with this sole proviso, that it must not be by per-centage on outlay, or on any tradesman's contract; and, I should add, that the architect must not choose or recommend any contractor." Further, he suggests his own scale, "the superficial area of flooring;" and with this luminous conclusion, arrived at by merely using another phrase conveying virtually the same meaning (technically a sophism of equivocation), that a per-centage system, or what amounts to such, is, after all, the best and his own system.—I leave Mr. Garbett with the hope that some competent person may be tempted to throw a little of what Mr. Lord Bacon would call "dry light" on aught that is unsatisfactory in architects' charges.

EDWARD L. TARRUCK.

ARCHITECTS' ACTIONS.

Peachey v. Allan.—This was an action brought by plaintiff, an architect, to recover 46l. 14s. 4d., the balance of an account due to him for services rendered. Mr. Brown, barrister, instructed by Mr. Nixon, appeared for plaintiff, and Mr. Robinson for defendant. Plaintiff stated that about four years ago he was employed by Miss Allan to prepare plans, specification, &c., for building a large house for her. Mr. Peachey told her his commission would be about 60l. This was according to the usual charge of 5 per cent., as his estimate was 1,200l. Miss Allan objected to this sum as being too much, and 55l. were at last agreed upon. This was for the building of the house alone. Afterwards Miss Allan decided on adding a stable, coach-house, and other things, and these extras cost 384l. 6s. 9d. For this he charged 19l. 4s. 4d., making the total of his due 74l. 4s. 4d. Of this he had received 27l. 10s., leaving the balance he now claimed.

Mr. J. P. Pritchett proved that the charges were according to the usual scale. The defence was that the plaintiff had neglected his duties. Miss Allan stated that when she made the agreement with Mr. Peachey, she required him to attend well to the work. She considered that he did not do this, and, in November, 1862, she told him to make out his bill, and she would pay him. At that time she paid him 27l. 10s., and considered that she was no more in his debt. She told him then not to come any longer. In the specification it was provided that Memel timber should be used, but instead of that an inferior kind was used.—Mr. R. Lidge, jun., who had been clerk with Mr. Peachey, said he had heard Miss Allan complain of inattention on the part of Mr. Peachey.—Mr. Bolton, builder, said he was told by Miss Allan that he had not to have any more dealings with Mr. Peachey,

on her account, in 1862; but he had been obliged to go to him sometimes. Mr. Peachey went to measure the buildings with him in 1864, but Miss Allan did not see him. Miss Allan complained to him about the timber.—Mr. George Wood, builder, said that Messrs. Allan were first supplied, but Miss Allan did not like it because it had knots in it, and the other kind was therefore sent.—His Honour did not think that any neglect had been proved, and as it seemed clear that the usual charges were made, he would give judgment for plaintiff for the full amount.

SUB-CROSSINGS.

As regards my proposal, in your last week's issue, of a sub-footway round Regent-circus, Oxford-street; of sub-footways at places which are now too narrow or insufficient to accommodate the present and the increasing foot-traffic; and of sub-crossings at places that are now dangerous to cross owing to the great carriage-traffic; I may state, in reply to your query, "What about the sewers, water-pipes, &c.?" that the sewers generally are below the levels at which the sub-footways and the sub-crossings would be laid, and that the water and gas-pipes, where found too low, could easily be raised so as to lie between stout flat iron covering plates and the surface paving. I believe the water and gas company's engineers would gladly sanction the raising or curving upwards of two or three lengths of their pipes (such is often done) in order to facilitate the construction of a sub-footway, or of a sub-crossing, at any point where foot-passengers, especially aged persons and ladies, can scarcely venture to cross the roadway for fear of being run over. At very many places, the traffic, both along the footways and the carriageways, is now two, three, and even four times greater than it was some years since. The railways now in course of formation will, when opened to the public, take the traffic from the streets to a large extent; but there are streets and points where the crowding will always be as it is now, or worse, as population and business increase. Hence the necessity of the powers that be turning their attention to providing sub-footways and over-footways, also sub-crossings and over-crossings, for the accommodation of foot-passengers.

JOHN PHILLIPS.

SERPENTINE.

MANY of your correspondents seem to think that serpentine is a marble; some of them wonder why it is not as durable as other marbles; others, among whom is the late Mr. C. H. Smith, as reported by a correspondent last week, class it among the coloured marbles, and speak of them and it as bad to work through cracks and defects. It is true that these defects arise from the same cause, namely, the presence of iron, which, decomposing, disintegrates the stone.

Serpentine, however, is not a marble; it is a talc containing a tolerable quantity of chromate of iron; whereas marble is a carbonate of lime, and its hardness, as compared with that of serpentine, is as four to three. Serpentine is sometimes good as an external ornament, but never when it has the white streaks so commonly seen in it.

LUDOVICUS.

PAINTERS' BRUSHES.

Sir,—A correspondent writes to the *Builder*, extolling foreign manufactured painting-brushes, and hoping the thousands of painters and builders of this country will shortly be gladdened by an importation of foreign brushes, in lieu of the inferior class of goods made in England, for which such high prices are charged.

If you will allow a brush manufacturer, with the personal experience of upwards of a quarter of a century, and whose house has been known for eighty-eight years, to reply to your correspondent, I shall feel obliged.

Foreign manufactured painting-brushes have been introduced into this country under every advantage; they are subject to no import duty, and agents for the sale of foreign manufactures abound in London and elsewhere; but they never have found, and never will find, purchasers among painters and decorators who require brushes to do work well, and to be durable, which are the true tests of cheapness.

Why? The best English painting-brushes are made of Russian bristles; the painting-brushes made in France are made of the soft bristles of that country; very pretty and neat in appearance, like everything French, but far inferior in durability, as well as in power of laying on colours.

No doubt the greed of gain and yearning for cheapness has brought into disrepute many English brushes, by inducing some manufacturers to adulterate them with fibres, horsehair, &c.; and it is well known that no material but bristles should ever be used in a painting-brush; but, whenever painters are content to pay the printed list price of the trade, without abatement, they are enabled to get as good a brush as they can desire to use.

G. B. KENT, Reporter to the Jurors of Class 25 at the 1862 Exhibition.

THE BUILDING TRADES.

Wolverhampton.—It may be remembered that in March last some differences between the operative house-carpenters and joiners and their masters were amicably adjusted at a public meeting, under the presidency of the then mayor. Masters and men agreed to refer all disputes to arbitration. Subsequently rules were printed, and Mr. Rupert Kettle undertook the office of arbitrator; but so happily were all differences then adjusted, that no case for arbitration has yet come before him. To celebrate this success, and the anniversary of their society, the operative house-carpenters and joiners have just met at dinner to the number of seventy-five. The chair was filled by Mr. Butler, and the vicar-chair by Mr. Lee.

Durham.—The whole of the journeymen masons in Durham have struck work, and the consequence is that the masters have been put to considerable inconvenience, several of them having large contracts on hand. It appears that it has been customary to reduce the wages of the men 2s. per week during the winter months. This rule has just been put in force. The men protested against it, and the protestations being without effect, they agreed to strike work.

London.—William Ellis, a carpenter, has been sentenced, at the Southwark Police-court, to three months' imprisonment, without any alternative fine, for compelling two fellow-workmen, by threats and insolent annoyance, to quit work at the Surrey Theatre. The police-court was densely crowded with carpenters and others connected with the trade.—The Metropolitan cabinet-makers have formed a union, with the view of obtaining a 10 per cent. rise in their rate of wages.

CONCRETE COTTAGES.

YOUR account of a church built in concrete, near Paris, induces me to ask you to insert the following description of two semi-detached houses now being constructed at Bexley Heath, in concrete, under the design and direction of Mr. Tall. The plan adopted was simply this:—A wooden frame, 18 in. deep on the ground-plan of the house, held together by cores and bolts, is first filled with concrete. The next day, the frame-work is raised, leaving the cores imbedded in the concrete till required. The upper core of the previous day is used as a holdfast for the next day, and so on. By raising the frame daily, the sun and wind dry the structure.

Mr. Tall has made a piece of concrete which he will test against ordinary bricks and mortar, the work to be of the same thickness, &c. The roof, which is flat, but slightly inclining to the rear, is also made of concrete webbed together by iron hoops. In the two back corners of the roof are two circular holes, formed with cores, and carried up in the wall, for the purpose of carrying off the water from the roof, thus doing away with all spouting. I must not omit to mention that the scaffold is a most simple contrivance, consisting of supports in the form of brackets, which are attached to the building through core-holes, by bolts, and on which planks are placed for the men, &c.; thereby testing and proving the strength of the walls, as the weight of men and materials is a great strain on them, which brick-work could not sustain. The patentee guarantees the concrete to be ten times stronger than ordinary brick-work, and one-half the cost.

* * * Such a mode of building has long been known. Concrete structures, indeed, are of remote antiquity.—Ed.

A NEW GREEK CHURCH IN LIVERPOOL.

THE foundation stone of a new Greek church has been laid at the corner of Prince's Park-road and Berkely-street. The style of architecture of the intended building is Byzantine, and the materials used are brick, stone, and marble. The plan consists of the narthex or entrance vestibule, entered by a central west doorway. From this, at the south end, is entered a stone staircase to the gallery, which is placed over the vestibule. At the opposite end is a corresponding space, forming a meeting-room, and over this a similar room, approached from the gallery. These form features exteriorly, being arched over with brick domes and covered with lead. There will also be a dome in the centre of the west

front, over the gallery and narthex. The church, as described by the *Advertiser*, consists of nave, divided from side aisles by polished Sicilian marble columns, having black and dove marble bases and plinths, and carved capitals in white marble, the whole height being 22 ft. 6 in. These are being supplied and executed by Signor B. Fabbriotti, of London, from his quarries at Carrara. The columns will support the brick-groined arches of the nave and aisles, and over these will be timber and slated roofs. North and south transepts to the extent of the aisle, and the same height as the nave roof, make the building cruciform; and from pendentives will rise a central dome, nearly 80 ft. high, terminating with a Greek cross. The east end is raised three steps higher than the nave, from which it is separated by an iconostasis, or screen, and terminates with an apsidal end. The light will be principally from the domes. The walls, arched roofs, and domes, will be ultimately decorated with mural paintings. Mr. Summers, of Liverpool, is the architect; the builder is Mr. Tomkinson.

METROPOLITAN BOARD OF WORKS.

At the usual meeting of the Board, last week, the following among other business came before the meeting.

The Health of Woolwich.

A report was received from the Local Board of Health of the town of Woolwich, stating, in answer to allegations which had been made, that the health of the town was in a very favourable condition.

Progress of the Thames Embankment Works, Low Level Sewer Works, &c.

The chief engineer presented the following report on the progress of these works:—

"North Side of the Thames.—Thames Embankment, Contract No. 1, between Westminster and Waterloo Bridges.—The works which have been carried out in connexion with this contract comprise about 1,070 ft. in length of timber coffer-dams and of iron caisson dams completed; and about 1,568 ft. of timber and caisson dams are in course of construction in various stages of progress. Structural works of concrete, brickwork, granite, and other masonry, and works of excavation have been and are now proceeding within the various completed timber and iron coffer-dams and caissons for a length in the aggregate of 1,568 ft. The completed works comprise 976 ft. in length of the main low level sewer; 254 ft. of the flushing sewer; 1,644 ft. of egg-shaped sewer, 4 ft. by 2 ft. 8 in. for the intersection of house and other drains which formerly discharged on the foreshore; Pier and of those contiguous thereto have been brought up to the level of the subway. The Embankment walls and works have been backed up, and the foreshore to a considerable extent filled in with material brought to the spot by carts from the land, or by barges from the conservators' dredgers. The quantity so filled is approximately estimated at 408,827 cubic yards. The approximate value of work done by Mr. Furness in the past month is 133,144l. for works, 56,411l. for materials, and 54,941l. for plant.

Thames Embankment Contract No. 2, between Waterloo Bridge and Temple Gardens.—The dam at the eastern end of this contract is fast approaching completion, and the works within Somerset House have been actively progressing, as are also those in the special length for the Temple Pier. During the month, 1,634 cubic yards of excavation have been got out, and 1,829 yards of concrete cement concrete filled in; 140 cu. yd. of brickwork wall, and 1,980 ft. superstructure of 6 in. York landings laid; the total completed length of 31 miles is 1,060 ft., and of the subway nearly 300 ft. The approximate value of the whole completed, and of the materials and plant upon the ground, is 167,543s., of which 4,533s. represent the work done in the past month by Mr. Furness, of the total amount, the proportionate sum of 106,801l. is for works, 20,625l. for materials, and 30,017l. for plant, &c.

Low Level Sewer.—The works contained in this contract are fairly progressing, 1,050 ft. of the unretained portion of the main line and 655 ft. of the Old Ford branch having been constructed within the past month, and including the portion of sewer constructed in open cutting from the River Lee to the Abbey Mill Station a total length of nearly 31 miles is completed. The value of the whole of works executed is about 175,100l. of which the sum of 13,600l. is due to the progress made by Mr. Webster in the past month.

Abbey Mills Pumping Station.—The whole of the excavation for the foundation of this building has been got down, and the lower portion covered with a bed of concrete 3 ft. 6 in. thick, on which the brick footings of the outward walls of the building have been made, and 10 rods of brickwork in connexion therewith completed; the depth of the excavation from the surface of the ground is 31 ft. 6 in., this great depth being requisite on account of the soft nature of the soil. The value of these works is approximately 19,000s., 3,000s. being for the work executed by Mr. Webster in the past month. Some boilers and several large castings for the pump-wells have also arrived upon the ground.

North Side of the Thames.—Thames Embankment, Contract No. 1.—Mr. Webster has completed 500 ft. run of piling for the dam, and 600 ft. in staking have been driven to an average depth of 16 ft. About 500 cubic feet of timber have been used in these works, and about 100,000 ft. are delivered ready for use.

J. W. BAZALGETTE, Engineer."

The report was received and ordered to be entered on the minutes.

The Breaking-up of Southwark-street by Water Companies.

The engineer presented a report in reference to a complaint made to the Board as to the interference by certain gas and water companies with the brickwork of the side entrances to the subway in laying down their supply pipes, and he stated that pipes had been laid down from

High-street, Southwark, to a point west of Southwark-bridge-road, for the Southwark and Vauxhall Water Company. From Southwark-square gas mains had been laid down by the Phoenix Gas Company, and in both instances, in crossing, the arches of the subway had been cut through, and one of the pipes protruded from one to two inches from the under side. In both cases the concreted arch foundations had been broken through, ruining the paving, which he stated would not now last one-fourth the time it would if it had not been disturbed.

After some discussion it was resolved that a copy of the engineer's report be sent to the gas and water companies, and that the subject be referred to the Streets Committee to take such steps as they may be advised to protect the interests of the Board.

Parliamentary Schemes.

The chief engineer presented a report stating that the Parliamentary deposits for the coming session of Parliament were unusually heavy, no less than fifty-seven, railway and other schemes affecting the metropolis having been deposited with the Board in compliance with the requirements of the Standing Orders; most of them being for projects of an extensive character would require much careful investigation. He suggested that the usual arrangements should be made to enable him to collect materials for the preparation of his report upon these plans.

The recommendations were agreed to.

Metropolis Sewage and Essex Reclamation Company.

Mr. Legg moved, pursuant to notice:—

That the engineer report to the Board what deviations and additions are proposed to be made to their scheme by the Metropolis Sewage and Essex Reclamation Company, as mentioned in their application to Parliament for the ensuing session, and the amount of preference capital proposed to be raised by them, and how such alterations and additions will affect the interests of this Board.

This motion was unanimously agreed to.

ON STRENGTH OF TIMBER BEAMS.

WHILST studying Barlow's "Treatise on the Strength of Timber," fifth edition, 1851, I accidentally noticed the preface, wherein is mentioned a very important alteration made in the original text by the editor of this new edition. The principle of this alteration runs through many of the pages of the work, not being confined to the page to which the editor refers in the preface. The principle is stated in the following paragraph of Barlow's fourth edition, 1837, page 83; and I have underlined the words most affected in the question I shall put subsequently.

"Hence, then, we conclude, that the deflection of a beam fixed at one end in a wall, and loaded at the other, is double that of a beam of twice the length, supported at both ends, and loaded in the middle with a double weight; that is, the strain being the same in both cases; consequently, when the weights are the same, the deflection in the first instance is to that in the second as 4:1. And when the length and weight are both the same, the deflections will be to each other as 1:32."

The following extract is the way in which the paragraph stands altered in the last edition of 1851, pp. 79-80, as revised by the editor; and I have likewise underlined in it the words most affected:—

"Hence, then, we conclude, that the deflection of a beam fixed at one end in a wall, and loaded at the other, is equal to that of a beam of twice the length, supported at both ends, and loaded in the middle with a double weight; that is, the strain being the same in both cases; consequently, when the weights are the same, the deflection in the first instance is to that in the second as 2:1. And when the length and weight are both the same, the deflections will be to each other as 1:16."

It will be at once perceived that this is a most important alteration. It also causes one to reflect that Barlow must have had valid reasons for permitting his statement to remain in his editions up to 1837, especially as the experiment can be tried very easily. I have done this myself in a rough way, on a small scale, with the result of once finding the strains equal, several times 1:1½; and several times double. I wish to inquire if any of your readers can refer me to any actual experiments on a large scale, elucidating the point in question, or if there be other means of so doing.

A STUDENT.

CHURCH-BUILDING NEWS.

Datchet.—The parish church of St. Mary, Datchet, has been re-opened for divine worship, after having been closed for about five months, in order to carry out sundry additions and improvements. The north aisle has been taken down; two north aisles erected; the nave lengthened about 15 ft., and a new organ-chamber added on the south side of the chancel. The

church may now be considered complete as far as the structure is concerned. Out of nineteen windows only four remain with plain glass; the rest are all filled with coloured glass. The east window of the chancel, one in the south aisle, the west window of the small north aisle, and the vestry window, were all put in by public subscription, in memory of the Prince Consort. These were executed by Messrs. O'Connor, as also was the two-light window in the north transept, which was inserted to the memory of Mr. Crake, who during his lifetime took a warm interest in the rebuilding of the church. The large west window was by Messrs. Lavers & Barrand, as were also five other windows. The two first contracts for the rebuilding were carried out by Messrs. Dove, Brothers, of Islington; and the last was executed by Mr. Harley, of Slough. The style of the rebuilding is Early Decorated. The whole of the works, from the commencement of the rebuilding in 1857, have been executed from the designs and under the superintendence of Mr. Raphael Brandon, of the firm of Messrs. Brandon & Freshwater, architects, London.

Bradley.—Bradley Church, near Feckenham, has been consecrated by the Bishop of Worcester. The old church being small, and of very mean architectural character, a new one was projected, and Mr. Hopkins, architect to the Diocesan Society, was entrusted with the arrangements for the new building, the foundation-stone of which was laid by Lady Georgina Vernon on the 20th of April last. The church consists of chancel, nave, and north porch, with tower and spire at the north-west angle of the chancel, into which the lower stage opens so as to form a vestry. It is built externally and internally of a stone from Inkberrow, and affords accommodation for 190 persons, and costs £2,001. The nave roof consists of plain truss rafters; that over the chancel has arched principals springing from carved stone corbels, and pierced trefoils between the upright rafters above the wall-plate. The chancel arch is simply chamfered. There is an ascent of three steps into the chancel, two to the sanctuary, and a footpace for the altar. The sill of the easternmost window on the south side is lowered to form sedilia. The east window, as in all the churches designed by Mr. Hopkins, is kept high up in the wall; it is of three lights, with geometrical tracery, and its inner arch supported by detached shafts. The side windows throughout the church consist of trefoil-headed lancets, arranged either as complements with a simple piercing between the lights, or as single lights, except on the south side of the chancel, where there are three lancets under one rear-arch. At the west end, set within a deeply-recessed external arch, is a large wheel window of elaborate tracery. An ornamental band of inlaid stone-work runs beneath the windows of the chancel and round the tower both externally and internally; also under the west window, but on the outside only. The belfry-stage of the tower has two single lights in each face, and the stone broad spire rises to a height of 90 ft. from the ground. The internal fittings comprise open seats in the nave, stalls and prayer-desk in the chancel, and screen across the vestry arch, all of deal; a plain stone pulpit, iron lectern, and standards to altar-rails, and oak altar-table.

Clifton.—The corner stone of Emmanuel Church, Clifton, has been laid. The site of the church is in College-road, adjoining the Clifton College. The edifice will consist of a nave, two aisles, and an apse, and is intended to accommodate from 750 to 800 people. Although the foundation of the whole building has been laid, it is not intended to complete it at present: when the nave and aisles are completed, which are calculated to afford accommodation to 450, it is intended to open the place for divine service, leaving the remaining portion to be completed afterwards, unless sufficient funds are obtained in the meantime to finish the whole. It will be constructed of freestone and red sandstone, the latter being quarried upon the spot. The services of Mr. J. Norton, architect, of London, were obtained for designing the church, and the building has been given to Messrs. Davis & Son, Kingsdown.

Copley (Holfas).—St. Stephen's Church, Copley, which was recently consecrated by the Bishop of Ripon, is situated on the banks of the river Calder, and at the foot of a wooded hill, close to the picturesque village of Copley. The entrance to the churchyard is by a lych-gate of wood, covered with a slated roof, and surmounted with a gilt cross. The plans of the church were

drawn by Mr. W. H. Crossland, of Leeds (a pupil of Mr. Gilbert Scott). The plan comprises a chancel with sanctuary, ending in a seven-sided apse, a clerestoried nave of five bays, with two aisles, the porch being formed out of the western-most bay of the north aisle. A sacristy, with organ-chamber above and heating chamber below, is added on the south side of the chancel. The chancel is groined, having enriched stone ribs dividing the vaulting spaces, and supported on dark-brown Devonshire marble shafts, with carved caps. Shafts of red marble carry the inner window arches, and are grouped with the groining shafts. The reredos and pulpit are of Caen stone, enriched with coloured Venetian mosaics, designed and inlaid by Messrs. Heaton, Butler, & Bayne, of London. The floors of the nave and aisles are laid with black, red, buff, and grey tiles, arranged into various designs. The chancel is laid with enamelled encaustic tiles by Mr. Godwin, of Lugwardine. All the windows are filled with stained glass from Messrs. Hardman & Co.'s, of Birmingham. The decorations are by Messrs. Clayton & Bell, of London. The carving and sculpture throughout are by Mr. Samuel Ruddock, of London. The church is lighted by a gas corona, entirely of iron, and decorated, suspended from the chancel groining, two standards for the choir stalls, and ten in the nave. The standards are of brass and iron. The church, it seems, will accommodate 450 adults and 220 children.

DISSENTING CHURCH-BUILDING NEWS.

Ipswich.—The new chapel, erected by the congregation hitherto meeting in Salem chapel, Globe-lane, has been opened for divine worship. The chapel stands at the junction of High-street with Crown-street, and is faced with white bricks, with stone dressings relieved by coloured bricks, forming strings, cornices, and arches over the openings. The south front, which is towards Crown-street, consists of the principal gable of the building, which is coped with stone, and has a carved crocket at the apex, finished with iron finial, and a vane rising 56 ft. from the ground. In the centre is the principal entrance, leading through an open porch, with stone arch 15 ft. high, surmounted by a gable and carved finial, to the floor of the chapel; on either hand are similar entrances, but of smaller dimensions, to the staircases leading to the galleries. The wings contain the galleries. On each side elevation there are five double-light windows of stone, 15 ft. high, with traceried heads. The north wing in the High-street front is formed by the gable of the school projecting several feet in advance of the line of the elevation of the chapel. The doorways, windows, copings to the gables, and weatherings are of Caen stone. The roofs are covered with slates and ornamental crests to the ridges. A light iron railing and gates, with ornamental brick piers, enclose the two street fronts. The interior has the roof divided into three spans transversely, with ribs of timber formed into a Gothic arch for the centre span, and hammer-beam trusses over each side span, and five bays longitudinally formed into arches on each side, corresponding with the centre arch, and supported by rows of iron columns. The ceiling is plastered and open to the ridge, 43 ft. from the floor, and is divided into panels by the principal timbers which are stained and varnished. A gallery extends round the four sides, the south end over the porches being devoted to the children, where there are seats for 150. At the opposite end is the pulpit, behind which is the organ gallery and vestry below. The total number of sittings is about 800, in plain open benches of deal, stained and varnished. At the back of the chapel, and attached to it, is the school-room, 60 ft. by 22 ft., and 20 ft. high, and space for two good sized class-rooms. The contract was taken by Mr. Gibbons for 2,040l., from the designs prepared by Mr. Frederick Barnes.

Wolstanton.—The corner-stone of a new Wesleyan chapel has been laid in the increasing village of Wolstanton. The plans and designs of Mr. E. Dain, architect, of the Syth, Burslem, have been selected, for a Gothic chapel, of brick—pressed ones to be used for the external faces—with Hollington stone dressings to the principal front. The internal dimensions will be 60 ft. by 33 ft., exclusive of vestry, and orchestra over. There will be accommodation for 280 adults and 160 children. In the centre of the principal front will be an open arcade, communicating with lobbies on each side, leading to the

body of the chapel and to the staircase to the children's gallery, which will be over the entrances. The interior fittings and the roof below the plastered ceiling will be of deal, stained and varnished. The building is intended to be heated with hot water; and the cost of the erection, exclusive of fence-walls, heating, and lighting, will be about 1,300*l*. The contractor is Mr. John Walker, of Tunstall and Wolstanton.

Books Received.

The Municipal Government of the Metropolis. By a Londoner. Hardwicke, Piccadilly.

The author of this pamphlet proposes to arrange the whole metropolis into a certain number of cities or boroughs, subdivided into wards and parishes, doing away with the division into "districts" altogether. The initial letter of the name of each city and borough, he remarks, would serve to distinguish the separate divisions of the police, and might also be used for postal purposes, viz. :—

C. for City of London.	H. for Hackney.
W. " Westminster.	T. " Tower Hamlets.
K. " Kensington.	L. " Lambeth.
M. " Marylebone.	S. " Southwark.
B. " Bloomsbury.	G. " Greenwich.
F. " Finsbury.	

The boundaries of the cities of London and Westminster would be almost identical with those now recognised. The borough of Kensington would comprise those portions of the metropolis that are included within the Kensington division of Middlesex. The boroughs of Marylebone and Bloomsbury would comprise those parishes that are included in the Holborn division. The borough of Finsbury would be reduced so as to be co-extensive with the metropolitan parishes of the Finsbury division; and the boroughs of Hackney and the Tower Hamlets would comprise the Tower division.

In respect to sub-divisions, the author says :—

"In arranging a new system of sub-division, we should endeavour to make the wards more similar to one another than the present sub-districts are, both as regards their extent and population; to make each ward as compact as possible, and to preserve all well-known local names.

In many cases, two small sub-districts might be formed into one ward. In other cases, a large sub-district might be divided into two or more wards. In a few instances, intricate boundaries might be rectified, without occasioning nearly so much inconvenience to the ratepayers, as may result from the wholesale demolition of house property for railways and other metropolitan improvements. Having fixed the boundaries of the wards, we should divide them into parishes and combine them into municipal and parliamentary cities and boroughs; and thus, abolishing all other modes of sub-division, adopt one simple system for all local purposes whatever."

The proposed eleven boroughs would be subdivided into ninety-nine wards; and the parishes new and old would constitute the diocese of London, co-extensive ecclesiastically with the municipal and parliamentary limits of the metropolis.

But if extensive changes are to be made in metropolitan affairs, why not centralize the whole in a mayoralty and corporation co-extensive with the limits of the metropolis, neither superseding the City corporation, nor allowing it to remain as it is, as "A Londoner" proposes; but electing it from the whole of the population instead of from a small though central part of it. Of old the Lord Mayor and Corporation were appointed and intended to represent the entire metropolis. Why should it not be so now, by the mere extension of the limits of election?

Ladies' Sanitary Association: What can Window Gardens do for our Health? By ELIZABETH TWING.

"Mrs. Finsbury's Tea Party;" or, *Duties of Mother, Mistress, and Maid.*

Published by the Ladies' Sanitary Association, 14A, Princes-street, Cavendish-square; and by John Morgan, 10, Paternoster-row, London.

We place these two titles at the head of this brief notice simply to show that the Ladies' Sanitary Association are still actively engaged in their good work; these being only a specimen of the instructive and entertaining little tracts which they have published since our last notice. The Ladies' Sanitary Association is a most important agent in the promotion of sanitary knowledge amongst those who most suffer from want of that knowledge, and access to whose minds and hearts is difficult to sanitary pioneers without the aid of this admirable Association, which ought to have the material support of every one

interested in sanitary reform and anxious for its speedy practical realization amongst the poorer order of the industrial classes.

VARIORUM.

Fraser, for December, contains a charming little essay, by A. K. H. B., "Concerning Roadside Stations." His stations, however, are moral ones,—the views and feelings and beliefs as to which we fancy we have reached the terminus, while, in fact, we have only stopped for a little while at a roadside station! With what a sharp pang the knowledge of this sometimes comes to the heart!—The Christmas number of *London Society* has no fewer than twenty-five engraved recollections, some of them capital. Miss Emily Osborn has joined the clever bevy of lady illustrators who use their pencils for the gratification of *London Society*. Some of the stories, too, are very good.—"Cholera Prospects": compiled from personal observation in the East." By Tilbury Fox, M.D., London. Hardwicke, Piccadilly, London, 1865. We have here a thoughtful treatise, on a subject of unfortunately too great interest at the present moment, by an experienced medical man, already well known as an author, and of good repute in his profession. Were we to regard ourselves as anything like an authority in a question of this sort, we should probably reserve our opinion on some points in which we rather incline to differ with the author; but the treatise is an able one, and will no doubt hold a prominent place in the choleraic discussions and records. The treatise was read in abstract before the Harveian Society, on the 2nd of November, 1865. — F. Warner & Co. (Bedford-street), have published another shilling volume of "Penny Readings in Prose and Verse," selected by J. E. Carpenter, and seemingly very well adapted for their purpose. Mr. Henry Marston contributes some very sensible and useful suggestions to readers and orators under the heading "Elocution considered as an Art." The volumes are not numbered or otherwise distinguished: this misleads buyers, and so is a mistake.—The *Art Journal* closes the year with a very good number, including illustrated papers on Embroidery by the Rev. E. I. Cutts; and Kaulbach by Mr. J. B. Atkinson; Mr. L. Jewitt treats of the Yorkshire Potteries; and Mr. and Mrs. Hall's "Memories" are of George Crabbe. Amongst the engravings is a sparkling presentation of Poole's "Gipsy Queen."—The illustrations in the 1865 volume of "The Children's Friend" (Soley & Co., Fleet-street), are even better than they were in the last. It makes an attractive and instructive little volume, sure to be appreciated by the young folks.

Miscellanea.

ARCHITECTURAL ASSOCIATION.—The next meeting of the Voluntary Examination Class will be held on Monday next, December 11th. Subject, "Plumber, Painter, and Glazier," by Mr. Edmeston.

THE INSTITUTION OF CIVIL ENGINEERS.—At the meeting on Tuesday evening, the 5th of December, Mr. John Fowler, V.P., in the chair, the first ballot for the session 1865-66 was taken, when fifteen Members and twenty-five Associates were duly elected.

THE LATE CAPTAIN FOWKE, R.E.—We content ourselves now with mentioning, with very great regret, the decease of this gentleman, which took place on the 4th inst., at the South Kensington Museum. He was but forty-two years of age. Eminently what the world calls "a lucky man," his death, at this early age, and when the way to fortune seemed straight before him, might be made to point instructive teaching.

ENGLISH OPERA, COVENT-GARDEN.—A charming performance is Miss Pyne's *Angela* in the "Domino Noir." Auher's sparkling music suits her entirely; and, as has always been the case when she has played the part, her audience were delighted from first to last. Miss Thirlwall well contributed on Wednesday to the general success. And Mr. J. G. Patry, who is justly rising in public estimation, sang the part of the gross convent porter to perfection. A new opera in one act, by Mr. C. Deffell, entitled "Christmas Eve," probably intended to go with the Pantomime, is announced for the 13th.

ARCHITECTURAL INSTITUTE OF SCOTLAND.—At the annual general meeting of the Architectural Institute of Scotland, held in the Hopetoun Rooms, Queen-street, Edinburgh, on the evening of Monday, the 4th instant, an address was delivered by the Very Rev. Dean Ramsay, "On Fluctuations in Architectural Taste, as especially applicable to Great Britain.

FALL OF A RAILWAY VIADUCT.—The viaduct between Brookholes and Thongsbridge, near Holmfirth, on the Lancashire and Yorkshire Railway, gave way early one morning, causing the railway traffic to Holmfirth to be wholly suspended. Originally the bridge was a wooden structure, but, as it became rotten and insecure, the company resolved to replace the woodwork with stone, and the rebuilding was commenced about twelve months ago. The viaduct consisted of about thirteen arches, and was 200 yards in extent. The masonry was on the point of completion, platelayers were laying the metals, and it was expected that the new double line would be opened for general traffic in a few days. This expectation, however, will not be realised, for, about a quarter to six o'clock on Sunday morning, the viaduct in the centre and the whole of the arches, from one end to the other, fell in with a tremendous crash. It is most fortunate that the viaduct succumbed at this time, the first train to Holmfirth being due at Brookholes at seven o'clock. It is supposed that the foundations of the new viaduct had been weakened by a rivulet which runs through the middle of the arches.

SEWAGE OF TOWNS: DECISIVE JUDGMENT.—In March last a miller at Bailbury, named Spokes, obtained an injunction to restrain the Local Board of Health from continuing, after the 1st of July, to permit the sewage of the town to flow into the river Cherwell, so as to render the water near the plaintiff's mill injurious to the health of the persons resident there. The Board of Health immediately began to take the opinion of eminent analytical chemists as to what could be done towards establishing a system by which the sewage should be deodorised and carried away without making use of the river. Their counsel, however, says, that there are peculiar difficulties in the case, and that no solution of them has yet been found. The plaintiff has now applied for a writ of sequestration against the Board. Vice-Chancellor Wood asks, is a man who throws his sewage into his neighbour's yard, when he is ordered by the court not to do so, to be allowed to come with a story that he has consulted the most eminent analytical authorities, and that no means can be devised for deodorising the filth, and that he cannot help throwing it on his neighbour's property? His Honour says it makes no difference whether the wrong is done on behalf of thousands of persons or of one only. The order was plain and distinct in its terms, no human being could misunderstand it, and it must be obeyed to the letter. He accordingly ordered the writ of sequestration to issue.

MEMORIAL OF THE LATE EARL OF CARLISLE.—An influential meeting of noblemen and gentlemen has been held at York for the purpose of arranging as to the steps requisite towards the erection of a monument to the late Earl of Carlisle. Earl Fitzwilliam occupied the chair, and the meeting was addressed by the chairman and by the Earl of Zetland, Earl Cathcart, Lord Wenlock, the Archbishop of York, Lord Houghton, Lord F. Cavendish, and M. Gaskell. Lord Houghton, in the course of his speech, said :—"They were met to make a memorial for Lord Carlisle. What was the meaning of this memorial? It was that they should raise to his memory something which should carry the recollection of him, and suggest that recollection when they were all passed away. It was the province of art, and of art alone, to perpetuate in this way the memory of great men. Philanthropy stood upon its basis; but for this purpose philanthropy failed. It was art, and art alone, which, in its self-sacrificing nature, and apart from other motives and principles of humanity, perpetuated the memory of distinguished men. He thought they deviated from the just principles of human association on this matter; and if they connected the name of any particular man with any other object, with any other memorial, in a short time that other object or memorial would leave the man, and the memory of the man would pass away." Appropriate resolutions were passed, but no special form or site for the monument was decided on.

PLANS FOR PRIVATE BILLS.—Yesterday the list of plans deposited at the Private Bill Office of the House of Commons was issued. The number deposited to the 30th ult. was 450, of which 334 related to railways.

PROPOSED PNEUMATIC RAILWAY UNDER THE MERSEY.—It has been resolved to form a pneumatic railway 25 ft. below the bed of the river Mersey, between Liverpool and Birkenhead. Sir Charles Fox recently gave an explanation of the project to a numerous and influential meeting at Liverpool.

LIANTHONY ABBEY.—The clergyman calling himself Father Ignatius has, it seems, obtained the consent of the proprietor of the ruins of Llanthony Abbey, in Monmouthshire, to a transfer, by purchase, of the ruins and some land surrounding them, in order that the abbey may be restored!

THE METROPOLITAN SANITARY ASSOCIATION.—The new society intend to hold their first conference meeting on Thursday evening, December 14th, at the Rooms of the Society of Arts, John-street, Adelphi. Mr. Thomas Chambers, M.P., will preside, and Dr. Druitt will deliver an address on "The Defects in the existing Sanitary Laws, with Suggestions for their Amendment," after which, discussion on the subject will be invited.

DESTRUCTION OF DR. TYNG'S CHURCH AT NEW YORK.—St. George's Episcopal Church is that of the Rev. Dr. Tying, who is known to a large circle in this country. The edifice was commenced in 1846 and completed in 1848. The cost of the ground and building together was 250,000 dollars. The interior was decorated in the most costly manner, and ornamented with various designs in fancy wood work. It would accommodate about 2,000 persons.

DEMOLITION OF THE COLLEGE, DOCTORS' COMMONS.—The necessary preliminary steps are now being taken by the Metropolitan Board of Works of granting compensation to the advocates, proctors, and other persons resident, or having a vested interest in the College, Doctors' Commons, previous to the early demolition of the ancient building, the site of which is required for the formation of the contemplated new street from Blackfriars Bridge to the Mansion House.

OPENING OF STRATFORD WORKMEN'S HALL AND CLUB ROOMS.—This building, which has just been erected in West Ham-lane, near to the Swan Hotel, has been opened by a *soirée* and public meeting. The building is from a design presented gratuitously by Mr. G. B. Marshall, the surveyor to the local board of health. It contains five rooms, to be used separately for reading, chess and draughts, and bagatelle; and at the back is a large hall, fitted up for lectures and public entertainments. In front, just previous to the opening, were planted some choice shrubs, including two *Wellingtonia gigantea*.

THE ANGLO-FRENCH EXHIBITION AT THE CRYSTAL PALACE.—This Exhibition has been closed. Nearly 200 persons met at dinner, after the closing, at the Freemasons' Tavern; Mr. William Hawes, the chairman of the council of the Society of Arts, presiding. The guarantors, it appears, will have to be called upon to make good a pecuniary deficiency, but otherwise the exhibition seems to have been regarded as successful, and the chairman at the meeting said he hoped the committee which had managed the Anglo-French Exhibition, and the meeting that evening, would try and perpetuate what they had commenced so well, and would go on year after year in their efforts to bring English and French workmen together.

ST. BARNABAS'S, EDGWARE-ROAD.—The Bishop of London has now consecrated the church, erected during the present year in Bell-street, Edgware-road, and named after St. Barnabas. The church is capable of accommodating 700 persons, and consists of nave, aisles, and chancel, with an aisle for children, and vestry. The building stands north and south, instead of east and west, but this is owing to the peculiar form of the site. Over the altar is a metal cross, affixed to the wall, bearing in its centre a circular mosaic representing the Lamb, on a gold ground. Above the chancel arch is a figure of the Saviour seated, painted in fresco, and the north window is of stained glass. The cost of the church, exclusive of warming apparatus and decorations, amounted to about 3,600l. Mr. Arthur W. Blomfield was the architect, and Mr. C. N. Foster the builder.

PLASTERING.—"R. T." suggests that, in certain cases, the refuse of coco-nut fibre might serve, in the absence of hair, to mix with "coarse stuff" as a binder.

WORKING MEN'S COLLEGE.—The building fund has nearly reached 400l. in amount, but they want 3,000l. to do all that is needed. Surely help will be found? The number of students is now 509.

THE PRESTON EXHIBITION.—This exhibition, which has been eminently successful, was to be publicly closed on the 7th instant. The total number of admissions has been upwards of 160,000, and the receipts amount to about 4,300l.

ST. MARTIN'S HALL.—Arrangements have been made with the proprietor of St. Martin's Hall, Long-acre, for the large hall, which will be fitted up as a theatre, to be let for amateur performances only. The floor should be looked to.

THE SHEFFIELD SCHOOL OF ART.—The effort now being made to relieve this institution of the pressure of debt has met, it seems, with considerable success. The donations already amount to more than 800l. A respectable addition has also been made to the annual income of the school. We trust the effort will be persevered in until the debt shall be liquidated.

DEVIZES SCHOOL OF ART.—At the *soirée* of the Literary Institution recently held at the Town-hall, the prizes to the students of the School of Art were presented by Sir Thomas Bateson, bart., M.P., and the first report of the School of Art was read by the Hon. Secretary (Mr. Wittey). The school commenced on the 4th of May, 1864, and is held in the Grand Jury-room of the Assize Courts. The number of students is eighty-five.

DUNSFORTH CHURCH, BOROUGHBIDGE.—The roof of this new edifice has recently exhibited signs of giving way. It appears that the design submitted by the architect necessitated the roof being covered with very heavy stone slating or slabs, said to weigh between fifty and sixty tons; and that this weight has eventually cracked the north wall, which is now a little removed from its perpendicular. The outer walls have been wedged up by heavy timbers, and the stone roof is being removed, to be replaced with one of much less weight. It is said that the cost of repairing the roof will be between 600l. and 700l.

AN "ANAGRAM."—"What is an anagram?" writes "Juvenis;" a question that any dictionary would answer for him. But as we happen to have a good one, *à propos* and, we fancy, not generally known, we step down to reply to the question. The word anagram, then, Master Juvenis, compounded from the Greek *ana*, back, and *gramma*, a letter, signifies a transposition of letters so as to form other words:—

"Live, vile, and evil, have the self-same letters,
He lives but vile whom evil holds in fetters."

But the curious example we would give is this, that the letters in "Henry John Temple Viscount Palmerston" make exactly these words:—Only the Tiverton M.P. can help in our mess!

RAILWAY COMPENSATION.—Cadbury and Others v. The London and South-Western Railway.—This was a compensation case, in the Sheriff's Court, for land at Hammersmith. The value of land had greatly increased in this neighbourhood. Witnesses were called on both sides, and the case occupied the day. Mr. Hawkins, Q.C., was for the claimant; Mr. Lloyd and Mr. Gadsden for the company. The claim on one side was 8,569l., and on the other 3,900l. Mr. Under-sheriff Burchell summed up the evidence, and told the jury to exercise their own judgment in the matter. The jury awarded 5,500l.

MASTER AND SERVANT.—A carpenter in the employ of the Vale of Neath Railway Company was going up a ladder to a scaffolding erected close by a turntable, when an engine, which was being turned round on the turntable, struck the ladder, and he was thrown to the ground and much injured. The accident was owing to the negligence of the porter who had the management of the turntable. The carpenter brought an action against the company, but the Court of Exchequer Chamber has decided that the plain-tiff and the porter were servants in a common employment, and that therefore the case came within the well-known principle that a master is not liable to one servant for injury done to him by another who was engaged in a common employment with him.

BORING QUICKSAND.—The Ryhope Coal Company, in sinking their second pit, have again succeeded in passing through the quicksand, 72 ft. in thickness, underlying the magnesian limestone in the county of Durham.

A HINT FOR LARGE TOWNS.—The inhabitants of Grantham have determined upon planting trees along some of the principal approaches to their town. Fifty trees are to be planted immediately, to begin with, and more will come in due time.

BELLS FOR PHILADELPHIA.—A few weeks ago, Messrs. Meats cast a peal of eight bells, at their foundry, in Whitechapel, for St. Mary's Church, Philadelphia. The bells were inspected by Mr. Thomas Walsby. The weight of the tenor is 22 cwt., and its note E flat.

MALDON, ESSEX: RESEATING AND RESTORATION OF ALL SAINTS' CHURCH.—This fine old building, which has to accommodate two parishes, is about to undergo some considerable internal alterations, in the removal of the whole of the old-fashioned pews, for which open seats will be substituted. Mr. W. Adams, architect, of Maldon, has prepared the plans, by which additional sittings will be gained, and the structural beauties of the church, which are considerable, will be brought into view. The row of sedilia, and the entrance to a crypt, will be especially striking. The plans will be carried out immediately, the subscriptions for the restoration being very liberal. The indispensable comforts of warmth and artificial light, which have never been scientifically managed, will also receive due attention.

GREAT EASTERN RAILWAY.—The committee appointed by the shareholders of the Great Eastern Railway Company, on the 29th August last, have issued a preliminary report, wherein they say that,—"The 'borrowing powers' (subject to the sanction of the shareholders) have been largely exceeded during the past three years; in fact, to such an extent, that the committee cannot conceive any condition of circumstances which could justify, or render even temporarily necessary, so grave a departure from all commercial principles." They are nevertheless prepared "to recommend that the shareholders should sanction the borrowing of the several sums of money mentioned in the directors' advertisement, upon the distinct understanding that, for the future, no such irregular borrowing shall, under any circumstances, take place; but that when the Parliamentary Powers are required to be exercised, the previous sanction of the shareholders shall be asked and obtained." The committee "express their conviction that the small dividend proposed to be paid to the shareholders at the last general meeting had not been earned, and, therefore, in their opinion, ought not to have been even suggested by the Board of Directors."

TENDERS

For alterations to Greno House, Messrs. M. E. Hadfield & Son, architects:—

Wilson	£390 0 0
Carr	600 0 0
Rodley (accepted)	578 0 0

For ten cottage houses at Barber Nook, near Sheffield, for Mr. Mitchell, Messrs. M. E. Hadfield & Son, architects:—

Byron	£1,350 0 0
Rodley	1,185 0 0
Butler (accepted)	1,098 0 0

For the erection of a new building, corner of Jewry-street and George-street, Aldgate, for Mr. Robert Heley. Quantities supplied:—

Marsland	£5,900 0 0
Wells	5,171 0 0
Wills	5,153 0 0
Dudley	5,140 0 0
Rider	5,140 0 0
Adamson	5,120 0 0
Hill & Keddell	5,050 0 0
Hart	4,989 0 0

For villa residence, at Sarbiton Hill Park, for Mr. W. S. T. Sandilands, Mr. R. Roberts, architect:—

Rider & Son	£3,380 0 0
Piper & Wheeler	3,352 0 0
Axford & Whittier	3,235 0 0
Sharppington & Cole	3,244 0 0
Colls & Son	3,138 0 0
Coleman	3,010 0 0
Jackson & Shaw	2,965 0 0
Brown & Robinson	2,847 0 0

For alterations to premises, No. 35, Coleman-street. Mr. W. Dawson, architect:—

Conder	£1,400 0 0
Colls & Son	1,423 0 0
Patmas & Fotheringham	1,384 0 0
Patrick & Son	1,194 0 0
Woodward	1,111 0 0

The Builder.

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Foreign Building Investments.

A chief among the characteristics of the year now so swiftly drawing to its close is the financial position in which it leaves almost every portion of the civilized world. Public debt, everywhere, with one happy exception, more vast in its overgrown proportions than at any former period of its existence, is also everywhere more rapid in its growth, more impudent in its demands, and more certainly menaced by the gigantic and inevitable sponge that will carry ruin and desolation to so many heartlands.

Turn which way we will, our eyes are met by demands for money, by offers of high terms for loans that are never to be repaid, and the proceeds of which are, in great part, destined to pay the interest on other loans, alike irredeemable.

The names once most venerable in Europe—those of the Emperor and of the Pope,—head the long list of thriftless spendthrifts, differing, it is true, in this respect, that the secular princes possess indeed a high revenue, but carries on an expenditure on a scale of at least a third in excess; while the ecclesiastical sovereign, shorn of the greater part of both income and subjects, cannot pretend to any certain revenue adequate to meet the most modest requirements of the Roman Court.

Nor is the desire to improve the wonderful discovery of William of Orange—the possibility of borrowing without even the promise to pay, which has involved Europe in public debt to an amount exceeding four thousand millions sterling, and enabled the sovereigns and ministers of our time to keep under arms more than four millions of men,—confined either to the old world or to the pale of Christendom. The rapid growth of the debt of the United States, in a period of little more than four years, to a point at which its annual pressure equals that involved by the colossal obligations under which so many years of foreign war have laid Great Britain, is a phenomenon altogether without precedent in the history of the world. And eastward, by the waters of the Golden Horn, that sovereign who, if he cease to be caliph, can hardly expect to reign as king, is eagerly violating the law of which he is the supreme administrator, in his haste to acquire the civilization of debt.

The demands of pope or of sultan, of emperor or of king, for more money, for a fresh loan, to set everything straight, and for which, by way of showing how straight matters are on the point of becoming, they will begin by paying the fortunate contributors a safe and certain 10 per cent. per annum, are not, however, matters which very specially concern ourselves. But in the universal eagerness to borrow, nets are spread of every size of mesh. Finance companies promise to work miracles, and to enrich their shareholders by a magic performance which few of the expectant members can even dimly understand; and as food and sus-

tenance to the finance companies, sharing in their prestige, and affording a presumed basis for their gains, is the daily increasing number of companies for foreign enterprises, for rebuilding the cities of the continent of Europe, or for stretching long lines of railway over countries sure to be densely populated in the future, if nothing should happen to prevent it.

To schemes like these the prudent man will give more than casual attention before he adopts them as investments. It is not to be said that all English schemes are sound. Nor will we say that all foreign schemes are to be avoided. Far from it. But in any *bona fide* English scheme the subscribers have at least the certitude that they are acting within the pale of the English laws, which, if they do not themselves understand, they can, at all events, have explained to them in their own tongue by able English counsel. How different is the case with regard to the most promising foreign concession those who have most experience in these matters can best tell. But it is not to these men that the Concessionnaire is likely to address himself, nor are the names of persons experienced in foreign undertakings those most conspicuous among the promoters of the various schemes (limited) for deriving large English dividends from the rents of foreign towns. The names of respectable professional men do indeed appear in some of these schemes; but it will be seen on examination that, although the mere association of these names may lend so much weight to a project as to allow it to come before the public with some chance of success, the details to which they pledge themselves are, for the most part, extremely meagre, amounting probably to little more than the statement, that if A, B, and C—foreign gentlemen all—carry out their engagements, the Englishmen who find the money to enable them to do so may expect very remunerative terms.

To those who, with their eyes open, will risk their money in schemes of which they can themselves know nothing, and of which no one whom they know can tell them anything to justify their confidence, we have little to say. If they subscribe, as is generally the case, not with a view to carry out the enterprise and to reap the fruits, but in the hope of selling their shares at a premium, the limitation of the shares will be that of their actual loss, unless they be further tempted to throw good money after bad. But the most ready and most pitiable victims of companies that carry on their foreheads the menace of speedy dissolution, or of lingering impunctuality, are not the would-be clever speculators, but the persons of limited income, and of equally limited knowledge of the world, who think it absurd to draw a safe and modest 3 or 4 per cent. on their capital, when they may so readily receive 9 or 10 per cent. from the new and excellent undertaking to which they see Mr. So-and-So's name attached. It is the modest provision of the widow, the savings of the governess or the school-mistress, the store of the country clergyman against a rainy day, that most surely find the way to the pockets of the promoters of highly-promising companies.

Speed the trowel, indeed! Success to the industry of the builder! Honour to the skill of the architect! It is well to see palaces displacing ruinous hovels, and noble avenues cut through the crowded alleys of ancient continental Europe; but we must be excused for wishing to see our neighbours do their own work, and for cautioning our readers that investments, like charity, should begin at home. Let those of our neighbours who prefer the municipal to the autocratic system emulate the activity of their northern brethren, replace their mouldering fortifications by spruce boulevards, and pierce their historic palaces with glass arcades. The questions of taste, comfort, advantage in every way are for them to decide, not for us. All that we

have to say in the matter is, *Let them do it themselves.* Let them find their own money, and spend it, as they are pretty sure to do, however it is found, according to their own notions of right and wrong. We offer no advice to the mere speculator; but on the investor such as we have described, who seeks, and naturally seeks, for the most remunerative employment of his or her capital, we are anxious to impress a rule that is not only general, but, within certain limits, universal, that increase of income from a given amount of money is equivalent to increased risk in its employment. It is true that risk is not loss, but it is the ready and tolerably sure road to it. Persons may be pointed out in those countries where the lottery is still one of the favourite methods of raising the revenue of the State, who have won, and have received large sums from the lottery; but it is hardly necessary at the present day in this country to warn clergymen or widows against investing their savings in a lottery-ticket, even if they have the good fortune to dream of the number that is destined to win the prize. Let them regard in the same light as the purchase of a lottery-ticket the subscription to foreign undertakings of which they can know nothing, unless it be the fact that if those who do know their merits were as convinced on that point as they wish the public to become, they would not fling freely to the foreigner the golden chance.

If any readers such as we have mentioned should still wish to try their fortune in some unusually promising scheme, let us assure them that their money will be very courteously and promptly received, and kept so carefully, that, with the exception of that portion which for a time may be returned by way of interest on the remainder, they are never likely to see its colour again. We can further promise them in return a large instalment of a commodity that is often purchased very dearly by those who despise good advice. They will gain valuable experience,—some knowledge, it may be, of the operation of foreign law, and a much more distinct appreciation than they formerly had of the conventional nature of morality,—or, at least, of the very different point of view from which questions of *meum* and *tuum* are regarded by members of nations differing from one another in habits, in laws, and in speech.

THE LATE CAPTAIN FOWKE, R.E.

On Saturday last (the 9th instant), Captain Fowke was buried in the Brompton Cemetery. There were gathered round the grave, besides his family, Major-General Sandham, Major-General Matson, Colonel Sir J. Wm. Gordon, K.C.B.; Capt. Du Cane, Capt. Decie, Capt. Andrew Clarke, Capt. Donnelly, Capt. Festing, Lieut. R. O. Jones, and many other officers of the Royal Engineers; also Mr. Henry Cole, C.B., Mr. R. Redgrave, R.A., Mr. S. Redgrave, Mr. Seymour Haden, Sir J. C. Robinson, the Rev. A. M. De la Mare, Sir W. Dilke, M.P., Mr. Moffatt, M.P., Mr. Owen Jones, Mr. Digby Wyatt, Sir F. Sandford, MacLeod of MacLeod, Mr. Godwin, Mr. Stephenson, Mr. George Wallis, Mr. George Forrest, Mr. R. Smith, Mr. Thomas Lucas, Mr. T. C. Owen, Mr. A. S. Cole, Mr. Snell, Mr. Burchett, Mr. Sandham, and many more.

The Rev. Dr. Irons, who had known the deceased intimately, read the service most impressively, and in the pulpit of Brompton Church on the following day spoke in strong terms of his character and qualities. Captain Fowke was a devout man, and had concerned himself considerably in parish charities. A touch of melancholy and reserve in his character seems, now that he is gone, to have foreshadowed his early death, the cause of which we may term consumption, ending in the unexpected bursting of a blood-vessel. He was born in Belfast about the year 1823, educated at Woolwich, and received his first commission in the Engineers in 1842, when he was sent to Bermuda. On his return he built the Raglan Barracks at Devonport, which are well spoken of. In 1853, Captain Fowke was made inspector of the Science and

Art Department. In 1854, he undertook the charge of the machinery sent by the English to the Paris Universal Exhibition of 1855, and was, at a somewhat later period, appointed secretary to the English Commission attached to it. In connexion with that Exhibition he wrote two reports: the one on "Civil Construction," we reviewed at length at the time.

At that same Exhibition he conducted a series of valuable experiments on the strength of colonial woods, which, in the colony of Jamaica, had the effect, it is said, of increasing the annual exports of lance-wood spars fourfold, and raising mahoganies from 4,869 ft. to 39,474 ft. After the Paris Exhibition he became the engineer of the South Kensington Museum, and made many additions, not all successful, to Sir William Cubitt's ugly iron building, which all the world now knows by the name we gave to it before a morsel of it had been prepared, in our endeavour, the drawings being before us, to prevent its erection as designed.

The picture gallery designed by Capt. Fowke, in conjunction with Mr. Redgrave, R.A., for Mr. Sheepshanks's gift of pictures, answers its purpose well in most respects. In this he applied a novel principle to the lighting of picture galleries by gas; and, by the use of ingenious machinery, many thousand gas-burners are lighted every evening in a few minutes. The Vernon and Turner galleries of the South Kensington Museum were built by him, with fire-proof floors, in the course of eight weeks, in December, 1858, at a cost, we are told, not exceeding 3½d. a cubic foot, certainly a very low rate if correctly stated.

Capt. Fowke was appointed, in 1858, a member of the International Technical Commission; when he made, independently, a Report on a scheme for the navigation of the Danube. In 1860, he designed the Industrial Museum, Edinburgh, of which the first stone was laid by the late Prince Consort in October, 1861. A view of the building will be found in our volume for 1862.* In 1860, the designs for the new buildings for the South Kensington Museum were produced; these, as afterwards improved by their author, are now being carried out, and have been described by us at different times; once, not very long ago, when we touched with candour on their weaknesses as well as on the merits they display. The Dublin National Gallery was remodelled and added to by him. He gave the first general plan for the Royal Horticultural Gardens, which was subsequently modified by Mr. Nesfield. The design for the conservatory, and the design for the south arcades of the gardens, were made by him. In the latter, he introduced terra-cotta with good effect, as he has since done in the Museum buildings. The interior of the conservatory, of which we gave a view in our volume for 1861,† is exceedingly effective; in fact, it is one of the best things of the kind that we know of. While these larger works were going on, various matters were struck out by him which show the activity of his mind. Collapsing pontoons, which are thought to possess considerable merit,—a folding india-rubber bath, a camera, a collapsing umbrella, improvements in a fire-engine, and a travelling scaffold. Then came the large and costly building for the 1862 International Exhibition, a work sadly deficient in the artistic element, but which nevertheless displayed great qualities. We were not of those who lavished unmitigated abuse on its designer, and we still think that the demolition of the noble range of brick-built picture galleries was a foolish waste of money. Illustrations of the building will be found in our volumes, as well as more particularly one of the Machinery "Annex," a very clever piece of economical construction. On a somewhat similar principle he built a drill-shed, for the use of the 1st Middlesex Engineer Volunteers. This was constructed with semi-circular ribs covered with felt; it measured 100 ft. long by 40 ft. wide, was upon brick foundations, and cost, it is said, only 100l. He employed the same principle of construction in the several entrances to the Horticultural Gardens, where they may be seen. It has been asserted that a similar arrangement of woodwork had been previously set forth in a French book on engineering, but into this we have not examined.

Much of Fowke's work was tentative; he was not afraid of trying; not afraid of new materials or new modes. He was gradually, too, improving his taste; acquiring a better perception of beauty in form; and the last thing he did was the best.

We allude to his design for the Natural History Museums proposed to be built on the site of the Exhibition Building, and of which a plan and view will be found in our volume for 1861.* This design, it will be remembered, was submitted anonymously in open competition.

In reviewing the designs we at once pointed out the *projet*, found afterwards to be Captain Fowke's, as prominently deserving of reward, and the judges ratified that opinion by afterwards awarding to it the first premium. We may not, however, longer dilate. Suffice it to add the expression of our sincere regret that a career promising so brightly should be prematurely ended.

RESTORATION OF CHURCHES IN ROME.

THE Basilica, dedicated to S. Praxedes, daughter of the Christian senator Pudens, and said to be on the site of her house, has pertained since the year 1198 to the Vallombrosan Order, who have here their only monastery in Rome. This church,—*Italic*, S. Prassede,—situated among obscure streets in the Equiline Hill, has succeeded to another of primitive and almost unknown antiquity, in existence at least as early as 499, under which date it is mentioned in the acts of a council held by Pope Symmachus—the sole reliable notice of it. In the ninth century that antique edifice was fated to disappear by the determination of Pope Paschal I., who had been one of its officiating clergy, and who not only rebuilt, but transferred to different sites the church that still retained its former dedication. A liberal patron of the arts, and promoter of public works, the above-named Pope seems to have particularly encouraged the mosaicist's labours; and in three of Rome's ancient churches are still preserved examples of their art dating from his pontificate—S. Cecilia, S. Maria in Domitica, and S. Prassede,—in each of which we see the figure of Paschal in the mosaic groups, distinguished by a *square nimbus*,—sign of his being among the living when these works were wrought. As to style all these mosaic compositions present, indeed, unmistakable evidences of an epoch of advancing decline in art; but those at S. Prassede possess a certain religious grandeur that strikes the imagination. From the ninth to the fourteenth century, it seems, the building so dedicated stood, with its main features unaltered; but, like many other churches, fell into decay during the papal residence at Avignon; and was restored, about the middle of the fifteenth century, by the architect Rossellini, under Nicholas V., a pontiff who energetically applied himself to the repair of the numerous sacred buildings become ruinous through the neglect of his predecessors at about the same epoch. Unfortunately the basilica in question was subjected to restorations of a later and (as to the arts) a much worse period, by order of its cardinal titular, the saintly Carlo Borromeo. Then was built the present meaningless façade, and a staircase leading from the street to its level. The transepts were sacrificed by the formation of a lateral chapel and two galleries, supported by antique columns laterally to the choir; and a canopy resting on four porphyry pillars was raised over the high altar. The ancient windows were walled up, and larger ones, of unsightly appearance, opened in their stead. Still less in accordance with the antique, are later novelties introduced here by another cardinal protector, Mirandola, in 1730; and the frescoes, by different artists of the same century, which now clothe the attic-walls, illustrating the story of the Passion, with colossal angels and apostles in alternate spaces, are altogether insignificant and mediocre. As to the exterior, the only details that can be referred to Pope Paschal's church are the cornices, or rather string-courses of terra-cotta mensola, the heavy quadrangular tower, now overcapped by a modern-pointed roof, and the porch, a good specimen of ninth-century construction, with high-hung arch resting on two lateral architraves and two massive columns of granite with Ionic capitals. Also may we notice in those rounded windows, arched above with large tiles, now all filled up, the characteristics of Early Medieval building. As to the interior, it is only in the elaborate mosaics on the apse and triumphal arch, and clothing the walls of a lateral chapel, besides the still untouched architecture of that same chapel, dedi-

cated to the "Holy Column," that we recognise the works of Pope Paschal. The general aspect is sombre and chilling; even the harmonies of melancholy effect are impaired by the intrusion of modern art utterly uninteresting and commonplace. In the colonnades dividing nave and aisle, several of the granite shafts have been built up within heavy square pilasters, so that only sixteen of those ancient columns are left visible; their rudely-chiselled Corinthian capitals singularly adorned with sculptures of birds, the eagle, the cock, and the dove, in high relief against the abaci. A peculiar feature is the division of the nave into five compartments by four great arches that spring from flat pilasters almost to the height of the ceiling, which is of woodwork in coffer, but without either gilding or any other than chiaroscuro colouring. A flight of steps, each a monolith of *rosso antico*, leads to the elevated choir, beyond which opens the apse with stalls; and on each side of the choir are marble columns, fluted and chiselled with acanthus leaves (no doubt of antique origin), supporting those loggie that form a novel feature quite inappropriate.

The Vallombrosan monks of the adjacent cloisters undertook, during the last winter, a restoration of this interior, still in progress; but it seems they want means for carrying out this work to any extent of splendour,—nor does that hitherto accomplished bear any high promise. One improvement effected is the throwing of a vault instead of a flat-coffered ceiling over the choir; its surface blue, studded with gilt stars; and the remainder of that woodwork in the nave is now receiving similar decoration, in blue and gold, together with the addition of gilt bosses and palm-leaves, diverging in starry form, at the spaces between the panel-angles. The now dingy surfaces of the altars are to be cleansed—we conclude whitewashed, and their frescoes restored. Some examples of monumental sculpture are among this church's interesting contents, and fortunately not exposed to detriment through these bad works, the most rich and beautiful being the tomb of a Cardinal Anchera, deceased 1286, and here represented in sculpture that seems of about the same period, as a recumbent figure, pontifically vested, upon an isolated marble couch, exquisitely chiselled and decorated, with colonnettes, mouldings, and inlaid work of coloured smalt. A Gothic insertion, now to be seen in the cloisters, records the donations of this cardinal to the church, i.e., a golden cross and silver candelabra, under condition of a daily mass for his soul, and a perpetually burning lamp in the chapel, where he reposes in his magnificent tomb. S. Prassede is famous for its relics—the Holy Column, and many others exposed, with pomp, from a balcony at the Vespers of Easter; few, indeed, entitle to one iota of the credence or respect one may pay to the unquestionable memorials of such a man as Carlo Borromeo, whose wooden throne, as well as the table at which he used daily to feed a certain number of poor, are left visible in the chapel dedicated to that saint.

We may allow ourselves a glance at those mosaics on the apse and above both the inner and outer archway of the choir, which fortunately need no touches from presumptuous restorers, and retain their olden characteristics, though not without damage, as is said, through a renovation here attempted in 1832. Above the triumphal arch is the heavenly Jerusalem, encircled by walls of gold studded with gems. Within, at the centre of this mystic inclosure, stands the Saviour holding a globe and cross, between two archangels; while the gates of that city are guarded by other archangels in white vestments; and approaching on either side are numerous groups with crowns in their hands; the two figures nearest to one entrance recognizable, by the type of heads, as SS. Peter and Paul, between whom stands another white-robed angel. Lower, in formally-disposed groups on each side, are other companies of the faithful offering leafy crowns or waving palms, as on their way to the beatific city. But we have to deplore the Vandalism that has in part sacrificed both these groups of the composition in order to the opening of the tabernacles for relics, with galleries in front; and still more unpardonable is the intrusion of the present baldachin over the high altar, a heavy and unsightly structure, date 1730 (not that placed by S. Carlo), which obstructs the view of that mosaic-clothed sanctuary from the nave! On the apse is the principal mosaic group, colossal in scale and imposing in effect, however inferior the technical

* See p. 841.

† See p. 407.

* See pp. 394, 395.

execution it exhibits: centrally, standing amidst bright clouds, at higher level than the other figures, the Saviour, in gold-woven vestments, with cruciform halo, the right arm raised in commanding action, the left hand holding a scroll; above Him, issuing from the clouds, a hand stretched forth to place on his head a golden diadem set with a single gem; at each side, on lower level, three figures: Saints Peter and Paul, each presenting to the Saviour a young and magnificently-dressed female, S. Praxedis and her sister Pudentianna, both wearing diadems and offering crowns, their costume probably that of noble Roman ladies in the ninth if not an earlier century; beyond these, at one side, the Pope Paschal I., offering a model of his church, with square halo around his head; at the other side, a young ecclesiastic holding a richly-bound volume of the Gospels, supposed to be St. Zeno. The Jordan, typifying baptism, flows at the feet of these figures; and palms, on the branches of one of which stands the phoenix—symbol of Resurrection—terminate the composition at each end. Above the archivolts of this apse appears the Lamb of God between seven lighted candelabra, seated on a jewelled throne beneath the cross; four angels and the winged symbols of the Evangelists, each with a bound volume, on the same level; and below, the four-and-twenty elders, dressed uniformly in white, offering their crowns in adoration. On a frieze below the group in the apse, is again introduced the Divine Lamb accompanied by twelve sheep, typifying the Apostles; at the extremities the mystic cities, Jerusalem and Bethlelem, and underneath are inscribed in gilt letters, verses recording the constructions and the piety of Pope Paschal. In this whole composition the artistic character is decidedly reflected from antiquity,—the draperies in long massive folds, the quiet dignity of attitudes, and general formality of arrangement reminding one of sculptured relief. The most interesting part of the church's interior is that much-frequented chapel of the "Holy Column," whose walls and vault are entirely encrusted with marbles and mosaics on gold ground—works of the ninth century; and the effect of which gorgeous sanctuary, in the dim light alone admitted, has a mysterious splendour that inspires awe. From its profuse magnificence it used once to be called the "Garden of Paradise;" but was originally dedicated to St. Zeno; afterwards to the Virgin under the invocation, "*Libera nos a penis inferi*;" and finally to the column, its precious relic, which, we are told, in an inscription here to be read, was brought from Palestine to Rome under Honorius III., A.D. 1223. The upper part of the walls, as well as the vault, are covered with those antique mosaics that have fortunately preserved all their original character. On their golden ground at the four sides we see:—SS. Peter and Paul standing before the apocalyptic throne, on which is the cross, but the former holding a single gold key,* the latter a scroll; St. John the Evangelist, with a richly-bound volume, SS. James and Andrew near him; the two daughters of Pudens and S. Agnes, all in rich vestments, and holding crowns; the Virgin Mary (a veiled matronly figure), and S. John the Baptist standing beside her; again, under the arch of a window, the half-figure of Mary, with three other females, all distinguished by the nimbus, one crowned, one with a square halo round her veiled head, to indicate a person still living; above these heads, the Divine Lamb, on a hill, from which stream the four Paradisaical rivers, and stags (the symbol of desire for celestial truth) drinking of their waters; above the altar, under an arch, the Saviour, between four other saints, without names—figures in part sacrificed (with incredible outrage against their artistic claims) to a modern tabernacle, with pediment and colonnettes, surmounting the mensa; on the vault, a colossal half-figure of the Saviour, youthful, but severe in aspect, with cruciform nimbus, the whole surrounded by a large circular halo, that seems supported by four archangels, solemn figures in long white vestments, with uplifted arms, that stand finely distinct in the dim light. Within a niche over the altar, usually covered by a veil, is another mosaic of the Virgin and Child, with the two daughters of Pudens, as to which

Ramohr (*Italienische Forsch.*) observes that its ruder execution seems to indicate origin later than the ninth century. The entrance to this chapel is flanked by two columns of rare black and white granite, supporting a beautifully-chiselled marble entablature, evidently antique, above which opens a high-arched window; and around this are carried two tiers of mosaic heads in circlets, the outer comprising the Saviour and the twelve apostles; the inner, the Virgin Mary between SS. Stephen and Laurence, besides eight female saints (all either crowned or veiled). Above, laterally to the higher series, two aged heads, supposed by Ciampini to be S. Pudens and S. Pastor. The effect of this whole elaborate art-work is not improved by the addition of two heads of ancient popes, in fresco, imitative of mosaic, placed below that earlier ornamentation. In architecture this chapel is so singular as to be well worth studying. Its groined vault springs from four granite columns at the angles, with unequal shafts and gilt Corinthian capitals, each supporting a cube-formed architrave and massive cornice of white marble, partly gilt, showing the transition before the final disappearance of these members, after both had become already useless to the constructive whole. On the pavement of fine marble entasis is an immense disk of porphyry, said to mark the spot where Paschal I. deposited the bodies of forty martyrs, transferred hither from catacombs. This chapel is deemed so sacred that, through one of those strange ecclesiastical arrangements of Rome that seem to have no correspondence with Christian ideas, females are never allowed to enter except on the Sundays in Lent! As to relic whence it takes its now popular name, the legend is the following:—Cardinal Giovanni Colonna, titular of this church, was sent as legate of the Crusade to Syria, A.D. 1223. Having left the camp for a pilgrimage to Jerusalem, he fell into the hands of the Saracens, who cruelly tortured him, and were about to saw his body asunder, but were deterred by a miraculous appearance; the countenance of the victim becoming radiant with celestial light, whose beams dazzled and terrified. Their hate changed into awe and reverence; their captive was not only released, but received from them a precious donation,—the column (or rather its lower portion only) to which the Saviour was bound for scourging. Some writers, indeed, state that the same cardinal obtained this relic among the concessions stipulated for by the Crusaders, as the price of peace, on the taking of Damietta; and of the miraculous additions to this tale none are given in the learned and curious work by Padre Davanzati ("*Storia di Santa Prassede*," published in the last century). At all events, since the return of Cardinal Colonna from the Crusade, here the column has remained in the place where he deposited it. Three palms in height, it is seen with a lamp perpetually burning before it, in a niche encrusted with precious marbles. The preciousness of its material forms one objection to its claims; but it has been erroneously described as jasper, being in reality syenite granite, of the species distinguished by vivid black stains on a white ground,—hence the term adopted by Italian mineralogists, *granito della Colonna*, for this species generically.

Below the high altar of this basilica we descend, through a grated portal, into a dark crypt, consisting of three corridors, that once communicated with more extensive subterranean, passing (it is said) under the entire area of the edifice, but closed, by order of the authorities, some century ago. That part still accessible has a ceiling in one corridor arched, in the others flat; the whole incrusted with large slabs of different marbles. Near the entrance stand two great sarcophagi, one containing the bodies of SS. Praxedis and Pudentianna; the other, various relics brought hither from catacombs by Paschal I., each sarcophagus adorned by a frieze of coloured intarsio, and one with Christian sculptures in about the earliest style. An altar in this crypt, said to be the identical one consecrated in the house of Praxedis, presents one of the most beautiful examples of Mediaeval art-work, with richest variety of coloured stone and profuse gilding in circles, triangles, bands, &c.* Above this is a fresco on the wall, which Italian critics ascribe to the twelfth century; others, we believe, to the eleventh century; its subject, the

Madonna between the two Daughters of Pudens, who both wear and hold in their hands the crown so frequently introduced as alike the sign and the offering of sanctity, the countenances of these figures delicately marked and full of sweetness, the costumes gorgeous with profuse jewelry and cumbrous embroideries that remind of Byzantine details.

The campanile, a square brick tower, which may be ascended by a rickety wooden staircase, seems in the state of incipient ruin; its arched windows, built up so as to conceal the marble tracery now only visible from within; a dreary, ghost-like place, where one might fancy oneself in some ruinous abbey far from the haunts of men; and on the walls we may perceive the faint traces of almost obliterated frescoes, just the outlines of figures and nimbus-crowned heads, from which the colours have completely faded. The masonry of this tower is rude and irregular; perhaps the inference is admissible that both the building itself and those all-but-lost paintings belong to the ninth century; and assuredly the restorers of Rome's modern school might have deemed it worth while to preserve from destruction such records of an epoch but little known through any examples of its pictorial art among Rome's monuments.

A marble puteal (erected in its place, within the nave, 1688), is said to mark the spot below which St. Praxedis used to deposit the blood of martyrs she had collected with sponges. Of these witnesses to the truth, it is asserted by the tradition read in two inscriptions on those walls, that 2,300 repose here. St. Carlo Borromeo used to spend hours of the night in meditation above the spot where they are laid in that chapel of the holy column. But other very different memories attach to this sacred building, reflected from the periods of Mediaeval violence when no sanctuary was secure, and Rome's annals presented such tragic scenes in the struggle between ecclesiastic and aristocratic power. Pope Gelasius II. was celebrating mass here, shortly after his election, 1118, when the adverse faction, headed by Cencio Frangipane, who supported the interest of the emperor against the pontiff, entered with armed force, seized the person of the royal priest, and, with cruel maltreatment, threw him, chained, into prison. A combat took place at the door of this church between the Frangipane faction and the nobles who defended the cause of their pontiff. That illustrious prisoner was soon released, thanks to the fears of his lawless jailor; but, after a few weeks, Gelasius had recourse to an expedient repeated in recent story, a flight to Gaeta, in order to escape from his domestic and foreign enemies, whilst the Emperor, Henry V., was approaching to elect an anti-pope in his place.

The Monastery of S. Prassede was founded by the same popes who built the church, and first occupied by Basilian monks. In its interior that pontiff had erected a chapel to S. Agnes, with mosaic-adorned walls, of which remains not a trace. An inscription still extant states that the cloisters were built by a cardinal titular, in the time of Gregory VII.; but in the architecture actually before us, a quadrangle of arcades, with square pilasters, round a pleasant garden, is no detail stamped with the character of the eleventh century. Mediaeval splendours have disappeared from the Roman Vallombrosa.

The works that have been in progress for not less than nine years at St. Agostino, the great church of the Augustinian order, erected 1488, are not with a view to any changes in the architectural plan, but for adornment of all principal surfaces, walls, and vault, with frescoes, entirely by the same artist, Gagliardi, who will, it is expected, be here engaged for three years more before his task will reach its final term. In the tribune behind the high altar, in the two lateral chapels nearest, and in the chapels forming the transept extremities, also on the cupola, this adornment is finished, the subjects of the paintings now exposed to view being the Vision of the Deity to Adam and Eve after their Fall; the Coronation and Assumption of the Virgin; the Baptism of St. Augustine; and several scenes from the lives of two Augustinian saints, Thomas di Villanova and Nicholas di Tolentino. Others, in which St. Monica (in the chapel containing her body) appears with her saintly son; and, on the cupola, the twelve apostles, the evangelists on pendentives below. On the vault of the nave (not yet re-opened) we see David playing his Harp, and the Sacrifice of Abraham; along the attic, six illustrious women of the Old Testament. An arabesque ornamentation,

* Ciampini ("*Vetere Monumenta*") gives an engraving that shows this figure without the key; a detail, therefore, to be ascribed to the restorers of modern times;—surely neither a justifiable nor judicious departure from antiquity.

* If for the building of the present church a new site was indeed chosen by Paschal I., and the primitive church entirely demolished, this tradition as to the house of Praxedis must of course fall to the ground.

filling interstices on the attics, is very graceful and rich in character. Among the single figures those of the apostles are most dignified. In their technical skill and freedom of design, these paintings generally may be said to display the best qualities of the actual Roman school (one we cannot undertake to enlarge in any high terms); as pertaining to an architectural whole, their effect is striking; but we do not recognise in them the higher attributes of spirituality or serene religious sentiment; and among the various miracles chosen for representation, some are startling to a degree almost offensive; one (a scene where appear two self-moving images amidst a theatrical procession) quite below the dignity of art. One cannot, however, withhold praise from the energies, science, and vigour of imagination undoubtedly possessed by Signor Gagliardi.

At S. Nicolo in Carcere, — a church remarkable for the ruins of three temples, of Hope, Piety, and Juno Sospito, partly comprised within, partly buried beneath it, whose antiquity (we speak of all those Pagan fane) ascends so high as the Republican period, — the works, commenced about nineteen years ago, are still continuing in slow progress, notwithstanding that we had to report in our pages, about two years ago, their expected completion within the next ensuing season. In its leading features a basilica, on the Early Roman type, this edifice is not to be deprived of that character, though renewed in all decorative details, through the restorations so laudably carried on.

THE PREVENTION OF STRIKES.*

We have more than once referred in our previous papers descriptive of the organization of M. Leclaire's house-painting establishment, to the existence of certain carefully devised regulations other than the provisions of the deed of partnership, and the statutes of the Provident and Mutual Aid Society. In these regulations is embodied what is not the least instructive feature in the organization, namely, the system for the observance of the workmen and employees of every grade, in the workshops, and the execution of work in hand.† It is important, not merely in connexion with the immediate subject of these papers: it is suggestive of means of the production of a better quality of artificers' work than is now to be secured generally, whether from workmen themselves, or the master-tradesmen. M. Leclaire, as we have seen, considered that it was essential to success of his undertaking, that the public should be made acquainted, as far as possible, with the means of recognising, or preventing, frauds; and should be able to estimate the comparative advantages of inferior work, low-priced, and that of the better quality, costing more, but having greater durability. We have seen, moreover, not only from the facts referred to in these papers, but from his researches mentioned on several occasions in the *Builder*, that M. Leclaire's exertions extended to the improvement, in many ways, of the processes entering into the craft of house-painting, and to the introduction of new ones.

It is scarcely possible to do entire justice to the general subject that now concerns us, without some reference to the regulations in that aspect of them which pertains to artificers' work of the particular kind. We must, however, mainly, limit ourselves to what might be adopted in any branch of work connected with building, — only remarking that regulations appropriate to the kind of work should be framed in each case, of whatever trade. The quality of work common in house-painting, has already occupied our attention; and we may have to revert to that subject.

The regulations of which we have spoken, are printed, and are bound up with the statutes of the Provident and Mutual Aid Society, — there being one general index. They extend to rather more than fifty pages; and bear date, 1st July, 1864. We have alluded to regulations which their author had drawn up many years previous; and to which, results, attested as we have seen, of his exertions for his workmen, may be in part attributed.

The regulations now before us, are preceded by a short address from M. Leclaire to the workmen and employees. In the course of it, — after

alluding to the results, which were mentioned in our last article, of the operations of the Society, as regards annuities, — he says: —

"This considerable fact should gladden us all, and give to each member the assurance that the sublime works that our commemorative medal bears, — 'No more poverty for the ailing workman, nor for him whom age has condemned to rest,' — will be shortly, for the workmen of the *Maison Leclaire*, a reality.

This reality is in your hands: its accomplishment depends on you.

Workmen and employees, members of the Society or not, all should say to themselves: — 'The lot of our families is here; let us then work with courage; let us instruct our children; let us direct them so that one day they may make good fathers of families, good citizens.'

Let us teach them all, the respect that one owes to others if one wishes to be respected one's self.

Let us teach them that the liberty of each stops where the liberty of others begins to be touched: let us teach them that the liberty of all is the respect, scrupulous, absolute, for the rights of others, the constant fear of coming into collision with the persons with whom one has relations of interest or not; in fine, that liberty for one's self, as liberty for the others, is no other thing than the putting in practice of that divine precept which says, — 'Let us not do to others that which we would not should be done to us; and which adds, in tracing for us our duty, — 'Let us do, on the contrary, to others, all that we would that they should do to us!'

The personnel of the establishment is composed, in general, of our children; let us teach them promptly their gratitude; let us make them comprehend that they owe gratitude to all those who show them how to work; and that, as we have none of them in debt, they are bound, by a good employment of their time, to contribute to sustain the men whose forces begin to give way.

Let us make our education for ourselves; let us act with entirety: no divisions between us; no uneasiness in our relations. Let each one teach the others, by his example, to well do their duties. Let us not forget to be exact in the established regulations: they have but for object, order and economy of time in operations.

Let us have constantly in thought, that we owe a profound gratitude to the men who direct us; let us encourage them by our efforts to well fulfil our duty; let us facilitate for them, the accomplishment of their mission, by our agreeable relations with them.

They have not need of us; and we have need of them: we should be much disappointed, if at the end of a year, the day after a balance of accounts, they should declare that they terminated their functions.

Their task is heavy, difficult, and delicate: good administrators do not improvise themselves; time is necessary to form them; and, again, all individuals are not apt to well-administer.

It ought not then to escape from our mind that our interests depend entirely on theirs; and that when one has relations of interest with some one, one owes respect mutually: one is bound especially to avoid putting in motion questions of self-interest, for, the solution of them is always more or less troublesome.

Let our exactitude in work prove to the clients of the establishment, that *Saint Monday*, and of old date, is never made a holiday; and that only unavoidable circumstances prevent the Sunday being always observed.

In fine, let us have conscience of our dignity: let us conduct ourselves so as to merit the esteem of persons in whose houses we work. Such are the reflections that I would prevail upon each one to make to himself for himself.

The members of the *Société des Secours Mutuels* are no longer simple day-labourers, who act mechanically, and who quit work before the clock may have sounded last stroke. All are become partners who work for their own account: in this aspect, nothing in the workshop should be indifferent to them: all ought to look to the state of the tools and merchandise, as if they were specially the guardians of them; and even if disorders, having for result to compromise the interests of the establishment, occur in their presence, they ought to represent them immediately, unless by hierarchical respect they prefer to refer them to those in authority.

The disloyal arms of fraud, which are employed sometimes to sustain competition, are not ours. The fact that we have to sustain is only more severe in consequence. It is, then, only with a better employment of time in work, and by a good management, that we can offer to the public prices as low as our competitors.

We possess an organization that leaves nothing to be desired. Amounts of capital, intelligence, patronage, nothing is wanting to us: with energy, we can then produce cheaply, well, and quickly, and obtain good results.

In our general assembly of the 13th of March last, I have acquainted you with the ambition that dominates me. At the age at which I am, one is in haste to enjoy. In consequence, if you wish that I go out of this world with a contented heart, it is necessary that you have realised the dream of all my life: it is necessary that after regular conduct, and assiduous work, a workman and his wife be able, in their old age, to have the resources that to live tranquil without being at the charge of any one."

The rules, or "Articles" of the "Règlements," relate to the Customs of the Establishment, the Apprentices; the Staff ("Noyau"), the admission to it, and the advantages (including preference as to work in winter) granted to those forming part of it; Conditions to be observed in work, Works in the Country, Regulations for the Foremen, and numerous other matters.

It is observed, that, from the first employed downwards, each one ought to do his best to make up for any omissions of the head of the establishment. If any errors be committed, they are not to be hidden: conviction is expressed that no false step is taken intentionally; but, it is said, he who fears to avow a slight fault, gives ground for the supposition that he commits more serious faults than he hides.

The first "Article" relating to the customs of the establishment requires each man newly engaged to work at the head-quarters, to give

in his little book [*livret*], in which his entrance on duty will be inscribed. Should he have no "*livret*," a certificate will be given him, to get one. On the first day of the hiring, the "*Chef d'Atelier*" or shop-foreman, makes him acquainted with the first division, now under notice, of the "*Articles*." If the workman does not agree to conform to those particular "*Articles*," he merely completes the one day, — the foreman giving him, at the end of it, a note entitling him to be paid what is due.

Usually, work is suspended on Sundays, and the principal *fête* days. The day is of ten hours; for which the ordinary pay is 5 francs (4s.).

An ordinary journeyman painter in London at present gets 6½d. per hour, or 5s. 5d. for ten hours: in some instances, 7d. per hour, or 5s. 10d. for ten hours, would be the rate, — grainers being able to make still more. So that a French workman, coming to this country, might benefit in one respect by the change, — the possibility of which we have hinted at for the consideration of those who are agitating for increase of pay. Indeed we happen to know that M. Leclaire himself has been lately executing work in this country; although he has employed English as well as French workmen. The work of long days begins at six in the morning, and lasts till six in the evening, — two hours being taken for meals. Time occupied in work after six in the evening is not counted as night-work, unless the meal have been taken after six, and work been done afterwards. In case of Sunday-work, one meal only is taken; and the work ceases an hour earlier. Men attached to the division of the "*petits bravaux*," which perhaps we may interpret *jobbing-work*, take but one meal a day. The long day, "*la grande journée*," commences and finishes at the hours stated; but there are also the "*moyenne*," and the "*petite*," days, or of middling and short length, according to the seasons and the demand of work to be done. The duration of night-work is eight hours, or from ten in the evening to six in the morning, including an hour for a meal, — the workman finding his provisions. Night-work is paid for at the rate of 95 centimes (9½d.) per hour; and time in the evening, when not the continuation of daytime, is assessed at the same rate. The English workman would be paid "time and a half" in the evening, or up to nine o'clock; whilst for night-work he would get double the day rate, or say 18d. per hour. The pay-day is once a fortnight. The fortnight commences with a Saturday; and the workman is paid on the morning of that day, for the previous fortnight, ending on the Friday night. Each Friday before the pay-day, or in Paris, the workman on arriving in the morning gives in, on a note printed in form, to the foreman of the workshop, the number of hours he has made in the fortnight, but including the time of the Friday, and his "*faux frais*," or literally, *idle expenses*. The sum total of the latter is placed beneath the total of the hours; but the detailed statement appears on the back of the note. The note is signed by the workman. The foremen, the glaziers, and all the men who have the right to wages of a higher rate than has been stated, have to enter upon their notes, additionally, the number of hours for which they claim this right. The foremen send all requisite papers to the head-office before noon on the Friday. The glaziers, polishers, decorators, and some other workmen, deposit their notes on the Friday morning in the box at the office. A workman quitting the establishment in the course of the fortnight, receives his money only on the pay-day following the day of his departure.

One of the "*Articles*," after remarking that in certain circumstances, works are of a disagreeable character; that in others, much activity, and frequent change of workshop, are required; that there are cases where workmen cannot finish what they have commenced; and that there are other cases where it may be necessary to go into the country for a single day, says that these circumstances being independent of the will of the master, and burdensome to him, each one ought to lend himself to such arrangements with a good grace, and without expecting an augmentation of the day's pay. Should the workman not accept such position, it is said, not only will he be regarded as of an uncomplying disposition, but as giving ground for doubt of his qualifications, since the least capable workmen are not those who give themselves few airs, and who bend themselves the most easily to the circumstances of which one is not master. And a following "*Article*," — perhaps addressed to the case of one

* Vide pp. 737, 738, 774, 811, 845, 867, ante.
† "Règlement à observer dans les Ateliers," &c. &c.

who has pride in real skill (a feeling that we could wish were common in England),—says, that when a workman is chosen to do work that is not agreeable to him, his duty is to conduct it to a good end, without seeing in the selection of him anything but a mark of confidence, and without supposing that he is judged incapable of doing better; but that should he have any doubt on the point, he would be bound to ask explanation,—which would not be refused; and that this manner of acting is better than that of losing the day,—like men without principles, who forget that they have a family to support.

The next division of the rules relates to Apprentices; and, as much as any other portion of the "Règlement," it deserves the attention of British workmen. The children of foremen, and of workmen of the "noyau" (or staff), are admitted into the establishment in preference to others. To be admitted, they must have made their first communion (equivalent to confirmation in the English Protestant Church); and they must know how to read, write, and work in arithmetic. They are paid, from the first day of their apprenticeship, or in proportion with their age and intelligence. Each year, commencing with the time when the "grande journée" begins, their pay is augmented proportionately with their deserts. Orphans, and those who form part of a large family, may be paid more than the others; and it is observed that the others should not regard this as injustice, but should on the contrary approve. There is no condition as to the duration of the apprenticeship: the apprentice may be dismissed by the head of the establishment, or be removed by his parents, at any time. A distinct "Article" says that the head of the concern attaches much importance to the apprentices being treated with kindness and discretion, and to their receiving only good examples.

"Each workman is bound to consider them as his own children, . . . to encourage them by varied labours, especially to recompense them by something which it is agreeable to do, after having occupied them with dirty and disagreeable work; otherwise they are out of concert with themselves, become dawdlers, disobedient fellows; whilst, in treating them as men, in doing the part of youth one can obtain of them good results, and render them service the while."

It is added that they should not be sent about with heavy weights.

M. Leclaire observes, in a note, that sometimes, in workshops, the apprentices are subject to brutality; and that it is shameful in men to presume on inexperience,—since thus an influence of the most unfortunate kind will be exercised upon the character of the children, and on the direction which their minds will take in their growing up. Faults on the part of the apprentices are punished by the individual being "mis à pied" (that is, his work is suspended) for one or more days. To those who have conducted themselves well, medals are given each year, by the "Société de Secours Mutuels," at their general meeting; and to these there may be added, in exceptional cases, an annual sum in money, which is never less than 10 francs (8 shillings).

The next division of the "Règlement" relates to that section of the workmen called the "Noyau"—the newel, or staff of the establishment. A note explains that this portion of an industrial establishment is composed of workmen, intelligent, and of good morality; and who are picked men, through whose aid all the exigencies of the particular business can be satisfied, and great perfection be attained. When work is not abundant, these men are employed in preference to the others. The idea, however, in M. Leclaire's establishment, seems to resemble that of the military "cadres," or framework for the contribution of force of men in reserve. For admission to the "noyau," merit, rather than length of services, gives the title: but, there are particularly specified as necessary,—1. The having good morals and regular conduct; 2. The having given proof of ability as *enduseur*, varnisher, and polisher; 3. The being acquainted with the regulations for the workmen in the shops, so as to be able to reply upon all the "Articles," if interrogated; and, 4. The having obtained a letter from the head of the establishment, bearing an ordinal number indicating that the workman fulfils the before-mentioned conditions, and that there is ground for admitting him. There are two ranks of admission to the staff: the first comprises the foremen-painters, and the foremen of all the branches of work connected with painting, as well as many workmen of each of these latter branches; the second is composed of the ordinary painters, of workmen of the other branches, not in the first rank, and the apprentices; and

the letters of admission of the two ranks bear different series of numbers. The men of the staff, besides having preference in the grant of work, can receive during winter an advance of 50 francs,—should they need such help,—returning it in the summer; they can receive some amount of money, to be fixed by the head of the establishment, out of the profits, in accordance with a provision of the deed of partnership which we have mentioned; and, finally, he who has worked for the establishment during five years without interruption, can demand admittance into the Society "*de Secours Mutuels*." In winter, the foremen of works in hand remain at their posts till the works are completed; but the rest of the workmen take turn in the order of their admission to their rank of the staff, a fortnight at a time,—the first turns being taken by the men of the first rank. Each man works a fortnight; and when every one of the first rank has worked his fortnight, the men of the second rank come in their numerical order; and when they have all worked, the turn of the first rank recommences. The men attached to what we have regarded as the jobbing-work are excepted: they remain always at their post.

Then follow rules to be observed in the execution of work. The first of them relates to the safety of workmen, as on scaffolds. The foreman is bound to see that such things as cords and ladders are perfect; and should they be otherwise, he is authorised to destroy them, and to send back the fragments to the workhouse, demanding replacement. He is to see generally that the workmen are not exposed to danger. Should he omit any portion of the duty referred to, all the workmen are authorised to refuse to make use of the ladders or other things in an unsafe state. If in spite of precautions, an accident should happen, it is the duty of the foreman to give instant help, and not to hesitate at any expense; and to lavish [*prodiguer*] upon the wounded man, the necessary care, and to cause him to be conveyed to his dwelling by trusty men, workmen; and, finally, the foreman is forthwith to give information of the accident at head-quarters, that the man may be attended to.

A special article directs workmen, when an inquiry is made of them by a proprietor, architect, or other person, to desire the individual to address himself to the foreman.

GUSTAVE DORÉ'S BIBLE ILLUSTRATIONS.

A WELL-KNOWN publishing house in the City has for some time past announced the publication of the English Bible, illustrated by the pencil of Gustave Doré, and has invited visitors to inspect the illustrations themselves, which are gratuitously on view in the Belle Sauvage-yard, on Ludgate-hill. It must be remarked, however, that the engravings which are there to be seen are all lettered in French. No specimens of plates evidently intended for an English edition are to be seen. The question, therefore, forcibly suggests itself, whether the English illustrations are to be taken from worn or good blocks. A difference of 3*l.* in the price of the French and the English Bible is a further reason for raising the question, whether this unrivalled work of art is to be placed in the hands of the English subscribers in that state of perfection which the character of the artist demands.

Of the work itself, it is difficult to speak in terms that do not appear to be overstrained. No previous work of Doré's is to be compared to his Bible. In fertility of imagination, in local truth, in grandeur of treatment, and often in a subtle appreciation of the sacred text that is evinced in a perfectly new handling of subjects that have been the study of the greatest Christian artists, Gustave Doré must rank as *facile princeps*. Let any one who is on his way to visit the Belle Sauvage-yard, pay a previous visit to the shop window of Dominic Colnaghi & Co., in Pall-mall East, and look at the lovely coloured plates from Raffaele's Bible which are now to be seen there. With these conceptions of the painter of the Transfiguration in his memory, let him see how Doré has treated the same subject, and the result of the comparison will be the conviction that while Raffaele has given us the fruit of a rich Italian fancy, the scenes drawn by Doré are more like those of the sacred text itself. No commentary ever written has the instructive value of these illustrations.

The points left for adverse criticism are few in number. To note them is only another mode of saying how much there is to admire. The first feeling of regret that occurs to the mind is the observation that Doré has evidently not visited Jerusalem before illustrating the grandest scenes in the history of the Holy City. It is true that the reticence which he has shown in many instances as to the architectural details of buildings long overthrown, and overthrown without leaving trace or record of their peculiar architecture, is in itself a mark of true artistic judgment. Where other artists have called on their imagination, or consulted their sketch-book, for incongruous towers and domes, the great Frenchman has concentrated the interest of the scene in its human actors. But enough yet remains of the buildings of the city of Herod and of Solomon to show us that the walls and towers of the city were not like the castle of St. Angelo or that of Rochester; that they were not faced with stucco or with Roman cement; and the two or three scenes which give this idea of the fortifications of Jerusalem evince a want of truth in this respect, that even a consultation of De Vogüé's works, to say nothing of photography, would have enabled the artist to avoid.

The contrast to the want of local truth as to the masonry of Jerusalem, is the wonderful rendering of the Egyptian and Assyrian architecture. The walls have all the texture of stone, and the incised hieroglyphics seem to stamp the touch to verify the relief of the slab. The halls unearthed by Belzoni, by Wilkinson, and by Layard, are reproduced by the magic pencil with the forms that filled them three thousand years ago. The quaint beards and wigs of Egyptian sculpture become the possible costume of living people before us,—and not living only, but living in the full vigour of Oriental passion. The mingling of the unchanging features of the scenes, the lurid glare of the African sun, the expanse of the desert, the national types of the Jew and of the Arab, the obstinacy and fury of the camel, with the past and buried types of the dynasty of the Pharaohs, is a marvellous triumph of the human imagination. It is true that the artist might have given to Pharaoh his actual features, as we may this day trace them in the gigantic portraits transported to the British Museum; but the form driven by fear, by wonder, and by wrath up those massive steps into the presence of Moses, is one that will long haunt the memory like the recollection of an actual fact.

The only instance, perhaps, in which the artist in striving for the wonderful has fallen into the impossible, is in the illustration of the death of Sampson. The architecture here is incongruous, the effect of the possible displacement unmechanical, and the relation between cause and effect painfully unnatural. But to atone for this trip, how wonderful is the scene where the vexed strong man holds out his sacred locks to his sulky mistress. You see at once that if this is not the very portrait of Dalilah, it is that of such a woman as she must have been. The attitude is life itself—the life of the traitress.

One instance of the manner in which the very pith and marrow of the sacred story is seized on by the artist, may be taken from the story of the old prophet slain by the lion. Often has this been represented, and the moral of the punishment of disobedience has been drawn from it by preacher and by painter. But how would the intelligence of the event have struck on the ears of those to whom the tidings came—a man killed by a lion!—the lion to be seen—there! there!

Such is the reading of Doré. On a low hill, looming against a dark and stormy sky, sits a mighty lion on its haunches, with its back to you, the spectator, just attracted to the spot by the fearful tidings. The lion has not seen you, or he would either have retired or prepared to attack you,—you come so near to him behind, and against the wind. Tumbled at his feet is the carcass of the old prophet, slain by a blow of the mighty paw, but undevoured by the avenger; and by him, each leg and each ear planted at a different angle, a compound of terror and of fidelity, is the ass, while the prophet whose unadvised hospitality led to this terrible catastrophe is slowly advancing towards the spot.

Yet one other instance of the manner in which this gifted artist regards a familiar scene from a novel stand-point. Who has not heard of the Pharisee and the Publican? who has not learned to recognise afar off the pompous pride of the

one and the modest humility of the other? Is it so indeed? If the lesson had been so trite and obvious, would it have been one selected by a Teacher who spake as never man spake?

It is not thus that Dord has read the lesson. He has looked at the suppliants from the human point of view. Scrupulously exact in his dress, handsome in his person, winning, polite, devout, the Pharisee is performing his devotions, so that with the mass of his countrymen you admire the worshipper whose prayer you cannot doubt to be acceptable to the Lord of the Temple. Hard by, squalid and disgusting, the Publican reminds you of an Italian beggar. God must be good indeed to have mercy on such as he. And then further on, through an open door of the temple, you catch a sight of the great Teacher, who looked on the scene with other eyes. For He regarded the heart, and therefore it was that he saw with other eyes a scene of which the great painter has truly shown the human and obvious aspect.

It is hard to tear oneself from the contemplation of these marvellous sermons, not in stones, indeed, but in outlines that linger in the memory. The slaughter of the prophets of Baal, the mingling of man and beast in the strong parental instinct as shown in the Deluge, the Egyptians watching the first miracle of Moses, the long line of Nicanor's elephants, the mite dropped by the youthful widow, are among the *chefs-d'œuvre*. It will be matter of sincere satisfaction to find that the English edition is equal to the French one; that in all the subordinate details, which are matters, not of art, but of trade, full justice is done to a genius which has not feared to meet the great Italian masters on their chosen ground, and which has not been worsted in the contest.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of the members was held on Friday evening (the 8th inst.), at the House, in Conduit-street.*

Mr. R. W. Edis, the president, occupied the chair.

The following gentlemen were elected members of the Association:—Mr. John Adams, George-street, Greenwich; Mr. M. H. Merrick, Camberwell New-road; Mr. W. H. Jewitt, Leighton-road, Camden Town; Mr. G. Merrin, Bow; and Mr. E. Hammet, Brixton.

A letter from Mr. Godwin was read by Mr. Plumb (hon. sec.), offering a prize of five guineas for the best essay on either of two subjects proposed by that gentleman. This communication had been considered by the committee of the Association, who had selected the following subject:—"Suggestions for improvements in the artistic design of locks, door-furniture, grates, stoves, gas-fittings, and ironwork generally, applicable to domestic purposes, with sketches illustrative of the objects recommended."

Mr. Riddett brought under notice the wants of the lending library, which he said contained but 100 volumes strictly bearing on professional subjects, a number which was far below the wants of the Association. He expressed a hope that the members would either subscribe so as to enable the stock of books to be enlarged, or make donations of suitable works.

Mr. Tarver made a statement respecting the class for drawing from the human figure, which he represented to be in a prosperous condition. The attendance of members was good, and considerable interest was displayed by them with regard to its future success. It had been proposed to increase the evenings of meeting to three per week; but as the proposition had come from those members of the class who were not members of the Association also, it was his duty to lay the matter before them. If a greater number of members of the Association were to join the class, he had no doubt that the proposal could be acceded to.†

Mr. T. R. Smith then read a paper on "Study as a Preparation for Practice." The paper

* The next meeting of the Voluntary Examination Class will be held on Monday evening next, subject, "Heat, Light, and Ventilation," by Mr. R. O. Harris.

† Mr. E. B. Ferrey, the hon. secretary of the class, writing to us on the subject, says,—"that, although we have scarcely room for any more students from the living model, yet, at least, twelve more members could draw from casts, and a system of alternate studies from both is recommended by our teacher, Mr. Poynter. The increase afforded to the funds of the class by the addition of ten members would enable us to meet three times instead of twice a week, a point strongly urged by a majority of the present students."

might be considered as supplementary to others in cognate subjects read on previous occasions. He observed upon the position of an architectural student in this country, and on the habits and tastes which were essential to professional success. He expressed his regret that the number of Oxford and Cambridge men in the profession was so small, and considered that the absence of everything like an artistic education in public schools and colleges was a main reason why architecture had fewer attractions than other callings for university men. Before a student began his life as a pupil, he should devote one year chiefly to drawing; and before the termination of that period, he should be able to draw the human figure from the round well enough to procure for him admission to the antique school of the Royal Academy. The majority of young men, however, did not enter the profession with such advantages fully developed. But still there was no reason for them to despair, as, by resolute, well-directed effort, they might overcome this drawback. With regard to the most practical way of learning the elements of the architect's profession, he considered that on many points a pupil could obtain better information from companions in the office, or from foremen of works and on the building, than he could from his master. In the office alone, however, but a very incomplete education could be obtained. Even so simple and necessary an accomplishment as perspective, for example, could not always be picked up there,—much less any complete scheme of the art and science of architecture. Supplementary aids to education were, therefore, of essential importance. In London there were more public facilities than were to be found in the country. Attendance at a good evening drawing-school (figure as well as landscape) would be found extremely useful; as also the knowledge of the French language. The next desideratum was an acquaintance with the history and the general forms of past styles of architecture, and the theory and practice of construction. He recommended all students to attend Professor Hayter Lewis's course of lectures at the London University College. Two evenings a week might be devoted to these for the winter months of two years. Another course of lectures on the arts of construction was also delivered annually at King's College, by Professor Kerr, the value of which could not be over-estimated. The class of design at their own Association, as also the voluntary examination class, were likewise valuable agents in the acquiring of knowledge. After other suggestions, Mr. Smith referred to the advantages offered by the Royal Institute of British Architects, which he thought were not sufficiently appreciated. The Institute had, he thought, done great service to students, by putting into their hands a compendium of the books and subjects likely to be most valuable to them, as also a specimen examination paper. The voluntary architectural examinations were likewise most important, as they afforded students an opportunity to satisfy themselves of their proficiency and to declare to the world the nature of their attainments. Having referred to what the student of architecture might do for his own advancement by private study, sketching tours, &c., Mr. Smith concluded a long paper by reminding his auditors of the answer of Demosthenes to the question, what were the first, second, and third essentials of an orator? The Athenian philosopher replied to all three,—*"Action, action, action."* In a similar sense it might be said that the grand essential of architectural study was drawing.

Mr. Ridge proposed a vote of thanks to the lecturer, and in doing so suggested the advisability of acquiring a more thorough knowledge of the past styles of architecture, as, he observed, it was too often the practice to neglect this part of education. He thought they neglected to consider the principles on which the old masters worked; their work, indeed, was more a matter of principle than of detail.

After a short discussion the vote was agreed to.

THE BRITISH ARCHEOLOGICAL ASSOCIATION.

At the meeting on the 6th instant, Mr. Thomas Wright, M.A. in the chair, the proceedings were commenced by the chairman, who, in a feeling address, referred to the loss the Association had sustained since their last meeting, in the death of Mr. T. J. Pettigrew, their treasurer from the first, and a vice-president. He sketched

a history of the difficulties which had beset the Association at its foundation, through which it had been piloted mainly by the skill and the resolution of the friend whose loss they now deplored. Of the value of those services Mr. Wright spoke with the more confidence, as he was himself the founder of the Association, and he knew probably better than any one else the magnitude of their early difficulties. Their late friend continued for more than twenty years the chief regulator of their proceedings, and left them prosperous and prepared for further usefulness. The meeting fully sympathised with the sorrow expressed by the president at the decease of Mr. Pettigrew.

Mr. Wimple exhibited some Roman remains dug up in Winchester-street, a piece of Samian ware, a part of a well-wrought bone stilet, and an iron knife, or perhaps rather a Roman razor, almost exactly like but rather larger than that given in Mr. Roach Smith's catalogue, p. 72.

The Rev. H. V. Le Bas forwarded two little objects found in the course of work lately executed at East Bedford Church. One of them, which appeared at first to be imperfect, was ingeniously put right by Mr. Syer Conning, and pronounced to be a boatswain's whistle of the fifteenth century, on the clearest evidence, furnished by that gentleman.

Mr. G. Wright, F.S.A., exhibited a bone implement, a specimen of a class very numerous found lately in London, but the use of which is at present unknown. The Rev. S. Simpson undertook to produce other specimens from his own and Mr. Cat's collections. After various other exhibitions,—Mr. J. R. Planché, *Rouge Croix*, V.P., read an elaborate paper "On the Paintings at Lumley Castle and the Effigies at Chester-le-Street." These remarkable specimens of painting and sculpture purport to be portraits and monuments of the ancestors of the Lumley family: the mistake which has been prevalent concerning them is the belief that they were contemporary with the personages to whom they refer. Mr. Planché demonstrated that the paintings and most of the sculptures were executed at one time in the seventeenth century, but that attempts were made to give a chronological succession by copying costume, &c. from other paintings. Only one of the fourteen effigies which presented so imposing an array of monuments in the Church of Chester-le-Street, could be considered a real Lumley effigy, and contemporary with the person represented.

LEICESTERSHIRE ARCHITECTURAL SOCIETY.

At a meeting of this Society, held recently, plans for the restoration of Elms Thorpe and Peckleton churches, and for the erection of a tower and spire to the church now erecting at Tur Langton, were submitted to the Society.

Mr. G. C. Neale called the attention of the Society to the importance of having lightning conductors properly affixed to all large public buildings; conductors being mischievous from the fact of their being placed in position by persons not understanding the aptitude or otherwise of the various metals, &c., to attract and conduct electricity. It was strongly recommended by the committee, that no lightning conductor be affixed to any church or other public building, unless under the direction of a competent scientific person.

Mr. R. B. North exhibited a *fac-simile* drawing of an interesting mural painting lately discovered in Whisendine Church, Leicestershire. The painting, which measured 8 ft. 8 in. by 1 ft. 10 in., formed the retables of the high altar in pre-Reformation times, and was uncovered during a recent restoration of the east window of the chancel. The subjects depicted were those usually found placed upon the rood-loft, viz.,—the crucifix in the centre, with St. John on the one hand and the Virgin Mary on the other. To the right and left of these appeared St. Andrew with his cross, and St. Margaret treading under foot the dragon,—her special symbol; whilst at the four corners were placed the evangelistic symbols. The stones upon which this curious painting was depicted were obliged to be removed during the late works, and are now placed for the inspection of the curious in the south transept. The painting, although sufficiently clear to declare its meaning, was much obliterated and defaced in the removal of the colour-wash from its surface.

ECCLESIOLOGICAL SOCIETY.

At the last committee meeting the Rev. H. L. Jenner was congratulated on his designation to the bishopric of Dunedin, New Zealand; and the committee proposed to present him with a pastoral staff, to be executed in ivory and ebony. It was announced, that at a late meeting of the Canterbury Diocesan Church-building Society, the Archbishop of Canterbury in the chair, it was resolved that grants should be made to churches fitted with movable benches or chairs. It was agreed to apply for space in the Paris Exhibition of 1866. From Messrs. Clayton & Bell the committee received a careful full-sized drawing of the Last Supper, as intended to be reproduced in Dr. Salviati's mosaics for the reredos of Westminster Abbey. The committee regretted the selection of that subject for an altar-piece; and doubts were expressed whether mosaic could produce the refined and delicate drawing of the cartoon. The president announced that the officers of the Ecclesiological Society would be added to the joint committee appointed by the Royal Institute of British Architects, to watch the interests of architectural art in the approaching Paris Exhibition. The president read a letter from the Rev. Mr. Nash, about the retention of the chancel-screen in Christchurch Priory church. It was agreed that the committee could not justify its removal. Mr. Wadmore's proposed restoration of St. Helen's, Bishopsgate, was discussed, and it was agreed to support the president's recommendation, that the old arrangements in the nuns' choir in the existing north aisle should not be disturbed. The Rev. J. C. Jackson brought a rejected fragment of stone-carving from Lincoln, in order to show the original "scum," and the extreme danger of removing it.

CONTEMPLATED IMPROVEMENTS IN
NEWCASTLE-UPON-TYNE.

It is a somewhat singular circumstance that Newcastle-upon-Tyne, only four years ago pronounced perfect by the corporation officials, in contradiction to our statement of its lamentable condition in a sanitary point of view, has recently procured the royal assent to an Improvement Act, which actually came into operation upon the 10th ult. The singularity of the circumstances consists in the great difference of opinion which the lapse of a few months must have wrought in the mind of the curious corporate body of the borough of Newcastle. The perfection of 1861, by some strange transmutation, becomes unendurable imperfection in 1866: suggestions that were utterly repudiated as uncalled for in 1861, are complacently adopted in 1866. Thus the new Act makes various commendable provisions connected with the public health and safety, as we will enumerate, but perversely or blindly ignores that which is now found to be the most important of all.

The new Act empowers the corporation to borrow a sum not exceeding 150,000*l.*, in addition to a sum already borrowed, and still unpaid, amounting to 54,744*l.* 9*s.*, to meet the expenses of laying out a dozen new streets, and widening and otherwise improving about ten existing roads and streets, all of which works are to be completed within ten years, as the power granted by the Act is then to expire, except as to so much of the works as is then finished. Any street or court formed or set out either before or after the commencement of the Act, that is not sewered, drained, levelled, flagged, and paved or macadamized, is brought under a provision which requires the respective owners of the buildings and lands in such streets or courts to perform these various operations after an order to do so is published by the corporation for three successive weeks; and any owner refusing to comply with this order, or not commencing within a month, or not proceeding with reasonable despatch after he has commenced, brings himself under a provision which enables the corporation to complete all these works for him, and recover the expense. We are glad to see that the municipal body, while obtaining power to set up posts, pillars, rails, bars, or chains, for the protection of foot-passengers, on the pathways and in the carriageways, have also made provision to place fountains in convenient parts of the public ways. We hope, in the multiplicity of its municipal duties, it will not forget to do so.

No new street within the borough is to be less than 30 ft. wide, unless it communicates solely with the backs of houses, when it is to be at least 20 ft. wide. The front elevations of the houses in all new streets are to be subject to the approval of the corporation; but in case of any slothful neglect to notify the determination of the municipal body in these matters, architects or builders may take it for granted that their plans are approved if they do not hear to the contrary within a month after depositing their drawings. Henceforth, therefore, the architectural propriety as well as sanitary legislation of Newcastle are municipal matters. Let us urge upon the ratepayers to elect as their representatives men of sound judgment and wide views; not mere talkers.

It does not appear that any proposal has yet been entertained to utilize the sewage of this densely-packed borough, but power has been obtained, subject to a restriction of the contract to a period of thirty years, to enable the corporation to accept any offer that may hereafter be made to them by any company to manufacture or utilize the sewage, and permit the erection of the cesspools, tanks, receptacles, reservoirs, apparatus, machinery and works requisite for the reception and storage, or lifting, or disinfecting, sewage matter, without rendering the corporation, or any member of it, liable as partners with any such company by reason of the profit that might arise from the manufacture or sale of manure. The corporation has, however, evidently turned over the idea of manufacturing the sewage as a municipal undertaking, and have included power to erect the necessary apparatus for collecting and distributing the same on their own account, either on lands belonging to the body or to any purchaser with whom they may strike a bargain. One of the tricks of the Newcastle builders is to drain their houses into disused shafts, coal-pits, and quarries. This reprehensible custom has been strictly prohibited under a somewhat incommensurate penalty of 40*s.*, and a further fine of a sovereign a day after notice has been given that the practice must be discontinued.

Full powers, too, have been obtained to make any new sewers for the effectual drainage of the borough, even to the carrying of the said sewers through and across underground cellars or vaults under any streets. We trust, therefore, all the dens we pointed out will be now properly drained and sewered; and the disgusting night-cart, with its shuddering bell, be numbered among the curiosities of the dark and dirty ages.

The Corporation rightly make a dead set at underground dwellings. Any subterranean apartment they consider unfit for human habitation they may compel the owner to discontinue letting. We have seen an ingenious attempt to trace the etymology of the word "borough" to the earliest agglomeration of dwellings, mostly underground or semi-subterranean, in which the aboriginals of the land used to *burrow*; and we cannot but be struck at the pre-historic and continued tenacity with which the inhabitants of this particular borough cling to their burrows. We must therefore the more commend the present efforts of the Corporation to unearth them. Any person letting or suffering to be occupied one of these underground homes, after receiving due notice that he ought to discontinue doing so, is liable to a penalty not exceeding twenty shillings for every day the offence continues, or until he shall have given such tenants notice to quit, or have ceased to receive any rent for its occupation. The Corporation are down, too, upon any persons letting as a separate dwelling, or sleeping-room, any room built over a privy or cesspool, asbait or midden; but, as we said before, they quite and altogether ignore one of the deadliest of sanitary sins, namely, overcrowding.

Now, too much importance cannot be attached to the great evil of overcrowding. A recent report of the surveyor to the Alnwick Board of Health, less than forty miles north of Newcastle, in the same county, shows that sewerage, drainage, and water supply do not diminish the death-rate if overcrowding be permitted. That town was one of the first to place itself under the Local Government Act, and to lay down sewers and lay on water; close their churchyard and lay out a cemetery a mile away. But to the astonishment, puzzle, and disappointment of all concerned, the death-rate by no means diminished. Nearly every successive autumn an epidemic has occurred and kept the rate up. At last it was suggested to make a house-to-house visitation, and ascertain the number of inmates to each tenement. The surveyor, taking 400

cubic feet as the space every adult requires to breathe in, laid it down as a round rule that all cases where more than four persons occupied a one-roomed tenement were cases of overcrowding. As he went from house to house he perceived, when the number of inmates exceeded four to each room, the peculiar foul smell of oppressive and vitiated atmosphere; and as the number of inmates increased, the foulness of the air was intensified. A hundred and thirty-one cases of overcrowding were thus unveiled; quite sufficient, it will be allowed, to account for the epidemics. Another fact the surveyor ascertained was that, in proportion as overcrowding existed, the people got so enfeebled that they are unable to bear the least ventilation, and stuff rugs into their windows to exclude every breath of fresh air. This is information for the Newcastle magistrates to reflect upon, and endeavour to utilize. We should like to know how many cases of overcrowding there are in Sandgate and the Chares?

THE WESTMINSTER CAMPO SANTO.

At the meeting held in the chapter-house, Westminster Abbey, of which you have spoken, the Dean of St. Paul's suggested that it might become, when restored, an appropriate vestibule to a Campo Santo.

The removal of the monuments which encumber the Abbey, to the disadvantage of its fine architecture, into what is called a Campo Santo, has been often the subject of a proposition. This involves the erection of an extensive building at a great expense. Dean's-yard has been suggested; but there are several difficulties besides that of the private residences on every side of it. There is a tolerably large piece of ground abutting on College-street to the south, and on the north to the chapter-house, which appears to be the most eligible. There would doubtless be great opposition on the part of the minor authorities of the abbey; but surely, as the residence of the Dean is totally unconnected with it, the opposition might be got over in the usual way by a compensation.

Now, I venture to propose that the vast space of Westminster Hall, would be a most appropriate place for a National Wallah or Campo Santo. In the vestibule to the House of Commons, which has been recently erected there, are placed statues of eminent men, distinguished in the history of this country; and as several of the monuments erected in Westminster Abbey are to men not buried therein, there can be no profanation or desecration in removing their representative statues or monuments, such as those of Shakespeare, Addison, Watt, Sir Isaac Newton, Sir Robert Peel, Sir W. Follett, Judge Mansfield, and many others. Westminster Hall offers an immense space for the re-erection of these monuments. They would adorn a vacant interior, and effect a good clearance in the sales and transepts of the Abbey. It would, however, be a great pity to remove the monuments of the sovereigns who are buried in the Abbey; and it would not be desirable, as they are in the various chapels at the eastern end. Some of the monuments to persons of lesser celebrity, or of none, might be removed to the cloisters, where plenty of space would be found by a re-arrangement of the tablets to obscure individuals. By the preceding proposal, if it could be carried out, the interior of this famous edifice would offer an effect of unparalleled grandeur and sublimity when viewed in its entire length from the western entrance. IDLER IN LONDON.

* * The removal of monuments is a subject to be treated with the greatest caution. To provide for future erections is another matter.

DONALDSON TESTIMONIAL.

The subscribers (following the precedent set by those who carried out the Soane Testimonial in the year 1835) have resolved to present a gold impression of the medal bearing his portrait to Mr. Donaldson. They have also resolved to entrust the dies and residue of the fund to the Institute of British Architects, in order that a silver medal may be given annually, or at other intervals of time, to students in architecture. The subscribers have put on record their particular desire that in determining the appropriation of the medal, the Council of the Institute should adopt, at their discretion, such a course as would give pleasure to Mr. Donaldson.

The medal, which has been executed by the brothers J. S. and A. E. Wyon, of Regent-street, bears on the obverse the portrait of Mr. Donaldson, with the legend, "Thomas Leverton Donaldson, Ph. D. Emeritus Prof. Univ. Coll. Lond. 1865," and on the reverse, between wreaths of laurel, the inscription, "To commemorate long and zealous services in promoting the study of architecture."

The form which the testimonial has assumed is in strict accordance with the desire of Mr. Donaldson, that one of a more personal kind should be avoided. The occasion which has given rise to it is, it may be recollected, his retirement, after three-and-twenty years' service, from the Professorship of Architecture at University College, London, in which he has been succeeded by Professor Hayter Lewis.

NEW CONGREGATIONAL CHURCH, RUGBY.

It is proposed to erect a new Congregational Church at Rugby, in accordance with a design prepared by Mr. Joseph James, of London, architect, of which we give a small view.

An eligible site has been obtained in the new street leading from the railway station.

The plan consists of a nave, 83 ft. by 36 ft. 8 in., with an apsidal end for organ, vestries, &c., and transepts. The main gable will be surmounted by a small bell-turret, with a porch on each side. The total accommodation will be for 785 sitters, and the presumed outlay will be 2,500l.

THE NEW FIRE-BRIGADE FOR LONDON.

On the 1st of next month this new force for the better protection of London and its nine hundred millions of property, under the management of the Board of Works, comes into operation. It is to take the title of the Metropolitan Fire Brigade, and will not only embody the whole of the present force and engines of the London fire establishment, but be doubly strengthened to render it efficient for all purposes. The plan decided on is that of Captain Shaw, who has been appointed its chief superintendent. The force will consist of chiefs and 350 officers and men, 4 steam floating-engines, 4 large land steamers, 27 small land steamers, and 37 large manual engines, with horses, drivers, &c. These are to be distributed among 33 large and 56 small fire-stations, protecting an area of about 117 square miles. Compared with the present fire-brigade, the increase is 72 additional stations, 219 extra firemen, 2 large floating and 2 large land steamers, 21 small land steamers, and 61 manual engines.

The cost of its maintenance is not to exceed 50,000l. per annum. This will be partly contributed by a public rate of 1d. in the pound, 10,000l. contributed by the various metropolitan fire-insurance companies, and 10,000l. from the Government.

There are nearly 500 parish engines in the metropolis, but not more than 20 are considered to be sufficiently efficient to be accepted in the new force.

A LITERARY SQUABBLE.

UNDER the heading, "Various Pronunciations of 'Ough,'" *Notes and Queries* prints "A Literary Squabble on the Pronunciation of Monckton Milnes's Title," with this introduction from a correspondent:—

"The following *jeu d'esprit* illustrating this subject has been shown to me as the production of our late premier, Viscount Palmerston. Whether this be the case or not, as I have never seen it in print, I think it is worthy of preservation in the pages of *N. & Q.*"

If the erudite and excellent J. T. who rules over *N. & Q.*s had read his *Builder*, he would have known that these capital lines were written by Mr. J. R. Planché, printed first in our pages, with reference to the Leeds Congress of the British Archaeological Association,* and thence copied into various newspapers and serials. The lines, with this curious misappropriation, are now being quoted from *N. & Q.*; and the error, notwithstanding this denial on our part, will be certain to crop up again and again; and, ultimately, some resolute biographer of the late premier will settle the question by printing them as positively his, and thus deprive the accomplished *Rouge Croix* of his rights.

* Volume for 1863, p. 847.



NEW CONGREGATIONAL CHURCH, RUGBY.—MR. JOSEPH JAMES, ARCHITECT.

VALUE OF LAND IN COCKERMOUTH.

On the 9th inst., an arbitration case came off before Mr. Lumb, under-sheriff, and a jury. The plaintiffs were Mr. W. Wood and the Rev. Jos. Wood, and the defendants the Local Board of Cockermouth. The trial was to decide the value of a piece of land at Cockermouth, required by the Local Board for the site of their waterwork reservoir, the property of the plaintiffs, and for which they demanded 1,500l., which the defendants refused to give. Mr. Moordaff, for the plaintiffs, called witnesses to prove the value of the land, when the following valuations were given:—

Mr. Dixon, Whitehaven	£1,064 10 2
W. Job Bentley, Kendal	884 10 11
Mr. Dobson, Workington ...	863 10 6
Mr. Fearon, Embleton	863 18 6
Mr. Eaglesfield, Maryport	871 4 0
Mr. Wm. Heskett, Plumpton ..	828 17 6

Mr. Dawson, for the defendants, called Mr. Lawson, C.E., who described the position of the proposed waterworks. Mr. H. R. Wyndham, a member of the Local Board, bought a piece of land, in conjunction with two other members of the Board, from Mr. Steel, which was situated close to the plaintiff's property, for 1,000l., the dimensions being 5 acres. The following valuations were also called, and gave in the valuations attached to their names:—

Mr. Jos. Richardson, Hallon	£575 2 0
Mr. James Clarke, Carlisle	462 18 4

The jury unanimously awarded 378l. 16s. as the value of the land, and added 10 per cent. for compulsory purchase, which made the total

value 416l. 13s. 6d., the amount being 1,083l. 6s. 6d. less than the sum claimed by the plaintiffs. It was agreed that both parties pay their own costs.

HOLBORN VALLEY IMPROVEMENTS.

At the meeting of the Common Council on the 7th inst., Mr. Deputy Fry, as chairman of the Holborn Valley Improvement Committee, said that it would probably be remembered that the Holborn Valley Improvement Committee had placed in the hands of the City architect the plans both for Parliamentary reference and those contemplated for execution. They had advertised for tenders, but they were so high and extravagant that they could not be accepted. In this dilemma the committee had sought the advice of Mr. Hayward, and the City architect, with a view to ascertain how far the tenders exceeded the Parliamentary estimates. A consultation had taken place between Mr. Hayward and Mr. H. Jones, and those gentlemen had dissented, feeling there was some difficulty in the matter, and at last the committee had called in the aid and advice of Mr. Cubitt, who was a perfectly disinterested individual, and whose judgment might be relied upon. The plans were before Mr. Cubitt at the present moment: Mr. Cubitt was engaged upon them, and the committee entertained the hope that in a short time they would be furnished with that gentleman's report on the matter.

THE PRECIOUS METALS.

Mr. G. W. HASTINGS is delivering a course of (Cantor) lectures at the Society of Arts, on "The Effects of the Discovery of the Precious Metals on Modern Civilization." In his second lecture, on the 4th, he said,—That there has been a rise in the prices of ordinary commodities around us needs no demonstration; but how far this is owing to any fall in the value of the precious metals is another question, and one which can only be fully answered by the future; but the local nature of the rise in many cases must suggest doubts, seeing that any real fall must, in the present state of intercommunication, operate pretty equally over the whole European market. M. Chevalier, in his able work on gold, predicted that a change in value quite as great as that which happened in the sixteenth century would be the result of the new supply, and he has uttered an emphatic warning to his own Government and other nations. In this volume he described France as the parachute which was breaking the fall of gold, on account of the temporary demand made for that metal by the French Government during the substitution of gold coin for silver. Looking to the date of Chevalier's work, and the subsequent teaching of experience, it is impossible to resist the observation that the parachute is a long time coming down. In fact, M. Chevalier seems to have underestimated the various retarding influences, several of which are quite as potent as the change in the French coinage. No doubt, the fluctuation in relative value produced by gold discoveries is great, even enormous, when applied to limited areas, because in such cases there can be no fresh demand adequate to balance the sudden and inordinate supply; * but in the market of the world the want of one district drains the abundance of another, and gold, like water, finds its own level. Why did not prices rise between 1492 and 1546? Because the twenty-eight millions imported only filled up the vacuum previously existing,—only slaked, as it were, the thirst of European commerce. No doubt, so soon as the saturation point had been reached, the further supply at once began to tell, and with what results we know; but there are many causes which will retard the reaching of that point at the present day. France is not the only country in which gold is being substituted for silver for currency purposes; our Indian empire will long create a demand, and there are states in Europe, such as Austria, which are almost destitute of a metallic medium. The extension of public works, such as railways, in so many parts of the world keeps up a demand for specie, and it is difficult to exaggerate the effect of the present increase of trade, manufacture, and population in so many quarters. There is also a self-acting check on gold production which has been too much overlooked: all the best gold-fields are situated at a considerable distance from Europe, and in thinly-populated countries, where labour is in great demand; consequently, a very moderate depreciation in the value of that metal will suffice to bring down the remuneration of the diggers' labour below the rate of wages earned by manual work around them, and, therefore, to check the supply. Under any circumstances it may be considered certain that no sudden shock will be felt, and that the evils of change of value will be consequently mitigated. In connexion with that part of the subject, the soundness of Adam Smith's opinion that it did not matter whether the precious metals were of high or low value, may be questioned. If they are of high value, or, in other words, if their amount is small relative to other commodities, their value is likely to be disturbed by every discovery, however slight in its nature, of any new supply; whereas, if the amount in the market be large, that is, if their value be low, a small increase will not operate to any appreciable degree, and even a large increase will be much less felt.† It is satisfactory to reflect that the evils of the change, whatever it may be, are temporary, while the good effects of gold discovery remain.

* As in the instances mentioned by Strabo of the effect caused in his own time on the prices of Italy by the discovery of some gold diggings on the south slopes of the Alps. The almost total disorganisation of the labour market in Australia, which for a time ensued on the gold discoveries, is still more remarkable.

† Chevalier's arguments in favour of the substitution of silver for gold as the standard, are based on the supposed greater fixity in value of the former metal. But on this he relied on? The production of silver depends in a great measure on the price of mercury; and the recent discoveries of large deposits of mercury in California and the adjacent Mexican provinces, suggest the probability of a largely-increased supply of silver.

ROYAL SURREY THEATRE, LONDON.

On "Boxing Night," the new Royal Surrey Theatre will open for the season, under the management of Mr. R. Shepherd. We give a section taken through the entire length of the theatre. Looking first to the matter of exit ways, we find spacious corridors, and good stone staircases leading to box entrances, and gallery. The pit entrance is level with the roadway; all the walls are built in the most substantial manner. The tiers of boxes are supported upon double iron columns and girders, and the gallery with strong trussed girders and heavy iron supports, so that whatever the weight or strain that may be placed upon them, the constructional parts would seem prepared to receive it. The whole of the roofs are iron, and no rooms of any kind are placed in them, thus avoiding all danger of fire, which caused the destruction of the old theatre, and of many others, the conflagration commencing in rooms formed in the roof. On reference to the section, it will be seen that the architect has placed the dangerous rooms, viz., carpenter's shop and painting room, at the back of the building, separated from it by a thick wall and fire-proof doors. Should a fire take place in these, we may suppose it would soon burn itself out, and that the main building would remain untouched.

The height of the proscenium is 38 ft., and the stage, with its large scene docks, will be the most capacious in London, with many improvements in the adaptation of mechanical means to secure scenic effect. The largest set scene required can be entirely sunk beneath the stage.

The lighting will be effected by a large sun-light burner, and the heat from it will be carried through the roof by an 18 in. iron tube; round this tube is a wrought-iron jacket 7 ft. in diameter, with the view of effecting thorough ventilation, which is also sought for over the stage by a long length of louver ventilators.

The girders of the flies are constructed of wrought iron, and approached by cast iron spiral staircases on either side, which also run down to the mezzanine floor. The green-room is a spacious apartment, as also are the refreshment and retiring rooms, ballet-room, dressing-rooms,

property-room, wardrobe, offices, and treasury.

We shall give in an early number a view of the interior, and a plan, with full particulars. Suffice it at present to say, that it has been erected at the sole expense of Lieut.-Colonel Temple West (who is owner of a great part of the property in this neighbourhood), from the designs and under the superintendence of Mr. John Ellis, of Austin-friars, architect.

SHIPBUILDING AT SUNDERLAND.

At Sunderland, a vessel of improved construction has been recently launched by Messrs. G. S. Moore & Co., of the Bridge Dock Yard. She is built on what is termed the composite principle, which claims to be free from some serious objections urged against vessels composed exclusively of wood or of iron. The frame of a wooden vessel is subject to dry rot, whilst ships with iron plating prove unsuitable for long voyages from the certainty of the fouling of their bottoms; this cause operating most disastrously, impeding progress, and greatly increasing the duration of the voyage, some of the slowest passages on record have been made by iron vessels. The best partial preservative to fouling has been found in a sheathing of copper or yellow metal, which is only applicable to vessels with a wooden skin or covering.

It is obvious that a vessel capable of being thus protected possesses a decided advantage. The combination of an iron frame and wood planking Messrs. Moore think includes the best features in both systems, and upon the principle thus broadly described the vessel in question has been built.

It may be interesting to our readers to have a short description of the main points of detail in this principle.

The keel, stem, and stern-post are of wood. The frame and floors are of iron. The former are riveted to an iron plate on the keel, which plate extends a sufficient width to take in the garboard strakes which are bolted through the keel and also through this plate and the frame. The frame is diagonally trussed on the outside with flat iron bars, extending from the sheer to

the bilge strake (both of iron), to which they are riveted, 8 ft. apart, and secured by rivets to each frame. (See Fig. 1.) The beams are of iron, supported by iron pillars. Longitudinal iron tie-plates run on each side of the hatchway and on top of the beams, which are secured to the frames by horizontal stringers of iron, laterally connected by diagonal tie-plates, and forming a complete net-work of iron.

The inner stem and stern-post are of iron, running in connexion with the keelson, and form an inverted arch at either end. The arrangement of the stem and stern is represented in Fig. 2.

The rigidity of the frame is complete before any planking is added. The planking, 5 in. in thickness, is then fitted, having been grooved to admit the diagonal straps, and allow the planks to fit closely to the frames. Yellow metal screw-bolts secure the planks to the iron ribs, the heads being sunk and levelled with the surface by cement. The bottom, inside, is also thickly coated on either side of the keelson with cement, which most effectually excludes the bilge-water. The vessel is thus enabled to carry any description of cargo, which would prove detrimental to others, from the absence of internal covering, having only cargo battens attached to the frames, which allow a free current of air to pass over the inner surface of the plank, the inclosure, as in wood ships, being a fruitful source of decay, and the iron frames can be kept perfectly clean, and coated as often as may be required to prevent corrosion.

Messrs. Moore & Co. have patented an ingenious contrivance, consisting of a collar of an incorrosive metallic substance, which fits tightly into the hole in the frame through which the bolt is to pass. A capsule of the same composition as that through which the bolt is driven is fitted over the end of the bolt, and soldered to the collar beneath, so that no external action can affect the bolt thus hermetically sealed.

The distribution of strength is mechanically arranged in this vessel, with a view to the scientific maxim that "nothing is stronger than its weakest point."

Vessels thus built have peculiar advantages in buoyancy, and consequently in dead-weight capacity, over vessels entirely of wood or iron, besides giving equal space for stowage as in an iron vessel.

This mode of construction presents great simplicity, economy, strength, durability, freedom from the chance of internal decay, and all the qualities desired in a good ship.

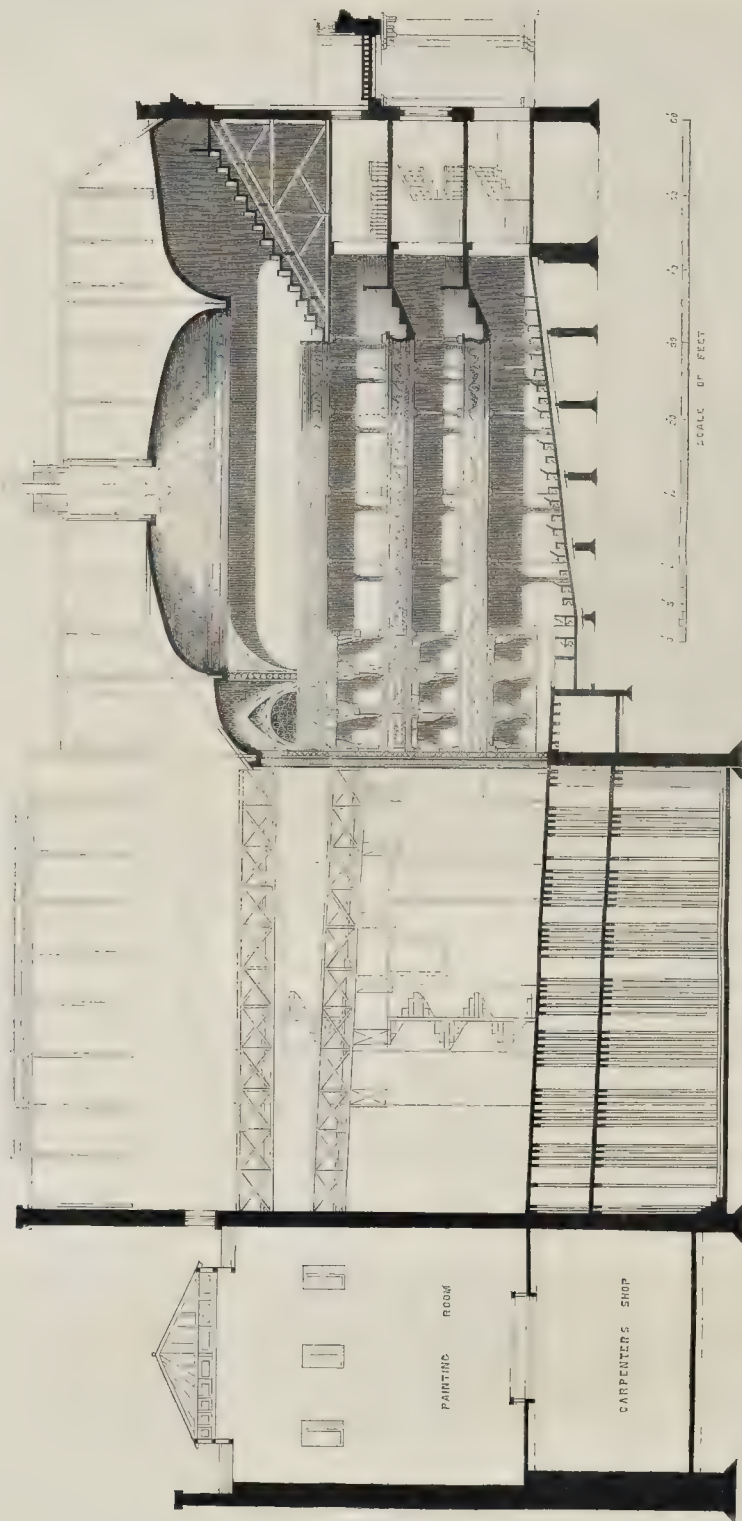
The comparative immunity from decay strongly recommends it to shipowners. Repairs, when required, can be completed at a tithe of the expense at present incurred in vessels entirely of wood.

During the Newcastle meeting of the British Association, a number of the leading naval members visited Messrs. Moore & Co.'s yard, and inspected a vessel then building, when they unanimously expressed their approval of the principle as practised by them.

The original promoters of the combination system, are Mr. William Watson, of Dublin, who some thirty years ago patented and adapted it to vessels suited and ever since in use in river and canal navigation, and Mr. William Morgan, of Hyde Park, who built two large ocean-going steamers, one for Austrian Lloyd's, at Trieste, and both vessels are still in existence.

Messrs. Moore deserve the credit of having revived and improved the practice of this mode of construction, which had entirely fallen into desuetude some five years since, and they have continued to build such vessels. At the present time many of the first builders throughout Great Britain have adopted the same course, and some of the most influential shipowners are investing capital in this property, whilst Lloyd's have accorded them their highest classification.

The vessel was named the *Lennox Castle*, and is of the following dimensions:—Length between perpendiculars, 175 ft.; extreme breadth, 30 ft.; depth of hold, 18 ft. 10 in.; measuring 751 tons, and of about 1,200 tons burthen. She is classed 14 years A 1, at Lloyd's; is owned by Messrs. Thomas Skinner & Company, of Glasgow; and is to form one of the *Castle* line of packets trading from Glasgow to Singapore, Batavia, and China, for which she has been specially designed, and is the second ship supplied by the builders to this firm during the present year, and the twelfth of the line. The prow of the *Lennox Castle* is adorned with a well-executed figure, by Messrs. M. & J. Allan, Glasgow, of the present Countess of Lennox.



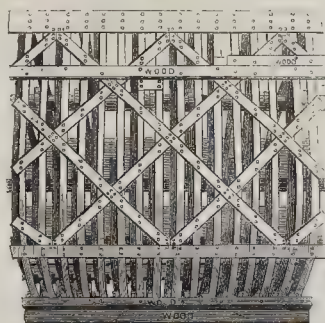
ROYAL SURREY THEATRE, BLACKFRIARS ROAD.—*Longitudinal Section.*—MR. JOHN ELLIS, ARCHITECT.

COMPOSITE SHIP-BUILDING AT SUNDERLAND.



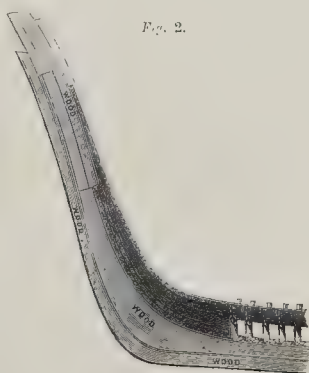
Launch of "The Lennox Castle."

Fig. 1.



The Frame.

Fig. 2.



Stem and Stemson.

THE GRAPHOTYPE.

Artists engaged in drawing for engraving have long felt the want of some easy and direct method of reproducing their works without the impress of another hand. Numerous endeavours to obtain this have been made, but none at present has proved entirely successful. The last invention in this direction is called the Graphotype, and was described by Mr. Henry Fitz-Cook, at the Society of Arts, on the 5th instant, Mr. H. Cole, C.B., in the chair. We give a part of the paper to explain the process:—

"The discovery of the principle on which the Graphotype process is based was not the result of design or calculation, but entirely accidental and unpremeditated. It is due to Mr. De Witt Clinton Hitchcock, one of the foremost draughtsmen as well as engravers in the city of New York.

In the summer of 1860, whilst engaged in the pursuit of his art, the discovery was made in the following manner:—In the course of making a drawing on box-wood, he found it necessary to alter a portion of his design by erasing it, and re-whitening the exposed surface of the wood. The material used for this purpose was the enamelled surface of an ordinary visiting card, softened by water and a brush, a method known to most draughtsmen on wood. This card happened to be one printed from a copper plate, and after the removal of all the enamelling, as described, the artist discovered that the printed letters were undisturbed, and standing up in bold relief.

The first trial was upon a piece of chalk 1 in. in thickness, sawed from the ordinary lump, and smoothly surfaced by scraping. The ink used was silicate of potash, commonly termed liquid glass, coloured with indigo; with this and a quill pen, a drawing 4 in. by 6 in. was made.

The inventor well knew that the application of water to his chalk block would undermine the lines, and consequently destroy the drawing; he therefore departed from the method used with the visiting-card, and, with the aid of a tooth-brush, pulverised or disintegrated the surface of the chalk not immediately drawn upon.

The lines of the drawing being literally composed of stone, withstood the assault of the tooth-brush, but the intervening particles of exposed chalk succumbed, and vanished in a cloud of snowy dust, leaving the impregnable lines standing in relief, inviting a proof of their strength by printing on paper. This could not be done until the whole mass of chalk was changed into stone, by saturating it with the liquid glass, and in half-an-hour the chalk engraving or block was inked and printed in the ordinary way on paper by burnishing.

Sawing and surfacing the chalk block, preparing the ink, making the drawing (quite an elaborate one), brushing it into relief, petrifying the block, and printing thereon, occupied only four hours,—a happy four hours for the inventor.

The new process now needed a name. It was a living fact, but the dead languages must be exhorted for its appellation. It was christened Graphotype, literally signifying a type made immediately from a drawing.

Prior to a second experiment, it was thought necessary to use a substance of a finer and more uniform quality of grain than common lump chalk; so a cake of French white powder, used by ladies for improving their complexions, was obtained, and the result was highly satisfactory. The fact that these cakes of white beautifying powder were compactly formed by hydraulic pressure, suggested a valuable improvement to the process.

No time was lost in manufacturing the necessary steel dies or boxes, and procuring the use of a powerful hydraulic press; with which, blocks 12 in. square by 1 in. thick, were formed of pulverised and finely-sifted chalk. These blocks were then subjected to a heat of 700 degrees, which, expelling all moisture, gave them much greater strength. The drawings on these blocks were made with steel and quill pens, and the brushing process for relieving the lines was carried to the depth of one-eighth of an inch. These blocks were printed at the ordinary hand printing-press; but the material, though very strong, was too fragile and uncertain for constant use.

The next necessary improvement was to duplicate the original by means of stereotyping or electrotyping. The latter proved perfectly practicable, but alterations or corrections of the design—which I need hardly tell you must necessarily often occur in any process—all of which

could readily be done on the stereotype, could not be satisfactorily made through the copper surface of the electrotype, notwithstanding Mr. Palmer's directions on the subject already quoted. Valuable improvements were the result of this new addition to the process. It would be tedious to listen to an account of all the experiments which followed this alteration—the disappointments, hopes deferred, and discouragements from friends which the inventor suffered for the space of eighteen months.

Great difficulties arose; the labours of a month were often lost in a minute, and steps retraced to the first principle, which stood always unchanged; its constancy was beyond suspicion. The ink-line, once drawn, remained unalterable, and ever ready to reward the operation of brushing, and this portion of the process has never been altered.

In making the stereotyper's moulds from these blocks, they were found to absorb too great a quantity of oil; the new block, or, more properly, the new plate, was then composed and adopted, and has been in use, without material alteration, to the present time.

It was a well-known fact that the silicious ink spread on the plate, and produced a line somewhat thicker than was drawn. This was certainly detrimental to the process, but the existence of the fault could not be denied; for as the chalk was naturally porous it would absorb the ink laterally as well as vertically. It remained for a brother artist of the inventor, a Mr. Day, to make the improvements required in the graphotype drawing ink now so successfully used. I may also mention that Mr. Edward Roper, a London engraver, materially aided in improving the practical details of the process; and no doubt its success is to be attributed to the fact that none but those practically acquainted with art or engraving have been connected with its development.

With the approval of the original inventor, the European patents were granted to Mr. Day, and I will now give a general description of the whole process, as specified in the letters patent:—The best quality of French chalk is finely ground and precipitated in water. This precipitate is again pulverised and sifted. Thick sheets of zinc or other metal are cut to the required sizes, upon which the prepared chalk is re-sifted through wire cloth having 10,000 holes to the square inch. This is subjected to hydraulic pressure of 120 tons, the chalk receiving a gloss from the surface of a highly-polished steel-plate. In this condition the thickness of the zinc-plate and compressed chalk is about that of an ordinary stereotype-plate. The surface of the chalk is then made nearly non-absorbent by receiving a strong 'sizing,' which prevents the ink from penetrating, and consequently, from spreading.

The ink, which, as I have said before, took two inventors months of labour to perfect, is, after all, nothing more than a very careful composition of glue and lampblack; and, partaking as it does of the nature of varnish, it remains upon the surface, acting merely as a guard or protection to the chalk beneath the lines while undergoing the operation of brushing. In a like manner to drawing upon wood, the artist makes a red chalk tracing on the plate, and with sable hair pencils of various sizes draws his design line for line exactly as he desires it to appear when printed, the subject being, of course, reversed, as upon wood. The ink, which is black, dries instantly on being applied to the plate, so that one series of lines of any thickness may be immediately crossed by others.

The drawing is now ready to be brought into relief, or engraved, which is effected by the same means of disintegration as were first adopted by the inventor, not with the same tooth-brush, but with brushes composed of fitch-hair. Fine silk velvet is also used in connexion with the brush. The chalk is then petrified with the liquid silice, and is ready for the stereotyper, who may, without injury to the original, make from it any number of moulds.

The process is so delicate that the impression of the thumb wetted with the graphotype ink, skeleton leaves, feathers, and other objects to which nature-printing has been applied, can be made to give beautiful impressions from the type press, whilst the finest hair-line that the artist can make will stand equally well with the boldest work.

The graphotype process is also applicable to making the blocks or dies—usually cut on brass—with which the bookbinder embosses the covers of his books, and this conclusively proves, if anything were needed to do so, the depth

obtained by the process, as at least three times the depth is required for this purpose as for printing at press.

In mechanical drawing the graphotype process cannot at present compete with other methods, inasmuch as the compass and rule are incapable of being used without damaging the chalk surface, and the absence of these aids very materially increases both the labour and cost of the drawing. This difficulty, however, no doubt will be speedily overcome when any one shall think it worth while to lay himself out for it."

Mr. Holman Hunt writes me, said Mr. Fitz-Cook, as follows:—"I regard the process of drawing for book illustrations, called graphotype, with which 'Watts's Hymns' have been illuminated, to be the best yet adopted. The merit of the modern wood-cutters is very great, and the care which they bestow upon the blocks they cut deserves, oftentimes, the greatest thanks of the designer of the work; but, even under the most favourable treatment by the cutter, much of the original character of the drawing must necessarily be lost. Your new invention will preserve every peculiarity of style. A first experiment is scarcely a fair test of the capability of the process, but it has convinced me that when the tools are familiar to the draughtsman he will find a means of expressing his ideas which he never had before except in etching on metal, which, of course, cannot be used in type printing."

Something more will have to be done before we shall venture to speak with similar confidence. We have seen several inventions that went equally far as this; yet never went far enough.

CONDITION OF EDINBURGH.

The newly-elected Lord Provost of Edinburgh (Mr. William Chambers) made a statement to the town council of the results of the inspection he had made of the closes and wynds of the Old Town, and of his proposals for the opening up and purifying the densely populated and poor districts. He proposed, first, that diagonal streets should be formed, cutting across the closes; also widening St. Mary's-wynd, and other narrow streets of the lower Old Town. In the second place, he proposed that there should be broad passages opening from the High-street to the diagonal streets. He did not propose to break the prominent line of houses in the street, but would have communications by archways here and there through them. A third improvement would be to remove half-ruinous tenements, and form on their sites open courts paved with flagstones. A fourth step would be the removal of wooden fronts from the older houses in the closes. In the ground-floors the dwellings were dark, even at noonday, and the inhabitants might literally be said to live in "the Valley of the Shadow of Death." He had a confident expectation that these and some subsidiary operations would give a new character to the Old Town without injuring its picturesque appearance. At present, the death-rate in the districts mentioned was from 30 to 35 per 1,000 of the population per annum, or nearly double what the rate was elsewhere. In all probability the improvements now suggested would lower the death-rate one-third. Dr. Littlejohn, the officer of health, said that the lowering of the death-rate in the Old Town to 25 per 1,000 would effect an annual saving of 312 lives. What were to be the benefits in a moral and religious point of view he would not stop to particularize. But while they were destroying, it was pretty certain they must also build, and they must have due regard to the recent humane statute which prohibited a general destruction of dwellings for railway or other purposes, unless new houses be erected for the dispossessed inhabitants. His lordship then sketched his financial plan,—namely, the purchase of old and building of new houses by the public, or by private persons, or associations going in with the scheme, and by a rate of a few pence per pound, extending over a series of six or seven years. The new houses to be erected must be neither of grand nor costly architecture, but houses for the middle and working classes, of from 6l. to 12l. or 15l. annual rent. He proposed to procure statutory authority in the Session 1866-7:—1. To prevent the overcrowding of dwellings; 2. To exclude cow-houses from any part of the city, except under certain regulations and by license of the magistrates; 3. To give the town council the entire charge of all streets, roads, and pavements

within the bounds of the municipality; and, 4. To restrain speculators from running up insufficient buildings.

If Mr. Chambers succeed in bringing his scheme into action, he will be Edinburgh's chief benefactor, and earn for himself an enduring reputation.

ODDITIES IN ARCHITECTURE.

DURING my wayfarings and residence in several parts of Great Britain and Ireland, for some years past, I have been in the habit, whenever I have seen anything that peculiarly interested me, or those with whom I have been associated, like Captain Cuttle, of taking a note of it. My architectural musings, although unpretensions in either their prose or their more poetical forms, have been a source of some pleasure to me.

Among my recollections of strange places and strange faces, in old towns and cities, those antique sun-dials, faint stone tablets, sculptured lintels, emblematic cornices, memorial panels, and heraldic crests and devices, betimes have interested me. There are some worldly-wise folk who pretend to read a man's character by his handwriting; whether this can be done or not I am not sufficiently cognizant of caligraphy to vouch; but I would venture to say that a man's character may often be read, or that of his ancestors, in the style of edifices they have constructed and that survive them.

During the Elizabethan era, and in the reign of Queen Anne, builders, or those for whom they constructed dwellings, were in the habit of inserting stone tablets in the interstices betwixt the second, third, and fourth stories, commemorative of the year or the founder's name. Sometimes these memorial tablets were inserted on the top, in the centre of those crow-foot gables, and sometimes in the tympanum of the pediment over the hall-door below. In some instances a crest or coat of arms appears, with the year, in Roman characters; in other cases single letters, on either side of crest, autograph style, with date underneath; on either side subdivided, as 17—06. Except where assisted by the aid of local history, in many places it is impossible to say whether the names are those of the builder or those for whom the house was built. Where a single letter on each side occurs, they are generally the founder and his wife's Christian initials, such as C + E, signifying Charles and Elizabeth conjointly. Interlaced capitals, like Gordian knots, were very common, and are difficult betimes to decipher. This custom in building, very common even through the eighteenth century, appears to have decreased, and altogether disappeared in the dawn of the nineteenth. Its resumption recently in its plainer phases in houses and public buildings, is like the return to former fashions in dress long obsolete, but still considered appropriate for adoption.

My attention was first drawn to these memorials in stone several years ago in Dublin, and since in those other places which I shall mention. The old cage-work houses of the Irish metropolis, so common in the Earl of Meath's Liberties in the old city, have all disappeared for many years. Almost all of them had carvings and tracery on their main lintels and beams, indicative of their owners' occupation and name. But numerous brick houses, very early in the eighteenth and some of the seventeenth century, in Elizabethan style, still remain, preserving an epitome of their origin in their very legible stone tablets, ranging from 1670 and 1680 to 1750. In Pill-lane, behind the Irish Four Courts—a great leading thoroughfare and place of trade once—I remember seeing three or four of these old houses, which are probably standing yet, bearing the accustomed capitals, with the dates 1711 and 1712. Over the doorways of some houses in Stephen's-green interlaced letters in stone appear; and in one house in Dorset-street the whole name in English characters, with the date 1745, may be seen; as also in the same street a row of brick houses, with the uncommon insertion of small square blocks of grey stone in the middle of their fronts, on which the number of each house is sculptured. Near and over the remains of the public fountain erected in Dublin two-thirds of a century ago and upwards, copious evidence still exists of this armorial emblematic architecture so frequently brought into requisition for decorative purposes and posthumous celebrity. Beside Merriion-square, and in James-street, once beautiful but fast-crumbling structures attest it.

In Irish provincial towns scattered through the four provinces, numerous examples occur. In Cork, Galway, Derry, Antrim, Drogheda, Kilkenny, and Waterford those autographic inscriptions and architectural fancies are innumerable.

Passing through England, leaving well-explored London aside, in the midland and northern towns I find those stone records of the past plentiful, in Birmingham, Sheffield, Chesterfield, Leeds, Liverpool, Newcastle, and in Sunderland. In the northern towns they appeared to me to be more marked and expressive in design and execution. This might be attributed to the leaven of the Roman element, once so powerful in its sway in and about Northumbria and the Borders.

In Wales I had not much opportunity of ascertaining; but, doubtless, similar manifestations of the fashions in the art of building occur.

Again, in Scotland, north and south, many a weird device and complex inscription attracted and fascinated me, coupled with vagaries in architectural design and construction which only a disciple of Scamozzi or Palladio in Bedlam could perpetrate. Yet they were all suggestive and entrancing.

In old Aberdeen, on gateways and walls, I have looked upon them; and in Aberdeen proper, in and about the Nether Kirkgate, and off the Broad-street, and adjacent streets I cannot now recollect, rustic and classic examples of memorial stone tablets, with letters, dates, and other figures, may be still seen.

In Dundee a few scant evidences yet exist, and in and about the main street in Cupar-Fife. Edinburgh, once rich in this species of memorial architecture, retains much of it. In the old town, scattered here and there in its narrow and sinuous wynds and closes, a close observer will find them, and be interested in their discovery and inspection. In the Canongate, the High-street, the Grassmarket, the Westport, and in the antique and polyglot Cowgate, the antiquarian student and literary inquirer will find them in divers shapes, more or less complex and comprehensive.*

A propos and en passant of Edinburgh, I may remark one or two things. At the side of John Knox's house a couple of houses fell two or three years ago, burying some persons, who narrowly escaped. Among these was a young lad of about twelve years of age. He was missed, and instant efforts were made to extricate him. The men employed worked for several hours before they came across any trace of him. At length a faint voice was heard calling out. The men redoubled their efforts, and at last came to some broken timber *débris*, under which was a large timber beam. Immediately under this beam the voice was heard to call lustily out,—“Heave away, boys; I'm not dead yet.” It is needless to say, the men did “heave away” with hearty good will; and soon had the pleasure of extricating the gallant young boy from his living tomb.

The house that was erected soon after, on the site of this occurrence, has a projecting corbelled window, underneath which is a carved bust of the boy whose life was saved, with the words which he uttered attached. Report says, that some gentleman, growing interested in the lad, had him sent to St. Andrew's, to be educated.

To this example of memorial architecture, I shall add that of an architectural owner in the environs of Edinburgh, who has built a house composed of stones from “all nations,” so report says. I looked upon the edifice, with its numerous varieties, and I am inclined to think that our friend paid too dear for his whistle. The suburban folk say he was tired of his taste before it was finished, from its expense, the masons being only too glad to gratify his whim. Whether his temperament is as various as the stone of which his house is constructed, I cannot say; yet, I would venture to hint the dwelling must be partly the reflex of the owner.

Returning,—Glasgow, in its old quarters, has many armorial bearings, curious devices, commemorative corbels, and stone sun-dials, scattered here and there, over its ancient edifices. The progress of this commercial city for the last quarter of a century, however, has removed many of those old inscriptions and symbols; so that very few remain, except those of church and mural tablets and sculpturings. In the crypt of the High Kirk, numerous grotesque,

beautiful, and incomparable stone effigies of saints and bishops, are lying about, scattered and broken, with ancient Latin and English letterings and cypherings. But these mural memorials are common to many places in Great Britain, and are not much dissimilar in character.

I have said in the beginning something anent men's character being interpreted by their works. I might have added, also, that men's professions and avocations are often exemplified in what they invent or construct. In building, this has been more manifest than in other things, from the fact that there are few business men but like to dabble a little in the building way, if they have made some money. Clergymen are much given to building, as well as speculative laymen, though not exactly for the same reasons. Literary men are remarkable for their peculiar fancies in the architectural line; and printers and publishers have sometimes as much perpetuated their name and their fame by the houses they have built, as by the works they have printed and published. The fame of Swift's printer and publisher, the celebrated Faulkner, still lives in the house he built at the corner of Essex-street, Dublin. It was well and durably built; and though of brick, it will outlast the best of those that may be constructed of the same material for half a century to come. Faulkner's dwelling was designed, I believe, by himself. It is a corner house, and in the centre of one of its fronts a niche was formed for the reception of a bust of the witty Dean. The house was finished internally and externally with the exception of the staircase, for which no provision seemed to be made, even when all else was completed. This singular occurrence gave rise to some talk among the Dublin wits at the time, one of whom remarked to another's interrogation, that Faulkner did not require it as he had but one leg, and therefore was unable to climb.

I remember an Irish bishop of the Establishment who began the building of his dwelling at the top. His house is likely to perpetuate his name longer than his sermons. The way in which he carried out his strange construction was in this manner. Wanting to make some alterations and improvements in the top story, he had a portion of it shored up from the story underneath. When completed he fancied that what was underneath was out of keeping with what was above, so he removed portions of the second story after shoring it up, as before, from the next story below. His increased additions continuing to be out of proportion with those immediately below, he still continued to shore up and pull down until he reached the basement story; so that when it was completed, the house had become an entirely rebuilt one, and rebuilt, too, from the top downwards. It is, probably, the only existing specimen of building houses downward in the Old or New World. It even licks completely Brother Jonathan in the art of building.

Well-designing men have often been unfortunate in their designs. Their impulsiveness have led them to attempt what was far beyond their means to accomplish, though not beyond their genius and talent to execute had assistance been rendered. Cook's Folly, in Bristol, and M'Anaspie's, are not the only individual examples that could be cited of architectural abortions,—examples are numerous through Great Britain. From the building of the Tower of Babel, to the building of that huge Georgian Folly, that fell through on the Calton Hill, Edinburgh, individual and associated attempts are numerous whereby men have attained posthumous fame when their otherwise sterling merits were overlooked and denied them. The brothers M'Anaspie were really clever, particularly the elder; and his schools and practical workshops of design were a bold idea; but, alas! how far beyond the power of men not possessed of capital or sufficient patronage to carry them through. They failed, as others failed, and a cold calculating world calls the skeleton they were unable to clothe a “Folly.”

Artificers and tradesmen, apart from the building branches, are more or less given to the embodiment of features belonging to their own trade in whatever they build or construct. I have noticed this speciality in the members of different crafts in different places. Coopers, whenever they built, were given to rotund or circular work; and they carry out this fancy in many ways—in walls, windows, and doorways. Smiths, and men in the iron way, are not only fond of superseding timber by iron, but they

* Sketches of a few inscriptions and some remarks on them appeared not long ago in our pages.—Ed.

are prone to introduce it in every conceivable way, for decorative as well as useful purposes. I have known retired leather merchants and boot and shoe manufacturers to dispense with brass and iron fastenings in many cases, when they built for themselves, and to substitute leather for hinges and sash appliances, shaped in novel ways, still believing in the old proverb, "There's nothing like leather." I have found tailors who were well to do to have a most insatiable desire to be dabbling at building; and I have never known one of them to rest content, but to be eternally altering and re-altering what he first built. Dressing-case manufacturers I have known to build extensively; but their dwellings, like their work-boxes, were indeed a study to examine. Such apartments and compartments, nooks and niches and cranies, I never before witnessed. Undertakers, &c., coffin-makers,—I have known them also, twice or thrice, to try their hands extensively at public and private buildings—and may I never witness the sight again. In one instance it was a public hall, and in the other a large public square. They were sepulchral-looking edifices indeed, fit only for the habitation of living *dead men*. One of the greatest men that ever lived, thundered from the dais in the one, while the water-rats swam about and held carnival, while he spoke, in the kitchen below; and as for the public square, before the shrubs had well taken root in the parterres without, the houses around had changed their tenants by the development of "the great social evil." The undertaker's building speculation was a *grave* affair, in sooth.

The list could be extended to other trades, were it necessary, showing the various characteristics growing out of each trade, and almost inseparably connected therewith. But we can now perceive that man is voluntarily and involuntarily given to perpetuate his name and fame, or frailty, in his manual as well as his mental works.

Whilom as now men have built, and vestiges of what they raised show us that their works were ornamental, useful, and otherwise. We can endeavour to read antiquity by its architecture, and we shall be interpreted, notwithstanding all our strange devices and vagaries, hundreds of years hence, by that unborn posterity which we vainly try to puzzle.

A descriptive and illustrative series of those stone memorials, with their devices, alluded to in the opening of this paper, would be useful and interesting. It is by the gleaming and uplifting of such walls and strays as yet remain in the land we may penetrate labyrinths long inaccessible, and let light in on architectural history and its wayward changes. C. C. H.

POISONOUS MUSHROOMS.

EVERY year, with the advent of the autumn rains, we read in the newspapers of numerous deaths, by eating deleterious mushrooms; and whilst remedies and preventives are constantly published for the various classes of accidental poisonings by vitiated air and otherwise, warnings to prevent, and remedies to counteract, the evil of accidental poisoning by mushrooms, seldom or never appear in print. For this there are various strong reasons. For instance, after the mushrooms are eaten, there is great difficulty in positively ascertaining the particular species that worked the evil; but the greater and by far the most potent reason is, that among our botanists, we may number by units, the few who have any really sound and systematic knowledge of this class of plants. There is but one book in this country that pretends to give any precise information regarding them, whilst the various popular books that treat of the subject (with one or two exceptions), may be dismissed as worthless, being simply compilations from previous works, copying facts and fallacies alike. Some of the articles, written by amateurs for the weekly periodicals on this subject, are still worse, for were their false descriptions and absurd directions followed, fatal results would constantly happen.

Many residents in the country, who think they know the meadow mushrooms quite well, occasionally suffer considerable inconvenience, after partaking heartily of this plant, when a little previous knowledge of the things themselves, or the state they should be in when eaten, would have prevented the evil. We consider the subject of sufficient social interest to publish a few observations and warnings regard-

ing this obscure but gastronomically valuable class of plants.

When, as sometimes happens, a dangerous species has been gathered and eaten by an educated person (who knows the mushroom), in mistake for the true form, it is simply because the individual in question was unable to distinguish minute differences between one thing and another; and in this consists the whole secret of so many deaths by eating poisonous roots in mistake for horse-radish, &c., and many similar things that will occur to the mind of every reader. In being safe against this evil lies one of the very great advantages of a knowledge of some branch of natural history that necessitates minute observation; for, when the mind is once well trained to detect obscure and small differences in the aspect of certain objects, mistakes will seldom be made in substituting one thing for another, either in the special object of study, or in any business through life; but, in many of the cases of poisoning that occur to ignorant persons, it is owing to the grossest want of knowledge. Instances repeatedly occur where some stupid man goes out and gathers a basketful of all the fungi he can see, great and small, growing on trees or rotten palings, of any form or colour, or in any situation or condition. He then takes them home, and prepares them for the table, and poisons himself and family. This type of man never knows what a mushroom is; he knows it is a thing with a stalk and a top, and this ends his knowledge.

Evil consequences frequently follow the consumption of the true mushroom if it is kept too long after gathering. To have a full appreciation of its really delicious flavour, it should be brought direct from the meadows to the kitchen. After it is once gathered a certain chemical change soon takes place in its nitrogenous composition, that renders a valuable and delicate object of food a dangerous poison. To eating stale and semi-putrid mushrooms a large number of poisoning cases are to be referred.

In various popular books that touch on the subject of mushrooms as food, certain rules, more or less imperfect, are given for the detection of dangerous species; but there is *no rule* that can be prescribed for the recognition of esculent species that will not include some of the dangerous ones; and, on the other hand, typical forms of poisonous species are frequently closely allied to some of the most valuable ones as food. To add to the difficulties of the matter, some of our edible mushrooms frequently have a poisonous ally in company with them, that requires a sharp eye to detect. It is clear, from the foregoing, that there is no royal road for acquiring a knowledge of fungi as food, without study and devoted attention; and no mushroom should be eaten unless the consumer has a positive certainty of what it really is. Any mushroom that appears doubtful in form or colour, or that may have lost its freshness, should be laid aside.

Some species are well known to be always highly poisonous in all stages of growth, whilst others are only occasionally so; many are doubtful or suspicious; but, without doubt, the majority of species that grow in this country would form a nutritious and delicate addition to the table of rich and poor alike; but till the knowledge of distinguishing one from the other is acquired, it behoves every man to be cautious what members of a suspicious group he consumes for food. W. G. S.

THE PAYMENT OF ARCHITECTS: PUBLIC COMPANIES.

SIR,—The subject of architects' remuneration, already so well ventilated in your columns, is not one in which I have any personal interest, either as a builder, architect, or employer of architects; but as a moral or philosophical question I have given some attention to its discussion in your influential journal, and I am sorry to say I feel as far from laud as ever. Most cordially do I hold that the labourer is worthy of his hire, and that a man's pay should be in the ratio of his merit; but the difficulty in this case is to apply these principles. A determinate result or a cast-iron rule seems unattainable, at all events, until the public come to the rescue, and come it will ere long. But as matters now stand, I presume that in the absence of any special agreement, any architect can legally claim a commission of 5 per cent. on the gross value or cost of any buildings, with what

ever disbursements may have been incidental to his surveillance.

If the job is a small one, probably a jury might award a round sum, instead of a simple per centage; and if it is a very large one, something less than the usual rate might be allowed; but, as a rule, I suppose the 5 per cent. commission would prevail. For my own part, I see nothing to complain of in the architect's commission, provided he really gets it, and that he is not also in the pay of those over whom he is set as a watch. The architect has a high and holy mission to perform, and, like Caesar's wife, he should be above suspicion. He ought to be a man of unbending honour and exquisite sensibility, as well as master of everything relating to the safety, convenience, or picturesque quality of buildings, and *au fait* of the proper cost of work and material. He must be a man of moderation and tact, not apt to find fault; while, at the same time, he neither intelligently connives at nor is culpably ignorant of false work. It is true we may have an institution for the purpose of giving him his proper status with the public, and destroying the adverse influences with which he has to contend; and, as a protest on his behalf, I am not insensible of its value. But I have no faith in its entire efficiency to remove the grievances referred to, and I am not without fear of its fostering false canons of taste, and ostracising the very men that should take the lead. The greatest purists in their professed relations with the trade will of course flock to its standard. But we all know how easy it is for architects to receive bribes without the possibility of detection, or the most censorious having the slightest handle against them; and it is equally notorious how apt the spirit of persecution is to take possession of anything in the shape of an establishment, and how liable are those who do battle for the truth, to get tabooed as heretics. If the institution referred to be something more than a mirage in the desert, or a real evil in disguise, its members will have to exercise great jealousy over themselves and each other, lest the insolence of wealth, and the toadyism of those who wish to get on, shake hands, and thus reach its ruin.

The question of architects' charges does not stand alone, and must be taken in connexion with the one as to his real position, whether, in fact, he is the builder's foreman, agent, or partner, instead of the exclusive servant of the public. It seems to be a different rendering of the old issue, "Cunning *versus* Straightforwardness." Before the era of railways and limited companies, builders and contractors had really a hard time of it, frequently doing a great deal for little, or reaping ruin where they should have had a living. But the case is far otherwise now; it is amply testified by the princely fortunes which they have achieved, and the meagre dividends that are received by shareholders and clients. The course of truth is deeply indebted to you for the space you have given to this discussion, and I hope you will continue to give the subject an occasional airing. There can be no doubt that a pure and independent body of architects and engineers will, ere long, be insisted on by public companies as well as private individuals. HONESTAS.

DEFLEXION OF BEAMS.

THIS subject, on which "A Student" asks a question, in your last paper, has received much attention from mathematicians since Barlow's Treatise was published. In his "new edition, revised, 1845," I find the same statement which "A Student" quotes as appearing in the edition of 1837. I also find on the next page a statement that, *because the strain on a beam produced by a weight distributed is only one-half what it is when acting at the centre only, therefore the deflexion is only one-half*. This is reasoning from false premises, as it assumes that the deflexion varies as the strain.

The whole subject is thoroughly investigated (mathematically) in "Fenwick's Mechanics of Construction" (noticed in the *Builder*, 1861, p. 673), to which work I will now refer.

"A Student" has, however, misunderstood the question when he says that it can be easily verified by experiment, as his own experiments, in fact, show the contrary. From the very nature of the investigation (to understand which requires a knowledge of the differential calculus) experiment is out of the question, for the formula is deduced on the hypothesis of the deflexion being *very small*, and certain quantities are

consequently neglected. If we get beyond very small deflections, the formula ceases to be of any practical value, the object really being to ascertain what weight may be laid on a beam without producing any perceptible deflection, which is the practical question.

The formula deduced in Mr. Fenwick's work for a beam of length L supported at each end, and loaded by a weight W in the centre, is (deflexion in the middle equals)—

$$D = \frac{W \cdot L^3}{48 \cdot E \cdot I}$$

And for a beam of length, l , fixed at one end, and loaded by a weight w at the other,

$$\text{Deflexion} = d = \frac{w \cdot l^3}{3 \cdot E \cdot I}$$

$$\text{Now let } L = 2l, \text{ then } L^3 = 8l^3,$$

$$\therefore D = \frac{W \cdot l^3}{6 \cdot E \cdot I}$$

So that if $W = w$, then $d = 2D$; and if $W = 2w$, then $d = 4D$; and also, if $W = w$, and $L = l$, then $d = 16D$.

Hence it will be seen that the editor of the last edition of "Barlow" was right in his correction.

If the weight W is uniformly distributed over the length of the beam, supported at both ends, then the deflexion in the middle is *five-eighths* of what it would be if W were applied only at the centre.

If the weight w is distributed over the length of the beam fixed at one end only, the deflexion is *three-eighths* of what it would be if w were applied at the other end.

Lastly, if the beam is *firmly fixed* in the wall at both ends, and loaded in the centre, then the deflexion in the middle is *one-fourth* what it is when the ends are only *resting on supports*.

The same formulae apply to beams of various materials, the only variation being in the value of E found by experiment.

E. WYNDHAM TARN, M.A.

DISTRICT SURVEYOR WANTED.

Sir,—The necessity for a district surveyor for the parts beyond Highbury New Park, as stated by your correspondent "X." I can bear testimony to; for, at Hornsey, Wood Green, West Green, &c., houses are springing up like mushrooms, both as regards quantity and quality. At Hornsey not only is a district surveyor wanted, but a sanitary inspector is required; for, in the lowest parts, ditches, or rather open sewers, are to be met with in every direction, sometimes on both sides of the public highway, poisoning the otherwise pure air; and, should we be visited with the cholera next year, as prophesied, these contagion spreaders would prove very fatal, as most of the small houses are filled with lodgers, being principally the workmen of the Alexandra Park and Great Northern Railway works. W. E. B.

NEW THEATRE ROYAL, EDINBURGH.

Sir,—In your account of this theatre, your correspondent only casually notices the introduction of a fire-proof curtain, and the improved construction of the building.

As we are the original inventors of this plan, which was suggested to the architect of Covent Garden Theatre, when it was about to be rebuilt, and have endeavoured to get it introduced for years, we will feel obliged by your allowing us to explain the principle.

The Edinburgh Theatre is divided by a wall 2 ft. in thickness, at the line of the proscenium, which wall passes up to a height of 8 ft. above the roof, dividing the theatre into two distinct buildings. In this wall is an opening of 30 ft. by 32 ft., which forms the proscenium; this opening is closed by one of our patent revolving shutters (the largest in the world) in one sheet of steel, coiled above; it is raised and lowered by an hydraulic apparatus, which receives its power from a head of water supplied by a tank at top of building, which tank also supplies the fire-mains throughout the theatre. The shutter or curtain is raised or lowered in forty seconds, by simply opening or closing a valve.

It has long been a desideratum how to provide for the safety of the audience in the event of fire. Wide passages and good staircases, no doubt, are of great importance, but if the auditorium is cut off from that portion of the building where fire always originates, thus calming the public mind, and giving them ample time to escape, it will be more effectual than the widest passage that can be afforded in any theatre.

The fire-proof curtain at Edinburgh has been tested by the architect, Mr. D. MacGibbon, and

has been pronounced a success, and works in the most perfect manner.

We fitted the Theatre Royal, Glasgow, with our patent revolving shutters, to divide the theatre from the carpenters' shops and property rooms; but as the public do not see them, and are not aware of their existence, they would only be beneficial in saving the theatre.

CLARK & CO.

THE SEWAGE QUESTION.

MR. McDUGALL, whose "powder" and whose application of town sewage to the cultivation of land in the neighbourhood of Carlisle are well known, has, we are informed, taken upon lease some land near Penrith, called the Westmorland Holmes, adjoining the Eamont, and is about to promote its fertility by the application of the sewage from the town of Penrith. Instructions have been received by Mr. Geo. Watson, architect and surveyor, of that town, to prepare plans of the works, which will be on an extensive scale. The sewage will be conveyed through earthenware tubes to near Carlton Hall, and thence by means of iron pipes through the river. No pumping will be required.

The committee appointed by the Tewkesbury Board of Health to report upon the plans presented in competition for a premium of 10l. offered by the Board, received three plans,—from Mr. McLandsborough, of Cheltenham; Mr. W. W. Moore; and Mr. T. B. Holder, of Tewkesbury. The first was approved. During last summer the drains from the Barton-street side of the town to the Swilgate caused an abominable stench. It was feared disease would be the result; and a premium was offered for the best plan to obviate the nuisance by the construction of a proper sewer. Mr. McLandsborough proposes to do this by making a sewer of glazed pipes, 15 in. in diameter, at an estimated cost of 584l.; and to do away with any chance of the work costing more, Mr. McLandsborough would be willing to execute it for that sum. In the event of future legislation preventing the discharge of sewage into rivers, the plan provides for the construction of proper receptacles for the sewage, from whence it can be used for irrigation of manure. Mr. Moore's plan comprises a brick culvert, 2 ft. in diameter, running a somewhat shorter course than Mr. McLandsborough's, and emptying itself into the river higher up, the estimated cost being 588l.

SANITARY MATTERS.

Northampton.—At a recent meeting of the local Improvement Commissioners, a letter from Dr. Barr was read, urging the necessity of completing the drainage, cleansing cesspools, and improving the water supply within the next few months, otherwise cholera may find the town totally unprepared to resist its ravages. The commissioners have had a discussion on the subject, and have resolved to request the medical gentlemen of the town to communicate to the Board what parts of the town it was desirable their attention should be directed to in the mean time, and they have appointed a special meeting to consider the subject in all its bearings.

Croydon.—The local Board of Health have resolved to act upon several recommendations laid before them by Dr. Carpenter, with reference to houses without cisterns to the closets connected with the sewers; drains on made ground instead of on concrete; ventilation of closets, sinks, and drains; flushing the sewers, &c. There is an unusual amount of sickness in Croydon, it appears, at present.

Brighton.—A letter to the Brighton Herald, by Dr. Douglas Fox, gives a sad account of the narrow streets, alleys, courts, and small houses in the town, and urges the appointment of a medical officer of health. The council are appointing an inspector of nuisances, with a salary of 2l. 10s. a week, and are taking other steps to remedy the state of things complained of. The plan for town drainage is now before the authorities in London, and an order has been given to proceed with the drainage of one district,—that of Pimlico.

Leeds.—Dr. Hunter, one of the medical inspectors of the Privy Council, has been reporting on the health of Leeds, which the returns of the registrar-general had shown to be exceptionally

bad during the past summer. After stating that he knew of no other town in England with which to compare Leeds, and that when he saw it in August, it reminded him of the condition of many English towns twenty years ago, he says:—"Thousands of tons of midden fill filled the receptacles, scores of tons lay strewn about, and hundreds of people, long unable to use the privy because of the rising heap, were ———. Notwithstanding this state of things, the means adopted for the removal of the nuisances were altogether inadequate. Even where the nuisances were removed, the soil was deposited in immense quantities in a locality not far from the centre of the town, thus becoming a permanent cause of fever." Had the local authorities at Leeds given heed to our remonstrances on this subject, instead of trying in vain to controvert them, the state of the town and of its health might now have been very different.

Newcastle-upon-Tyne.—The members of the Northumberland and Durham Medical Society have memorialised the town council, with a view to the prevention of the spread of the serious epidemic of typhus fever, which is now affecting many parts of the town and of the neighbouring borough of Gateshead. The fever is not only widely-spread, but extremely fatal, and of a very infectious type. The facts that in one house no less than twenty cases of fever have occurred—that there are now under one roof eight persons "down" with the disease—and that in several instances father and mother have been swept off, leaving their orphans (unconscious of their loss) suffering from the disease transmitted to them from their parents, are considered by the memorialists to be enough to justify the most stringent measures on the part of the local authorities. Action, it is said, has already been taken on this subject, and a small committee of the Medical Society is acting with the Town Improvement Committee as a public health committee. Nuisances referred to are being dealt with, and the fever in the town is said to be assuming a milder form, with fewer cases.

It would be well for all our municipal authorities to consider that virulent cholera has been known in former times to be preceded by fever as well as diarrhoea; and its connexion with fever, both preliminary and subsequent to the choleraic attack, even in individual instances, was a noted peculiarity of this epidemic in its former visitations. In short, as we have before said, the state of collapse appears to be the cold stage merely of a tremendous ague-like fever; and cholera is essentially of a typhoidal nature, as was the plague of Old London itself, as well as of the East in modern times. The cattle disease is quite analogous in its nature also; and we all know how close the connexion is between foul localities and fever.

CONGREGATIONAL SCHOOLS, LISCARD, NEAR LIVERPOOL.

The materials used for the exterior walling are Flaybrick Hill stone, in scotched ashlar, with bands, quoins, and other dressings of red stone. The interior walls are finished in white fire bricks, with bands of red at the level of window-sills, springing of arches, and feet of principals.

The schools provide accommodation for 250 pupils; and, when thrown together for a lecture-room, will seat about 400 persons. The whole of the timber is stained and varnished. The roof is open-timbered and counter-ceiled. The turret is used for ventilation. The total cost of the building is 1,200l., including boundary-wall, railing, gas, heating, &c., &c. It has been erected from the designs of Mr. H. A. Vale, of Liverpool, architect; Mr. Campbell, of Liverpool, being the builder.

PROVINCIAL NEWS.

Basingstoke.—The extensive alterations and repairs which have been going on at the town-hall for the past few months, are now nearly completed. The space underneath the Assembly-room, which since the opening of the corn exchange has been entirely useless, has now been converted into two rooms, the one for use at petty sessions, and the other for small assemblies. The large room is painted in light-blue panels. The graining and marble painting were contracted for by Mr. Glover. The masonry part of

the contract was done by Mr. Budden, and the whole of the alterations have been carried out under the direction of Messrs. Salter & Wyatt, architects.

Birmingham.—The foundation stone of a new wing to the General Hospital has been laid. The growing requirements of the town and neighbourhood having made additional hospital accommodation necessary, this addition to the existing buildings was imperatively required.

MIDLAND RAILWAY STATION COMPETITION.

DESIGNS have been sent in for the Midland Railway new Station and Hotel by eleven architects, invited by the directors to compete, and are now exhibiting in Derby.

Good judges of such things assert that the drawings sent represent an outlay of at least 2,000*l.* irrespective of the value of the principals' time.

Amongst the eleven are Mr. E. M. Barry, Mr. Darbishire, Messrs. Hine (Nottingham), Mr. Owen Jones, Mr. Lloyd (Bristol), Messrs. Lockwood & Mawson (Bradford), Mr. G. G. Scott, Mr. Walters (Manchester), &c.

Some of the competitors contemplate an expenditure of 200,000*l.* Nearly all of them make the hotel only prominent; Mr. Owen Jones, on the contrary, makes the hotel subsidiary to the station.

CHURCH-BUILDING NEWS.

Waterfoot (Manchester).—St. James's Church, which is erected in the midst of a thickly populated and increasing district, has been consecrated by the Bishop of Manchester. The church has been erected by public subscriptions, one of the principal contributors being the late Mr. James Crabtree, of Manchester, at a cost of from 4,000*l.* to 5,000*l.* Messrs. Robinson & Stephens, of Derby, were the architects.

Wrexham.—It is proposed to restore the parish Church of Wrexham, erected by Henry VII., and acknowledged to be one of the finest Perpendicular parochial edifices in the kingdom. Its length from the eastern to the western window is 175 ft. The pillars and arches forming the nave arcade are massive and plain, but of fine proportion, and support a lofty clerestory. The trusses of the panelled roof rest on bold carved corbels of grotesque design. The magnificence of the interior of the church is much injured by the heavy unsightly galleries (erected about forty years ago), fixed between the pillars along the whole length of the building. It is the object of the parishioners to remove these galleries, as well as to clear away from the floor below all the irregular pews, and to substitute in their place open seats, by which arrangement 300 additional sittings will be obtained in the body of the church. The cost of the restoration is estimated at 4,000*l.*, 1,800*l.* of which have already been subscribed, the principal donors being the Bishop of St. Asaph, 100*l.*; Sir W. W. Wynn, bart., M.P., 500*l.*; Mr. T. L. Fitzhugh, 100*l.*; Sir R. A. Cunliffe, 100*l.*; Rev. Canon Cunliffe, 100*l.*, &c. The architect to whom the work is entrusted is Mr. Ferrey.

Taynton (Oxfordshire).—The chancel of the parish church of Taynton, near Burford, has been restored under the direction of Mr. W. F. Poulton, architect, Reading. The building, which is a particularly pure specimen of Early English, was in such an unsafe condition that it was found necessary to take down the whole of the walls and roof; and it has been re-erected on precisely the original plan. The work has been carried out, under contract, by Mr. Cowley, builder, of Oxford, at a cost of 370*l.*

Evenwood (near Bishop Auckland).—The foundation-stone of a church has been laid at this village by the Bishop of Durham. Great opposition was raised by the inhabitants to the erection of a church and formation of a burial-ground on the village green; and the cry of "Clerical intolerance" was raised by both metropolitan and provincial newspapers a few weeks ago; but all asperities, we are told, have been smoothed down by the abandonment of the burial-ground scheme, and simply inclosing as much of the green as will afford protection to the church. The style of the building is Early English, and the edifice consists of nave, apsidal chancel, porch, and vestry, with sittings for about 270 adults and eighty children. The west

gable is surmounted with a turret, to contain two bells, and the whole built of freestone from quarries in the neighbourhood. Messrs. S. & R. Adamson and Mr. Armitage, of Darlington, are the builders. The architect is Mr. John Ross, of Darlington.

Barnham (Sussex).—The church has been re-opened, after having undergone repairs and restorations. The edifice is of the Early Norman style. The chancel is contemporary with the first possession of it by the Priory of Boxgrove, which is still apparent in the windows. At the suppression of monasteries the north aisle was taken down, in which the chantry was celebrated, which had been founded by John le Taverner, one of the most ancient bailiffs of Chichester. The lay rector, Mr. Rickman, of Empshott, Hants, his Grace the Duke of Richmond, Mr. Richard Cosens, and other landowners of the neighbourhood, and the vicar and his friends, have subscribed towards the restoration, and the Diocesan Association have also rendered aid.

Romsey.—The restoration of the Abbey Church, which has occupied some considerable time and involved a very great expense, is, for the present, nearly completed. The painting of the western roof was carried out by Mr. Henry Brown, of this town, house decorator. The north transept has been re-leaded in union with the other parts of the building which were done 800 or 900 years since. Mr. Geo. Wheeler was the builder employed.

Evenley (Northants).—The Church of St. George, Evenley, built at the cost of the Hon. Mrs. Pierrepont, of Evenley Hall, has been consecrated by the Bishop of Peterborough. The style of the church is Early English in its later development. The ground plan consists of nave, aisles, north and south transept, tower, and chancel. Of these the north aisle is entirely new, the remainder of the building being erected on the old foundations. The tower is surmounted by a broached spire of shingles, which has excited some controversy, as having the effect of extinguishing the tower. During the progress of the works, a robin redbreast built her nest within the porch, unharmed and unfrightened. The incident has been sculptured on either side of the porch doors, where the robin appears on the one hand cherishing her young, and on the other bringing them food. The church is seated throughout with low open sittings. The capitals of the nave, the various bosses and corbels, are carved in foliated style, and the windows, for the most part double lancet lights, have interior columns of Forest Dean stone supporting the hoods, the piers of the nave being of the same material. The east window, by Messrs. Hardman, contains in the upper part of the central light a representation of the Crucifixion. The window in the north transept was by the same artist. It was erected by Colonel and Mrs. Campbell as a memorial to Mr. Pierrepont. The subject is "The High Priest Blessing the People at the Dedication of the Second Temple." The architect was Mr. Woodyear; and Mr. Denery, of Rugby, was the builder. Mr. Bridger was clerk of the works. The stone carving is the work of Mr. Nichols, of Lambeth; and the building is warmed throughout on a system patented by Mr. Rimington, of Shipton.

Gorton.—The Bishop of Manchester has consecrated a church, dedicated to St. Mark, which has been erected at West Gorton. Mr. C. F. Beyer, of Gorton Foundry, whose firm employs a large proportion of the workpeople in the locality, besides giving 1,000*l.* towards the Church Building Fund, has also at his own cost built new schools for 400 children. Towards the endowment his partner has given 1,000*l.* The total cost of the church, churchyard, and fittings amounts to upwards of 4,000*l.*; the estimate for the building, irrespective of the approaches, heating and lighting, being 2,760*l.* Towards this a large proportion has been collected amongst the poorer classes of the congregation and residents in the neighbourhood. The site of the new church is a large open plot of ground in Clowes-street, the gift of Colonel Clowes, the proprietor of a large portion of the district in which the church is erected. The edifice is built of common bricks, with coloured banding and stone dressings, and contains a nave, 65 ft. 7 in. by 24 ft. 2 in.; north and south aisles, each 67 ft. 7 in. by 13 ft. 9 in.; and chancel, 21 ft. by 19 ft. 2 in. There is a north-western porch and door, and a north door projecting slightly from the wall. The building is in the Early English style. The pulpit and other fittings are of pitch-pine, also stained and varnished. The building has

been constructed to accommodate 600 persons, and 302 seats are free. The architect was Mr. Isaac Holden, of Manchester; and the builders, Messrs. R. Neill & Son, of Manchester.

Haverstock-hill.—The Bishop of London has consecrated another large and important metropolitan church. St. Martin's is situated between Haverstock-hill and Kentish Town, in a rapidly increasing neighbourhood, lately known as the Gospel-Oak-fields. The church will accommodate 1,000 persons, who will all have an almost uninterrupted view of the chancel, reading-desk and pulpit: 400 sittings are free. Carved columns and a window by Messrs. Clayton & Bell, enrich the chancel. The tower is an ornament in a part of London which has but few objects of architectural interest or beauty; it contains six bells of deep tone. The church, with its parsonage, was built by Messrs. Dove, from designs by Mr. E. B. Lamb; and the entire cost, together with the endowment, amounting to 15,000*l.*, has been defrayed by one gentleman.

Books Received.

A History of Architecture in all Countries. From the Earliest to the Present Day. By James Fergusson, F.R.S. In three volumes. Vol. I. John Murray, Albemarle-street. 1865.

We simply announce the publication of the first volume of Mr. Fergusson's *History*, which, although containing the "Handbook of Architecture" is in reality a new work. The topographical arrangement has been abandoned, and a historical sequence has been introduced in its place; the advantage of this, for popular teaching, is evident. Much new matter has been introduced and many additional engravings. For example, the number of illustrations in this volume is 441; in the volume itself they are 536, and in the second volume, which will be published before the autumn of next year, the ratio of increase, the author says, will probably be even greater. The book is a monument of industry, ability, and knowledge.

VARIORUM.

THE Council of the Art-Union of London have issued their annual Report and their excellent little Almanac; the former (already printed in our pages) testifying to the continued prosperity and greatly extended operations of this, the first established of existing institutions of the kind in England; and the Almanac containing a large amount of information relating to societies connected with art and science not to be found in any other work. The following is an interesting list of—

"INSTITUTIONS.

Bodleian Library, founded	1610 July 19.
Ashmolean Museum, founded	1679 May 16.
British Museum, founded	1753 April 5.
British Museum, opened	1759 January 15.
Artists' First Exhibition, open free ..	1769 April 21.
Artists' First Society, instituted	1765 January 26.
Royal Academy, opened	1769 January 2.
Hamilton, Sir W., Col. taught	1773 March 20.
Society of Water Colours, instituted ..	1834 November 30.
British Institution, opened	1806 January 18.
Artists' Annuity Fund, established ..	1810 March 22.
Dulwich Gallery, founded	1810 December 20.
Elgin Marbles, bought	1816 June 9.
National Gallery, founded	1824 March 23.
Society of British Artists, instituted ..	1824 April 14.
Artists' Benevolent Fund, established ..	1827 August 2.
Graphic Society, founded	1833 March 9.
Institute of Painters in Water Colours ..	1834 July 29.
Art-Union of London, instituted	1837 February 14.
School of Design, opened	1837 June 1.
Commission on Fine Arts, issued	1841 November 22.
Art-Union of London, Chart, granted ..	1846 December 1.

—"Proceedings of the London Association of Foremen Engineers." King & Co., Printers, Queen-street, E.C. These proceedings contain the report of a paper "On Foremen and their Associations," read by Mr. Joseph Newton, the president, on the 4th of November, and well deserving publicity.—"Gutch's Literary and Scientific Register and Almanac, for the year 1866." London: Stevens, 421, Strand. This is the twenty-fifth yearly volume of Gutch's Almanac, which is distinguished by the multiplicity of its information; in fact, it is a kind of compendium of all sorts of knowledge, astronomical, mechanical, statistical, historical, horticultural, &c., and is in the form of a convenient pocket-book, covered with leather.—"Dietrichsen & Hannay's Royal Almanac for 1866." Cleaver, 63, Oxford-street, London. Another

* Removed to Trafalgar-square, 1837.

ld-established almanac; this being its twenty-ninth issue. It also contains a great deal of information, but more political, commercial, and social, than scientific. There is a useful abstract of the more notable occurrences in 1864.—*The British Almanac and Companion* (1866), is still *facile princeps*, and should be in every library and counting-house. The "Companion" includes papers on Ocean Telegraphy, the National Art Collections, Forests and Open Spaces round London, the Sun, Working Men's Exhibitions, and its usual review of Architecture and Public Improvements illustrated.—Mr. Murray has published the promised volume of *Memoirs illustrative of the Art of Glass-Painting*, by the late Chas. Winston, illustrated with numerous engravings. A biographical memoir of the lamented writer is appended, and the whole forms a valuable book.

Miscellaneous.

CHURCH AT TORONTO DESTROYED.—St. Stephen's Church, Toronto, and the adjacent parsonage, have been totally destroyed by fire. The church was built at the sole expense of Mr. R. B. Denison.

PROPOSED CONVERSION OF THE GRAND JUNCTION CANAL INTO A RAILWAY.—At the last biennial meeting of the proprietors of the Grand Junction Canal the following important resolution was unanimously adopted:—"That, taking into consideration the existing and threatened competition by railway companies, it is the opinion of this meeting that some steps should be taken for the protection of the company's interests, and for this purpose they authorise the select committee to procure a preliminary survey of the canals between London and Birmingham, with a view to their partial or entire conversion into a mineral and goods railway."

THE GAS-WORKS AT MOSCOW.—The City of Moscow Gas Company have issued a special report of the progress made by the contractors of the company since its formation. The site for the works was obtained in June, and during the three succeeding months, before the approach of winter put an end to any further progress, great efforts were made to advance the works as much as possible. The result has been, that the lighting of a very considerable extent of the city may be commenced before the winter of 1866. Properly managed, this ought to be a very profitable undertaking.

THE PROPOSED PIERS FOR HASTINGS AND ST. LEONARDS.—The plans of the two piers proposed for this town have lately been deposited at the Custom-house. That which is brought out by the Harbour Company is to be called the Alexandra Pier, and the promoters contemplate placing it on the centre of Warrior-square. The plan does not furnish details as to the degree of ornamentation or style, but a pier-head, of about 150 feet width, is shown. The site is adjacent to or over the present drainage outlet, and the limit of deviation extends only as far as each side of the square. Sir John Rennie is the engineer for this scheme. The other plan has been prepared by Mr. Birch, the late engineer to the Harbour Company. The site proposed is opposite White Rock-place, but the promoters are desirous that the limit of deviation shall extend from the east end of Carlisle-parade to the slipway opposite Grand-parade.

CARLISLE CATHEDRAL.—The proposal to remove the parish church of St. Mary from the nave of Carlisle Cathedral, and build a new parish church, has been brought before the parishioners at a vestry meeting held in the Cathedral frater. Dr. Close stated that he had no doubt the Dean and Chapter would contribute 500l. towards the cost; and if the two projects—the restoration of the Cathedral and the building of the church—were carried out together, many contributions would be given towards the undertaking. After some discussion it was resolved: "That in the opinion of this meeting it is highly desirable that measures be taken for the removal of the present Church of St. Mary from the Cathedral, and for the erection of a new parish church by voluntary contributions on some suitable site." A large and influential committee was afterwards appointed to carry out the two schemes.

OPENING OF THE FORESTERS' HALL, AT COWES. This hall has been opened by a public dinner. The hall is about 60 ft. long by 26 ft. in breadth, and 23 ft. in height. On either side of the lobby is a waiting or cloak room, and above these and over the entrance a gallery. At the upper end is a narrow platform across the room. Dressing-rooms and other accommodations will be constructed at this end of the building, and the platform widened.

FEVER RAMPANT.—It is stated that more than 200 children in the London Orphan Asylum at Clapton are ill of typhoid fever, and four have died. A letter in the *Times* attributes the disease to the fact that at the back of the building, and within 100 yards of it, there is a large heap of filth, consisting of farmyard manure, town sewage, and decomposing vegetable matter, all of which emit most powerful and noxious effluvia.

GIFT OF 30,000L. FOR A NEW CHURCH.—The old parish church at Bolton has for some time past been in a dilapidated condition, and a munificent gift has just been made by Mr. Peter Ormrod, of Halliwell Hall, cotton-spinner, to defray the entire expense of the erection of a new one. Mr. E. G. Paley, of Lancaster, architect, has prepared plans for the new structure, the general style of which will be Decorated Gothic. The new edifice will be much larger than the present one, and will provide sitting accommodation for 1,300 persons on the ground-floor alone.

SCHEME FOR IMPROVING THE TOWN OF DOVER. The dilapidated state of the pavements and the dreadful condition of the roads, arising from an insufficient amount having been expended on them during the last few years, have been the source of much animadversion. It is now proposed to raise a loan for a compulsory scheme for putting all pavements and roads in thorough repair. To do this, 10,000l. will be required, which will be paid off in thirty years, over which time a rate of a penny in the pound would pay. It is calculated that, when this is done, another penny rate per annum would do for the ordinary repairs; and that, by this means, a rate of 2d. in the pound instead of 3½d., as now, would only have to be levied, while the town would be put and kept in good condition.

PETROLEUM IN YORKSHIRE.—It has recently been found that the shales of unctuous clay overlying the iron-stone deposits of the Yorkshire moors, in the North Riding, like those in the West of Scotland, can be made to produce a mineral oil, similar to petroleum, at a cost of 6d. per gallon. From the fact that these shales crop out to the surface in almost all the valleys, the discovery is expected to impart a wonderful degree of activity to those hills, unpeopled since the days when Roman legions held them in military occupation, and worked both the iron and coal deposits. This last discovery, coming quickly upon that of coal and iron-stone, has raised the value of land. Most of the moors are Crown lands, leased.

A PUMPING APPARATUS AT KENDAL.—A pumping apparatus has been erected, and is now in use, at the brewery of Messrs. Mark & Co., Highgate, Kendal, which is thus described:—"There is a well in the New Inn yard which has been leased to the proprietors of the brewery, and which is said to supply the purest water in England. This is, however, situated 300 yards from the engine-room, and 540 yards from the tank, besides which, the tank is about 100 ft. above the level of the water. To obviate this difficulty, the services of Mr. Henry Righton, of Kendal, plumber, were employed. Lead piping, lined with black tin, has been laid across the street from the brewery to the well, through which the water is pumped. This is said to be the longest suction-pipe in the north of England. There is a rise of 21 ft. from the well to the brewery, which necessarily increases the difficulty. On reaching the brewery, the water has two courses which it may travel,—the one to the boilers in the building, and the other and more important one to the tank built on Garth Heads. To reach this, piping has been laid in the same manner as from the well to the brewery, and the water is forced a distance of 240 yards, and up an incline of 80 ft. A steady stream of 2 in. diameter then falls into the tank, which is built of stone and lined with cement, and it contains 14,000 gallons of water. The working of the apparatus is said to be quite satisfactory.

DESTRUCTION OF A THEATRE BY FIRE.—The theatre of Angers has been burnt down and totally destroyed. The costumes of the performers were alone rescued. Nothing has been ascertained as to the origin of the fire.

ROYAL ACADEMY MEDALS.—The Lambeth School of Art under the teaching of Mr. Sparks, has carried off all the chief medals given by the Academy this year; Mr. Perceval Ball a young sculptor, and Mr. Calthorp, historical painter, being the principal recipients.

GLASGOW INDUSTRIAL EXHIBITION.—On Tuesday an Industrial Exhibition was formally opened in Glasgow, by the Duke of Argyll. The exhibition has been got up under the auspices of the Central Working Men's Club. The number of articles exhibited by working people is nearly 1,200, and there are upwards of 400 exhibitors belonging to the purely industrial classes of the Glasgow population.

VALUE OF PROPERTY IN BROMPTON.—On Wednesday, at the Sheriff's Court, Red Lion-square, in a compensation case (which occupied several hours), *Kerr v. The Metropolitan Railway*, a claim was made of 2,450l. for a house in Alfred-place, Brompton. The company had offered 1,700l. The jury awarded 1,860l. as compensation.

THE NEW WORKHOUSE FOR ISLINGTON.—At a meeting of the Islington Board of Trustees a Report was read from the new workhouse committee, who advised the Board to proceed without delay with advertisements for plans from architects, and that a plan of the land, together with the levels, be procured immediately. They further recommend that premiums be offered for the three best plans: namely, 100l. for the first, 30l. for the second, and 20l. for the third; the three plans to be the property of the Board; and if the architect receiving the premium should be employed by the Board, the premium should be merged into his commission. An amendment was put with the view of restricting the competition to nine architects, but the original proposal to throw it open to architects generally was carried.

ROYAL HORTICULTURAL SOCIETY.—The International Fruit and Vegetable Show opened at the South Kensington Gardens on Saturday. The exhibition consisted principally of apples and pears. There were, however, some fine pines, and numerous good specimens of dried and preserved fruits. The following medals, amongst many others, were awarded: 1. The gold medal of the Society, awarded to the best collection of fruit and vegetables produced in the garden of a Sovereign,—to Mr. Thomas Ingram, gardener to her Majesty the Queen, Windsor. 2. The gold medal of the Society for the best collection of fruit and vegetables grown by any botanic or horticultural society in any part of the world,—to the Horticultural Society of Copenhagen. 3. The gold medal of the Society for the best and most complete representative collection of fruit and vegetables from any of the colonies,—to the Fruit Growers' Association of Nova Scotia.

THE ROMAN REMAINS AT CAMBODUNUM.—The hon. secretary of the Huddersfield Archaeological Association, who are making it their main object to unearth the ancient Roman Cambodunum, writes to the *Sheffield Independent* on the subject. He says—"Slack, where our excavations are being made, is not in Greetland, but in Longwood, in the parish of Huddersfield, and is four miles distant from the last-named place, and lies to the south of Greetland. The hypocausts we have found are plainly a series of public *thermae* for the use of the camp, being built at the south-eastern end, and lie altogether. The series comprise, as usual, the *topidarium*, the *sudatorium*, and the *frigidarium*. The last is in an admirable state of preservation. We are now clearing out the fifth hypocaust, and so far it appears to be the most perfect of the lot. I believe there are some others adjoining the suite, which proves they were for the use of the camp; and the absence of buildings adjacent proves that they were not warming apparatus for Roman houses. We have cleared out the foundations of a house in an adjoining field, which I believe is only one out of many similar quadrangles, but it is too far off to be affected by the hypocausts I name. The work has become (as it ought) a national one. We are endeavouring to dig out from its hiding-place for ages, Cambodunum, and we shall be glad to receive aid."

WHIST-MARKERS.—Mr. Chappuis has registered a neat and ingenious little whist-marker, about the size of a visiting-card. It seems well adapted for its purpose.

THE OASTLER MONUMENT.—Mr. J. Bernie Philip, the artist, has succeeded, after much labour, in producing a model of the "Factory King." The group consists of three figures. Mr. Oastler is represented in a standing attitude. A factory boy and girl are the other figures of the group. In six months the statue will be cast in bronze, and ready for erection. At the suggestion of the artist, the committee have resolved that the figures shall stand on a massive granite pedestal. Bradford has been chosen, as the central town of the West Riding, for the erection of the monument.

THE REPERING OF ALL SAINTS' CHURCH, HERTFORD.—At a numerously attended vestry, which met to consider a correspondence between Mr. Lucena, solicitor to Mr. Chas. Collins, of this town, and Mr. Armstrong, on the part of the vicar and churchwardens, in reference to the proposed contract for reseating and warming the church, after a lengthened discussion, it was unanimously resolved,—"That Mr. Collins's claim of 200 guineas, for damage he alleges he has sustained from the delay that has taken place in not being allowed to proceed with the works, be rejected by the vestry; that the alterations made by Mr. Collins's solicitor in the proposed agreement, differing very materially from the original specification on which Mr. Collins made his tender, be also rejected; and that Mr. Armstrong be and is hereby directed to transmit the resolutions to Mr. Collins's solicitor."

THE RESTORATION OF BATH ABBEY.—A public meeting has been held in the Guildhall, Bath, for the purpose of receiving a report from the Abbey Restoration Committee, and also a statement from the treasurer in reference to the present position of the work. The bishop of the diocese presided. The report of the committee stated that the sum of 5,280l. had been raised, of which 3,900l. had been paid to the contractors, while work to the value of 1,489l. 14s. still remained to be executed. The entire cost would be 5,500l., for two-fifths of which the committee have made themselves responsible. The committee appeal to the public for subscriptions for the furtherance of this work. The report and accounts were adopted and ordered to be printed and circulated. The bishop recommended that, an endeavour should be made to obtain a faculty to remove the tablets and monuments in the nave.

DEVOLUTION OF THE METROPOLIS BY PROPOSED RAILWAY SCHEMES.—An excited meeting of the representative vestry of St. Marylebone has been held for the purpose of receiving a report from the vestry clerk as to the number and character of the various new railway projects of which notices had been given for Bills in the next session of Parliament. The clerk reported that there were five new projects affecting Marylebone; viz., the Metropolitan Railway, additional powers to take property along the Marylebone-road by wholesale;—Metropolitan and St. John's-wood Railway, to extend its previous limits of deviation; to take all property fronting or property in the Park-road, entirely removing Park-place, Blandford-place, and Tanton-place;—Kilburn Railway, to run a line from Baker-street by the side of the St. John's-wood line, as far as St. John's-wood road, taking the whole of the property on the west side of Upper Baker-street to Allport-place, the west side of Park-road to South-bank, &c.;—Metropolitan Railway Station collecting lines; viz., a line through Baker-street to Orchard-street, taking a vast amount of property on the east side of Baker-street, and property on the east side of Orchard-street, from Lower Seymour-street to Oxford-street;—another line from Portland-road station through the Portland-road across Oxford-street to Argyle-street, taking property between Portland-road and Balsover-street, including the School of Art, &c.;—Mid-London Railway, which proposes to interfere with the carriage-way of Oxford-street, from Edgware-road to Hereford-street, then taking a southerly direction in the parish of St. George, Hanover-square. The consideration of these projects was unanimously referred to the Parliamentary Committee with a view to opposition. At St. Pancras Vestry, the clerk announced eleven new schemes, and they also were referred to a committee to oppose.

LEIGHLIN CATHEDRAL, IRELAND.—The old cathedral of the diocese of Leighlin has shared in the improvements recently effected in many of the churches in the same county. The Hon. and Ven. Archbishop Stophord has commenced the work of restoration, and already the side aisle, heretofore in a state of comparative ruin, has been newly roofed and restored. One other part of this ancient building, however, still remains in a roofless and almost ruinous state, but a subscription is about being commenced to have this portion of the cathedral put in repair.

JUDGES' LODGINGS, LIVERPOOL.—As a recent meeting of the town council, a resolution of the finance committee to build the judges' lodgings on the Newsham estate, was carried by a majority of sixteen. The Newsham estate is at the east side of Liverpool, and is about to be converted by the corporation into a public park. The new judges' lodgings will thus form one of the villa residences on its margin. An unsuccessful endeavour was made to pass an amendment, with the view of having the lodgings erected in Upper Parliament-street.

A PALMERSTON MEMORIAL IN SOUTHAMPTON.—The inhabitants of Southampton, at a public meeting, have unanimously resolved, on the motion of Mr. Manockjee Cursetjee, to approve of the resolution of the council "for erecting a lasting memorial of the late Lord Palmerston in one of the public parks in Southampton, and pledges itself to give full effect to such resolution." The meeting appointed a committee to carry out the purpose of the resolution. The members of the town council have already promised 160l.

NEW ALMSHOUSES IN MAIDSTONE.—At an expense of nearly 12,000l., Mr. T. R. Cuthbush has just built and endowed a block of six almshouses, in Church-street, exactly opposite the church of Holy Trinity. The foundation is one above the class usually associated with the idea of almshouses, not so much as to the buildings themselves, which are, however, substantial, and furnished with every convenience, as to the endowment of their occupants. The sum to be paid to each holder of a house is 52l. a year, or 1l. a week. The objects of the bounty are to be "decayed tradesmen or journeyman mechanics, who have lived or carried on business, or been employed in Maidstone for twenty years." The founder has specially directed that the widow is to continue the occupation of the house after her husband's death. The management of the charity is vested in the hands of trustees.

GLoucester School of Art.—The annual exhibition of the works of the students of this school has been held in the rooms of Longsmith-street. The school has been founded six years, and has made such sure progress that it is now regarded as being superior to the average of art-schools throughout the kingdom. The works shown were not of a mere elementary character; there was a large number of capably executed paintings in water-colours, by pupils both of the Gloucester and Stroud Schools. The report of the committee stated that the school had gained in the local competition fourteen medals and two honourable mentions, and in the national competition two medallions and one honourable mention. There had been an average attendance of forty students in the night class throughout the year. The progress of the school was shown in the fact that in 1860 it was awarded two medals; in 1861, ten; in 1862, thirteen; in 1863, thirteen; in 1864, ten local medals and two national medallions; and this year, fourteen local medals and two national medallions. This was very creditable, when it was considered that there were ninety-three rival schools in the country, and that in all only 108 national medallions were awarded. Mr. Gambier Parry distributed the prizes, after delivering a practical discourse chiefly relating to the Gloucester and other local schools of the district.

TENDERS

For three pairs of semi-detached villas, Camberwell.
Mr. Nicholas Lake, architect:—
Wood & Mann £7,600 0 0
Wills 7,333 0 0
Thompson 6,850 0 0
Wilson 5,600 0 0
Sharp 5,100 0 0

For alterations to the F. & P. public-house, Castle-street, Southwark. Mr. Nicholas Lake, architect:—
Sharp £230 0 0
King 210 0 0
Wills 197 0 0
Harrison 165 0 0

For additions and warehouse, Old-street, for Mr. Haxley. Mr. R. J. Hannon, architect. Quantities supplied by Mr. Charles Bamfield:—
Brown & Sons £1,130 0 0
Turner & Sons 1,047 0 0
Bishop 1,020 0 0
Henshaw 1,008 0 0
Eaton & Chapman 984 0 0
Chesum 958 0 0

For building house and shop for Mr. Blackwell, at Harrow's Green, Leytonstone, Essex. Mr. John M. Ingham, architect:—
Ingham £645 0 0
Reed 635 0 0
Harris (accepted) 631 0 0

For rebuilding premises, No. 1, St. Paul's Churchyard, Messrs. Wimbly & Taylor, architects:—

	Allowance for old materials.	Extra value of Bath stone.
Hack £2,957 0 0	£350 0 0	£329 0 0
Adamson 2,900 0 0	50 0 0	383 0 0
Sandson & Co. 2,870 0 0	160 0 0	70 0 0
Marsland 2,675 0 0	40 0 0	375 0 0
Newman & Mann .. 2,635 0 0	23 0 0	273 0 0
Hart 2,612 0 0	50 0 0	294 0 0
Wills 2,578 0 0	70 0 0	297 0 0
Browne & Robinson .. 2,537 0 0	20 0 0	124 0 0
Colls & Son (accepted) .. 2,474 0 0	13 0 0	300 0 0

For parsonage at Rastcliffe, Huddersfield. Messrs. Blackman & Mitchell-Withers, architects.

For the whole:—
Rusforth £1,373 0 0
Pollard 1,228 0 0

Accepted:—
Fulford (mason) £625 0 0
Buchan (joiner) 260 0 0
Ellis (plasterer) 46 10 0
Gowden (slater) 59 10 0
Boothroyd (plumber) 84 10 0
Brighouse (painter) 47 0 0

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Erratum.—For Church at Matlock "Bath," in last number, read Matlock P. M.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

Advertisements cannot be received for the current week's issue later than FIVE o'clock, p.m., on Thursday.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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The Builder.

VOL. XXIII.—No. 1194.



The
National
Provincial Bank
of
England.

IN a recent number, we published a plan and a view of the banking-room of the new building, erected in the City of London, of the National Provincial Bank of England, and intimated our intention of giving descriptive particulars of the design and structure, with some illustrations of the exterior.*

We now carry into effect the intention. Our view shows the principal front;† of which the greater portion, or all excepting the entrance to the building, is in Bishopsgate-street. Within the principal entrance, which appears in the view, is in Threadneedle-street; and there is a second entrance from the same street, through the archway of the Oriental Bank, and into the new pathway that has been provided for an access from Old Broad-street to a side-entrance to the building. This latter entrance, besides giving one mode of access to the banking-room, leads to that part of the building which contains some of the chief offices of the upper floors, the managers' rooms, the principal residence, the board-room, and the directors' room.

The arrangement of the entrances was essential to the realization of the maximum business-value of the site, both as regards real accessibility, and the allowing the address to be properly in Threadneedle-street, as it is; and not the least important part of the merit of the architect's work in connexion with this building, is that part which is associated with the provision of the entrances. It has required, beyond skilful planning, considerable tact in negotiation; indeed, taking into account extraordinary difficulties of the site, comprised in the claims for light to numerous adjacent properties, the conflicting objects to be attained in this work have called for the exercise of ability of a kind that is almost the last to get reflected in public appreciation, and ability here that seems to have adequately responded to demands of a magnitude and a varied character unusual even in the city of London; as we may have said in previous notices of the design. Since it is seldom that we have so good a chance of showing to the general public, what are often the mechanical impediments to be surmounted in the production of good architecture, we take this opportunity of giving a summary of some of the conditions and circumstances which influenced and attended upon the preparation and accomplishment of the architect's design in the present case.

The plan that we have published (and which the reader would do well to place before him in following this notice,) shows that the building, as executed, occupies a piece of ground of about 220 ft. depth, and 90 ft. frontage, having con-

siderable irregularity at the sides, (or especially, one of them,) and a want of rectangularity of the longer lines with the line of the principal front, entailing difficulties in the decorative treatment of the banking-room,—which the plan indeed shows, but that can be appreciated only by the practical architect. From want of space, the engraved plan does not show the western access from Threadneedle-street, but shows only a portion of the pathway from Old Broad-street. Also, omitting indication of a portion of the line of frontage of the original premises, it does not serve to show what was the exact nature of an arrangement that was made by negotiation with the South Sea House, by which (something being given up to the street,) the main entrance in Threadneedle-street was obtained. And it could not show the positions of windows in adjoining properties, overlooking the site; and one of them at the trifling height, from the ground-line, of less than 16 ft. The sill of this window became the datum for the height of the building in that portion of the plan which comprises the banking-room. The roof-covering of this division of the structure, (just discoverable in our view,) starting from the level of sills on each side, and without interfering with the access of light, of course could not be sloped at a greater angle with the horizon than 45 degrees; and the architect's difficulty whilst submitting to this restriction, was to get sufficient internal height for the banking-room, as well as a proper depth for strength in the supporting members of an arrangement of domical-lights in the ceiling of a room having a breadth of about 47 ft. The case was not so bad, as regards the banking-room, on the west side as on the other; but as to the general building, the rights of adjoining properties, to be considered, were numerous and varied.

The ground occupied by the new building includes the sites of the well-known Flower-Pot tavern and booking-office, of a shop that adjoined in Bishopsgate-street, and of the premises up to the time occupied by the National Provincial Bank. The latter comprised a building of some importance, known as the Old Mansion House, at the back, a forecourt, and some low office-buildings next the street, with a central carriage-entrance way.

The adjoining owners, lessees, and others who had to be dealt with, were the Commissioners of the Sewers of the City of London, who claimed some kind of right over ground in the three or four feet depth recess of the old front of the bank-premises,—and with whom and the adjoining owners, the arrangement for rounding off the corner next Threadneedle-street had to be made; on the west side, the proprietors of the Baltic and South Sea House Chambers, and of the Baltic Sale-room; the Oriental Bank Corporation, and the City Club; on the north, the Marine Insurance Company; and on the west, the proprietors of the extensive pile of buildings, called Gresham House, and the owners and occupiers of other property, including the shop No. 109, Bishopsgate-street.

One object in rounding off the angle formed by Threadneedle-street and Bishopsgate-street, has been alluded to; and the carrying into effect of the measure has comprised what is an important public improvement at that crowded spot in the City. If the angle of the new building had been left like that of the Flower Pot, (that is a right-angle on the ground,) two objects would not have been, as now, attained; and had the angle been *splayed off*, the architectural character of the building would have been very inferior to what it is. We should mention that the necessity for arrangement with the City authorities, might have arisen under ordinary circumstances: since power is given to the City to require buildings to be set back, on compensation to the owners. Ultimately it was arranged, between the architect of

the new building, and the engineer to the Commissioners, that any right of the City to the recessed ground, which they had paved, should be waived; and that a certain amount in compensation, should be given by the City, for the little bit of ground next Threadneedle-street. Before completing this arrangement, it had been necessary to make one with the representatives of the South Sea House and Baltic Sale-room, the owners of half of the bit. These parties gave up their half, which had formed a very acute angle to their property next the Flower Pot; and they allowed the frontage of their entrance to be made in line with the main building of the South Sea House: they partly waived their right to restrict the height of the new building,—by which arrangement, the present elevation was obtained,—though a height running to five or six stories would still have been prevented; they gave up ground measuring some 9 ft. by 7 ft., which projected beyond the general line of division right into the portion of the site which is now occupied by the banking-room; whilst the Bank gave up ground next Threadneedle-street,—but with a stipulation that their cornice should project,—and ground next the low building of the Sale-room; and also gave a sum in money, part of which had come from the City. The Oriental Bank Corporation got a right of way to a piece of ground, of about 160 superficial feet: they had certain windows altered for them, from one wall which would have the new building immediately opposite, to the northern aspect where there would be good light; and they had built vaulting, which had to form the substructure of a portion of the way from Old Broad-street. The Oriental Bank leased the right of way from the public passage between Threadneedle-street and Old Broad-street, to the National Provincial Bank, and gave assent to various arrangements as to height of the rear-buildings of the latter bank; but which involved the requirement of setting them back. The datum of height of the banking-room on the west side, was given by the Baltic Sale-room; and the arrangements with the Oriental Bank allowed a side-light to be got to the end of the room. The City Club proprietors were understood to be allowed by lease with the Oriental Bank Corporation, to build on a portion of Fountain Court. The reservation, in this event, of light-and-air space for the National Provincial Bank, together with the arrangement of the way to the side-entrance, induced the adoption of the quadrant-corners with windows in them. The doubt about the future led to the further provision of ceiling-lights to the board-room and directors' room. The rights of the Marine Insurance Company, at the north, required that the buildings of the Bank for some five or six and thirty feet, should be only of one story in height above ground. Further than that distance, or where the old building had been, the new building is carried up four stories above ground; but, on the side facing the Oriental Bank, a portion of the top story may be said to be cut off, by sloping the roof down to a lower point,—this latter arrangement having still the object of not interfering with light to opposite premises. The small courts of Gresham House did not happen of themselves to restrict much the arrangements of the National Provincial Bank; but the really serious case of the "ancient lights" to premises nearer to Bishopsgate-street, has been already referred to. The whole matter of these restrictions relating to light, should be in a better legal state than it is. The negotiations connected with site occupied much time, in this case; and each one of them involved numerous interviews with the surveyors or legal advisers of the parties concerned.

The architect received his appointment in 1862. In February of that year he was first asked to advise respecting the site; and towards the latter part of the year, he took plans of the

* See pp. 834, 835, ante.

† See p. 909.

old buildings. These last were taken down in the summer of 1863: in the autumn of that year, the Flower Pot was taken down; and the excavators' work and the putting in of concrete, to a general depth of 3 ft., and an occasional one of 8 ft., were commenced. The drawings were at this time being prepared for a building of a different character to that now erected. Such were the difficulties as to the adjoining properties, that the first design was cancelled after tenders had been obtained; and a new design was made; which the firm that had sent in the lowest tender, ultimately carried into effect on the basis of a schedule of prices which had been sent in. The building now has its own entire walls, external, or on every side. The brickwork was commenced in February, 1864; so that, inclusive of the concrete, the building may be said to have occupied about two years in its erection.

The building provides, on the ground-floor, the banking-room; the principal entrance, circular vestibule, and waiting-rooms; the board-room; directors' room, for taking luncheon; two managers' rooms, not named on our plan; a safe or strong-room, a waiting-hall, and the principal staircase and side-entrance, besides various lifts, secondary stairs, and lavatories and conveniences. On the basement, the whole space below the banking-room is appropriated for storage of books. There is also a strong-room, similar to that above; and there are a clerks' luncheon-room, storerooms for stationery, apartments for one of the resident messengers; and extensive lavatories and conveniences, at each end of the building, for the clerks. On the basement is the only communication that there is, except that through the banking-room, between the front and back portions of the building. The upper portion of that part of the building which appears in our view, contains one of the residences, besides a large space, comprising a room 49 ft. by 15 ft., available on the probable event of extension of business. In the rear main-building, on the one-half story, which forms a mezzanine to the banking-room, are offices for the securities, and advance departments, and for the secretary, and a third strong-room. In the floor above, there is an office, 49 ft. by 20 ft., for annual meetings and future extensions; and there are offices for an inspector, and for the advance-ledger department, and a kitchen and scullery for the resident clerk, approached by a private stair. The top floor is set apart, entirely, for the resident clerk's dining, drawing, and bed rooms.

The banking-room measures about 118 ft. in the clear length, and about 50 ft. in breadth, including the recesses. The height to the soffit of the girders, is 27 ft.; and that to the highest part of the domical light, internally, is 38 ft. The circumstances of adjoining property have led to the decorative features which chiefly give the architectural character of the room. These include the projections from the side-walls, carrying the main-girders, the bracket-formed member rising from each of these piers to the soffit of the girder, and the very bold cove which springs from the cornice of the order. The line, at the angle of 45°, before referred to, ruled this last-named feature. Then, as to support for the girders: on one side of the building, the external part of the wall had to be kept down; and to get proper support, the thickness had to be projected internally. The brickwork of the piers had to be carried, straight up, to support the ends of the transverse or main-girders. These are of boxed plate-iron; and are 2 ft. 6 in. in depth, and have a span of about 41 ft. The main girders carry longitudinal plate-girders. On these latter, the bracketing of the cove rests. Each one of the three squares produced by this arrangement of the transverse and longitudinal girders, is formed into an octagon by diagonal bridging girders; and this octagon-framing (afterwards finished as a circle, in plaster) carries the cast-iron ribs of the domical light. These last are bolted at the top, to a ring which carries the pendant of the ventilating and artificial-lighting system.

In this last feature of the design, a skilful application of art is made, to well-conceived arrangements for the ventilating. A large tube or pipe carries the foul air above the roof; and in the centre of this is the ventilating-tube; so that the arrangement differing from what is now general, is chiefly in what belongs to decorative character and detail. There are sun-burners in connexion with the ceiling-lights in the board-room and directors' room; but whilst the glazing there has an elegant character, the

connexion between the glazing and the lighting-and-ventilating contrivances is not made in the same artistic manner as in the banking-room. An iron-framed and glass-covered curb-roof, hipped at the ends, is carried externally over the whole space comprised by the three domical lights,—doors being contrived in it, so that entrance may be obtained to the space between the external and internal glazing for the purpose of cleansing. The glazing of the domes, which is in coloured glass, is fixed in framework-bars of zinc; of which material also is the intricate pattern-work of the pendants, open for ventilation. This latter work was executed in Paris for Mr. Tyler, who had the contract for the whole of the zinc-work. The domes measure 29 ft. 6 in. in the clear diameter; and they rise 7 ft. 6 in.

The difficulties of construction to which we have adverted, that were imposed by the restrictions from adjoining properties, seem to have entailed almost the only defects,—and they are after all trifling,—that are to be noticed in the architecture of this really fine room. One of them is the slightly-unsymmetrical appearance of the intercolumns of the recess at the main entrance to the banking-room,—where the angle of the Baltic Sale-room has come in the way; nevertheless that part of the composition is effective. On the piers, the columns attached to their angles present themselves as half-columns, instead of three-quarter columns. Half-columns are not elegant. The pedestals to the columns are finished of mahogany and ebony, instead of marble, as intended when our first view was made. At the junction with the soffits of beams, the brackets from the columns, there was, when we were at the bank, a break in the continuity, instead of an easy sweep of the curve into the horizontal line. This has resulted entirely from the difficulty of getting a harmonious junction between the columns and girders, that would not be discordant with the curves of the arches at the ends of the room. No one would discover the origin of the defect (which perhaps will be corrected,) without it were explained to him. Our own appreciation of the difficulties that the architect has overcome, would have been less complete, had we not detected the one or two matters where he has been rather too heavily weighted. The shafts of the columns are of Ippelen, Devonshire, marble; and are in one block, 12 ft. in length: the bases are of Irish black marble. The space in front of the counter, for the public, and which forms a passage-way between the two entrances, is paved with Sialian marble, and Irish black, the former in squares with quadrants cut out of the angles, and the latter in fluting circles or dots. The whole of this marble work was executed by Mr. Field, as before stated. The circular vestibule of the entrance is paved with yellow Mansfield and Hopton Wood stone, and Bangor slate. The capitals, in the banking-room, are of Huddleston stone; which is cream-colored. The architect has, on consideration, substituted a plain space,—or block, as it appears, over a group of columns,—for the usual arrangement of frieze and architrave. The *loggia* of three arches, with their clustered columns, make each end of the room a most effective feature of the entire composition. Next the street, mirrors are placed at the opposite ends of that part of the room; and they produce capital effects, not only inside, but as the room is looked into through the windows, from the street. Much ornament is introduced in the plaster-work. The ordinary modelling was by Mr. Garland. Generally, the plastering is in Keene's cement. But, perhaps, the most important ornamental details of the room, are the architectural and sculptural decorations of the panels which there are between the columns. The figures and emblems on these, are intended to represent the growing riches of the land, and those found in the waters. At the sides of the room, the composition in each case is made up of a wreath, festoon, or similar form, representing corn, flowers, oak-leaves, or other vegetable production, or shells and sea-weed, enclosing a circular space for the emblem, and having as supporters the figures of children in various attitudes. Thus, the plough, the hive, the spinning-wheel, and the ship appear in some cases; and the children hold the sickle, the hammer, the shuttle, the fishing-net, or other implement. The four panels at the north end of the room show the production of gold, and its coinage, with the business of banking: one long panel, with nine figures of children, illustrates the finding and washing of the

gold; another, with a dozen figures, shows smelting and operations connected with it; a third panel portrays Coining; and the last is Banking. There is considerable merit in these works; which are partly in high, and partly in low, relief; but the outlines have been in some cases injured in painting the grounds. The groups were modelled by Messrs. Bursill, and John Underwood. The bust of the late manager by Marochetti, and not a very superior work, is now to be placed on a bracket under the panel in the centre of the north end of the room. The walls and ceiling are decorated in polychromy. The whole of the fittings of the room seem to be perfect in contrivance; and, with those in other parts of the building, are in good taste.

Particulars of the exterior of the building, or the portion comprising the principal front, are given to great extent by our view, better than they could be in verbal description. All views, however, fail as to the effect produced by architectural details that have been studied as these have been.

As the work is executed, there is not a single ornamented moulding in the entablature; the main features are the dentils, and block-mouldings. This treatment seems to us not wholly accordant with the somewhat rich, studied, and certainly in parts very original, character of the details of the rest of the front; but the architect has throughout considered his work more than we have for the purposes of this notice. It has now, we believe, been decided to place upon the frieze in bronze letters of gilt, the words "National Provincial Bank of England." This may go to supply the want. The names of the branches are cut on the wide reveals of the entrance, and fill a part in the performance.

The front is about 53 ft. in height. The columns, attached, are 30 ft. 10 in. in height; and are placed on pedestals, and a surbase, which together rise 9 ft. 8 in. from the pavement where the ground is lowest. The shafts, cabled the entire height, are 25 ft. 8 in. in height: the capitals, of Composite character, but freshly designed, and each with a lion's head in the centre between the volutes, are 3 ft. 6 in. in height; and the bases are 1 ft. 8 in. The entablature is 7 ft. 8 in. The blocking course is 2 ft. 10 in. The figure, or group, in each case, is about 9 ft. 3 in. in height, with its pedestal, or 8 ft. without. The windows in the main front are 15 ft. 6 in. in height to the crown, and 6 ft. 9 in. in the clear width. Each is glazed with a single sheet of glass. The architectural carving was executed by Messrs. Colley.

Sculpture in groups, single figures, and panels, has contributed largely to the effect of the exterior. The groups are over the coupled-columns; and the single figures are over the single columns. Commencing from the farthest point on the rounded end of the building, we have Manchester, represented by a female figure,—and having as "supporters," seated, a negro with raw cotton, and a workman with a bale of goods: next we have England, represented by St. George, and supported by Britannia holding a wreath and shield, and by a female figure to represent Navigation: next comes St. David of Wales, with an old harper, and a miner with his pickaxe: the next is a single female figure, representing Birmingham, and having the hammer and anvil: then there is a figure with a tazza, emblematic of Newcastle and the pottery districts: next is Dover, with a mortar and shot; and lastly is a fourth group, which represents London, by a female figure with a mural crown, and holding a key,—this figure being supported by one of old Father Thames, and by a female figure, with fruits of the earth, to typify Abundance. Two of these groups ("England" and "Wales") we represent.

The six panels, following the same direction, are filled with subjects representing the Arts, Commerce, Science, Manufactures, Agriculture, and Navigation.

The whole of the subjects of the panels were modelled by Mr. John Hancock; and they were carved by various hands. Three of the groups at the top of the building, and one single figure, were modelled and carved by Messrs. Bursill and John Underwood; whilst one of the groups, and two figures, were modelled by Mr. Miller, and carved by Mr. James Underwood. The circular panel of the entrance-doorway is filled with the arms of England and Wales. The architect has acted judiciously in rounding off the angles of the podium at the entrance.

Taste is shown in the window-reveals and chimneys of the four-story portion of the building, and scarcely the less so that the treatment

is plain. The doorway of the side-entrance exhibits originality, as well as taste, in the treatment of its carved archivolt.

The ventilating arrangements, extending to all parts of the building, including the basement, have been carried into effect with the assistance of Mr. W. W. Phipson, the principle being stated to be the same as that adopted in recently-built hospitals on the Continent, and known as the *Système Van Hecke*. The blowing-apparatus is worked by a small steam-engine. In the board-room, and some other rooms, Boyd's stove-grates are used. The general gaslighting is by Messrs. Stodge. Mr. Jennings has supplied the fittings of lavatories. The general contractors were Messrs. Trollope & Sons, as already stated; and they made all payments for special work of whatever kind.

Mr. John Gibson, the architect of this building, has produced what, as we have said more than once before, is an important addition to the architecture of the City; and, besides the credit due to him for freshness of study, and the proper use of models, which have resulted in a good whole, and good details, there is something due to him for the attempt, the nature of which was explained by us some time ago, to prevent that rapid discoloration of stone-work which is so inimical to the effect of architecture in London.

THE DEVELOPMENT OF NORMAN ARCHITECTURE.*

STYLES are limited by their peculiarities, which may be relative defects as between style and style, but have a propriety and consistency as associated and amongst themselves. The exclusive affection for the round arch is a limitation that favours when it does not enforce several others; taken in conjunction with the strength of materials, it enforces in structures of large scale a comparative solidity and close spacing of piers and supports in order not to encounter risk from the great weight of the flat portion of a large semicircular arch. Hence the lighter effects, though not excluded from the style, are to be gained only in the smaller constructions.

Other limitations under which the style grew up were comparative simplicity, not to say rudeness,—certainly artificiality of mouldings, and then a general though not absolute and still less necessary exclusion from ornament, of vegetable forms in any degree approaching even to conventional types, much less to natural.

It is quite open to an artist to elaborate a round arched style of architecture without these limitations, but also within them; and to this latter, the historical form and exemplar, we confine ourselves.

The usual Norman ornaments were such as could be wrought with the axe, with small aid from the finer chisel. The variety of these is not a little remarkable; and the ingenuity and invention displayed deserve respect and often genuine admiration, both in variation of primary types and also in alertness of following out the hints produced by development in application. The chevron or zig-zag is, of course, one of the favourite types, plain or enriched with a series of lines, and flat surfaced or rolled. When such an ornament is disposed round a circular arch, half-diamonds will be left at the edge of the intrados, which are often completed by resumption of the chevron on the under-side and the remainder from one pattern becomes motive of another. Then the zig-zag is variously presented with points horizontal or vertical. This is but an example of the developments that might be followed out through each primary type of ornament.

We are much disposed to think that the predilection for the zig-zag ornament was dependent originally on associations of symbolism; to speak our own impression plainly, while admitting that we cannot claim assent from others, we feel no doubt that it was at first adopted and understood as typical of water, of the water of baptism especially, through which the world without was admitted into the church, and then of the holy water,—the horror of the powers of darkness and malignity. It was going too far back and too suddenly to refer immediately to the Egyptian designs of kings consecrated by purifying priests, from whose waves descends the stream of Nile water in a curve of conventional zig-zag; yet the step is thence but short

to the symbol of the water-bearer in the Zodiacal series which was familiar enough, and favourite too, with the masons and sculptors of the Norman doorways.

The general pavement of the Baptistery at Florence is a sort of mosaic of marble tiles set edgewise in various patterns, for the most part wavy or zig-zag in alternating and contrasting lines of white, black, and dullish red. When the central space was occupied by the original great font these watery patterns reached up to its very base or margin. In the Baptistery at Pisa we still see the fine polygonal font with round deep basins at the angles,—on the same model, no doubt, as that at Florence, which Dante is so careful to explain that it was by accident he broke, in saving a drowning child. The font itself is remarkable for its combination of angular mosaics, floral sculpture, and coloured slabs; the large central part is inlaid at the bottom, black upon white, in an elegant wavy pattern that recalls the Florentine floor, and confirms the meaning ascribed to its decoration.

Other illustrations from Medieval painting are available, but these may suffice.

The sequence of inventive modification displayed in a fuller series of well-arranged engravings than is yet obtainable, would furnish much instructive study. This sort of invention, it must be said, is not in itself and in its rudiments beyond the reach of barbarous nations. We are familiar with it displayed in carvings of canoes and paddles and war-clubs, in the bordering of shawls and patterns of carpets of very uncouth peoples. It ceases, however, to be barbarous, and attains the dignity of the barbaric, and even something more, when executed with a certain grandeur, and with such a feeling for contrast in proportion and in sequence as we meet in Norman arches, and especially in Norman doorways. There is still another stage of development,—the epoch of the last purification and refinement which the Norman never quite reached, and which is seen best exemplified in a comparison of Greek transmutations of commonplace Assyrian details, into the honey-suckle, the guilloche, the volute. The Gothic styles that succeeded the Norman treated its decorations to a considerable degree in the spirit of the Greek—witness the affiliation of the dog-tooth and ball-flower,—though they discarded altogether far more than they undertook to develop and refine.

Capitals, string-courses occasionally, and the faces and angles of recessed archivols were the usual recipients of these carvings, which seem to have been ordinarily executed after the stones were fixed. The same members, carved or uncarved, comprise the chief of the quasi-mouldings or modifications uniform in section of the mere plane surface.

The ordinary Norman style accepted here also, a very severe limitation, or only acquired by degrees the art of getting beyond it. The architects indicate but little appreciation of the essential function of the most characteristic of all mouldings, the projecting cornice or hood moulding, and still less of the specific contour of the drip moulding, the very eye of the entire organism. Hence there is often a default in making the upper members duly project in profile beyond the lower, or in giving to the upper the drip-undercutting; or when this feature is better provided for, the importance of it does not receive recognition in subordinate reappearances.

In the recessed doorways the uniform depth of the archivols is constantly relieved by variation of the carving, and then by some of the square edges being rounded off, and the roll completed by a sinking on either side; but the limit is soon reached here.

When both edges of a vault rib are rolled, a flat band is left, more or less wide, between them, according to their magnitude, which receives a limit, in one direction at least, by the projection of the rib. Then, in a narrow rib, the entire soffit may be formed into one large roll; and, by the application of such narrower ribs upon the flat bands of broader systems were built up, and so onwards. In the treatment of arches of several orders, which are in principle the same as these systems of ribs, many experiments were tried to give effect and variety; and in such instances, as in the nave at Hereford, we can observe how the Norman shifted the successive order of roll and zig-zag until he recognised principles of grouping which his successors the early English builders had to learn over again for themselves. In the most western pier arches the innermost archivolt

edges are roll-moulded, and the two superior zig-zagged. A little further on, the architect has discovered that distinctness and effect are consulted by placing the roll-moulding exposed immediately; and that the change would expose his earlier error, was one of those considerations which in these days were allowed no weight at all. The principle of right articulation of ribs, capitals, and piers was one of those that were missed, and found and lost over and over again.

As regards the proportions of Norman buildings, they are, no doubt, often clumsy enough; but clumsiness is no inveterate essential of the style. Dignity on the one hand and grace on the other are not only within reach, but were from time to time successfully achieved.

These architects had at least made one of the greatest, and certainly the indispensable, discovery, about proportion, inasmuch as they fairly appreciated its importance, and had lively sense of many of its resources. The schools and generations that succeeded them were in sympathy with them on these as on other points, with the additional advantages of more skilled labour and wealthier patrons; but the key-note of the movement was already struck. The Norman builders and their patrons were already aghast for novelty,—for novel beauty to be sought in novel forms,—sought boldly, sought confidently, sought independently. The future,—their own present,—it is clear that they believed was great with discoveries equal at least to any that had gone before; and each successful architect had his work scrutinized by a successor with eagerness to appreciate,—to appropriate success, no doubt, but still more hopefully eager in search for hints that remained but hints,—for new difficulties growing out of new combinations, the might have been manfully struggled against, but still awaited their last solution.

Proportions of plans, elevations, sections, were as eagerly re-cast and re-combined as ornaments, distribution, constructive adjustments; and examples were given that builders in succeeding styles might have saved themselves much time and labour by taking wiser note of.

The men, like the style, had their limitations, no doubt; and these were sometimes in both cases essential to self-consistency. When the limitations of certain predominant types and undisturbed assumptions began to be broken through, it could not be too soon that a vehement change should follow, should press on, and new men come in with imaginations otherwise prepossessed. A great break was welcome, and it came no whit too soon albeit that after perusal of the remains and ruins of Norman architecture it seems to us that the style never had the chance of quite doing its best; and our minds are haunted by imaginations that hover between broken remembrances gradually dissipating, and germs of conceptions of a finer Norman cathedral than the world ever knew, that ever seem gathering and ever dispersing again round centres that shift and settle, that blend and disappear, as in the uneasy delusion of a fleeting dream.

The prevalence of this style in its various phases as rude and severe, enriched and refined, may be liberally included within the century and a half preceding the murder of Thomas à Becket in 1170, in mid-reign of our first Plantagenet or the great third Crusade in 1183. There was, as there always will be, a notable overlap of styles; but the annals and monuments of Canterbury evince the vigour of the contrasted fashion that was pressing to the birth; and the progress of Lincoln Cathedral under St. Hugh before the last years of the twelfth century were out, declares how resolutely it went onward to its maturity. The rapidity and decisiveness of the break of taste is a mark of many things besides the development of architecture. No doubt, population had increased, skilled workmen were more skilful and more numerous, and wealth was more at command; but civil, which in truth in these days was military government, and ecclesiastical government were developing in themselves and in relation to each other; and so were speculation and dogma, theology and thought. The leading names and careers of the century mark a group of great men, all manifestations, that are as defined in comparison with those that succeeded as the architectural groups of round-arched structures, whether on the Rhine, in Burgundy, in Provence, Normandy, England, or Spain, that belong to their period are in contrast to those that illustrate the next. The masculine self-reliance and reliance on nature and nature's

* See p. 865, ante.

truth that belong to the age, speak in the lives and utterances of such men as Berengarius of Tours, Peter Abelard, and Arnold of Brescia; scarcely in a less degree in the conscientious speculations and candid controversy of a Lanfranc and an Anselm, boldly tentative, not doggedly conclusive, and frankly expectant of truth yet to be drawn out of the depths by persevering and resolute daring, that would deserve to be matched with any pearl that ever yet was won. From the Abbey of Cluny, on the other hand, of which the church (dedicated 1131) was one of the most important works of the age, came forth first Hildebrand—Gregory VII.—intent on increasing the power of the Church by subjugation of its unruly members, and especially by enforcement of grimly-accepted celibacy; and then Bernard, of Clairvaux, anticipating the centuries in his recognition of the danger to the Church from unlicensed thought, and his resolve, without regard had to thought in any way, to suppress it. Discipline and organization were marching on in the Church, while with parallel advance a military peer, like William the Conqueror, was building up the loosened ruins of the Saxon fabric into a stern and stalwart empire. The two systems rose together like the feudal castle and monastic foundation that symbolize their contrasts, and also scarcely less their cognate genius, and by the end of our period they were ready to come into collision. The murder of Becket is typical of the contest and its results. His blood stained the stones of the ancient cathedral, and the offerings that poured in to the shrine of the martyr raised the elaborated and glorified fabric of the new. This is but a single sign of the general fact that the Church now had founded its power, and felt its competence to guard and exercise it for good and ill. The result is seen in the great works of the next century, which gives us again a typical Pope in the domineering Innocent III.; again a characteristic development of thought in the monumental systems of the orthodox schoolmen, Albertus Magnus, Aquinas, Bonaventura, Scotus, and the equally yet scarcely more thoroughly harmonized architectural systems of the cathedrals included in the Early English style of our own country and that marvellous parallel array in France that crowd the annals of the thirteenth century.

THE FRENCH ARCHITECTS' GAZETTE.*

WE have before us the current numbers of a journal devoted to architecture and building, edited by the son of M. Viollet-le-Duc, in conjunction with M. A. Baudot, and published at Paris every fortnight. We are so accustomed to see leading places taken by our French neighbours in most matters relating to taste, that we are somewhat disappointed at the contents and style of this gazette, now in the third year of its existence. After turning over the pages, very little more remains upon the mind than an impression of the excellence of the paper, the width of the margins, and the large size of the displayed type. Indeed, these are the three features of the publication. The artistic and literary contents are of short measure. One number illustrates a school for young girls, in three plates, consisting of seven elevations, sections, and plans; recommends, in a second article, twenty lines long, the employment of the stone of Souppes; gives a letter from Florence; then devotes seven columns of the largest type to a list of the individuals who obtained prizes at L'Ecole des Beaux-Arts; notices the prospects of subterranean railways in Paris; and concludes with some remarks upon the proposed Exhibition of 1867. And this costs 25 francs per annum, or a franc for each number. Assuredly we manage some things better in England than they do in France. The extraordinary diffuseness with which the designs are reproduced is not to be accounted for on the ground of the originality displayed. The girls' school just mentioned is externally nothing more than a detached villa, toned down to a warehouse severity, without any chimney-stacks; and internally, the principal freedom of treatment consists in apportioning a large *salle* to two purposes; the one being religious exer-

cises, the other a playground in bad weather,—the altar being railed in with a *grille* for protection from the young ladies while romping on these occasions. Nor are the other numbers of more startling interest. No. 12 illustrates a manufactory at St. Denis, by M. Saulnier, on four sheets of plans, elevations, and details, introduced by a few preliminary remarks from M. Baudot. If these are addressed to professional readers, it would appear that our neighbours are a long way behind us, for there are few English architects who require to be told now-a-days that economy is not incompatible with taste, and that it is possible to give character and effect to the plainest materials. In the same number we have more about the proposed Exhibition, with a plan; another letter from Florence; a notice of a paper on the responsibilities of architects, by M. Le Bègue; a long list of the local committees in the section of the fine arts in the proposed Exhibition; and a *Revue de la Quinzaine*, or gossip of the fortnight, which consists principally of the names of persons who have won prizes or obtained honourable mention for art-work, each in a separate paragraph of large type. Looking more particularly at the notice of M. Le Bègue's *brochure* on the responsibilities of the profession, we perceive that the work in question deals with a hardship in a regulation of the Code Napoleon, and another of the Council of Civil Buildings, in which both the responsibility and charges of architects are regulated. The first says, that if a building given out at contract prices should fail, in whole or in part, by fault of the foundations, the architect is responsible during the time regulated by prescription; and the other sets forth that if an edifice constructed at contract prices fails, in whole or in part, by fault of construction, or by fault of site or foundation, the architect and contractors are responsible for ten years. M. Le Bègue points out that works by contract are thus placed on a level with work by measurement, and proceeds to consider the subject under eleven headings, in the course of one of which he shows that some French architects content themselves with 1½ per cent. on the cost of large works, whilst others enjoy 5 per cent. We do not gather exactly when it was that M. L. Mouton laid his plan for a subterranean railway before the Minister of Public Works; we perceive, however, that his project comprised a main artery running from the Boulevard Mazas to the Hippodrome of the Bois de Boulogne, having at its central point, situated between the Seine and the Palais Royal, five diverging rays communicating with the various lines of railway. The formation of a tunnel under the Seine will be, M. Mouton expects, but child's play to French engineers after the execution of the Thames Tunnel by Brunel. The cost, he believes, will not exceed, in round numbers, 80,000,000 francs. He then enters into a few mathematical and technical particulars to show his readers that the project of a subterranean railway is not an eccentric or adventurous proposition. Those in London, he adds, are very popular and much frequented, and yield such good profits that companies are being formed for the construction of others.

As a leading article for No. 13, we find an attack upon L'Ecole des Beaux-Arts, which is at least vigorous; like all the other papers, the name of the writer is attached to it, by which means much of the power of the charge is lost. M. Stanislas Ferrand remarks, that France has but one school,—that of Paris,—which has become the university of the arts. The school of architecture is more than a school, it is a national institution, which holds in its hands the destinies of art. A people is grand, he continues, in little paragraphs, each one sentence long, by its art as by its industry, by the genius of its artists as by that of its men of letters and legislators. The school has a large task to perform: has it accomplished this grand work?—No. Does it work towards its accomplishment?—No. Does it seek the means to be able to accomplish it?—No. It would be irrational to see a Greek temple at Memphis, or an Egyptian temple at Athens, and it is equally irrational to see in Paris houses and monuments gracing the features of those of Greece and Rome. Architecture has philosophical rules, as well as a high moral mission. She ought to be true and positive. A theatre ought not to resemble a barrack; nor a national library,—the sanctuary of intelligence,—be like a concert-hall. The fruits of the School of the Beaux-Arts are sad. They prove that the teaching of the school is bad, its organization is bad, and that

L'Ecole is bad. No. The school that holds in some measure the destiny of art has not yet understood the importance of its mission. She teaches neither the true science of architecture, nor its history or philosophy. Whilst we are French in spirit, in our manners, our laws, our politics, and our religion, we are Greeks and Romans in art. The laws of beauty are not immutable. Egyptian beauty is not Greek beauty, nor is Greek beauty Chinese beauty. Art is beautiful when it is superior to traditions, and equal to its time and country. Why do we not wear Greek vestments as well as use Greek art, for they are superior to ours in form? They do not conform so well with our manners and climate. It is the same with Greek architecture. Art follows the great march of humanity; it descends when humanity descends, and elevates itself when humanity does the same. It was not for nothing that Christianity upset the Druidism of the old Gauls and the polytheism of Greece; it was not for nothing that we have had wars and revolutions, empires and republics. In these convulsions France has been regenerated, and has come out of the past with another language, another literature, another art. L'Ecole, continues M. Ferrand, on pain of passing ignorant of history, cannot deny this generation of art. At what conclusion have we arrived, he inquires, and immediately answers for himself. We conclude that the results of L'Ecole des Beaux-Arts are bad. The school is bad; its studies are false and incomplete; its aim, instead of being the elevation of the arts, has been their degeneracy. We conclude that the classical dogma is not convenient to our wants, our ideas, our genius. There is a French art which ought to be the affirmation of our progress. It is for us, artists, savants, thinkers, to seize, to develop, to fructify and accomplish this grand work of our social destiny. We will not damp the ardour of M. Ferrand by suggesting that an entirely new phase of art, belonging exclusively to the present day, may be difficult to find, but will take it for granted that there is a French art of the nineteenth century only wanting to be properly presented at court, and then continue our glance through the white pages of the *Gazette*. The illustration of No. 13 is a seven-storied house in the Boulevard du Prince Eugène. It has two tiers of shops, and each story has seven windows in the principal façade. M. Beswillwald is the architect. Details of the windows of the *entre-sol*, the balconies, and the *porte-cochère* are given on a large scale, and show considerable versatility, but no new style. We then come to another letter from Italy, some further remarks upon the arguments of M. Le Bègue, and find ourselves face to face with all the subdivisions of the organization of the municipal service of public works, followed by similar details concerning the municipal water-works; long lists of the jurymen of certain sections of the Central Union of Beaux-Arts applied to industry, 1863; and a fragment of an article on the capacity of contracting parties, by M. Emile Jay, avocat, concluding with a letter addressed by the Préfet de l'Oise to the mayors of his department, relating to public works and the *honoraires* of architects. Monsieur le Préfet is good enough to point out to the mayors that, inasmuch as there is an unusual quantity of municipal work going on, it behoves them to exercise extra economy with the funds. He considers that the practice of paying architects a per centage upon the whole cost of the works, whether it be 3 per cent., as in the case of the architects of the *arrondissements*, or 5 per cent. in the case of *free* architects, had the effect of inducing them to run up the cost beyond that first decided upon; and he pointed out an antidote to this evil, in an order which set forth that no architect should receive any commission upon supplemental estimates, unless it could be shown that they arose from causes over which he had no control. The Préfet does not insinuate that honourable men are always preoccupied by a pecuniary feeling; but he asserts that it is difficult for them to resist the fascination of their art, or to refrain from developing the perfection of their work; and it is, moreover, always a grave inconvenience to place agents between their duty and their interest; so he prays that the mayors will see that the order may be strictly carried out, and that they will receive the assurance of his most distinguished consideration.

We will look at one more number of the *Gazette*. This contains further details, with a plan, of the first floor of M. Beswillwald's enormous mansion on the Boulevard du Prince Eugène; as well as two plans, an elevation, and two sections of a

* "Gazette des Architectes et du Bâtiment." Journal bi-mensuel, publié le 5 et le 20 de chaque mois, sous la direction de MM. E. Viollet-le-Duc Fils et A. de Baudot, Architectes. Bureaux, 13, Rue Bonaparte. A. Morel, éditeur. 1865. Nos. 10, 11, 12, 13.

chapelle funéraire, by M. Collard, architect, which is but a meagre little affair, such as cover family vaults or cemeteries, of no particular style. Over a semi-circular headed entrance-door starts a small column, just above the cap of which is spread out a scroll, and over that is piled a shield, with a crown beneath a semi-circular label terminating in two heads. From the gable rises a Medieval cross. This tiny chapel is lighted by a small narrow light on either side, with the addition of a cusped circular one at the end. The letter-press tells of more prizes. L'Ecole des Beaux-Arts offers a grand prize for the best design for a vast hotel for travellers, and enters into all the requirements of the programme; and M. Baudot proceeds to criticize, in a wholesome kind of mode, the drawings sent in by the competitors. He will not stay to examine each project in detail, for that would be to enter into repetition without end; in all the same defects exist. Difficult Monsieur de Baudot! M. David Sutter, peintre, contributes an article on aesthetics. Another letter from Florence tells us more about the well-known Florentine palaces; and we come to the review of a brochure on strikes, by M. Stanislas Ferrand.

Our author treats the subject with a vigour similar to that spent upon L'Ecole des Beaux-Arts. He inquires of workmen, in a series of short sharp questions, like rifle practice, whether they know a better way of developing activity, address, general aptitude, and intelligence of execution in a workman, than setting him to piece-work? Whether they know of a more equitable mode of remuneration than that founded upon quality and quantity of the work done? A radical, just, and equitable reform is easy to put in operation. M. Ferrand sees this in a methodical classification of the different kinds of stones used in Paris, with a price per size for each kind. By this means a grave cause of disorder in piecwork disappears,—the discretionary power of foremen. M. Ferrand denounces the foreman as a little despot, who has elevated himself above his comrades, and surrounds himself with them as the chief of a state, surrounds himself with courtiers. His favourites are enabled to earn as much as 300 francs per month, whilst others can manage to gain but 100 or 150 francs in the same time.

But with the classification M. Ferrand points out this power would fall to the ground, the liberty of labour would be complete, and the rights of every one respected. Nor would it be difficult to make. Ten delegates might be appointed by themselves to effect the classification and establish the tariff, which could then be presented to the masters, who, M. Ferrand is sure are clear-sighted, and comprehend their own interests too well to refuse to the workmen "une entente cordiale." This is followed by further particulars relating to the committee of admission of the *Exposition Universelle* of 1867, another "Review of the Fortnight," and a long complimentary account of a visit to the ateliers of MM. Baudouville & Bourbon, ornamentists. There are no legitimate advertisements in the *Gazette*, but we cannot shut our eyes to the fact that the last-mentioned account bears a remarkable likeness to those businesslike expedites. An artist has been visiting Toulon, and he addresses thence a letter to the writer, M. J. Berli, from which he extracts passages in praise of the ornamentation of the theatre there entrusted to Messrs. Baudouville & Bourbon, of Paris. This letter of the artist induces M. Berli to visit the ateliers in question, and he is equally penetrated with the sentiment, the artistic fitness, the elegance of conception manifested by the ornamentists named. The material used is cartonniers, and the objects produced are bas-reliefs, figures, statues, allegories, &c., all of which dispose to the profound taste prevailing over the establishment. Some ornamental sculptors content themselves with reproducing the chefs-d'œuvre of all time and all schools, and adapt them, with more or less skill, to all edifices, with, however, considerable sameness; but the Messrs. Baudouville & Bourbon employ their imagination with the happiest result, as the reader may view for himself either at the Hôtel de la Rue François I., or in the salons of the Jockey Club, two of their most recent works.

Before closing these notes on the French *Gazette of Architecture and Buildings*, we will quote a programme of the dates set apart for the completion of the different operations appertaining to the proposed Exhibition of 1867, as exemplifying French system:—

Before the 15th of August, 1865. Nomination of the committees of admission for the French section, and notification to the Foreign Commissioners of the space afforded for the products of their nations.

Before the 25th of August, 1865. Constitution of the committees of the departments; announcement to the French exhibitors, and notification of the space attributed in the French section, to each of the classes of products denominated on the system of classification (piece B).

Before the 31st of October, 1865. To send to the Imperial Commission the applications for admission (piece C), and the claims concerning the admission of French exhibitors.

Before the 31st of October, 1865. Completion and despatch to the Imperial Commission, by the Foreign Commissioners, of the plans of the stalls of their nations, to a scale of 0.002m. per mètre.

Before the 31st of December, 1865. Completion of details of plans of stalls to a scale of 0.020m. per mètre, for the French section, and notification to French exhibitors of their admission.

Before the 31st of January, 1866. Completion and despatch by the Foreign Commissioners detailed plans of the stalls of their nations, to a scale of 0.020m. per mètre, and the particulars destined for the official catalogue.

Before the 1st of December, 1866. Completion of the constructions of the palace and park.

Before the 1st of January, 1867. Notification to French artists of their admission.

Before the 15th of January, 1867. Completion of the special stalls of exhibitors in the palace and parks.

Before the 6th of March, 1867. Foreign goods are to be admitted at the ports and frontier towns.

From the 15th of January to the 10th of March, 1867, packages are to be received and unpacked in the enclosure of the Exhibition.

From the 11th to the 28th of March, the unpacked goods are to be arranged on the stalls for which they are destined.

On the 29th and 30th of March, there is to be a general clearing-up in all parts of the palace and park.

On the 31st of March, a revival of the whole of the Exhibition.

On the 1st of April, the opening of the Exhibition.

On the 31st of October, the closing of the Exhibition.

From the 1st to the 30th of November, 1867, the removal of the goods and stalls.

BRITISH ARCHÆOLOGICAL SOCIETY IN ROME.

THE British Archæological Society founded in the last spring at Rome would have resumed its proceedings earlier in the present season, had the foreign concourse, on which so many interests of this capital depend, begun to infuse new life at the ancient centre as early, or in the same numeric force, as usual. But such has not been the case; and the failure of that annual movement from other lands towards Rome, is this year the theme of general lament among her citizens, being attributable partly to the visitation of cholera in the south, partly perhaps to apprehensions of political disturbance. Notwithstanding discouragements, however, the British archæologists have not forgotten their engagements with their co-nationals here; and those members of the committee who are resident have taken steps towards the ordering of the Society's operations in the winter; two preliminary meetings having been held at the English Consulate, with assistance just sufficient to form a quorum, and on the last occasion with that of the Hon. H. Walpole, one of the Society's vice-presidents. At these meetings, on the 27th of November and 2nd of December, various questions were discussed as to what should be done or left undone; and it was advised that another programme should be drawn up somewhat fuller than the one first circulated, explanatory of aims and method, a draft of which new edition was presented and approved on the 2nd instant, one of the few additional clauses being designed to indicate the unpretending and suggestive, rather than didactic, character assumed by the Society, as not an exclusive assemblage of savans, but an organization for carrying on studies and assisting those interested in like studies at this centre of

art and antiquity. It was decided that, contrary to the original project, the exclusively national character should be preserved, none but British residents and visitors admitted; though, if such be the desideratum at any time, it might be allowed to invite the co-operation of Italian archæologists in supplying papers on suitable subjects, to be translated and read before the Society in English. A range of subjects to be treated during this or ensuing seasons was proposed: Mr. Severn, our consul, pledged himself for some notices of ancient fresco-painting; Mr. Shakspeare Wood, the Society's secretary, undertook to illustrate antique sculpture at the Vatican Museum; and it was agreed to invite Father Mallooly, of the Irish Dominican convent, S. Clemente, to explain the very curious paintings in the subterranean church discovered there through his meritorious exertions, by way of entertainment and study for the inaugural meeting of the season, on which occasion the auditors will be invited to repair to that church, lighted up for the assemblage. The Society's reunions will occasionally befor the object of excursions to historic sites in the Roman vicinity, as well as to scenes of antiquity within this city's walls, to museums, or public galleries. Up to the present, the number of members is thirty-four; of associates, fifty-three; the former subscribing 3 scudi a year, the latter paying for monthly tickets at 1 scudo. Ladies are admitted in both classes. It was determined a second time to apply, through our consul, to the authorities, in order to secure the distinct sanction, without, of course, any demand for official recognition from the Pontifical Government. More than this we are sorry not to be, as yet, enabled to report respecting the labours or merits of the nascent British Archæological Society.

The opening of the exhibition illustrating the "Divina Commedia" in some forty to fifty large pictures, shown by artificial light—that "Galleria Danteasca" so ill-received in England—has been announced by the Chev. Gentiluoli, the originator of the luckless speculation, in a long advertisement of the trumpet-flourish style, comprising a letter to and answer from the celebrated Listz (now an abbe), in reference to the performance of his grand cantata, known as the "Sinfonia Danteasca," which the public are promised with execution by 100 musicians, instrumental and vocal, for inaugurating the new campaign of the Danteque Exhibition in Rome. We may ask whether the successes of one art, however brilliant, can be of the slightest aid towards securing those of another; and we put in our protest against the claim of this mediocre collection to represent at all worthily even the actual school of historic painting in Rome or elsewhere in Italy.

HERTFORDSHIRE TREASURES FOR THE KENSINGTON PORTRAIT EXHIBITION OF 1866.

THE truly noble translator of "Homer," the Earl of Derby, has promised by letter (to which we have already directed attention), to be aiding, abetting, and assisting in the formation of the National Portrait Exhibition, to be opened at the South Kensington Museum in the fast-approaching spring of 1866.

The treasures of Knowlesy, in Stanley and other illustrious portraits, are to leave Lancashire on loan for the temporary Museum in Middlesex. Lord Derby's influence (and it is great) is freely tendered, and will turn to good account. Knowlesy Hall and No. 36, St. James's-square, London, will be stripped, if needed, for the requirements and demands of the Exhibition,—nay, more, Oxford will be induced by its Chancellor to lend liberally from her Bodleian Gallery, her colleges, and her halls. Few, if any, will be found to say "No" to a request made for a public purpose by a nobleman so deservedly esteemed as is Edward Geoffrey Smith Stanley, Baron Stanley of Bickerstaffe, and Earl of Derby.

First of all let us name what the Lord-Lieutenant of Hertfordshire is to be asked for. Lord Derby must induce, persuade, or talk over the Earl of Verulam to let him have on loan the only genuine picture in existence of the great Lord Chancellor Bacon. It is a three-quarter piece, and by, it is said, Vansomer, though some judges differ; and some persons "doubts" are of greater value than other people's "certainties." The viper-like eyes of Bacon are con-

spicuously characteristic in the portrait to be asked for. Then, failing Wilton or The Grove, we would like to take (*convey*, the wise it call) to Kensington for the season of 1866 the famous son of "Sidney's sister," William Herbert, Earl of Pembroke, the elder and abler of the two noble brothers to whom the first edition of Shakespeare's Plays is dedicated by the Players. His lordship might be talked over, or teased into lending the full-length of Sir Nicholas Bacon—painter, sculptor, &c.—by himself. He was half-brother to the Chancellor, and possibly or probably the sculptor of the celebrated *sic sedebat* statue that marks and protects the grave of Bacon. Getting this, we would be emboldened into asking for other temporary loans: we should coax to be allowed to carry to Kensington (using Mr. Samuel Redgrave's most persuasive manner of speaking), the unique full-length of Frances Howard (of Overbury fame), Countess of Essex and Countess of Somerset. Then we would solicit to obtain for a London-season loan (gaining or failing our request), the fine Vanduyck full-length of Lord Treasurer Portland (it is better, we agree with Waagen,* than the Gorbamby picture); and the finest portrait we have, and his lordship has the luck to possess, of Catherine of Braganza, Queen of Charles II., as St. Catherine. Courage renewed, we would hint a wish to have, to be taken every care of, the Lodge-engraved portrait of Henesage Finch, Earl of Nottingham and Lord High Chancellor,—the most illustrious of all the "black, funeral Finches;" modestly concluding our "askings" with a request for the loan of Will. Chiffinch of the Bedchamber to the King, known to every reader of "De Grammont," and of Sir Walter Scott's "Peveril of the Peak."

Well pleased with what we had done at Chancellor-shaded Gorbamby, we should drive to "The Grove," in time to catch Lord Clarendon at home; sadly missing the advantages we enjoyed on a former occasion of having the late Sir George Cornwall Lewis and the late Lady Theresa Lewis for our well-informed guides.

"Beggars must not be choosers," says the proverb; but, armed in a good cause, and backed by Lord Derby's all-influential name, we will ask boldly and largely. "Lord Chancellor Clarendon would have lent," we reason with ourselves as we hurry "Jehu-like" along, and "Secretary Lord Clarendon will lend."

His lordship is "at home," and,—

"Happy to catch him *not* at dinner-time,"—

will "see and receive." We have a baker's dozen of requests, and gain (in a dream), after a little hesitation, what we wish.

First of all, we ask with boldness for the large and magnificent picture of "The Derby Family," James Stanley, seventh Earl of Derby, his countess and child, to our thinking (and we have long studied Vanduyck) the finest Vanduyck in the world. It is little known, far less known of course than the Windsor and Petworth Vanduycks, and well merits to be better known. Imagine the flush of delight that reddens the face of the asker when the request is at once complied with. What would the Earl of Derby give for this noble picture?—but Lord Clarendon cannot, would not, part with it, though Knowsley is its proper home, not "The Grove."

With a becoming modesty we cannot gain confidence to ask for another Vanduyck or two from "The Grove," though sorely tempted. Our requests at Lord Clarendon's hands are therefore confined to the head of Fletcher the dramatist (Beaumont's associate); to the half-length of the far-famed Lucius Cary Viscount Falkland; to Sir John Mordaunt, the wit; and to the Peter Lely (to the knees) of the great Lord Chancellor Clarendon. These, indeed, would be and will be additions of moment to the coming exhibition of 1866.

From "The Grove" it is a pleasant walk to the adjoining estate or park of "Cassiobury," the Hertfordshire seat of the Earl of Essex. Here Mr. Samuel Redgrave must come and secure the very noble full-length by Vanduyck of Algernon Percy, Earl of Northumberland; the very curious portrait (head-size) of King Henry IV., once at Hampton Court, in Hertfordshire, and some half-dozen more prizes, with foremost among the number, Prior, and Pope, and Gay, and Horace Walpole's Kitty Hyde, Duchess of Queensbury, in blue, with a lamb, and deliciously charming, though Charles Jervas

was the painter. It was a picture that deservedly attracted attention in the British Portrait Gallery of the Art-Treasures Exhibition at Manchester, in 1857.

Of houses in Hertfordshire famous for pictures, Professor Waagen, the deservedly-esteemed director of the Berlin Gallery, has seen only two out of eight or nine. He describes Panshanger (Earl Cowper's) and "The Grove" (Lord Clarendon's); but his four large volumes are wanting in visits to Hatfield (the Marquis of Salisbury's), to Gorbamby (the Earl of Verulam's), to Cassiobury (the Earl of Essex's), to Bayfordbury (Mr. Baker's), to Ashridge (Lady Maria Alford's), and to Brocket, the Hertfordshire seat of Prime Minister Lord Melbourne and Prime Minister the late Lord Palmerston. Hatfield House is full of rare and valuable portraits of Queen Elizabeth and the Cecils of four peerages—Burlington, Salisbury, Exeter, and Wimbledon; while Bayfordbury, with its Kit-Kat Club portraits and its Dryden, with the laurel-wreath in his hand, by Kneller, is rich without a rival.

And having said thus much by way of Hertfordshire's wealth in English portraiture, I will conclude with a story.

In a wild belief that the coming Kensington Exhibition will contain, at least, one portrait of Field-Marshal the Duke of Wellington, I will here express a hope that the Sir Thomas Lawrence Waterloo portrait of "The Duke," painted (1825) for the Minister Sir Robert Peel, may be one of them. I derive my anecdote from my friend (for such he was pleased to look upon me) the late Right Hon. John Wilson Croker, whose sought-out and acknowledged assistant I was in his last edition of "Boswell's Life of Johnson," and with whom I wrought for years in the long-announced, and still looked-for, edition of the works of Pope.

Here is my memorandum:—
"April, 1853. West Molesey.—Mr. Croker told me that Sir Thomas Lawrence's noble full-length Peel portrait of the Duke of Wellington, so finely engraved by Consins, represented originally the Duke with his watch in his hand, as if waiting at Waterloo for Blücher to come up. 'I had no watch in my hand!' (exclaimed the Iron Duke somewhat angrily), 'it was something else with me than—time.' The watch was changed to a telescope. The picture is in Staffordshire, at Drayton Manor."

Another shire in another communication.

PETER CUNNINGHAM.

ARCHITECTURE IN LIVERPOOL.

It has been observed by thinking minds that architecture, of all the arts, is the one most intimately interwoven with our deepest and most cherished thoughts, habits, and feelings. While it is the oldest it is at the same time the most comprehensive, the grandest, and, in proper hands, should be the most plastic and impressive. Unlike painting and sculpture, it is not in its origin an imitative art; and when we are recommended to study nature, it is with the object not of copying her, for then, unless in the decorative portions, nought could be acquired that would in any way assist us. Through the whole range of the arts, whether it be painting, music, poetry, or architecture, there exist certain leading constructive principles analogous to those upon which the beauties of nature depend for their influence upon the human mind. It is to an instinctive perception and close study of these principles, only fully appreciated and felt by those practised in the arts, that all successful art-work owes its most elevating and refining influence—not that any code of rules can be laid down for our guidance; art is far too intangible for that, and anything in the form of canons of taste only defeat the object for which they are framed. The highest art is the product of a finely-organised creative mind, guided by an educated and refined taste,—a correct taste, more especially in architecture, in which we cannot apply to nature direct for instruction, is the result, if we may so express it, of a continual testing of the emotions; it is a tentative refining process, by which all the solid gold is extracted, and the dross and baser metal rejected. The mind must be continually on the alert, and so infinite is art that a whole lifetime may be, and is by great artists, profitably expended, not alone in creating but in assimilating, and rejecting, and holding fast to and embodying that which is good. The creative faculties are those that supply from the mind's store the materials and

fashion them into form; the directing taste may be likened unto the delicate touch by which all the harshnesses are detected and softened down. Nature is full of analogies, and so sensitive and certain do the operations of the mind become, that what at first, when the faculties are in a coarser and duller condition, may afford pleasure, with the more educated organisation—the result of combined observation, reasons and associations—will probably be found to be, if not utterly bad, still in the nature of a jarring discord.

To those who, perhaps, possessing some sympathy with art, have neglected to educate their taste, and are not fully alive to the advantages of refined culture, it may appear to be a foolish business to render the skin so thin, the optics so sensitive, that the usual surroundings are likely to create more of pain than pleasure. This is what may be called the *comfortable* doctrine. Let us remain as we are. Such a thing may not be in the highest art, it may not be of an elevating nature, it may be crude and ill digested; but it answers the great end of all things, it *pleases me*. But, my dear friend, though it pleases you, though it may be called handsome or pretty, it might, at no more expense, be made capable of fulfilling a far higher function. Let us illustrate it from your own business, and the common relations of life. Is there not such a thing as integrity, honour, honesty? Do you not pride yourself on your word being as good as your bond? Is not acting in a gentlemanly manner usually considered the thing? These are homely comparisons, but none the less to the point. Now try and abstract your mind, and look at the governing principle, and say if such a code of morality does not recognise something loftier than self-interest, and a human sympathy wider than personal pleasure? So it is with art. *Art is for all*; and one of its grandest characteristics is that, while affording pleasure in its production, its influence is not confined exclusively to the gratification of the possessor, but it sheds a beneficent lustre upon all within its compass, and by so much as it takes a man from the base and greedy objects of life, so much does it raise him above the level of the beasts of the field; and, in the rather hackneyed words of the poet, which have been brought into disrepute by the penny-a-liner, "a thing of beauty is a joy for ever." So far introductory.

It would be impossible to properly understand or appreciate the architecture of Liverpool without taking into consideration the influences which have moulded it into its present shape. The ideas of the preceding age strongly affect the character of the times we live in, and in architecture as much, if not more,—in Liverpool at all events,—is due to such a transmission of habits of thought. With examples constantly before their eyes, and living recipients of the ancient lore practising most extensively on all hands, it would be strange, indeed, if the town could rid itself entirely of the baneful effects of the architectural perpetrations of what is now called the *dark age of art*. The strong conservative tendencies of the town, combined with the indiscriminate employment of rapidly-increasing wealth, have placed it in its present unsatisfactory position; and if we can lead to the demand for a higher style of art, and an honest, fresher, purer character of decoration, and more tasteful distribution of ornament, our aim and object will have been attained.

With the exception of the Town-hall and Old Exchange, the public buildings of Liverpool, up to the period of St. George's Hall, owe their character to what many call the *genius* (?) of Mr. John Foster. As was pertinently observed by a witty native artist, art in Liverpool was, at that period, too much *fostered*. How Foster attained the reputation he did, is a thing we could never fathom, excepting it arose from the petting and cherishing of a rich corporation. It is was an age of town dues and other comfortable monopolies, liberally expended in sustaining other monopolies. It was said, we know not with what truth, that Rickman, the systematizer, classifier, and analyzer of Gothic architecture, in despair of obtaining work in the face of Foster the Magnificent, had to leave the town. So it is with all art-talent in Liverpool. We can retain few things but "hard hitters" "merchant princes," "damaged and shoddy men," "measurers" "valuers," and "builders,"—all very worthy and useful in their way; but, with the exception of a few of the "princes," of decidedly unartistic tendencies: a dulness of apprehension, optically considered, seems to pervade

* Waagen, ii, 458, ed. 1854.

the place. An atmosphere of mental morphia floats over everything; and so stupefied have we become by contemplating the grandeur of Foster, that since his date, having attained perfection, we have quietly gone to sleep over it. But rouse ye, rouse ye! The dormant life in the artistic winter of our existence will soon, we hope, give place to the genial warmth and all-pervading sunlight of a happier summer, when those who have been overcome will stretch their legs, yawn, rub their eyes, and give other well-known signs of a return to consciousness.

One of the great advantages possessed by Foster, in addition to his local influence, was the halo shed over him by his travels and studies along with Cockerell in Greece. But how differently each used his opportunity! In Cockerell's work there is a lasting pleasure in the perfection and refinement of the details; and though he fails somewhat, at times, in breadth of effect—though sometimes guilty of grave errors of taste—though in the carving he is specially ineffective—even an ordinary observer cannot help feeling impressed with the conviction that his work is that of an educated mind—that he is master of his subject, and that failure, if there be any, cannot have occurred from a slovenly slurring over, or artistic fading of the subject. Every moulding bears the stamp of careful study; while, on the contrary, Foster, it is well known, was of that indolent disposition which cannot abide the drudgery of work. If we examine either the Branch Bank of England, in Castle-street, or the Liverpool and London Chambers, by the Exchange, it will not require much penetration to discover that Cockerell had constantly before him the problem of adapting the antique form to the exigencies of modern wants, and that in the process he has discovered some decided originality of treatment. Though drawing his inspiration from the same source, Foster, whose mind was of another and less thoughtful stamp, shows a wonderfully leaden dullness and want of imagination. Doubtless some discount must be taken off our censure to the credit of the baneful influences that then overspread the whole country, and from which it would, perhaps, have been difficult for him to have entirely detached himself; but we cannot rest while his lineal descendants, mentally speaking, but lacking even his force of character, go about cracking up and flourishing him in the faces of the "youthful members of the profession." The versatility of humbug is truly wonderful, for while the last phrase conveys the idea of a lofty condensation—a stooping down of patronage—the praise of Foster is usually qualified by a few touching words of pity for the ignorant influences which must have affected him. Foster was a wonderful man, *considering*; but we live in a more enlightened age. He was very good, in *his way*; but us, his successors, he could not be expected to equal, for has not the cloud dissolved from our vision? and do we not *now* see things in their real light? This is the homely we are continually doomed to hear, and is very characteristic of the style of mind we have to put up with. Such remarks are clever, in their limited way; for, do you not see, two birds are killed with one stone—and while apparently praising others we are continually chanting hymns to our own glorification? A little freedom from affectation—a few words betraying a genuine sympathy with architecture *for itself*, would do more for the tasteful adornment of the town than the whole gigantic labours of the Architectural Society, and the bandying about of compliments which regularly accompany them. We may be considered harsh, but we feel strongly and deeply that in Liverpool such genuine sympathy is as rare as strawberries at Christmas.

LIVERPOOL.

REFRIGERATION OF BUILDINGS.

M. CHARLES TELLIER, inventor of the ammonia ice-producing machine, and the ammonia engine as a motive power, has proposed an apparatus for the refrigeration of public buildings or crowded saloons, theatres, &c. General Morin in a note communicated to the Academy of Sciences, proposed four methods towards cooling the air in the interior of buildings—first, the cooling of the air by means of pulverized water or spray; second, by the contact with refrigerated surfaces; third, by a supply of external air, cooled down as well as possible; fourth, by the constant watering of the roofs. The last plan seems to be the

favourite with the General. He moreover stated that by experiments made at the Conservatoire des Arts et Métiers, it requires 1 kilogram of ice to cool a cubic metre of air, an astonishing waste, when we consider the slight amount of refrigeration required for practical application.

M. Tellier's plan is based upon another principle, viz., that in a vacuum vapours are produced instantaneously and in direct proportion to their previous condensation. Thus, if the condensation be powerful, the vaporisation will be energetic also; and as the vaporisation cannot take place except under the strict condition of the absorption of calorific, if a machine be so disposed that the air to be cooled pass through it, the quantity of heat abstracted from the air will be proportional to the said vaporisation.

By applying ammonia, a variation of 10° centigrade only, between the temperature of vaporisation and condensation, will produce a difference of more than two atmospheres in the pressures corresponding to each temperature. In fact, the energy with which the heat is transported by these vapours may be compared to the force developed by the escape of steam into the open air from a steam boiler, under a pressure of three atmospheres.

The apparatus consists of a cylinder, completely closed, and filled with ammonia liquified under pressure. It is traversed by a series of tubes similar to those of a locomotive boiler, through which the air to be cooled is made to pass. The cylinder communicates by means of a pipe with a coil tube, or condenser, placed in a vessel of water maintained at 10° centigrade. The operation is as follows.—The air entering through the tubes parts with its calorific, which is absorbed by the ammonia in the cylinder. The ammoniacal gas formed passes into the coil tube, is there condensed, and returns, through another pipe, to the cylinder, either by a natural fall or flow, or by aid of a pump. The effect is very simple, and the loss of heat through radiation but little, if care be taken to surround the cylinder with a non-conducting substance, such as felt, flannel, &c.

NEW EYE AND EAR INFIRMARY,
BRADFORD, YORKSHIRE.

This building being one of the first ever erected in the county for the special treatment of diseases of the eye and ear, considerable care was necessary in its arrangements, so as to obtain the accommodation required in the most suitable manner, and to facilitate as much as possible the economical working of the institution. On the ground-plan is an entrance vestibule opening through glass screen doors into a spacious hall, 50 ft. by 20 ft. This entrance is for residents, visitors, and the medical officers, and is a central feature in the front.

On the left are placed the rooms devoted to outdoor or non-resident patients and the dispensary. The outdoor patients enter by a covered porch, on the west side of the building, into a waiting-room, 34 ft. by 20 ft., communicating with the consultation-room to the front, 27 ft. by 20 ft., and in connexion with which is the ophthalmoscopic-room, also lavatory, cloak-rooms, and every convenience. After consultation the patients pass into the dispensary waiting-room, and thence from the building by a separate doorway. This dispensing and consultation are thus conducted without confusion, and also without entering into that portion of the institution devoted to residents. On the left of the hall are placed, to the front, the convalescents' ward, 35 ft. by 20 ft.; and at the back the kitchen, scullery, &c., with a distinct entrance for the servants. Lifts are provided, for coals and food, from the basement and kitchen to the first-floor. The principal staircase opens out of the entrance-hall, leading to a landing on the first-floor, 30 ft. by 20 ft. The nurses' rooms are placed in the centre of this floor, and upon each side, and completely separated, are the male and female wards;—two large wards, 35 ft. long, and 20 ft. wide, to the front, and two smaller wards, 25 ft. long and 16 ft. wide, to the back. Bath and store rooms are also provided. At the back of the building is placed the operating-room, lighted from the north and with large top-light, surrounded with deafened walls and floors. Accommodation is given upon this floor for thirty resident patients. The rooms are lofty, and the windows arranged with hanging

shutters, so that the light can be regulated in any part of each room or altogether excluded.

Both on the second and first floor, the corridors, hall, and passages are heated with hot water, and the rooms by open fireplaces. On the basement are placed the coal-cellars, pantries, and larders; and there is also a large washhouse, vaulted in brick, and with a separate outside entrance.

The exterior is executed with cut wall-stones, and ashlar bands and dressings of light-coloured stone.

The hospital had its origin in a private clinical institution of Dr. E. Bronner, of this town. Subscriptions were obtained; the foundation-stone was laid on the 29th of March, 1864; and the hospital inaugurated on the 30th of June last, by the mayor of Bradford, Mr. Charles Lemon, with the gratifying announcement that the cost of land, building, and furnishing, amounting to about 6,000*l.*, was entirely covered by voluntary donations.

The building has been erected from the designs, and under the superintendence of Messrs. Lockwood & Mawson, architects.

THE ROAD TO THE THAMES
EMBANKMENT.

The road to the Thames Embankment proposed to be formed by the Board of Works over the site of Northumberland House would be a step towards realizing a scheme proposed in our pages some years ago for connecting the district on the other side of the river with the Strand and West-end generally by means of a very wide bridge from that point. We shall greatly regret the loss of Northumberland House as an interesting relic of Elizabethan London. The London of the past is fast disappearing. It cannot be helped; new wants must be supplied; fresh facilities to moving millions must be afforded, but we may nevertheless grieve, and moreover, should examine carefully whether or not equal improvements may not be effected without destruction. An extensive crescent is spoken of stretching from Hungerford to Waterloo Bridge. Adelphi-terrace would have to come down, and much property adjacent.

PROVINCIAL NEWS.

Leeds.—Four carved stone lions are to be placed on pedestals in front of the Town-hall, which at present has a naked and unfinished appearance. The corporation has granted a sum of 600*l.* for the purpose.—The new building for Messrs. Beckett's bank will form one of the architectural ornaments of Park-row, and will be furnished in the Gothic style; the work has been entrusted to Messrs. Marsh & Jones, late Kendell & Co., of this town.

Wakefield.—The foundation-stone of a very extensive glass-bottle manufactory has been laid here.

Bradford.—Some of the oldest parts of old Bradford are fast disappearing. Workmen have been demolishing the buildings which adjoined and covered the Old Foundry ground, and including the ancient residence of a notable inhabitant some thirty or forty years ago, "Parson Atkinson." The continuation of Market-street will intersect the site. Similar demolition has for some time been going on on one side of Westgate, on the Bee-Hive Inn estate, for the purpose of carrying a street thence into Thornton-road, and also in Well-street and at the bottom of Lower Cheapside. The re-arrangement of Bradford streets has long been needed.

Doncaster.—The town council have resolved "That a wing be built at the south end of the market, uniform with the one at north end; and that the proposed new corn-market building be erected in the centre." The resolution, in fact, is that the improvements should be in accordance with the original design of the markets; upon a plan Mr. Butterfield has already submitted to the council. It was also resolved,—"That the council invite competition for the best design for an extension of the markets; and that in addition to a corn exchange and a new wing of the market-house, such improvements shall comprise covered vegetable and fruit markets, and a public slaughter-house; also that a first prize of 100*l.* and a second of 50*l.* be offered for such plans as the council may select."

Rotherham.—It has been resolved to erect a people's hall for Rotherham, Masbro', and the district thereabout.

NATIONAL PROVINCIAL BANK OF ENGLAND.



Sculptured Groups surmounting the Front.

INDUSTRIAL EXHIBITIONS.

The South-Eastern.—This Exhibition, which was opened by Viscount Sydney, at the Dining-hall, Greenwich Hospital, has been highly successful, the official returns proving that in seven weeks upwards of 70,000 visitors have been admitted.

The Birmingham Exhibition.—The surplus of this Exhibition is now, to some extent, defined. The total sum received was 4,126l. 7s. 8d. The expenditure had been 3,055l. 9s. 3d., so that there was a balance on the right side of 1,070l. 18s. 5d. As 300l. had been voted to the hospitals, there remained a sum of 770l. 18s. 5d. to be disposed of. What was to be the destination of this money did not transpire.

The Glasgow Exhibition.—This Exhibition was, on Tuesday in last week, formally opened by the Duke of Argyll. The Exhibition has been got up under the auspices of the Central Working Men's Club. It is held in the Macintyre Buildings, Argyle-street. The interior may be described as a large hall, having three spacious galleries, one above the other, running round the walls. The Exhibition in its general features is similar to those that have lately been so frequent in England. The number of articles exhibited by working people is nearly 1,200, and there are upwards of 400 exhibitors belonging to the purely industrial classes of the Glasgow population. The address was postponed till the evening, that working men should hear it. The duke, in the course of his remarks, said:—"I am told that out of 500 total exhibitors, there are upwards of 400 who belong to the working classes. Now, I need hardly say that in some points of view it may be said that the whole Exhibition has come from the hands of working men. I could not help being struck by the large comparative development which is given in the Exhibition to two great branches of human inquiry. The first is natural science, and the second is those abstract sciences which are applied principally to mechanical invention. Those I think are undoubtedly more fully represented than any other things in the Exhibition, and I can understand how these two great departments of inquiry should have

had special attractions for the working men. As regards the natural sciences, I think it is impossible not to feel that in the hurry and bustle of our daily life it is an immense refreshment to have our minds brought face to face with the light of nature. In the main the face of nature is a face of happiness and of peace. And I conceive that Wordsworth has really touched in a single line upon the real secret of the power which is exerted over us by the natural sciences, when he has referred to nature as

'Abodes in which self-disturbance hath no part.'

But then, gentlemen, with regard to the other great department, which is so well—I might say so magnificently, as it is—exhibited, I mean the department of mechanical invention—that also is one of the greatest and most fruitful departments of natural inquiry. Why, the world is one great storehouse of mechanical invention. Our very bodies—these frames, of which it is said they are fearfully and wonderfully made—they are specimens of supreme mechanical invention. And I think that the study of mechanical invention has a great charm in this respect also, that it gives us an immense sense of power, and yet a sense of power which, in my opinion, can never tend to pride; but should always be, and very generally is, connected with true humility of mind; because we feel on the one hand the inexorable natural laws which we have to deal with—we feel, on the other hand, that by skill, by steady and by careful fitting of means to ends, we can make those very laws, apparently so involved and so inexorable, the subtle instruments of our own purposes and of our own intentions."

The Dublin Exhibition.—Although this exhibition of manufacturing industry was not explicitly called an Industrial Exhibition, it was so essentially; and we may here note that at a special meeting of the Royal Dublin Society held in Dublin, for the purpose of considering the report of council relative to the deficit for which the guarantors of the Exhibition were held responsible, the report, which set forth resolutions adopted at a meeting of the guarantors, in which they offered the society the sum of 1,000l., in addition to the buildings erected for

exhibition purposes in the Shelbourne-yard, in lieu of all claims against the guarantors, was adopted. The council recommended the "acceptance from the guarantors of a sum of not less than 1,000l., within three months, provided the balance remaining due be collected by them within the same period, and that the sale of the buildings in Shelbourne-yard, &c., be postponed until the result of said subscription be ascertained; but without prejudice, nevertheless, to the legal rights secured to the Royal Dublin Society by the guarantee deed."

THE MAIN DRAINAGE OF LONDON.

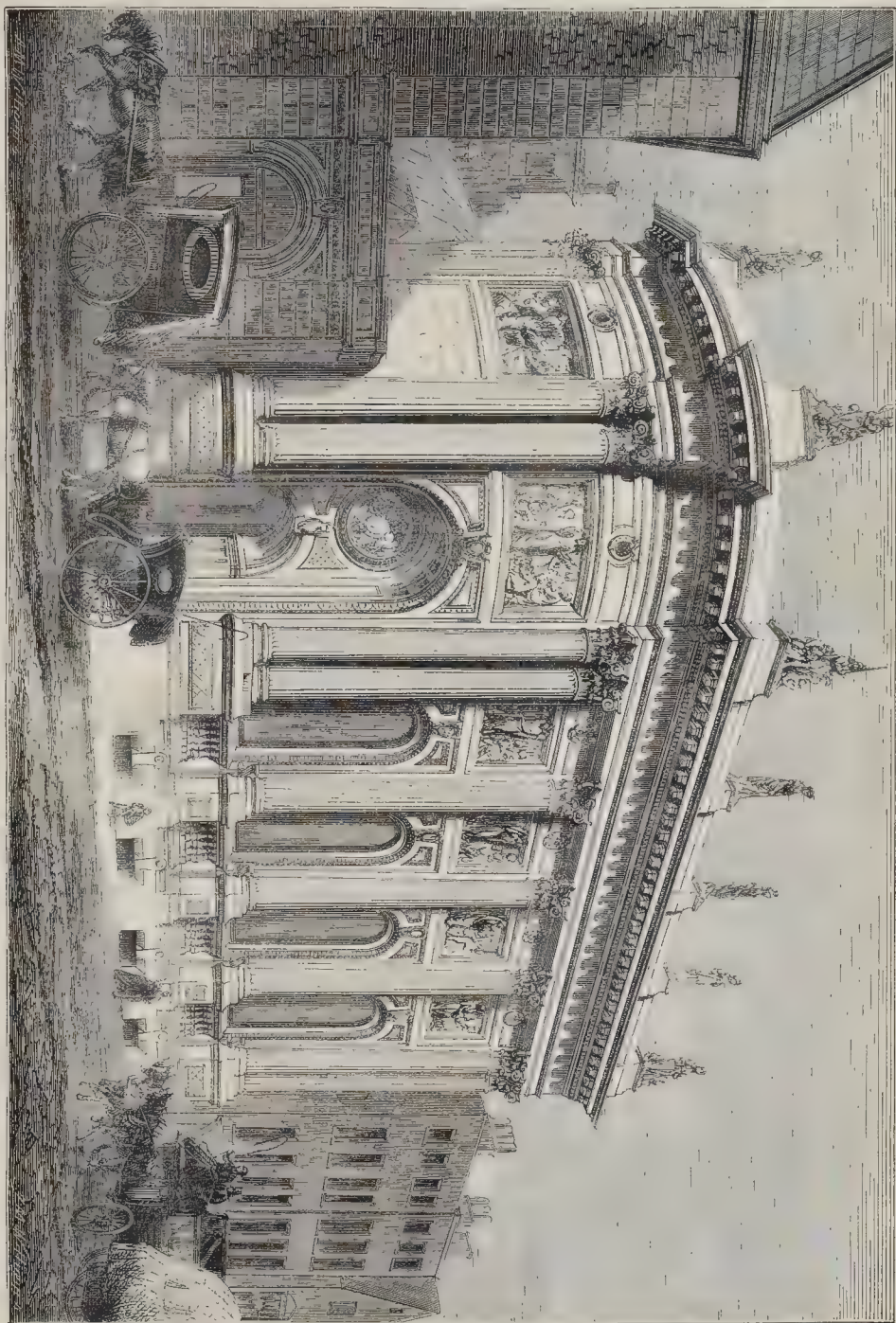
On Saturday in last week, the members of the Metropolitan Board of Works, headed by Sir John Thwaites, paid a visit to the Plaistow Marshes, for the purpose of laying the foundation stone of the Abbey Mills pumping station—a building which is to rival the works at Crossness, and in which will be the means of raising the sewage of the Low-level to the great High and Middle-level Sewers.

On arriving at the ground, the party immediately descended some 40 ft. below the surface, and 12 feet below the bed of the River Lea. The company passed through some of the completed sewer, which, in its length of five miles from the Tower, has to go under two branches of the Lea, and under the river itself. The subterranean passage, which is about 12 ft. high, was brilliantly lighted, and led to the site of the station.

Mr. Bazalgette, the engineer, read a statement, which was engrossed for insertion in the stone, showing that the sewer, of which this was the mouth, would drain 25½ square miles, and would have to raise about 5,000,000 cubic ft. of sewage a day, and that the engine power, about 1,140-horse, was provided for the raising of 15,000 cubic feet per minute, so that all storm rains could be safely carried off.

Mr. Freeman laid the stone, making an interesting address.

The works are being carried out by Mr. Webster as contractor, under Mr. Edmund Cooper, resident engineer.



NATIONAL PROVINCIAL BANK OF ENGLAND, THREADNEEDLE STREET, LONDON.—MR. JOHN GIBSON, ARCHITECT.

A HORIZONTAL SMOKE VOMITORIUM.

WE have received a communication from Dr. O. Edwards, of which we print sufficient to explain his views:—

"The ascent of the nascent gases arising from combustion may be impeded by two different causes. First, in a still and humid state of the atmosphere, chimneys are filled with a body of air very nearly saturated with vapour, and, consequently, so conditioned as to resist, instead of aiding, the first feeble pressure of the rising smoke or heated gases. This hindrance, however, is only temporary. It can only exist during a perfect atmospheric calm; and is easily overcome by the intrusion into the shaft of an ignited torch.

The most frequent and pertinacious impediment to the easy escape of smoke consists, secondly, in the disturbing effects of air currents upon the chimney funnels, which are generally terra-cotta pots, or contorted zinc tubes. It is a law in pneumatics, the necessary consequence of the universal force of gravitation, that large and strong currents of air overrule and attract to themselves all minor breezes. The impulse of wind is simply its local weight, but a degree of rarefaction is produced on the edge of every current, which causes an influx of the adjacent quiet air. A strong gust or heavy torrent of wind approaching an ordinary stack of chimneys, of course displaces the lighter atmosphere round about, and, descending into the flue, drives down the ascending smoke.

When undisturbed by such moving columns of air, the tranquil atmosphere permits the ascent of smoke or rarer air, which obeys the law of gravitation as implicitly as all floating bodies on the surface of water. It is by the lateral pressure of the colder air that the heated products of combustion are made to shoot upwards to the sky.

In order that the column of smoke should disengage itself freely from its channel of escape, the chimney, it is necessary to prevent the approach to, or rude contact of the wind with, the immediate vent of the flue; and this result is perfectly secured by the subdivision of the current into minute rills of air, which tranquilly commingles with the lighter reservoir of atmosphere retained in and around the chimney-pot or other funnel.

To prove that the safe issue of the smoke may be thus effected, I have constructed a simple apparatus, consisting of six moderator lamps placed in a row, and having their chimney-glasses terminating in an iron tube or oblong chamber, the calibre of which must be four times as large as the sum of that of all the lamp chimneys. The top of each glass projects to the height of a few lines into the interior of this receptacle, which I have named the "vomitorium." Each end of the vomitorium is obturated by a perforated door, of which the apertures are of such a diameter as will suffice to permit the free exit of the products of combustion and yet annihilate the disturbing atmospheric current. My little contrivance shows the practicability of this double effect.

The tube or "vomitorium" should be closed at each extremity by a kind of honey-comb door, which permits the smoke freely to escape through the upper apertures, and admits the outer air to enter in dribbles and course quietly along the floor of the tube. All jets and draughts being minutely subdivided in this way, no force disturbs the separation of the hot current from the cold, which currents move steadily in contrary directions, and are totally unaffected by any aerial movements outside of the vomitorium.

In the hands of the architect this vomitorium would take the form of an arched substitute for the prevalent stack of chimneys. This arcade would extend from the front to the back parapet of the building, and into it each flue should open, protected by a collar or rim a few inches in depth. Each end of the arcade or tunnel should be closed, upon the principle already explained; and as this perforated or partially shut aperture of the air sewer at each extremity would open on opposite aspects of the house, the air within would be always in motion, and the state of chimney arising, as described, from stagnant moist air, would be prevented.

A careful observation shows us that the aerial phenomena exhibited in my apparatus occur as follows:—The jet of smoke issuing into the vomitorium rises to its roof, and gradually flows outwards through the outlets provided; the external air enters through the inferior holes and moves inwards along the floor of the tube, thus

keeping up the atmospheric equilibrium; and the combustion of the fuel is maintained in perfect regularity. Two further disadvantages may be obviated by the adoption of this invention; it will be no longer necessary to raise low chimneys to the level of lofty ones, as the vomitorium is effective at all heights; and a portion of the great percentage of heat now lost might be saved by inserting vomitoria between the floors of houses instead of at the top, and thus warming by radiation some portions of the building.

The sure expulsion of the products of combustion is one important means of ventilation, but not the only one; it is equally important to find an *aditum* for fresh air as an *exitum* for impure vapours. It is necessary, however, that this supply of oxygen should be so introduced as not to lower the temperature of apartments too much."

We should expect a rapid accumulation of soot in such an arrangement, and a considerable liability to the passage of smoke from one flue down another. When we have seen it in operation we shall be better able to judge.

THE STRENGTH OF PORTLAND CEMENT.

At the Institution of Civil Engineers, December 12th, Mr. McClean, president, in the chair, the paper read was on "Experiments on the Strength of Cement, chiefly in reference to the Portland Cement used in the Southern Main Drainage Works," by Mr. John Grant.

This communication related to an extensive series of experiments, the results of which were recorded in voluminous tables forming an appendix to the paper, carried on during the last seven years, with a view to insure, as far as possible, that only cement and other materials of the best quality should be employed in the Southern Main Drainage Works, of which the author had charge as resident engineer.

As a preliminary step, samples of Portland cement were obtained from all the principal manufacturers for the purpose of experiment. The average weight of these samples was found to be 108·6 lb. per bushel, and they sustained breaking or tensile strains, at the end of a month varying from 75 lb. to 719 lb. upon 2½ square inches. A clause was then inserted in the specifications to the effect that the Portland cement to be used in the works should be of the very best quality and ground extremely fine, weighing not less than 110 lb. to the stricken bushel, and capable of resisting a breaking weight of 400 lb. upon an area 1½ inch square, equal to 24 square inches, seven days after being made, and after being immersed in water for the whole of that time. The standard was subsequently raised to 500 lb. on the same sectional area, which was that used throughout the experiments. During the last six years 70,000 tons of Portland cement had been used in these works, which extended over a length of 18 miles and had cost 1,250,000l. This quantity of cement had been submitted to about 15,000 tests, at a cost of only 1½d. per ton. The machine devised for showing the tensile strain was a lever balance, constructed by Mr. P. Adie, and its first cost was from 40l. to 50l. It was so simple that an ordinary workman could be trusted to test the cement, and the cost for labour did not exceed 80l. per annum for each machine.

The manufacture of Portland cement required extreme care in the admixture of its two simple and well-known ingredients, clay and chalk; it being necessary to vary the proportions according to the quality of the chalk; thus, in white chalk districts, the clay formed from 25 to 30 per cent., and in grey chalk districts from 16 to 20 per cent. of the whole bulk. The manufacture was carried on almost exclusively on the banks of the Rivers Thames and Medway; the clay, which should be as free from sand as possible, being obtained from the creeks and bays between Sheerness and Chatham. Long experience now enabled the clerks of the works and others to detect the qualities of the cements by colour and by weight. Very strong Portland cement was heavy, of a blue grey colour, and set slowly; in fact, the longer it was in setting, the greater was its strength. Quick-setting cement had generally too large a proportion of clay in its composition, was brown in colour, and turned out weak, if not useless. In the first schedule of prices 2s. 3d. per bushel was inserted; but this was far above its present market value.

But the tests were not alone sufficient. It was essential that constant supervision should

be exercised to insure that only clean and sharp sand should be mixed with the cement; that the cement was only supplied with sufficient water to reduce it to a state of paste, which was best accomplished by means of a perforated nozzle at the end of a pipe or watering-can; that the bricks or stones were thoroughly saturated with water, so that in setting the cement might not be robbed by absorption of the moisture necessary for its perfect hardening; and that a current of water was prevented from passing over the cement, or through the joints, during the process of setting, as this would wash away the soluble silicates.

The results as a rule were the average of ten tests, the samples being immersed under water from the time of setting to the time of testing. The tables show that, during the last six years, 1,369,210 bushels of Portland cement had been submitted to 11,587 tests, and that the cement was found to be of the average weight of 114·5 lb. per bushel, and to possess an average tensile strength of 608·6 lb. upon 2½ square inches, being 5½ and 21 per cent. in excess of the two specified standards. It was also ascertained that, provided Portland cement be kept free from moisture, it did not, like Roman cement, lose its strength by being kept in casks or in sacks, but rather improved by age,—a great advantage in the case of cement which had to be exported. Experiments, conducted over periods varying from one week to twelve months, with Portland cement weighing 112 lb. to the imperial bushel, gauged neat and mixed with varying proportions of different kinds of sand, showed that neat cement was stronger than any admixture of it with sand; that mixed with an equal quantity of sand (as had been the case throughout the Southern Main Drainage Works), the cement might be said to be, at the end of a year, approximately three-fourths of the strength of neat cement; that, with two, three, four, and five parts of sand to one of cement, the strength was respectively one-half, one-third, one-fourth, and about one-sixth that of neat cement. Other experiments showed that, at the end of twelve months, neat cement kept under water in a quiescent state was about one-third stronger than that which was out of water, both indoors and exposed out of doors to the action of the weather; that blocks of brickwork, or concrete, made with Portland cement, if kept under water until required for use, would be much stronger than if allowed to remain dry; and that salt water was as good for mixing with Portland cement as fresh water. Bricks of neat Portland cement, after being made three, six, and nine months, withstood a crushing force of 65, 92, and 102 tons respectively, or equal to the best quality of Staffordshire blue bricks; and bricks of cement, mixed with four and five parts of sand, bore a pressure equal to the best picked stock bricks; while Portland stone of similar size bore on its bed a crushing weight of 47 tons, and against its bed somewhat less; and Bramley Fall stone sustained on its bed 93½ tons, and against its bed 54½ tons. Portland cement concrete made in the proportions of one of cement to six or eight of ballast, had been extensively used for the foundations of the river wall and the piers of the reservoirs at Crossness, as well as for the foundations generally both there and at Deptford, with the most perfect success. It was thought that it might be still more advantageously used as a substitute for brickwork or masonry, wherever skilled labour, stone, or bricks were scarce, and foundations had to be made with the least expenditure of time and money. Whenever concrete was used under water, care must be taken that the water was still, as a current, whether natural or caused by pumping, would carry away the cement and leave only clean ballast. Roman cement, though about two-thirds of the cost of Portland, was only about one-third its strength, and was, therefore, double the cost when measured by strength. It was, besides, very ill adapted for being mixed with sand.

In conclusion, the author, whilst recommending Portland cement as the best article of the kind that could be used by the engineer or architect, warned every one who was not prepared to take the trouble, or incur the trifling expense of testing, not to use it; as, if manufactured with improper proportions of its constituents, chalk and clay, or improperly burnt, it might do more mischief than the poorest lime. Further experiments were desirable, on the strength of adhesion between bricks and cement, under varying circumstances; on the limit to the increase of strength with age; on the rela-

tive strength of concrete made with various proportions of cement and ballast; and on the use of cement in very hot climates, where, probably, extra care would be required in preserving the cement from damp, and keeping it cool until the process of setting had been completed. On these and other important points, the author trusted that all who had the opportunity would record their observations, and present them to the Institution.

The general meeting was held on the 19th instant.

NEW METROPOLITAN TRAMWAYS.

A RENEWED endeavour will be made in Parliament to obtain powers to lay down improved tramways for omnibuses, also of a much-improved character. The top edge of the rail will be flush with the pavement, very narrow, and will present no obstruction to wheels; and those adapted to it can readily go off or on to it. The projected company will be bound to maintain a strip of the road 7 ft. in breadth for each line of rails, although no exclusive right to travel on these will be reserved. The company will be competitive with the General Omnibus Company; and no doubt this itself will constitute a strong recommendation to Londoners, who desire to supersede, by an English Company, the French association which at present overrides the citizens with their bad, draughty, omnibuses and their broken promises. If otherwise objectionable, tramways would promote the regulation of traffic, and obviate the necessity for demolishing some hundreds more houses by running railways through various parts of the metropolis.

A NOTE ON THE MANUFACTURE OF MARBLED PAPER.

ON one side of the area of Red Lion-yard, Clerkenwell, there are several workshops. One of these is occupied by Mr. F. Hitching, a manufacturer of marble, granite, and wainscot wall-papers. A look into it enables us to notice the process by which this kind of house and shop decoration is prepared. The premises in which this work is executed are of considerable extent, and present a very picturesque appearance. The space needed for drying the paper and for the various operations of staining prevents the overcrowding of the workpeople, who, for the most part, are youths, and very young boys.

On reaching one apartment there are to be noticed quantities of paper made of the usual width of wall-papers, and in pieces which are of the length of about 12 yards. In some instances the paper is tinted so as to form a ground-work for the grain of the material which is needed to be imitated. Near the entrance of the room there is a tank several feet in length, and of a width sufficient to admit a breadth of wall-paper. In this tank there is water to the depth of from 2 in. to 3 in., and at the bottom there is a heavy white deposit, which, even after the water has been disturbed, sinks rapidly back to the bottom. Close at hand are pots, which contain various colours, prepared with turpentine and oil, in which are brushes of a suitable form. When the surface of the water in the tank is still, the artist who superintends this department of the work, and who is now about producing imitations of marble, takes the various pigments, and, as though he were painting on a more solid surface, he marks the veining of the marble on the still surface of the water in various colours; and it is curious to see how the different forms and colours deposited,—which we should think, but for the gathering-up effect of the next process, form one of the faintest of all pictorial effects,—assume the exact appearance of marble, granite, or other of the very hardest of the earth's substances,—the artist working on water in somewhat the same way as if he were engaged on wood. As he goes on, the colours rise to the surface, and he soon completes a remarkably truthful and clever picture of a slab of the kind of marble mentioned. The light upon the water gives a bright and peculiar glaze, and the white deposit at the bottom of the tank adds to the effect. During the process the artist clears parts of the surface by a deposition of turpentine, acids, or other means which are magical in their effect, and give an air of verisimilitude and refinement to the picture.

The marble picture on the water cannot wait long, or it might lose its crispness and melt away. The paper, however, is prepared to gather up the marble pattern from the unstable surface, and by means of rollers and pulleys, the nature of which could not be well described without illustrations, tinted paper, of the length of the tank, is let gently into it, and is allowed to float for a short time on the surface of the water, whence it is raised by simple machinery, turned picture-side upwards, and laid on a flat slab; when the impression taken from the water is improved in various ways and toned, and blended together by means of tints applied by brushes. In due course the paper is varnished, dried, and flattened, and then we have a well-known material for wall covering, which is capable of being washed when it has become dirty.

In parts of the manufactory, wood and other surfaces are being imitated. The pieces of paper are laid on tables, and by a methodical process the men and boys apply the needful colours. For instance, a boy with a brush filled with a suitable tint makes certain marks; others follow; and, with considerable rapidity, the slips of paper begin to assume the appearance of the material to be imitated. Meanwhile a more skilled workman moves about, touching here and there, and giving emphasis where needed, darkening or lightening, and blending in the parts required. For the covers of school-boys' copy-books, and in other ways, the use of marbled papers, some of them of a very beautiful kind, was more in fashion a few years ago than it is at the present time.

ARE THERE ANY OLD ARCHITECTS, OR THEIR WORKS?

Will you kindly allow me to ask a very great personal favour, through the *Builder*,—where it must be seen by everybody in the least interested or concerned?—it is, that the *lumber* which at present exists, in the shape of empty record-cases and rotten flooring, may be carted away from the Westminster Chapter-house, so as to enable me or any other solitary who may feel interested to see, and study, and read the handwriting on the walls of that hitherto preserved ruin of a good thing. It will cost nothing, for anybody dealing in old wood will cart it away free of expense for firewood. Nothing can be done with the building itself till Parliament grants the money for the sponging out of the old writing; but biding that event, and between now and then, let us be privileged to see all that is left of it in its original unrestored, or rather unutilized, state. This will guide us to an understanding of what an *old* architect was, and did; and thus, perhaps, in time, to what a *modern* architect ought to be, but is not;—a most interesting question just now, for is not the world asked through its great speaking trumpet, "What is an architect?"

Let us all recollect, too, that this ruined remnant of the work of an artist-architect and architect of the works is now unhappily the *only*—I must repeat the word, the *only*—bit of stone MS. left in all London, as it was written without either sponging out or smudging over. The Abbey, of which it was once a part in the good old ignorant days, is fast disappearing, bit by bit, colour and all, and is getting bran new.

Pray, sir, help, and get us the privilege of a glance at the Chapter-house walls and hollow spaces for a few short days, and then good bye! Vanity of vanities!—all is vanity!

C. B. A.

PLAYGROUNDS.

SOME years ago you were good enough to insert a letter from me advocating the formation of playgrounds.

Since then, country local boards have taken up the question vigorously, and most moderate-sized towns have provided parks.

London, from its size, is an exceptional case. Parks have been established; but, from their distance, must be useless as playgrounds to the majority.

In my opinion, the local boards of each district should buy a piece of land, to be set apart for the public playground; and should look upon the necessity of this as being nearly as urgent as good drainage. London spreads at a nearly equal ratio annually. By a little foresight, land could be secured cheaply for this purpose in

spots over which buildings at this rate must come.

Take, for instance, Forest Hill, or Sydenham, or Croydon: all the land is being rapidly turned into streets; in a few years there will cease to be the country. Then the better class will go farther off, and the locality go down. Thus the householders or owners suffer, as well as the inhabitants; and the question is, Would it not pay in the long run for all to be made to join in providing open spaces where a mother could send her children to play out of harm's way, and all classes could play in the evening at cricket, quoits, &c.? I know it would; but I suppose it is the old story, "Everybody's business is nobody's."

Again, what objection can there be in turning the City churchyards into playgrounds? Also those parts of underground railways which must be covered over, yet cannot be built on?

The good influences arising from such a measure are too many to be compressed into a note like this, and will at once suggest themselves to your readers.

J. P. WATSON.

SCHOOLS OF ART.

The Stourbridge School.—The annual meeting of this school was held at the school, Lord Lyttelton, lord-lieutenant of the county, presiding. For two days prior to the meeting there was a public exhibition of works of students. A considerable quantity of engraved glass was shown. The Chairman, in opening the proceedings of the meeting, said, that having read the report of the council, and the report of the head-master to the council, he was glad to find that the prospects of the school were steadily improving. In a district like that, it was obvious that the arts of design and drawing must be of much greater importance than they were in many other districts. In the glass-works, the iron-works, and hardware-works of various kinds carried on in that neighbourhood, they were of more importance than perhaps they were in any other. There had been a steady increase in the attendance of the students, and in the distinctions attained in the school, ever since it was opened; and, relatively, this year was better than any previous year. The report stated that the number of students had, in every year since 1857, maintained a steady increase, rising from 80 to 143 in the past. The report then went on to state, that if forty students could be added to the number attending, the school would be in a position of freedom from all the disturbing financial influence of the last three years. There is a mortgage debt of £400, upon the building.

ARBITRATION IN THE BUILDING TRADE AT WOLVERHAMPTON.

THE first dispute in Wolverhampton since the new rules between the master builders and the carpenters were framed was amicably settled by arbitration. The builder who has the contract for erecting the new circus, a temporary timber building in Darlington-street, employed some of his men part of the day in the workshop and the other part upon the circus, which both parties agreed was an unprotected building. By rule 4, it is provided that "men working on unprotected buildings shall be paid one halfpenny per hour additional (to the 5d.) for six weeks before and six weeks after Christmas Day." By rule 5, "the shops and works shall be open from six o'clock in the morning till half-past five o'clock in the evening, for the first five working-days of the week, . . . allowing one hour and a half per day for meals; but from six weeks before till six weeks after Christmas Day, workmen on unprotected buildings shall work from seven o'clock in the morning till five o'clock in the evening on the first five working-days of the week . . . with one hour per day allowed for meals." The men were dissatisfied with the construction put upon these rules by their masters, and called for an arbitration under rule 1. The umpire, Mr. Rupert Kettle, appointed Monday last, at the Swan Hotel, at seven o'clock, for the arbitration meeting, and our reporter was admitted. The whole of the delegates from the masters and the men, under rule 1 (six of each), were present, and also the masters and two delegates appointed by the men from the establishment in which the dispute had arisen.

Both sides having stated their case, the umpire decided in favour of the men.

ARCHITECTS' CHARGES.

SIR,—Before noticing Mr. Tarbuck's remarkable discovery, will you allow me to correct one mis-statement in your issue of the 9th. He says, "I wrote four columns" contending that the architect should charge not according to the expenditure, and the trust implied by such expenditure, and "not according to the market value, which regulates other matters (even a 'Paradise Lost,' &c.)." Now, I certainly denied the former proposition,—the more you trust me the more I will charge; but what did I say about market value? Your readers can see, p. 759, "G. W." wrote the next week, p. 521, that in America he simply made every job a matter of special bargain, i. e. of market value; to which I replied, p. 523, that I saw "no great objection to his method, meaning (as the context will show), no objection *as far as it went*; but it was deficient, in not providing for artistic variation of details; accordingly, in giving him my method (for which he asked), I added, that every varying detail I simply made (as he made the whole job) a matter of market value. Well, then, who contends against market value, or who has accepted it—I, or Mr. Tarbuck?

Now for his notable discovery, that "area of flooring" is "another phrase conveying virtually the same meaning" as outlay. It seems to me, that should Mr. Tarbuck have a customer who sees the *Builder*, that customer may find some practical use in the discovery. Observe, that Mr. T. says "universally accepted rules govern all" and, as the public customer sees the *Builder*, that customer would have given Capt. Fowke in a given case, would be regular also for Mr. Tarbuck in that case. Now, we have been told, in Capt. Fowke's obituary, last week, of a delightful covering forty squares, and costing 100*l.* for which, therefore, by the law of the Medes and Persians, a F.R.I.B.A. should have received exactly 5*l.* Mr. Tarbuck, I suppose, will not deny that. But he also tells us it is a "sophism of equivocation" to suppose my rule really different from his. It conveys "virtually the same meaning,"—so that it cannot matter which is applied. Well, then, let the customer apply mine, and as the public customer sees the *Builder*, he would have been 2*s.* 6*d.* per square, let 2*s.* 6*d.* for each square of flooring in Mr. Tarbuck's building he paid him. For, as for more, as the custom of architects is, producible in court, so I presume will the plaintiff's own printed letter be producible, to show that according to himself, this rule "amounts to such," and has "virtually the same meaning." Does Mr. T. G. Barlow?

P.S. "Honestas" must be, indeed, a disinterested looker-on, to fancy he can separate the question of an architect's payment from that of "his position, whether he is the builder's partner or servant," or the building owner. What on earth does "Honestas" suppose can make or define which he is, but his basis of payment? If his fee is proportional to, and reckoned from, the builder's receipts, then he is the builder's partner, the servant of none else, and none else ought to pay him. It is this proportionality which constitutes partnership, and even in the eye of the law, I question if it matters a straw by whom the fee is paid. Does "Honestas" suppose a talismanic virtue or vice imparted to the coin by its last handler? If I took per-centage at all, I should always take it through the contractor, who pays it willingly, instead of direct from the building-owner, who, unless a fool, will always grudge it. But if you can get it, like engineers, from all sides, and all parties concerned, that is the fun. If public companies are to pay their architects, not in shares (and those made untransferable), but in hard money, and that a percentage on the outlay; and if they or any one let their architects choose their builders for them; and if poor animals without understanding, an apostle says, are "made to be taken and destroyed;" pray what will any one tell me such companies or owners are made for, but to be fleeced? Let "Honestas" consider whether they and their cash be not best apart, and whether whoever helps effect that separation be not a public benefactor. E. L. G.

STRENGTH OF TIMBER BEAMS.

PERMIT me to offer many thanks to Mr. Tarn for his attention to my inquiry; but I am not satisfied with his reply. Allow me to state my reasons?

Barlow, as I premise, puts a straightforward deduction apparently without a reservation. But Mr. Tarn says,—"From the very nature of the investigation, experiment is out of the question, for the formula is deduced on the hypothesis of the deflection being very small. If we get beyond very small deflexions, the formula ceases to be of any practical value, the object really being to ascertain what weight may be laid on a beam without producing any perceptible deflexion, which is the practical question."

Mr. Tarn thus assumes, first, that the deflection mentioned in Barlow's statement is very small; and, secondly, that the inquiry is after a *imperceptible* deflection. But is this Barlow's inquiry? Mr. Tarn also assumes that Fenwick has explained the matter by the formulas, in his reply. But how did that author arrive at them? By copying the altered edition of Barlow's work of 1851? Fenwick's formulae are "the same as" proportion, 1:16, as stated in that edition. But from whence derived are the figures 3 and 48 adopted in the formulae? Obtaining this information may probably decide which of the two authors is correct.

Fenwick, fortunately, puts a case in point:—"A bar of elm, 10 in. square, projects 10 ft. from a building in which it is firmly fixed; find the greatest amount of deflexion which it would

sustain by suspending a weight of $\frac{1}{2}$ of a ton from the extremity, the modulus of elasticity being taken at 700,000." From his formula, Fenwick gives the "answer, 1.65 in." Surely $\frac{1}{2}$ in. thus obtained in a length of 10 ft. is a sufficiently appreciable deflexion to be found by experiment.

My question is, in fact, this:—If in the above case the deflexion is 1.65, will the deflexion of a similar sized beam, double the length, supported at both ends, and carrying $\frac{1}{2}$ ton in the centre, be 1.65 or 825? Surely even $\frac{1}{2}$ of an inch in 20 ft. is an appreciable deflexion to be found by experiment. Has it been tried?

There are several points in connection with Mr. Tarn's reply, to which I should have been glad to advert, but they would have led me astray from the subject of inquiry.

A STUDENT.

A NOBLE FOUNDATION, AND POOR ALMSHOUSES.

SIR,—Her Grace the Duchess Dowager of Leeds is now instituting an asylum and place of education for 100 boys and 100 girls, at a total outlay, including buildings, doubtless much minor here to endowments, of 70,000*l.* "May her shadow never be lost" in this world, with hope beyond; and her memory

"Smell sweet, and blossom in the dust!"

About the "poorest almshouses in England" now are believed to be those ostensibly founded by the Russell family at Woburn, Beds; actually, however, "founded in exchange" for charity and town lands, partly given by a Sir Francis Stanhope, a native, early in the seventeenth century. The same rather singular plan of "charity by exchange" appears to exist at Tavistock. At Woburn, twelve poor folks had, about 100 years ago, per centage at the time, is, a week only each, which has never been increased, although the subject has not been unmentioned by the press, nor certainly absent from the thoughts of inhabitants or visitors. These distressed persons, some of whom have "seen better days," are so poor that sometimes, but for the charity of a neighbour, they have had to "dine" on three or four potatoes,—of course, washed down with water. They have no other privilege than the solitary shilling over the other poor; and, of course, the union is obliged to eke out their alms-money with some small allowance, actually to keep them alive.

In justice, however, to that county, it may be mentioned that there are honourable neighbouring contrasts at Dunstable, Aynhill, and Leighton. At the latter, eight almshouses, founded above 200 years ago by a commoner, Matthew Wilks, who also "augmented the poor vicarage," have now, from increased revenue, 8*s.* a week each, besides some fuel and clothing. Might not a powerful wealthy family, or some plying stranger, help some, at least, of "the poorest almshouses in England"?

OUCONON.

SOANE'S SARCOPHAGUS.*

The history of the discovery of this sarcophagus in 1815, by Belzoni, the traveller, is well known. The entrance to the splendid tomb, in the Valley of Kings' Tombs, at Thebes, which contained it, lay covered up under 18 ft. of rubbish in the very bed of a water-course. And yet that tomb appeared to have before been broken into and rifled. The tomb, with its corridors, halls, staircases, pits, cells, and other excavations, was cut entirely out of the limestone rock. The greater portion of it lay beyond a pit or well, 30 ft. deep, right in the way, and all had been closed up by masonry on the farther side of the pit. Nevertheless, some former intruder seemed to have broken through the masonry a hole less than a yard square, through which he had passed, after descending and ascending the walls of the pit by rope-ladders, the remains of which were found by Belzoni. The descent proceeded in different gradients, more or less steep, with staircases and pillared halls on the way, leading farther to a splendid double hall, with columns and a vaulted roof, under which stood the sarcophagus. The lid had been violently opened and broken to pieces, and no vestiges of a body were found in it. Out of the last hall six passages led to smaller rooms. In some of these wooden statues were found, and in one the mummy of an apsis, or sacred bull, and innumerable fetish-like small wooden and clay figures of mummy shape. The total length of the passages is 320 ft., and their perpendicular depth 180 ft. From the floor, beneath where the sarcophagus stood, descends another staircase, 300 ft. in length, but so blocked up with rubbish that it has never been explored to the end: so that here may be more mysteries which some day may be cleared up. The body of the king itself may here be found, after all, since no vestige of mummy-case or body existed in the

sarcophagus; and the original riflers of the tomb may have only explored it for valuables of another description. It would even be in accordance with the cunningly-devised schemes of the ancient Egyptians, to secure the eternal repose of their mummied kings, if the whole idea of an already rifled tomb, an empty sarcophagus, and a rubbish-choked final excavation, were an ancient "sell," to secure the extreme end of the tomb from exploration.

The sarcophagus is of translucent alabaster. It was formed of two parts,—the kist and its lid. The material was probably dug out of the quarries at Alabastron, a town on the east side of the Nile. The lid was found broken into numerous pieces, of which there are seventeen in the museum. It was a hollowed block itself, and added 15 in. to the chest when laid on it. The form of the whole is shaped slightly to the form of a human body, or rather of a mummy, case for holding the body; and it is thought that the two solid blocks were first laid one upon the other, and out outside to the required form, and afterwards hollowed within. The whole, inside and out, is sculptured with the well-known hieroglyphics and symbols of Egypt, the principal of these being the form of the king on the outside of the cover, and that of the Queen of Heaven, or Neith, on the floor of the interior of the kist itself.

"A small round cavity near the back of the head of the goddess Neith, at the bottom of the chest, betrays the manner in which the mason worked. It is about the sixteenth of an inch deep and seven-eighths of an inch in diameter. It was made by a drill, but made unfortunately rather deeper than it should have been. The mason, having cut the outside of the block to its proper size and shape, would seem to have drilled a number of holes downwards, into the body of the stone, to a given depth, and thus he may have lessened the risk of splitting the alabaster with his chisel. Had he attempted to hollow out the sarcophagus with no other tool than chisel and mallet, the danger of splitting the stone would have been very great. The foot or end of the chest is perfectly flat, having been cut by a saw; and at the lower part of the end there are the traces of the fracture, the rough portions left when the other piece of stone broke away, called by the masons 'the saw-break,'"

The stone is so far brittle that it must have required no little skill for the makers to place the heavy lid upon the chest without injury to the edges. To guard against such an accident they would seem to have shielded the edges of both chest and lid with a thin plate of copper.

In the volume under notice, Mr. Bonomi gives, with his careful pencil, a most minute idea of this far-famed sarcophagus. The plates, eighteen in number, present a complete fac-simile of the profusion of sculptures on it, outside and in; and there is a formal letter-press description of every plate according to the views of Mr. Samuel Sharpe, who has certainly shed some special light of his own upon the mysterious subject of Egyptian sculptures; but into this we cannot here enter, although much might be said both *pro* and *con*. in reference to these views.

SCHOOL-BUILDING NEWS.

Shetleston.—On the evening of the 24th ult., a *soirée* was held, on the occasion of the opening of the new subscription schools here, at which nearly 250 persons were present. The chair was occupied by Colonel Garrick Buchanan, of Drumpellier. Due praise was awarded to the architects, Messrs. G. P. Kennedy & Dalglish, Glasgow, for the work. The Rev. Mr. Johnston and other gentlemen afterwards addressed the meeting.

Huddersfield.—The Lindley National Schools, near Huddersfield, with detached schoolmaster's house, built of the native stone, with outside, are now completed. The schools contain a boys' room, 63 ft. by 20 ft.; girls' room, 65 ft. by 20 ft.; infants' room, 23 ft. by 20 ft.; and classroom, 18 ft. by 17 ft.; all 16 ft. high to the ceiling; with all necessary appearances. The house has the usual accommodation. The design is Geometrical, and one of the gables has a pierced bell-turret, with buttress. The cost of the buildings, including boundary walls, heating apparatus, &c., was 1,360*l.* Mr. James N. Crofts, of Liverpool, was the architect.

Heighington (Lincolnshire).—About two years ago, the school and chapel building being very much out of repair and insufficient to accommodate the increased number of scholars, the trustees determined to add a new school and classroom to the old building, and to re-fit the latter and appropriate it exclusively as a place for divine worship. The whole of this programme has now been completely carried out. Sufficient

* This is not exactly correct: no per-centage is fixed by the published scale for buildings costing that amount.

* "The Alabaster Sarcophagus of Oimeneptah I., King of Egypt. Now in Sir John Soane's Museum, Lincoln's-inn-fields. Drawn by Joseph Bonomi, and described by Samuel Sharpe. London: Longmans & Co."

school-room has been provided, and the old part—of which the most prominent features externally consisted of a pantile roof and pointed wood arches, and internally of two or three square pews, a crowded assortment of backed school forms and desks, a pair of globes on the altar-table, an ugly loft, and a brick floor—has been transformed into a church. The old tower, which shows signs of having been erected in the twelfth century, has been dignified by a parapet, and the tower arch repaired and opened out. The whole of the new work is of the Geometric period of Gothic architecture, and has been done under the superintendence of Mr. Drury, architect; the school part by Mr. Barker, of Lincoln; and the chapel part by Mr. Lovelee, of Bransdon. Mr. C. Seely will give a stained-glass window at the east end in memory of his mother.

WEEKLY TENANTS AND RAILWAY COMPANIES.

THE RAILWAY EVICTIONS IN SOMERS TOWN.

JUDGMENT affecting the weekly tenants removed by the Midland Railway Extension from Somers Town was given in the Bloomsbury County Court, December 15.

Mr. Merriman (of the firm of Merriman & Buckland, No. 33, Poultry) appeared for numerous poor people, the plaintiffs in equity and the defendants in ejectment; Mr. T. C. Jarvis (instructed by Messrs. Walters & Gush, of Basinghall-street) represented the defendants in equity and the plaintiffs in ejectment.

The case had been before the Court three times, and involved many intricate points of equity and law which may be thus summarised.—It was admitted on both sides that the law gives no compensation to weekly tenants, but Mr. Merriman contended an equitable interest had been created by the transactions between the landlords (Mills and Perry), and the Midland Railway Company. These persons (plaintiffs in ejectment), contracted with the company to sell their large property in St. Pancras for 19,500*l.*, but subsequently, by a letter produced, offered to clear the people out for a further sum of 200*l.* This latter offer the company accepted for reasons given in the evidence of Mr. Beale, their solicitor, who stated "that if he had not so arranged with the plaintiffs in ejectment he would have given their tenants small sums by way of gratuity." Upon this evidence Mr. Merriman, who quoted a number of authorities, contended that an implied or constructive trust in the 200*l.* had been created in favour of the persons whom it was sought to turn out of their homes and shops, for which many of them had paid premiums and expended money in fixtures and improvements. He therefore prayed an injunction under the "New Equitable Jurisdiction" of the Court to restrain its own legal process until the hearing of his suit in equity, on the 16th of January next. On behalf of the plaintiffs in ejectment, Mr. Jarvis contended that the 200*l.* was a payment for the services of his clients to the company, and that the tenants had no right or title to any part of the money.

The Judge, Mr. Russell, having taken time to consider the matter, gave judgment on Wednesday last on the equities of the case. He said he must dismiss the motion for an injunction, but at the same time he felt the hardship of the tenants' case, and expressed his regret at the decision he was compelled to arrive at.

CHURCH-BUILDING NEWS.

Arduwick.—The parish church of St. Thomas, Arduwick, has been re-opened, after having been closed for alterations about four months ago. The entrance chiefly used was at the eastern end, close to the altar rails, which were high and uncomfortable. These and other evils have been remedied, and improvements effected. New passages for access to the seats have been formed, and the new seats have been constructed almost entirely out of the old materials. In doing this it was discovered that the greater part of the flooring-boards, and also the joists which carried the floor, were so decayed as to make it wonderful how it contrived to support the Sunday's congregation. A new vestry for choristers has been built, and that for the clergy enlarged. The organ has been brought down from the west gallery to the south-east corner of the church, to be near the choir. The western gallery, which had been added to at different times, has been reduced to more moderate dimensions, and fitted with seats for the school children. In doing this it was found that the pillars that should support the gallery had given way, and that in all probability within a few months the west gallery must have fallen. Besides this re-arrangement and re-fitting, the church has been painted and decorated throughout. The builder employed was Mr. Wm. Clark; the painters, Messrs. Ward & Harwood; and the architect who designed and superintended the alterations was Mr. J. Medland Taylor.

Aylesbury.—The ceremony of consecrating the new chancel which has recently been added to Walton church was performed on the 5th instant, by the Bishop of Oxford. The character of the building is designed for utility rather than for architectural display. The work has been carried out by Mr. D. Brandon, of Berkeley-square, architect; and the builder is Mr. G. Cooper, Aylesbury. The new chancel is 25 ft. long, and is built of flint and brick. The form of the windows is Early English, with plain chamfered mouldings. The east window is filled with painted glass, in Early English style. A vestry and chancel aisles have been added, the north aisle being appropriated to the organ, while the south aisle is made available for additional sittings, to the number of about forty, besides additional seats for ten choristers. The original contract was for 277*l.*, to which some extras must be added.

Ide-hill.—The newly-erected church, in the parish of Ide-hill, has been consecrated by the Archbishop of Canterbury. The church is in the Geometrical style, with an open roof, supported by six arched principals, and consists of nave with north porch, chancel with recessed arch for organ, two small transepts, vestry on south side, and tower on north, 60 ft. high, surmounted by an oak-shingled spire of 30 ft. more. There are in all eight stained-glass windows;—the east windows and two small side lights presented by the representatives of Bishop Porteus; the west window, presented by the Dowager Lady Rycroft, in memory of her husband, the late Sir Richard Rycroft, and their youngest son; three on the south side, comprising one by the Rev. J. Woodhouse; a second in commemoration of the day (St. Andrew's); and the third by Mrs. Woodhouse, in memory of her mother, Mrs. Oxenden. There is also one on the north side, by the Rev. J. Woodhouse and Sir Nelson Rycroft, jointly, in memory of the bishop. The church has also received much internal decoration. The builder was Mr. J. Kirk, of Woolwich. The architect was Mr. Charles H. Cooke, of London.

Weybread (Suffolk).—The church here has been re-opened. The edifice had been disfigured by pews. These have now been replaced by oak benches, restored from poppyheads on some of the old pews. The west gallery is also cleared away; so that the whole of the nave is now seen to the best effect, and the entire length of the church is increased, and several of the windows have been restored. The roof of the nave is entirely new; it is of deal, stained and varnished. The ribs are continued down the walls through a cornice, and are finished with corbel heads of stone. Those next the chancel represent St. Peter and St. Paul, and the others the minor prophets. These heads were executed by Mr. Barrett, of Norwich. The roofs of the aisles are of oak, and during the recent alterations they have been entirely restored and re-glazed, and all the windows are now glazed with cathedral glass. The chancel roof has also been restored and re-glazed, and three new windows have been inserted. These windows are in the Decorated style, and the east window will be filled with stained glass, by Messrs. O'Connor. A new vestry has been erected on the north side of the chancel, and immediately contiguous to it an organ chamber, which opens upon the north aisle by a pointed arch, and upon the chancel by another, somewhat smaller. The latter is fitted with a carved oak screen, in the Decorated style, by Mr. Cornish, of North Walsham. The pulpit and reading-desk are of carved oak. The organ chamber is occupied by one of Messrs. Bevington's organs in a Gothic screen case of deal, stained and varnished. The church is now entirely floored with tiles except the benches, which are boarded and raised a few inches from the floor. The building is warmed by Gidney's apparatus, placed beneath the floor in the centre of the nave, and the chimney shaft is carried up inside the tower. The font is not yet fixed, but a new stone one is in course of preparation by Mr. Vine, of Eye. The works have all been carried out by Mr. R. M. Phipson, of Ipswich and Norwich, architect. The benches, the roof, and the general work were contracted for by Messrs. Botwright & Grimwood, of Bungay and Weybread. The carving of the benches was done by Mr. Stophor, of Ipswich. The total amount expended in these works was about 1,500*l.*

Great Hautbois.—The church has been lately decorated by Mr. Huggins, of Norwich, at the expense of the rector, who has already contributed largely to the building of the fabric. The commandments have been written on the east end,

while the space below them has been filled with stained work of different patterns. The roof, both of the nave and chancel, has been painted, and the panels of both decorated with gilt stars. Several texts are inscribed on the walls. Five stained-glass windows have been put in by the rector's friends, and another is about to be ordered of Messrs. J. & J. King, of Norwich, for the south chancel window, similar to one lately put in by them at the west end of the south aisle, in memory of a late parishioner.

STAINED GLASS.

Worcester Cathedral.—The memorial of their deceased "brother," Mr. Joseph Bennett, erected at the cost of the Freemasons of this city and county, in the north-eastern part of the nave of Worcester Cathedral, by permission of the Dean and chapter, has been placed *in situ*. The artists were Messrs. Lavers & Barrard, of London. The window is one of three lights, with geometrical tracery in the head. The base is composed of three panels, representing Masonic emblems of different degrees. Above the emblems the principal portion of the lights is occupied by figures, representing Faith, Hope, and Charity, under canopies, with the legends "Fides," "Spes," "Caritas;" and in the heads of these lights are small groups of the Nativity, Crucifixion, and Resurrection of our Lord. The connexion between these subjects and the principal figures is understood to be,—Faith in the coming of Christ to redeem mankind; Hope in the sacrifice upon the cross; and Love for Him "who is risen from the dead, and ever lives to make intercession for us." The tracery lights are occupied by a figure of our Lord in glory, surrounded by the four beasts, emblematic of the four evangelists, and by the Heavenly Host.

St. Mary's, Reading.—The stained-glass east window in this church, by Messrs. Clayton & Bell, has been completed. There are six lights filled with stained glass. The subjects depicted are numerous; comprising, on the north side, the Annunciation—Salutation—Nativity—Flight—Christ found in the Temple—the Miracle at the Marriage Feast—and medallions of SS. Peter, Andrew, Simon, John, Philip, Jude, James, Barnabas, and Matthew. On the south: the Woman, a Sinner—the Issue of Blood—the Woman of Canaan—Martha and Mary—Bearing the Cross—Mary Magdalene—and medallions of SS. James the Less, Thomas, Matthias, Mark, Paul, Luke, Stephen, Bartholomew, and Timothy.

DISSENTING CHURCH-BUILDING NEWS.

Peasley-cross, St. Helen's.—The new Congregational Church just erected at Peasley-cross, St. Helen's, has been opened for divine service. The site of the building is at the junction of the present highway and a proposed new street almost adjoining Peasley-cross railway-bridge. The edifice is built entirely of stone, the walling-stones or parapets being from Rainford Quarry; and the ashlar dressings and more ornamental portions from Rainhill Quarry. The structure, which comprises a nave and aisle, with porch and tower and spire, is in the Middle Pointed style. It is of an ornamental character, broken up by a clerestory and by buttresses, ashlar bands, and the tower and spire, diapered and carved. The front gable is pierced by a five-light window, nearly 25 ft. high, the upper portion of which is filled with tracery. This window will light the children's end gallery, and the sittings below will be lighted by a triplet window, which extends to the width of the five-light window above. The entrances are by the tower and porch, with separate porch entrance attached to the tower to the children's gallery. The doorways are deeply splayed, and of large size, with moulded labels and carved bosses. The clerestory is carried on polished red granite columns, with carved caps of Caen stone. At the end of the nave is the communion place and chancel. The chancel is a semi-octagon, with groined plaster ceiling, coloured blue, recessed. On either side of this are vestries, conveniences, and room for preparing hot water; and below the latter is the boiler-house for heating the building. The roof from the inside presents a somewhat semicircular appearance, with divisions for cusplings, which form a ceiling about two-thirds the height of the principals. Stained glass has

been introduced into the clerestory and the east and west windows from the manufactory of Messrs. Pickington, of St. Helen's. The accommodation is for 600 adults and 150 children. The contract has been completed by Mr. William Harrison, of St. Helen's, for between 3,000l. and 4,000l. Mr. Thomas Oliver, of Newcastle-on-Tyne, was the architect.

Woolton (Liverpool).—The Congregationalists of Woolton and the neighbourhood have succeeded in erecting a chapel, the formal opening of which has taken place. The building is of a plain character, and was designed by Messrs. Hay, of Liverpool, architects. It is in the Gothic style, has a small belfry, and in its construction red sandstone has been employed. The internal arrangements are also plain. There is a light open roof of imitation oak. At one end of the building, and contiguous to the entrance, a small gallery has been erected for the choir, whilst at the opposite end is the communion-table, the body of the chapel being divided by two aisles, upon either side of which are ranged the pews, of imitation oak. Lancet windows, of modern dimensions, admit light into the building; over the gallery is a circular window, and at the other end are two windows of stained glass. A pulpit, of Caen stone, forms perhaps the sole attempt at internal ornamentation. It is hexagonal in form, rests upon a series of small pillars, the sides being ornamented with carvings descriptive of Scriptural subjects. The pulpit, which, with the fittings, cost 70l., was presented by Mr. Alison. A bell for the belfry was also given by Mrs. Alison. The building, which is intended to accommodate about 420 persons, has been erected at a cost of about 3,200l., the whole of which has been raised, with the exception of about 800l. The chapel will, for the present, be in direct connexion with Wavertree Congregational Chapel.

Books Received.

"The Life of Man, symbolised by the Months of the Year, in a Series of Illustrations." By JOHN LEIGHTON, F.S.A. With Passages selected from Ancient and Modern Writers, by RICHARD PIERCE. Longmans, Green, & Co., Paternoster-row. 1866.

SOME of our readers will remember, as having been exhibited, the dozen larger drawings with which Mr. John Leighton sets forth, with much thoughtfulness and skill, the life of man and the progress of a tree; but still they will have no notion of the book in which, carefully engraved, they now appear. Extracts from 300 authors, maxims, proverbs, initial letters, and a world of small illustrations, fill 238 quarto pages of fine paper, the whole beautifully printed and elegantly bound. The smaller illustrations cannot be fully appreciated without a magnifying-glass, so full of quips and cranks, quaintnesses and inventions, are they. The selections from the poets are admirably made, and will never tire. When Mr. Leighton says, as he does, quoting Caxton at starting,—"This Book is not for every rude and uncomely man to see, but for clerks and very gentlemen that understande gentylties and soynce," he does it injustice; for there is something in it to suit all moods, conditions, and minds. An unlucky slip of grammar in the last line of the dedication (to Lord Houghton), "are" for *is*, should be remedied in any unbound copies by a substitute leaf: the book is worth it, and the blot is so ugly.

Scenes from "The Winter's Tale." Illuminators, OWEN JONES and HENRY WARREN. Day & Son, London.

MESSRS. OWEN JONES and Henry Warren have coalesced to produce a handsome bookful of illustrations of "The Winter's Tale," something after the manner of the antique vases, with the words illustrated on the opposite page on a gold ground, and all surrounded with pattern borders exceedingly diverse, and in some cases very beautiful. For our part, we get more pleasure from the last page, with its simple markings of red, blue, and gold, telling the names of the illuminators, and that the designs were drawn on stone by Mr. A. Warren, than from the more elaborate productions. That page being perfect so far as it goes. Fortunately, however, for the publishers, there is an illumination-loving public that thinks differently, and to that we commend the volume. The binding is very elegant, as all that Mr. Owen Jones does in this way is.

"An Alphabet of Monograms." Designed and engraved by HENRY LILLIE. London: Day & Son.

At the present moment, when a rage for monograms prevails, this little volume will doubtless be found of service by die-engravers, silver-smiths, and others. It runs through the alphabet, each page giving a single letter with a dozen combinations. Some are very ingenious, and others, almost as a matter of course, are less easily decipherable than is desirable.

Miscellaneous.

METROPOLITAN SANITARY ASSOCIATION.—We have before us a full report of the proceedings at the first Conference of this Association, but are forced to delay dealing with it.

FRENCH ARCHITECTURAL WORKS.—MESSRS. Cassell, Petter, & Co. have on view a large collection of foreign architectural works, to which we think it useful to direct our readers' early attention.

THE INSTITUTION OF ENGINEERS IN SCOTLAND. At a meeting in the Hall, George-street, on Wednesday, the 20th of December, Professor Rankine's paper, on "The Tenacity of some Fibrous Substances," was discussed; and a paper on "The Construction of Iron Vessels," by Mr. James Lyall, jun., Sunderland, was read; with others. Endeavours we would willingly help are being made to increase the number of members.

THE THACKERAY AND LUFKIN MEMORIALS.—On Monday were erected in the corridor leading to the chapel of Charter House, two tablets, appropriately placed side by side, to the memory of two distinguished old Carthusians—William Makepeace Thackeray and John Leech. *The City Press* says,—"They are plain stone tablets let into the wall, and bear Latin inscriptions, of which the following may be given as translations:—"To William Makepeace Thackeray, a Carthusian, Carthusians have had this monument erected. He was born 1811, died 1863, was a scholar 1822 to 1827." "To John Leech, a Carthusian, Carthusians have had this monument erected. He was born 1817, died 1864, was a scholar 1825 to 1832."

DAMAGE TO THE WOLF ROCK LIGHTHOUSE.—The Wolf Rock Lighthouse, says the *Cornish Telegraph*, is built up as far as four courses of granite blocks will raise it; but these four only just elevate the structure above the natural hollow, somewhat enlarged by blasting and quarrying, in the rock itself. Thirty-two stones of the fifth course were laid, every stone joggled and dovetailed to its neighbours, laterally and vertically, secured in its place by cement as hard as iron, and bolted to the course below by powerful metal bars. This fifth course was just a little ledge, which offered some opposition to the sea, in addition to the rock itself. The sea, moved to fury by the recent gales, has swept away every stone of the fifth course, and in a day the summer's work of sixty men is undone. This labour of one favourable season is valued at 1,500l. Every exertion is being made by the Trinity workmen, to repair the damage with the least delay.

THE PRINCE CONSORT'S MAUSOLEUM.—At the late anniversary of the lamented Prince's death, part of the mausoleum was shown. Since the last anniversary some progress has been made with the internal decorations, but the greater part of this was concealed from the gaze of the visitors, portions of the hoarding being still up. In one of the recesses or chapels abutting upon the central chamber seen, the arched ceiling is decorated with a painted picture of Christ bearing the Cross, while two of the side panels are ornamented with sculptured bas-reliefs of white marble, the subjects being the "Expulsion of Adam and Eve" and "Moses lifting up the Serpent in the Wilderness." From the ceiling depends a brass chandelier, with several lamps attached to it. The other recesses are, it is said, also in a forward state. The ceiling of the dome (which is lighted by windows) is of a blue colour powdered with gold stars, the centre being occupied by an ornament. The marble floor beneath the centre of the dome has yet to be finished, and till this is completed the granite sarcophagus cannot be used for the reception of the Prince's remains. The builder engaged on this structure is Mr. Dines.

ABERYSTWTH SEA WALL.—At a special meeting of the town commissioners, held recently it was determined to carry out Messrs. Gotto & Beesley's plan for the proposed new sea wall and terrace. The work is to commence at the new promenade pier, and following the general curved line of the Marine Parade wall, terminate at the existing wall, opposite Terrace-road.

BELLS FOR ST. MARTIN'S, KENTISH-TOWN.—A peal of six bells has been set up by Messrs. John Warner & Sons, at the new church of St. Martin's, Kentish-town. The tenor bell is 40½ in. diameter, note G. Weight of the whole peal, 49 cwt. 3 qrs. 4 lb. The bells bear the following inscriptions:—1. "Time flies." 2. "I call to prayer." 3. "I call to praise." 4. "Live to God's glory." 5. "Let all be thankful." 6. "John D. Allcroft gave us." The same firm has recast the celebrated "Sherborne Bell," presented by Cardinal Wolsey. The weight is 2 tons 6 cwt.

DEATH FROM GAS POISONING.—The coroner for the City and Southwark has held an inquiry relative to the death of a woman who, it was alleged, had lost her life in consequence of a quantity of gas having permeated the earth underneath her dwelling-house. The jury returned the following special verdict:—"That the deceased lost her life in consequence of an escape of gas from one of the mains of the Phoenix Gas Company, and the said death was accidental; but the jurors further say that the work of laying the main from which gas escaped was negligently done, and without sufficient intelligent supervision."

THE LEATHER-LANE DISTRICT, HOLBORN.—Dr. Gibbon, medical officer of health, has examined the houses in Dove-court, Leather-lane, where there have been some cases of fever. He states that those on the north side, viz., 1, 2, 3, and 4, are in a dirty state; Nos. 2 and 3 have their basements occupied in contravention of the law; No. 2 is overcrowded, in consequence of the basement being tenanted by seven persons. In four small rooms there are twenty persons. Dogs are kept in two of these houses, so as to be a nuisance, and injurious to health. Our readers will recollect our own revelations of this neighbourhood, not long ago.

SANITARY STATE OF MARYLEBONE.—The monthly report for November of Dr. Whitmore, the medical officer of health for the parish, says:—"The deaths in the parish during the four weeks of November amounted to 310; the consecutive weekly numbers being 64, 75, 96, and 75; showing an annual death-rate of 24·7 per 1,000 of the population. This return gives a slight increase upon the mortality of the previous month, but a decline of 40 as compared with the corresponding month of last year, and 10 deaths below the average of November for the past nine years. Amongst diseases of the miasmatic order, measles have been the most fatal; whilst, in the northern districts of the parish, sickness from the same disease appears to have been exceedingly prevalent. The mortality amongst infants and young children has been most excessive, and comprises upwards of one-third of the whole number of deaths. Diarrhoea, both in sickness and mortality, has considerably declined; and no single death from cholera or choleraic diarrhoea has been registered."

WOOD.—The British consul at Sarawak (Borneo), writes to the Foreign Office respecting the wood of that country as follows:—"A demand has lately been made by a house in Bombay for a cargo of timber. This, I believe, the first time the merchants of India have had recourse to this country for such produce. The Indian Railway Company would do well to look to Sarawak for the sleepers and various kinds of timber which they may happen to require for the furtherance of their works in India. It may be mentioned also that the 'bilian,' or iron wood found in this country, is perhaps the only wood which is impervious to the attacks of white ants: when immersed in either fresh or salt water it is never known to have decayed; indeed, though under water for many years, it remains as hard almost as stone. An engineer, who has resided here for the last five years, assures me he has never seen such a thing as a rotten piece of 'bilian wood.' We have been glad to observe that a cargo of camphor-wood from Sarawak has been imported into Sunderland, and that it is a wood which, it is expected, will be of great value in shipbuilding, particularly for the keels and keelsons of vessels."

ARCHITECTURAL UNION COMPANY.—The dividend declared at the last general meeting was 4 per cent., free of income-tax, leaving a balance in hand of 140l. 7s. 10d.

THE BUILDING TRADES.—The masons in the Halifax district have commenced a movement to have the hours of labour reduced to fifty-two and a half per week.

LIFTING A BUILDING.—In Chicago, a building, 80 ft. by 160 ft., five stories high, and weighing 27,000 tons, has recently been raised 2 ft. from its original foundations. It was done by means of 1,580 screws, placed underneath the building and turned simultaneously. The work occupied three days.

THE FUTURE OF PECKHAM RYE.—The *South London Chronicle* says:—"The Camberwell vestry have endorsed the recommendation of their select committee, that 100 acres of land must be, if practicable, acquired for the extension of the area of Peckham Rye and its formation into a park. The situation, say the committee, is beautiful, and affords a panoramic view of about 30 miles; and it will form the finest site for a park in the metropolis."

THE RIGHT OF A GAS COMPANY TO CUT OFF THE SUPPLY OF GAS.—A case has been argued in the Baccup County Court, in which Mr. Richard H. Penny, auctioneer, sought to recover 2l. as damages from the Rosendale Gas Company, on account of their having, as alleged illegally, cut off his supply of gas. The company had claimed from the plaintiff 7s. 6d. for gas consumed by a former tenant, who happened to be his brother. The plaintiff declined to pay the bill, alleging that he was not liable, and the defendants ceased to supply him with gas.—His Honour (Mr. Greene) gave judgment for the plaintiff for 10s. and costs.

WHO SHALL BE THE ARCHITECT?—"An estimable fellow-townsmen," says a correspondent of the *Banner of Ulster*, "a member of the Established Church, recently deceased, left by his will the sum of 4,000l. to build a church in the neighbourhood of Belfast. His pastor, to whom he was greatly attached, has a son who is an architect, to whom the deceased gentleman stood in the relation of godfather, and he left it as a dying injunction that this young man should be employed to build the church provided for in his will. He appointed several trustees, some laymen and some clergymen,—to whom his dying request respecting the employment of his pastor's son is well known; but it appears that, as one of the trustees is an architect, his co-trustees contemplate, or have really resolved, to disregard the express wish of the testator, and engage their co-trustee's services. . . . I understand the testator's god-son is a young gentleman of accomplished ability, and in all respects qualified to carry out creditably his god-father's wishes." Perhaps the trustees do not really contemplate the employment of their co-trustee. The testator's family, it appears, are particularly anxious his last wishes should be honourably carried out by the appointment of his god-son as architect.

CARPET ARCHITECTS.—A correspondent of the *Society of Arts Journal*, writing from Smyrna, says,—"At this season the small carpet-makers of Ooshak, Koolah, Abiediz, &c., from the great Turkish carpet districts, come up to Smyrna to sell their year's produce of carpets, prayer-carpets, and rugs. One of these men having a rug with a well-balanced pattern, I tried to learn from him who was the designer; but, partly from suspicion, and partly because I could not hit upon the right word in Turkish, he held me at bay for some time, and said that the women of his family did it. At length, in the course of conversation, gaining his confidence more—for he was proud of having served with the English in the Crimea, and of having sent carpets to England—he told me that a dervish was the *mi'mar*; that is, 'architect.' Of course I had tried every artistic word without thinking of that. *Mi'mar* is not a bad word, for the style of this and many of the carpets is that of the arabesque ornaments of the mosques and stained glass, having the characters of a school. I have never yet come across an ecclesiastical *mi'mar*, but I have seen recent works of theirs in decoration which attest their living taste. I should like to learn more of this decorative school, which showed many interesting works of the Imperial Ottoman Exhibition in Constantinople in 1863.

EXPERIMENTS ON ROLLED IRON GIRDERS.—On the 19th inst. some experiments were performed on the Patent Solid Flange Girders, at Mr. Kirkaldy's testing works, Southwark, in the presence of a considerable number of persons, and will require further notice. Unfortunately want of care in the arrangement of the machinery led to much waste of time and patience.

THE SIR TATTON SYKES MEMORIAL.—The memorial erected to perpetuate the memory of the late Sir Tatton Sykes, bart., on Garton-hill top, has just been completed, the top stone having been set a few days ago in the presence of Sir Tatton Sykes and several other members of the family of the deceased baronet. A view will be found in a previous number of the *Builder*.

CAB REGULATION IN PARIS.—All the Paris cabs are now provided with one of those instruments which show the distance travelled by the cab in the course of the day and the time occupied in each journey. The object of this instrument is to protect the cab company against fraud on the part of the cabmen; but if it works well it ought also to protect the public against extortion. Such instruments, however, were known years since in this country, but have never yet come to anything here. The one in Paris may be a new and improved one.

COMPENSATION CASE: THAMES EMBANKMENT. On Tuesday last, at the Sheriff's Court, Red Lion-square, a special jury assembled under the presidency of Mr. Under-Sheriff Burchell, in the case "Sant and Others v. The Metropolitan Board of Works," to assess the compensation to be given for property required for the Thames Embankment. Mr. Hawkins, Q.C., Mr. Lloyd, Mr. Prentice, and Mr. Mellor appeared in the case. The claim as made was 12,493l., and on a second notice from the Board of Works it was reduced to 10,048l. for the property and for the deprivation of a waterway. The claimants were the trustees under the will of Mr. James Sant, and the property was connected with wharfs along the river where the embankment was being formed. The property had been taken under the Thames Embankment Act, and the claimants demanded a special jury, under the Lands Clauses Act, to ascertain the sum to be given. There was no view of the property, and a settlement was effected without a long investigation. Under the direction of the Under-Sheriff, 9,237l. were awarded for the property, and 811l. for injuriously affecting the other property, making the verdict 10,048l.

TENDERS

For erection of public-house, Mostyn-road, Brixton, for Messrs. Smallman & Stroug. Messrs. Hammack & Lambert, architects:—

Wood & Son	22,578 0 0
Webb & Son	2,500 0 0
Nixon	2,475 0 0
Hedges	2,457 0 0
Cook	2,295 0 0
Newman & Mann (accepted)	2,250 0 0

For two warehouses, in Bermondsey-street, Bermondsey, for Mr. Richard Heald. Mr. Joseph Gale, architect:—

Sewell & Sons	23,340 0 0
King & Sons	3,192 0 0
Newman & Mann	2,995 0 0
Hill & Son	2,965 0 0
Wells	2,920 0 0

For warehouse in Bermondsey-street, Bermondsey, for Mr. Cyrus Legg. Mr. Joseph Gale, architect:—

Sewell & Sons	21,380 0 0
King & Son	1,180 0 0
Hill & Son	1,069 0 0
Newman & Mann	1,025 0 0
Wells	920 0 0

For taking down old buildings and erecting six new houses and stable buildings in Montpelier-street, Brompton, for Mr. R. Lathbury. Mr. Isaac Bird, architect:—

Lawrence & Sons	24,467 0 0
Brown	4,295 0 0
Gammob	4,273 0 0
Williams	4,199 0 0
Newman & Mann	4,105 0 0
Stenson	3,905 0 0

For completing two semi-detached residences, at Forest-hill, for Mr. James Bell. Mr. H. F. Hooper, architect:—

Evans	4,330 0 0
Bowley (accepted)	320 0 0

For marine residences, Dover, for Messrs. Sutton & Potter. Mr. Rowland Rees, jun., architect. Quantities supplied:—

McKenzie	25,530 10 6
Sims & Marten	5,088 0 0
Stiff & Co.	4,716 0 0
Matthews	4,500 0 0

For alterations and additions to a warehouse, in Silver-street, City. Mr. Herbert Ford, architect. Quantities by Mr. J. W. Dennison:—

		Allowance for old Materials.	
Sandon & Co.	27,527 0 0	2300 0 0	27,227 0 0
Patman & Fotheringham	7,297 0 0	150 0 0	7,147 0 0
Dore, Bro.	6,991 0 0	150 0 0	6,975 0 0
Browne & Robinson	6,899 0 0	198 0 0	6,701 0 0
Myers & Sons	7,767 0 0	110 0 0	7,657 0 0
Bradley	6,847 0 0	200 0 0	6,647 0 0
Hill & Sons	6,638 0 0	170 0 0	6,438 0 0
Henshaw	6,345 0 0	275 0 0	6,070 0 0
Hawkins	6,510 0 0	734 0 0	5,776 0 0

For the erection of a new warehouse, in Princess-street, West Hartlepool, for Mr. Matthew Dickinson. Mr. John Tiltman, architect:—

For the Whole.	
Hirst & Sons	21,235 0 0
Suggitt	1,177 15 0
Johnson	1,173 11 0
Wright	1,142 0 0
Take	1,090 0 0
Marshall	998 14 11
Joiner's Work.	
Stafford	370 0 0
Thompson	340 0 0
Take	264 10 0
Ironfounder's Work.	
White	120 0 0
Painter and Glazier's Work.	
Windross	16 10 0
Slater's Work.	
Salmon	86 0 0
Excavator's, Bricklayer's, Plasterer's, and Ironfounder's Work.	
Wright	610 0 0

For the erection of a new lunatic asylum, adjoining the Union Workhouse, H.M. Prison, Bournemouth, Southampton. Mr. John Lubbock, architect:—

For the Whole.	
Jackson	23,302 0 0
J. & E. Hirst	2,960 0 0
Riddell & Moir	2,738 0 0
Elliott & Harper	2,731 0 0
D. & J. Ranken	2,655 0 0
Marshall	2,603 0 0
Excavation, Drains, Roads, Masonry, Bricklaying, Plastering, &c.	
Hodgson	1,230 0 0
Stafford	824 18 0
Armstrong	800 0 0
D. & J. Ranken	798 10 0
Slater's Work.	
Preston	122 0 0
Dawber & Son	106 10 0
Plumber's, Gasfitter's, and Ironfounder's Work.	
Tonkinson	313 11 7
Williams	303 0 0
Whitman	300 15 0
Painter and Glazier's Work.	
Bamlett	82 12 0
Stafford	82 12 0
Wood	67 5 0

For St. Peter's Schools, West Bromwich. Mr. Smallman Smith, architect. Quantities by Chadwick, Bros.:—

Schools.	
Hartland	22,067 0 0
Cox	2,046 0 0
Thompson	1,890 0 0
Stonehewer	1,710 0 0
Stuckton & Son	1,676 0 0
Nadin & Son	1,570 0 0
Barker	1,550 0 0
Fisher	1,533 0 0
Hadner (accepted)	1,385 0 0

Accepted, for the erection of a drapery establishment, in Gateshead. Mr. J. E. Watson, architect:—

First Contracts.	
Kyle (masonry, including old materials)	21,000 0 0
Sanderson (carpentry and iron-work)	1,964 10 0
Hastie (slating, including old materials)	173 0 0
Graham & Sons (plumbing, including old materials)	353 4 9
Wilkinson & Co. (plastering)	519 10 0
Firbank & Sons (painting and glazing)	300 0 0

Accepted, for enlarging Marlborough-crescent Chapel, Newcastle-on-Tyne. Mr. J. E. Watson, architect:—

Kyle (whole of the work)	21,145 0 0
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For part of farm buildings, at Hendon, for Mr. J. H. Heal. Mr. E. Roberts, architect:—

Wood	2,081 19 0
Plowman	850 0 0
Donne (accepted)	618 0 0

For villa at Basset, Southampton, for Capt. P. M. Woolcott. Mr. Henry Hall, architect:—

Sanders	2,220 0 0
Stevens (accepted)	2,195 0 0

For music-hall, Dover, for Messrs. Sutton & Potter. Mr. Rowland Rees, jun., architect. Quantities supplied:—

Sims & Marten	24,420 0 0
McKenzie	3,917 5 0
Stiff & Co.	3,884 0 0
Matthews	3,600 0 0

For sixteen cottages, for the Metropolitan Association for Improving the Dwellings of the Industrious Classes, upon their estate at Penge. Mr. Fred. Chancellor, architect:—

Brown (accepted)	22,000 0 0
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The Builder.

VOL. XXIII.—No. 1195.

The Surrey Theatre.



BURNT down: built up. Such are the two constantly recurring statements in the history of our theatres. The burning may be delayed, but come it does, for certain. The first theatre where now the Surrey stands, in the Blackfriars-road, was called The Royal Circus. Its projector and proprietor was Mr. Robert Hughes, with whom the elder Dibdin was afterwards associated. The old theatre and its appurtenances covered a considerable space of ground, extending to a lane at the rear—in after years the southern end of the Waterloo-road—and including the space on which the "Equestrian Tavern" to the south, and the

"Flowers of the Forest" to the north, now stand. To the right of the latter house were some large panelled carriage-gates, leading to the stables and riding-school of the Circus, that existed until, within a few years, when they were replaced by iron-work. In an old engraved view of the spot is seen an inscription on the front of the house to the right hand, announcing "Hughes's Horsemanship by his Majesty's Guard" this house was the residence of the proprietor. The Circus, in its entertainments and character, was in rivalry with "The Amphitheatre," in the Westminster-road, then in the zenith of its prosperity under its founder, old Philip Astley, the ex-dragoon of William of Cumberland at Culloden. The New Circus, "opened on the 17th November, 1782" (under a lease granted by Admiral West in that year), with "a combined entertainment of horsemanship, rope-dancing, songs, and music;" these last required the licence of the magistracy, under the 25th George II. It says something for Mr. Hughes, that the programme included "a species of amusement perfectly novel in its kind, consisting of paintings, statues, and heterogeneous objects, properly explained and elucidated."

After a few years the elder Dibdin withdrew, and under several proprietors, the Circus met with varied success. Melodrama was introduced, and among the celebrities of the Circus was John Palmer, the comedian, who played here while a prisoner for debt in the King's Bench. The large sums he received, and his reckless mode of squandering them, suggested the clause in the old "Debtors' Act," by which all places of public amusement and licensed public-houses were declared "out" of "the rules," or prescribed limits in which those who could pay for the privilege were permitted to reside, when arrested and imprisoned for debt.

In 1798, Mr. J. C. Cross, whose first wife was an actress at this theatre, Covent Garden, and elsewhere, having married the daughter of the then

proprietor, Mr. James Jones, greatly altered the character of the representations. To Mr. Cross was due the re-modelling and re-building of the theatre in 1799, when Mr. Robert Wright Hodgson was added to the firm of proprietors. Six seasons of successful management followed, and amongst the performers we find Mr. and Mrs. Wallack, Mrs. Wybrow, the elder Bologna, Ridgway, Parsloe, Mons. D'Egville, Laurent, Bradbury, and Grimaldi. And now its time was come, and on the 12th of August, 1805, in the twenty-third year from its first opening, it was utterly destroyed by fire.

With the structure perished an extensive wardrobe, a large quantity of scenery (much of it by the elder Greenwood), and a voluminous collection of MS. music, by Reeve, Hook, Sanderson, Weippert, and other composers. The insurance was 3,000*l.* only, scarcely one-fourth of its value. The building was said to be provided with tanks and stop-cocks, but no water was laid on: a pond was the only resource, and this of course proved of no avail.

The fire would appear to have been a severe blow to Cross, for we find that it was late in November before Mr. Donaldson, the builder, commenced the reconstruction "from drawings by Mr. Cabanall, junior."

The new theatre opened on Easter Monday, 1806, "under the control of Messrs. Holloway, Evans, Wilby, Lant, and Woodward, trustees," who are characterised by Mr. Cross, as "gentlemen of worth, honour, and integrity;" at any rate, they appear to have found the means to re-build the theatre.

In the second season the "New Royal Circus" was advertised for lease or sale, and Robert William Elliston, on the 23rd of February, 1809, the day before Drury-lane Theatre was burnt down (Covent Garden Theatre then lying in ruins, having been burnt in the preceding September), sent in proposals, and ultimately became lessee for seven years at a rental of 2,100*l.* per annum.

On the 23rd of March the papers contain the announcement that "The Royal Circus will open on Easter Monday (1809) under the sole direction of R. W. Elliston, esq." The auditorium was almost reconstructed: the boxes were altered in form and increased in number, the pit was raised, and additional private boxes were enclosed; it was, moreover, tastefully decorated.

Elliston being at this time under engagement at the Lyceum was prevented from appearing at his own house until the 16th of June, when he made his first bow in a "burletta-melodrama," in three acts, founded on the "Beggars' Opera," wherein he personated *Captain Macheath*.

Elliston soon found himself crippled by the restrictions of his licence, which forbade spoken dialogue without a musical accompaniment, and on the 5th of March, 1810, Sir Thos. Turton presented a petition in the House of Commons from R. W. Elliston, praying that he, the petitioner, might be permitted "to exhibit and perform in the said theatre, the Royal Circus, all such entertainments of music and action as are commonly called pantomimes and ballets, together with operatic or musical pieces, accompanied with dialogue." The House rejected the petition, on the ground that "it would go to alter the whole principle upon which theatrical entertainments are at present regulated within the metropolis and twenty miles round." We have seen this question since disposed of.

It was in the next season, which commenced on Easter Monday, 1810, that the name of the theatre was changed from "the Circus" to "the Surrey," as celebrated in "The Rejected Addresses":—

"Base Buonaparte, ill'd with deadly ire,
Sets one by one our playhouses on fire.
Some time ago he pounced with deadly glee on
The Opera House, then burnt down the Pantheon;
Nay, still unsated in a cost of flames,
Next at Millbank he cross'd the River Thames;

Thy Hatch, O Halfpenny! pass'd in a trice,
Boiled some black pitch, and burnt down Astley's
twice;
Then buzzing on through ether with a vile hum,
Turr'd to the left hand, fronting the Asylum,
And burnt the Royal Circus in a hurry,—
'Twas called, 'the Circus' then, but now 'the
Surrey.'

With this alteration came the abolition of the amphitheatre, which merged into the pit; while the stables were decorated to form retiring saloons.

Tom Dibdin was at this time Elliston's author and adapter, and when Elliston made himself lessee of the New Drury-lane Theatre, Dibdin became his successor at the Surrey. He has left a minute account of his prospects, position, and progress during the seven years he held the managerial reins—from 1816 to 1822 inclusive. The rent was agreed on at 1,000*l.* a year, with one-third of the clear profits obtained, to Mr. West, the landlord; the lessee to expend 4,000*l.* in repairs, &c., and to insure the building for 9,000*l.*, and his own property for 3,000*l.* more. The premiums on these policies were 360*l.* a year.

On the 1st of July, 1816, Dibdin opened his house with a strong company. In 1817 a great hit was made by Moncrieff's burlesque of "Don Giovanni," "Kenilworth," "Ivanhoe," "Guy Mannering," "The Heart of Midlothian," and other pieces from Scott, were produced, and were well supported by Huntley, Egerton, Bengough, T. P. Cooke, Copeland, Mrs. Egerton, Mrs. Fitzwilliam, Mrs. Chatterley, Mrs. Gomersal, Miss S. Booth, Miss Tree, and many other well-known performers.

The expenses, however, were too great for the receipts. Dibdin retired in October, 1822, relinquishing his licence in favour of Mr. Watkyns Burroughs.

After the theatre had suffered evil fortune, Elliston again took command, and in the autumn of 1823, Weber's earliest operatic work, "Sylvana," was produced, with Mrs. Fitzwilliam as the heroine, Henry Phillips, and Miss Graddon. Afterwards came a great hit, Douglas Jerrold's "Black-Eyed Susan," which was first played June 6th, 1829. Elliston died early in 1831, leaving his position to his son Charles. Then came Osbaldistone, whose first year began at Christmas, 1831. Osbaldistone afterwards migrated to Covent Garden.

In 1833, Mr. George Bolwell Davidge became lessee, and made the Surrey prosperous. After nine seasons Davidge died in 1842, and left the house to his widow, Mrs. Davidge, who carried it on for some years, and then sublet it. In December, 1848, Mr. Richard Shepherd and Mr. Osbaldistone became joint-lessees; but Mr. Osbaldistone soon afterwards returned to the Victoria; and Mr. William Creswick, the tragedian, became co-lessee with Mr. Shepherd. After nearly fourteen years of management, Mr. Creswick retired, and Mr. Shepherd associated with himself Mr. James Anderson, the tragedian.

And now the theatre's natural enemy was again at its heels; and, on the night of Monday, the 30th of January, 1865, the Surrey was burnt to the ground in a few hours. When we visited the ruins the next morning, the only thing that retained form and colour was a tin breastplate, lying in the midst of the large area that was covered with charcoal mixed with pieces of twisted iron, and inclosed by tottering walls. Persons of all classes exerted themselves to mitigate the distress thus brought upon numbers connected with the theatre; foremost amongst whom should be mentioned in any record of the event, Mr. Henry Hill, F.S.A., and Mr. Ridge, two gentlemen of the Stock Exchange,—the readiest body in all England to do promptly an act of munificent kindness,—who, with much personal exertion, gathered together a large sum of money, and forwarded it to the committee.

What we have further to say belongs to—

THE NEW THEATRE.

Which was opened to the public on Tuesday evening last. Soon after the fire, designs were invited from several architects for the rebuilding, on behalf of Lieutenant-Colonel Temple West, who is the owner of the site, and the choice ultimately fell upon the plans of Mr. John Ellis, architect, of Austin Friars, London.

In the beginning of April the excavations were commenced, and great difficulties were encountered, both from the nature of the foundations and the bursting in of water while forming the cellar under the stage. The first thing done was to sink a well 6 ft. in diameter on the north side of the excavation, into which the water rushed and rose to a considerable height; in this well was fixed a 6-in. suction-shaft, attached to a double-action pumping engine; and after constant working night and day for three months, the level of water gradually began to fall. While this was going on, the foundations of the main walls forming the sides of the large cellar and carpenters' shop behind, as also the foundations of the main building, were excavated in trenches 6 ft. in width, and some 40 ft. in depth, where the stiff clay stratum was reached. Upon this the architect commenced the superstructure by a bed of concrete 3 ft. in depth and 6 ft. in width, upon which were placed walls, built in Portland cement, and 3 ft. 6 in. thick, puddled at the back with 12 in. of stiff clay. After great labour the ground-level was reached; but still the water rose and fell in the well, although constant pumping was carried on. The next step was to remove all shoring and excavate the earth enclosed within the walls of the cellar and shops, forming a mass 100 ft. long, 70 ft. wide, and 40 ft. deep. This completed, the bottom was still full of water, which afterwards lowered to about 6 in., when some tons of stone-lime were thrown in, and simultaneously worked up with the gravel left in for this purpose to a thickness of 5 ft. After some days of labour, and mixing together, this entire mass of concrete was levelled down and set; since which time no water has appeared,—and thus the cellar and foundation works were brought to a successful issue.

We have already given a section of the building;* we now add the ground-plan and a view of the interior.†

The site of the new theatre is irregular; about 200 ft. in its extreme length, and about 110 ft. in width; fronting the Blackfriars-road with a façade of 62 ft. It covers a much larger area than the former, and most of this increased space has been added to the stage. The main entrance is by a tetrastyle Ionic portico, 62 ft. in width by 30 ft. in height, projecting 13 ft. from the main wall. The centre doorway leads to the box-entrance lobby by a stone staircase. On the right hand is the pit entrance, placed on a level with the roadway; on the left hand, the entrance to the gallery, by a stone staircase, 7 ft. in width, without winders, very properly.

The auditorium is horse-shoe in form, 68 ft. in length, from the curtain to the back wall of the pit, and 62 ft. in width. Two rows of stalls are provided. The floor of the dress-circle is raised on the average 10 ft. above the pit level, supported upon iron columns and girders. The first tier of boxes is 9 ft., and the second tier 10 ft., in height from floor to ceiling; these are supported upon handsome iron columns, brought forward to the front of the circle. The fronts to the boxes and gallery are enriched and modelled in *carton pierre*, with medallions and wreath decorations. The colour of the ground is light, and the enrichments are gilded.

The outline of the proscenium opening is elegant and of good proportion; the upper part is decorated.

The auditorium is covered with a coffered dome (each panel containing a rosette), 50 ft. in diameter, rising 10 ft. in the centre, and is 55 ft. above the level of the pit floor; it is ornamented in gold and delicate tints upon the blue ground-work of the coffers. In the entablature at its base appear the names,—Shakespeare, Ben Jonson, Drayton, Beaumont and Fletcher, Massinger, Wycherly, Vauvrough, Farquhar, Dryden, Congreve, Steele, Cibber, Addison, Goldsmith, Fielding, Rowe, Coleman, Garrick, Otway, Byron, Sheridan, Macklin, Sheridan Knowles, Douglas Jerrold, and Bulwer,—in all twenty-six. In the centre of the ceiling, which is of

moulded *carton pierre*, is fixed a large sunlight burner, which illuminates the entire house; the heat arising from this is carried away by an iron tube, 18 in. in diameter, round which is fixed a wrought-iron jacket, 7 ft. in diameter, both going through the roofs into the open air. The roofs are constructed of iron; that over the auditorium in eleven trusses, each 65 ft. span; and that over the stage in ten trusses, each 72 ft. span. The flies are supported by four lattice girders, each 60 ft. in length, thus leaving the stage perfectly clear and open from side to side. Spiral iron staircases, 6 ft. in diameter, communicate from the scene-docks to upper flies, affording the quickest possible access to all the working machinery of stage and barrel loft, as also for the development of large transformations and other scenic effects.

The carpenters' shop and painting-room are placed, as we mentioned in our previous notice, at the back of the stage. Three frames can be painted at one time, the whole being under the control of the principal artist engaged in preparing any scenery required, and these rooms are separated from the theatre by iron doors, so that the dangerous part of the theatre may be kept completely without the main building—a great consideration in the case of fire.

The designs for the modelled ornamentation and coloured decoration have been supplied by the architect, himself, and the architectural effect of the whole is certainly satisfactory.

The stage is 60 ft. in depth, and 70 ft. in width between the scene docks, which are each 15 ft. deep, making a total of 100 ft. for working room; beneath this is a large cellar, capable of receiving the heaviest set scenes that may be required. Care has evidently been taken that this part of the theatre should be unexceptionable, judged of under our present lights.

The green-room, refreshment and retiring saloons, dressing-rooms, ballet-room, property-room, wardrobe, treasury, and numerous offices, are all convenient.

The carcass was erected by Mr. C. N. Foster, of Whitefriars; the iron roofs, girders, and columns were made by Messrs. Rankin & Co., of Liverpool; the modelling and decorations were by Mr. E. W. Bradwell, of Great Portland-street, and Mr. Parlyb, of Rathbone-place, from designs by the architect; the iron staircases by Mr. Pountney, of Blackfriars-road; the gas fittings by Messrs. Jones, of Bow-street, Covent Garden; the furnishing was by Messrs. Green, of Mortimer-street; the sunlight by Messrs. Strode, of St. Martin's-le-Grand; the slating by Messrs. Squires & Owen, of Oak Wharf, City-road; and the iron doors by Messrs. Clark & Co.

Mr. John Hurley superintended for the builder; Mr. Bilborough acted as foreman for the excavations and brickwork; Mr. Joseph Derry, as foreman of carpenters; Mr. Mesher, as foreman for Messrs. Rankin. The whole of the stage was entrusted to the care of Mr. William Mather, and the portico to Messrs. Bellman & Ivey.

We may add in conclusion, that the total expense is estimated at about 25,000*l.*, and that Mr. Shepherd will pay a rental of something like 2,800*l.* a year for the remainder of his term, after which a larger rent will probably be obtainable.

AND here, in the theatre, we to-day drop the curtain on the year 1865, with all its good and evil,—its successes and shortcomings,—“things incomplete and purposes delayed.” We have played our own small part on our own small stage at least with earnestness and good intentions; and we have many reasons to be thankful for the reception graciously accorded. When the bell “rings up” next week, for 1866, the manager will be found, as of old, at his post, and the company ready to show “the very age and body of the time, his (architectural) form and (constructive) pressure.” We shall not disdain “sensation” in our sanitary efforts, if good is to be gained by it. Our scenic artists will do their best; heating, lighting, and ventilation will, of course, be attended to; and even the orchestra, representative of beauty translated from seeing into hearing, will not be neglected. We will listen to good prompting, come from what quarter it may; and will let every supporter we have, from far and near, take a part in producing a whole which shall show all the

doings of the sister arts in the three kingdoms, and somewhere beyond. With thus much by way of epilogue, we make a grateful bow to all kind friends before and behind the curtain.

GEORGE GODWIN.

MODERN ART IN ROME.

WITH November opens a season when certain public works suspended during the summer, particularly those in subterraneous places, recommence in Rome. Catacomb-excavations are now again in progress, under the direction of the Chevalier de Rossi, though we understand that funds are so low as to prevent the Archaeologic Committee responsible from undertaking much in this walk for the present. On the Palatine, the works ordered by the French Emperor, and directed by Signor Rosa, continue without interruption, though not in any late instance rewarded by discoveries of special interest; while those in the crypt-church of St. Clemente, not yet completely disencumbered, are also kept up through the whole year by the zealous father-prior, Mullooly, who had the merit of first reopening this long-buried basilica, probably of the fourth century. In other directions, on the Quirinal and Esquiline hills, we have to notice labours that are much altering the aspects of those classic sites, as the formation of new streets (in their hitherto state merely roads, without houses) and the central railway station near the Diocletian Therma; also the improvement of the steep approach to the papal palace, which has already changed the entire level of the Quirinal on one side, and as to the architect's plan been much criticised; nor does it, indeed, appear that 100,000 *randi*, the sum voted, will be compensated for by any results characterized by beauty or imposing features; the amount of 83,000 *scudi* spent (we are assured) in the sole task of demolition, with sacrifice of certain offices built by Bernini, being to all appearance most exorbitant. Restorations of churches, St. Paul's, S. Maria in Trastevere, S. Angelo in Pescaria (close to the Octavian portico), and S. Nicolo in Carcere, continue at the usual slow pace. The principal undertaking in sacred art now progressive is the series of colossal mosaics, from designs by Cousini, on the façade of the Ostian basilica,—their subjects, the Saviour enthroned between St. Peter and St. Paul; on lower level, the Adoration of the Lamb, from the Apocalypse, with the mystic cities Jerusalem and Bethlehem; and below, between the windows, four major prophets,—altogether a grandly-conceived and appropriate composition, that far surpasses all else contributed by modern art (in painting at least) to this great new church. For an altar-piece in the same temple is now being prepared, at the studio of mosaics in the Vatican, a magnificent copy, in the same art-form, of the “Assumption,” by Giulio Romano and Penni (from Raffaele's design), a picture in the museum at that place, to supersede the indifferent altarpiece in oils, by Camuccini, that now hangs in a transept of the basilica.

It is rarely that we hear of any memorable addition to the sacred art adorning other public buildings than churches in Rome; but in every way entitled to regard is a large fresco lately finished by Minardi, in a throne-room (not well lighted for its display) at the Quirinal Palace, its subject, “The Propagation of the Faith,” treated in a manner indicating a high order of imaginative powers, as well as great technical skill; in the upper part of this fine picture being seen the Saviour triumphantly floating in air, amidst adoring saints and angels, with the banner of victory in His hand; Abraham in the act of his intended sacrifice, and Moses, with the legal tablets, immediately at His feet; under their figures, a symbolic river, from whose waters are drinking lions and lambs (type of evangelical concord); lower, on the plain of the foreground, the Apostles, St. Peter in the midst, about to start on their sacred mission for converting the world, a group admirable for the character of calm heroic resolve in the heads, and the incipient movement, expressing the moment of departure, in the figures. Externally to those groups, in far distance, majestic forms of “sworded seraphim” driving away the Demons of Error and Discord. The work gives a high idea of the undiminished powers of an artist whose reputation dates from at least half a century ago; and Overbeck's fresco of “The Escape of the Saviour

* See p. 399, ante.

† See pp. 924, 925.

from the Jews by passing over the brink of a precipice" (to represent the invisibility stated in the sacred narrative), on the ceiling of another room in the same palace, appears cold and feeble when we examine it immediately after admiring Minardi's picture. The studio of the last-named artist is little known to the tourist world in Rome, nor does it seem to be his desire to lay himself much open to their visits. Designs in crayon, and finished drawings in water-colours, are there seen in much larger number than oil-paintings, or any others beyond the incipient stage; but the immense variety, the vigour and feeling manifest in subjects of the most opposite walks, classic and romantic, historical and devotional, leave an impression of astonishment after a visit to Minardi's studio. On some of his sketches may be observed dates so far back as 1812, 1817; and, among those of latest origin, we noticed to admire "Dante's Virgil in the Elysian Fields," "The Combat of Borletta," the invading "Gauls on the Forum," "St. Paul dictating an Epistle in Prison," "Ugolino and his Children;" the last, a treatment of the story quite terrific in pathos. His "Holy Families," and other evagelic subjects, are pleasing, but comparatively feeble, at least where the artist has confined himself to long-beaten paths; where rapid action, complex grouping, or romantic grandeur is aimed at, his success is eminent; and, amidst a school so fallen as is assuredly that of Roman painting at present, Minardi outshines all competitors.

Consolini has also displayed much power in the work peculiarly his own, and never, perhaps, more strikingly than in the two series he is now engaged on,—the cartoons for the mosaics above noticed, and others for sacred groups to adorn the mausoleum of Prince Albert, ordered by our Queen: the subjects of the latter, a Crucifixion, with many figures finely grouped; the four Evangelists for the spandrels of arches; also (these not yet among the cartoons visible), the Nativity, Resurrection, and Ascension,—those hitherto prepared being of high merit, and the separate figures, both for the mausoleum and for the mosaics, of genuine majestic character.

Consolini's talents has already been made known in England by other works commissioned by our Queen,—*"The Hours and Loves"* in the State Ball-room at Buckingham Palace; and he has been one of the artists engaged on a decoration in continuance for about four years past, the frescoes and stucco reliefs in the porticoes of the Vatican Loggie, his contribution here consisting of thirty-two small pictures, *quadrants*, illustrative of the evangelic history, which, together with stuccoes alike of sacred subjects by the sculptor Galli, adorn the compartment now called by a new name, "Loggia Pia." Another, known as the "Loggia dei Zucconi," from the artists who once decorated it, has been restored with new paintings, similar in character and subject, by Mantovani, whose work was of about three years' duration. The Vatican Palace, under Pius IX., has indeed become renovated.

Coghetti and Gagliardi are the two painters most esteemed in Rome, after the above-named, both actively employed at present; the former, who excels in battle-pieces, subjects from Roman history, having lately sent to Vienna one of his most admired and original pictures, "Brutus addressing the People over the Body of Lucretia in the Forum," the latter being still, after about nine years' occupation on the same series, daily at work on his frescoes at S. Agostino,—Scriptural subjects and others, from the lives of Augustinian saints already reported upon in our pages.

The modern pictures presented (according to usage) to Pius IX. after acts of beatifying or canonizing, illustrative of those individuals' lives who have received such honours, now form a collection in a hall of the Vatican, to which access is obtainable. Few of these can claim a high place; others are scarce above mediocrity. "The Virgin and Child appearing to the Beata Maria degli Angeli," by Budens, a German artist settled in Rome, struck us as in purity and sentiment superior,—indeed, poetic. "The Saviour appearing to the B. Maria Alcocque," by Podesti, is theatrical and glaring. "St. Giovanni del Britto and the Japanese Martyrs," by Gagliardi, has some dramatic power; and the work of a young artist Francasini (lately become eminent), the "Beato Pietro Canisio,"—a Jesuit, addressing Charles V., who is seated in company with a cardinal, has, justly been praised, being an example of vigorous conception and well-toned colouring. We may notice, by the same artist, a fresco lately

finished, over the chancel-arch, of the S. Lorenzo basilica, "The Virgin and Child enthroned amidst Saints," also distinguished by a feeling and skill that confirm his title to stand high among Italian competitors in one walk.

Returning to the Vatican, we have to observe that Podesti's frescoes illustrative of the Immaculate Conception dogma, are not yet made public, though accessible; and that an antique mosaic has been laid on the pavement of the same hall, containing that series, which we do not find improves on further acquaintance; for it is precisely where the aim is highest,—where spiritual grandeur is demanded,—that the artist proves unequal to his task. The pomps of worship at St. Peter's, the synod of cardinals and bishops, are indeed well composed and striking; but the celestial vision, seen hovering above, fails in every attribute we look for in so sublime a range. There is, generally speaking, an academic affectation and coldness in this Roman school, of which Podesti is a recognised representative; and its peculiarities are such as remind us of the hired model or the *tableau* on the stage, rather than of Nature or Truth. For the above-named series, that artist was to have received 18,000 scudi; and one new trait of the generosity of Pius IX. is the augmentation by 3,000 scudi, ordered as token of his satisfaction with the performance.

We believe the Roman sculptors were generally disappointed at the results of the Dublin Exhibition, where few of their works were sold, except a colossal statue of the Pope, and a small group by Lombardi; and we were surprised to find, among those sent back, the admirable bust of Cardinal Wiseman, by Benzonzi. Visiting the studio of the latter, in the marble, his large group of the "Flight from Pompeii" (the mother and child protected by Glaucus, as in the well-known Romance), this being one of Benzonzi's most able and original works, highly dramatic, and conveying the terror of the catastrophe with a truthful pathos. But is it a subject suited for sculpture in its higher aims? Tenerani's fine monument to Pius VIII., has not yet appeared, though all is ready, in its place at St. Peter's, where, it seems, no other appropriate spot will be left for such colossal memorials after the erecting of this last; and it is understood that Pius IX. desires to have his monument in the splendid "confessional," lately finished before the high altar of S. Maria Maggiore. Another monument has been projected, and subscription towards it set on foot, by the Irish ecclesiastics here, to a well-known theologian and writer, their countryman, Wadding, the historian of the Franciscan order, of which he was a member, who lived and laboured long at the convent of S. Isidoro, where he died in 1657; and the community of which convent—in fact, a college for theologic studies rather than a house of cloistral retirement,—set on foot this project, giving the commission to an artist of great abilities, Jacometti, who has arrived a very pleasing design. After all that has been said and done respecting the new church at the English college, in Rome, the subscription for which has been long in progress, after the announcement of this decision for a Gothic type in architecture, and the all but decided commission of the work to Mr. Pugin, we hear the plan has been undergone considerable modification; that the Gothic has been abandoned, and the Byzantine style preferred; and that no English architect, but a Roman, Count Vespignani, long engaged by this Government, and the author of many church restorations in this city, is chosen for the undertaking desired to be conspicuous for scale and splendour.

A WALK IN "CANNY NEWCASTLE."

I HAVE just had a survey of Newcastle, on my journey south. It is not my first visit to the town; but it is the first time I have had an opportunity of seeing through it. If the capital of Roman Northumbria is not a "canny" place, certain I am that its people are: so the name is not misapplied. Unless accommodated by some servant for a half an hour skyward, I should fail to convey to the reader its contour; but I will content myself, hap-hazard, by saying that it is a most up-and-down, in-and-out, eccentric-looking place.

I was certainly struck with surprise each time I looked upon the Tyne, whose water for miles is dotted with such a wealth of shipping, and its banks studded with such a mine of wealth, that

the quays of such a river (if quays I can properly call them) should be so dingy, despicable, and dilapidated-looking. With a coal trade of two centuries' standing, and an iron trade rivaling that of the Clyde, not speaking of its chemical and other kindred branches, here is Newcastle this day, with a worse landing-place for its import and export trade than any town with half its pretensions that I wot of. Speculating landlords, and speculating and philanthropic builders and citizens, and self-made engineers as self-made men, have done much for Newcastle that she can never forget; but her corporations, old and new, must have been woefully remiss, for they have been and must be undeniably rick, to neglect the evident and essential improvements that the town required. However, they are talking of attempting these now.

Newcastle possesses a few good streets; Grey-street, for instance, at the head of which stands the Grey Testimonial, a not unhandsome column, surmounted by a statue of the earl. Grainger-street and Clayton-street are also fine streets; but the majority are merely so-so. Leaving the quay-side, you pass up a thoroughfare called The Side. It is an antiquated, if not the most antique street in the town. The old cage-work structures in it and its approaches remind you of Elizabeth's or Queen Anne's time. Crowstep-gables and projecting windows, while the shop-fronts recede beneath, are still characteristic of the Newcastle side. Half-way up The Side, at the foot of Dean-street, a noble stone arch, cutting obliquely at a great altitude, carries the North-Eastern Railway above the level of the highest houses in this street. You may pass up Dean-street, which is the modern route, at once into the heart of the town; or, if you choose, you may pursue your way, with your hand on your knee-cap, up the remainder of the very steep Side, which will bring you up to St. Nicholas-buildings, the approaches to the Stephenson High-level Bridge, spanning the Tyne (a roadway and railway both) from Newcastle to Gateshead.

Overhanging the river, at the entrance to the High Level, is the old castle, whose wall in thickness covers as much as it encompasses. Within the castle is the Antiquarian Museum, and the Society of Antiquaries meets there. It contains a very good collection of diverse antiquities, and is well worth a visit. A time-gang surmounts the castle, and at one o'clock (Greenwich) each day, it rattles and shakes, by its report, the old rusty tenements of the Castle Garth and crumbing Side.

The steeple of St. Nicholas Church, duffly and delicately poised by the springing of flying buttresses from either angle of the tower, is a miracle to the amazed beholder, who looks up from below, and is puzzled to divine by what subtle art and cunning hand it was raised there.

In "Old" Aberdeen, at the College, the Imperial Crown is somewhat similarly supported, but St. Nicholas surpasses it.

The new public buildings of Newcastle do not betray much architectural taste internally or externally. The Central Exchange rooms are spacious enough for the purpose, but it strikes me that the interior arrangement might have been better.

The Town-hall might have assumed another shape, to the benefit and beauty of the town. Its large public room is ill adapted to the wants of either hearer or speaker. I speak independently of mere accommodation and inner embellishment.

The Central Railway Station is a commodious one, and covers a large extent of ground. It has a very fine and wide approach, and a very railway-like appearance. If it lacks taste in any way, this is compensated with what the public need most,—usefulness.

Crossing direct from the Central Station, a few yards will bring you face to face with vestiges of the Roman wall that anciently surrounded the town. If you have a keen sight and an insatiable desire, by condescending to a little humility and inquiry, you may trace the circuit of the wall, and the town also; and you will, I doubt not, be repaid for your trouble by the pleasing reflections, and the immemorial echoes that will break upon your ear.

From the end of Clayton-street you are carried out upon the Scotswood-road along to Sir William Armstrong's iron and ordnance manufactory.

The Scotswood-road side is of recent growth. Like a succulent fibre, it shows the offshoot of the new town creeping out, still out, clasping the fresh loam and the green meadows in its gripe.

There is a public common called the Leazes, somehow or other vested in the hands of the "freemen" of Newcastle. This common is a great acquisition to the town. It answers as a place of recreation and walk for the townspeople on Sundays or other days when time permits. There is another large common further out of town, called the Moor, where the "Newcastle races" are held.

Notwithstanding the existence of these large tracts of ground, Newcastle, with all its trade, cannot boast of a public park. Why, Sunderland, though not very sweet-scented, has begun to deodorise filth in her foul lanes, and develop a public park.

A reverend gentleman has lately told some wholesome truths under the heading of "The Night-side of Newcastle;" but, saving for the charm of aliteration, he might as well have written it the Dayside of Newcastle.

I have strolled in midday and twilight down its sooty Sandgate, up its shadowy Sandhill, and through its ominous Ouseburn; and I have seen the self-same pictures of poverty, filth, and abandonment. The whole panorama was a struggle for life and living. And who was to blame? Not the ill-housed, but those who overcrowded those houses, and stigmatised their inmates for causing the contagion that they themselves created. Windows cobwebbed and muffled with layers of dust; back-yards minus ash-pits or urinals; or, where existing, perches for privy-seats, through surrounding filth, inaccessible. Yet hereabouts Sin and Shame hide their faces, and revel within, while the policeman walks without in the name of "Law and Order."

This is Sandgate in Newcastle,—who shall gainsay it?

There is a large contingent of an Irish population in Newcastle, and some attempts were made lately to fasten upon them the fever and filth-producing cause. This was most unjust: *à la* Ironside in Sheffield—some one ashamed of his name, said, "It's Paddy's fault;" but the terror-stricken censor grew scared, and abandoned his charge.

In justice to the Irish element in Newcastle, I have visited the districts where they most congregate, and I find the charge unfounded. Many of the worst spots in Newcastle and Gateshead contain scarcely an Irish person, and some of the places very few.

Rigid inquiry and inspection have convinced me that the dirt, and plague, and cholera of Newcastle and Gateshead are proverbial and chronic. In the year 1831-32 the Irish element was very sparse indeed—there were perhaps a few dozen,—and yet what havoc disease made in the town. Even two-thirds of a century since, the filth and dirt of Newcastle were terribly censured by an Englishman, and I believe a north countryman.

Collier, in his "Essay on Charters," thus speaks of "canny" Newcastle:—

"While our lower classes of females and children, and even males, during hard frost, absence of ships, or roughness of weather, stand starving, begging, or stealing for want of employment; and, not having been taught the value of time, nor tasted the sweets of industry when young, they wallow in the two extremes of poverty and filth, excess and extravagance in their middle age, and become useless and chargeable in their old. Their wives are dirty, shiftless, and indolent; their children lazy, ragged, and thievish; themselves rude, saucy, and debauched; their parents uncomfortable to themselves, useless to their families, and a burthen to the public; and thus our streets swarm with beggars, our alehouses are crowded with sots, and our parishes saddled numerically with poor."—P. 91.

This terrible picture of Newcastle about 1780, I must say, is not all true of it in 1865, though much of it would stand comparison.

The streets certainly are not crowded with beggars, but the alehouses are crowded with unthinking working men; and the natural sequence is, that the workhouses are swarmed with premature old age, and the public are burthened in consequence. Trade having revolutionized the capital of the North, and the learning of trades been so much facilitated of late years, none need have an excuse for idleness; and few are altogether dependent. But the filth that Collier saw and complained of has quadrupled, and become chronic, in sooth, in several places, within Newcastle and without it, along the Tyne-side, in this year of grace.

What on earth the corporation of Newcastle thinks in the face of all its plague spots and

fever dens, and putrid cesspools betwixt Sandgate and Ouseburn, Heaven only knows; while they are privy to the existence of such neglect, rotteness, and ruin, the part they play is little short of moral assassination.

The sewerage of the town in those districts under review is woefully deficient and defective. Slops and suds may find a channel for themselves at the doorsteps of many of those wretched tenements, or form stagnant pools for the barefooted children to dabble in, for scavengers' visits in these quarters are "few and far between."

The town lacks sufficient public "stopping-places," even contiguous to its leading thoroughfares; and a few public fountains might be erected; their sparseness is conspicuous.

The General Post-office ought to make a move forward, or shift its quarters elsewhere, if not inclined to dress up and improve.

Between Newcastle and Sunderland, the Tyne and the Wear, a little factious spirit of rivalry exists. It is mostly confined to the shipping interests of the respective ports; and their growing capacities. So long as it takes its present direction, it can be productive of nothing but what is good. The Wear has certainly improved apace these last fifteen or twenty years, but there is a deal to be developed and utilized in connexion with both rivers. The ferry station and approaches on the Tyne are certainly rough and uncouth, and the banks on each side of the river are as broken, as jagged, and as ungraceful as can be.

The press of Newcastle need a passing remark. They are doing all they can to make public the crying evils of the town; but the civic Solons seem to be members of the "stand-still movement," and are invariably standing upon the ceremony of doing, instead of acting, in sanitary matters.

While Newcastle is getting old and wealthy, her working population,—a main source of her greatness,—are dropping into premature graves. These are truths anent the boasted capital of the North. Who shall gainsay them,—Answer.

C. C. H.

ARCHITECTURE IN LIVERPOOL.*

It would be impossible to thoroughly appreciate the character and position of architecture in Liverpool without exhausting the subject of Mr. John Foster; and, while making allowances for the bad art that then generally prevailed, we cannot forget that before he commenced his labours there existed in the town at least one architectural monument of considerable excellence,—we allude to the Town Hall. Things ought not to have been so universally bad, when minds had existed in the previous period that could conceive a building which, if not ranking among the highest efforts, continues to this day, from the simplicity, taste, and correctness of proportion which it displays, to attract the attention of the cultivated, among whom it is generally considered to be one of the best buildings in the town. To all who have seen Bath it bears the stamp of its origin, and we are denied the privilege of boasting of it as emanating from native talent. Contrasted with the new public offices, the Free Public Library, the Custom-house, the police courts, it certainly carries the palm; and why so? *Because it was not designed by a corporate official, one who, in this department, is usually chosen, not from his architectural ability, but from influence, and a presumed knowledge of the art of valuation, and other mere common practical abilities, which may be found amongst most shrewd men.* Shrewdness, and what is usually called a *practical* mind, will not help us one little towards the production of good architecture, but perhaps the reverse. The true architect must be somewhat of the poet, *enthusiastic* and earnest; above all, *earnest*. Architecture, instead of being practised as an art or science, has, in Liverpool, become a mere trade, and none but the pure business-man has much chance of success. We need only, in confirmation, point to James Murray, perhaps the only Liverpool architect really and justly distinguished,—and he, poor fellow, to the eternal loss of his art, died when little over thirty. Ye grave and reverend seigniors, and masters of the mysteries of the tape and rule, what do ye say to this "youthful member of the profession?" When, in Liverpool, we possessed such talent, why did we not cherish it? Why was so promising a man permitted to go, if not actually sent, to

Coventry? Coventry may be thankful, but Liverpool should weep. Had we but a little of the Murray taste for the picturesque in some of our leading streets, the force of so healthful an example would have gone far towards correcting the evil influences of the measurer, the builder's draughtsmen, the quantity-taker, and the practical official. There is a dead weight, an incubus, a night-mare afflicting the place which we seem never to rid ourselves of. Architecture is become a matter of seniority, and until a man be past his prime, used up, or bowed down with years, he has no chance. Enthusiasm, we suppose, is considered a dangerous thing, and not until a man's imagination is weakened by age can he hope for scope for any abilities he may possess. The spirit of trade infests everything; and, though we may sell 200,000 bales of cotton in one week, the money so obtained, if partly expended in building, is pretty sure to develop mere display and coarse taste. If we turn to other provincial towns, we find in most, at least, one distinguished man, among whom at the moment we can at once name Waterhouse, Manchester; Brodric, Leeds; Hadfield, Sheffield; Paley, Lancaster; and, if necessary, a host of others. Now, mark this,—Waterhouse, Brodric, Murray, are, or were, when they first achieved their position, very young men. On the occasion of the competition for the Leeds town-hall, Sir Charles Barry, who was called in to report to the committee on the plans submitted, most strongly recommended that of Brodric; and when it was objected—mind, this is always the dodge—that he was but a young man not long out of his pupillage, to the eternal credit of the profession, Sir Charles informed the committee that he considered any one who had talent to produce so excellent a set of plans was quite competent to carry them into execution. Oh! for a Barry in Liverpool when a competition umpire is required; then and not till then, good bye to the miserable dodge by which the Free Public Library dropped into the maws of the officials. Unfortunately, a miserable, carping jealousy exists amongst the profession in the town, and those who are in good practice are averse to admitting others to share it. Cannot all this be cured? We fear it will be a herculean job to eradicate the weeds springing up from the seeds sown in the time of Foster. *Example* is the only thing. But how are we to obtain it when, by a miserable conservative feeling of monopoly, talent is debarr'd the privilege of producing it?—and the evil is so prolific that it settles down in direct line of descent from master to pupil. It is only in the case of a remarkable mind like that of James Murray that the thraldom can be overcome; and we may safely venture to assert that hardly a pupil in Liverpool is properly educated to a correct appreciation of the beauties of the art. Money-getting is the aim and curse of all, and the system is so rank that it were hardly possible for an architect, the *real Simon Pure*, to exist. No; peradventure he has taste; but, say the public, he is not a *practical* man; and so the profession degenerates into the architectural-clerk-of-the-works type. Feeling, as most young men do, that bread and cheese are more important than renovating the destruction of *tissue* than designing castles in Ayrshire, while waiting for commissions, in self-defence they take to measuring, and settle down eventually into the comfortable architectural-duffer tribe.

Our thoughts have carried us into a digression, but it is a digression calculated to bring us to a true conception of the false position of the profession in Liverpool. In the metropolis an architect possesses a proper social position, but in Liverpool his position is very indeterminate, and he feels, in most cases, quite unable to say whether he is any more than on a level with a builder. There are, at this moment, men practising in the town who have done more towards lowering the social status than can be well imagined. This is much to be deplored, and those most anxious to preserve the true dignity, without which no professional man can possess the necessary influence over his client who, in the case of architecture, naturally being ignorant, wishes to impose restrictions and prescribe the style, finds himself impotent for good, if not actually compelled to make arrangements that are quite injurious and unprofessional. Strange, that every one considers he knows more of architecture than the architect he employs; but it would seem, and the fights that an architect of honest convictions has nearly always to make against compo abominations, handsome cornices, architraves, huge windows that an

* See p. 906, ante.

omnibus "full" could be driven through without turning a hair of the horses, bow windows with flat tops, ogee gutters, wooden dressings in imitation of stone, scrolls, or very properly in the language of working men, *scrolls*, preposterous height of rooms, and story above story, often finishing with an attic and blocking. All these, and many other abominations that could be named, are thrust forward, one by one, as more than suggestions, until, unless the architect be a man of stern purpose, for the sake of peace and quietness, he usually gives in. That giving in to a client, on a point of conviction, is one of the most demoralising things that an architect can do, and should not be entertained, if at all, until every means of persuasion has been exercised. From our own experience, the most inveterate supporters of these shams, who are really generally very worthy people—indeed, most worthy—can be turned from his purpose by firm and earnest representation; and when real good, solid, substantial work is carried out, we generally find that the client is better satisfied than if his own intentions, which are born of a total misconception of the true spirit of all art, had been attended to. This is a result for an architect to look back upon with honest pride in thus rescuing another mind from the eternal perdition of a false style of art. Formerly, building meant something honest and honourable; now it means contracts with architectural policemen on the watch, and burglarious workmen dodging, lying, and generally *doing you* on all hands. Alas! what is the remedy? Where is the cure? It is difficult to say, but it certainly does not lie in the perpetration of shams.

The principles of design on which much of Foster's work is founded are these—Choose your *order*; and, having fixed on the scale of your columns,—and mind the proportions and arrangement of parts will be the same, whether your building is intended to be 15 ft. or 100 ft. high,—you arrange them to form a noble portico "in antis;" that is, crushed in between two ugly blocks, usually styled wings; or, if it be intended to attain the highest flights, stuck on to your main block and surmounted with a pediment, usually containing no sculpture, and planted on the top of a grand array of, perhaps, 100 steps, to enable the guide-books to say that this noble building is approached by a magnificent flight of steps, which my Lord Tom Noddy, in his "Travels through Europe," declares are unequalled in the whole world. If your columns are meagre and thin, then be sure they will be called elegant; if the whole is devoid of the slightest relief in the form of decorative treatment, then the world will say it is chaste. The George's Baths are *chaste*. If the shafts are thick, ugly, and well swollen, the capitals like puddings, the architraves a plain lintel, and the cornice a large mass of projecting stone, held down by cramps, then, probably, some man of taste will say that, for "simple solemnity and true dignity, combined with a pervading classic spirit so seldom met with, this noble edifice stands unrivalled." Excepting to point a moral in teaching what to avoid, such work is not worth even a passing notice. What can be more unsatisfactory substitute for a real building than the present front of Lime-street Station? And now it is, if anything, more sensible than formerly, for at present it *does* perform the usual purpose of a screen-wall, while, according to the original design, it merely hid a number of low station buildings at the back. It was intended to be a grandiose sham *façade*, but even in that proved a failure. Murder will out; and the openings for light, or what is called the fenestration, at once betrayed the true character of the building. Why all this straining after unrealities? Why this perverse disposition on the part of architects to be discontented with the object for which their designs are made? Would a hat look any better if it pretended to be the shell of a nautilus; or top-boots made to resemble canoes, with a prow at each end? Would a lady's dress—and this was actually done—prove irresistible if covered all over with Corinthian capitals? No, certainly not. Then, why, by all that is simple, honest, and true, is it considered necessary to make so common a thing as a railway station like a series of arches of triumph, with gates that never open, of a proportion so colossal that it would puzzle even a second Samson to walk off with them? Why all this affectation of grandeur? Can we not be contented to take things as they are? Can we not arrange the plans of our buildings first, and, taking advantage of the natural picturesque which a good plan usually dis-

covers, arrange and combine the masses in the most natural and simple manner, with an eye to an agreeable variety of form which shall at once explain the nature of the internal arrangements, be pleasing in light and shadow, pure and unaffected in detail, and thoroughly well studied throughout? It is an Englishman's boast that he calls a spade a spade; but, strange inconsistency, he usually desires to persuade himself that his houses have no roofs, else why should he be at such great pains to conceal them? But more especially in the public buildings is this the case, for where John Bull wishes to be grand it is considered essential to spread a thin disguise over everything. We are unfortunate in most of our public monuments—the Wellington Column, to wit; and we may here ask, why should we send all the way to the canny North for the necessary description of talent when the spirit of ugliness runs riot among our native artists? We Englishmen, who are so blunt, so frank, so open, so honest—or, at least, persuade ourselves that we are so—in the matter of taste are now quite below our proper level, through nought but the want of applying the same principles to our work that are in the relations of life considered moral axioms that all should try to act up to. It is not from any innate defect of organization, but simply because the true principles have been lost sight of, and swamped by the spirit of trade. There was a time when the meanest cottage partook of a picturesque character, when the simplest details exhibited taste, when all were so imbued with the right spirit that they seldom went wrong from actually not knowing how. Though we may use the same style, still our so-called Gothic is infected by the same affected spirit; and, in this age of competition, the most sensational design is usually the favourite. Sensationalism is as bad in its way as dullness: both are artificial and wrong; and, to break up a design into small masses for the express purpose of making it picturesque, is a distortion of the great guiding principle that should animate our designs, which is, that all the principal beauties should arise from the inherent nature of the plan and arrangements.

LIVERPOOL.

WASTE LANDS OF IRELAND.

LONG a prey to internal commotions, the improvement of this island was retarded, and the natural increase of population repressed, whilst the advance of commercial interests shows but feebly in comparison with those of the other integral portions of the British empire. In extent exceeding a fourth part of the United Kingdom, having a fertile soil, fair mineral resources, and a climate most favourable for agriculture, the whole area may be computed at 21,000,000 of acres, of which nearly 13,500,000 are arable and pasture, nearly 500,000 acres are covered with lakes, and about 8,000,000 of acres,—more than one-third part of the whole surface,—are waste land or bog, the latter being estimated at 6,610,680 acres.

Possessing great and varied mineral resources, fine harbours, and open to the advantage of teeming bays and plementous fishing-grounds, the productive energies of a population notably industrious in all other countries whither they emigrate, have never been evoked in their native land.

Notwithstanding all these natural advantages, we find that the population, which in 1847 was 8,000,000, has dwindled to little over 5,000,000; and that the great exodus caused by the year of famine was directed chiefly towards America,—a less favoured land, where the strong arm of labour, and that only, could assure subsistence to the crowds who there have since wrought out an independent subsistence.

It would be useless to investigate the causes which conducted to this wholesale emigration of one-fourth part of the population in ten years, or to ascribe their condition to the want of trade, or manufacture, or education; and equally so to reflect upon the turbulent and factious social state of the country, which has been chronic since Edward II. held the first Parliament in Ireland, A.D. 1327.

In the year 1641 the population of Ireland was recorded at 1,456,000, at which period that of England exceeded 7,000,000; and notwithstanding the grants of lands forfeited by successive rebellions, to settlers and English soldiers, still, in the year 1702, there was a diminution in numbers returned by the census of that year of 136,000,—the total number being 1,320,000; and again, in 1785, the whole population only numbered 2,845,952.

In the year 1800 the consolidation of the two kingdoms was accomplished, and the Act of Union passed, since which the population increased at a rapid rate, the returns for 1865 fixing the numbers at 5,937,356, or more than doubled in twenty years!

It would be fallacious to argue that the increase to 8,000,000, in the year 1847, a period of only forty-two years, was a proof of prosperity; the famine of that year, the desolation and emigration that followed, clearly demonstrated the inability of the island to meet the awful visitation; yet we find, that despite the want and misery of the masses, the trade and commerce of the country had wonderfully advanced, and that year by year the imports and exports, the customs and excise duties, continue steadily to increase, even up to the present date: not only is the status of the better classes much elevated, but the condition of the cottiers, called here the working classes, is also ameliorated; they are now better clothed, better fed, and better educated.

There have been in this century, it is too true, futile attempts at rebellion; one in 1803, which may be enumerated as the fifty-third that had been suppressed within the lapse of three centuries under British rule, and a futile attempt to assert Irish independence in a cabbage-garden, anno 1845, when Smith O'Brien and his accomplices were transported; but these had small sympathy from the enlightened inhabitants of the land who had tasted the sweets and the security of British protection and legislation. As to the recent Fenian fanaticism, although the complicity of a large section of Irish refugees in the American Republic may lend to it the semblance of support from a powerful and free people, the farcical development of such futile treason, and its disavowal by all that is respectable in the United States, as well as by the Roman Catholic Church in Ireland, expose the mischievous attempt only to the contumely of all sentient men.

If this last commotion has prejudiced the interests of Ireland, and disturbed the national equanimity, it has also afforded abundant proof that all that is respectable in the land, together with four-fifths of the whole population, are not only adverse to that wild and wicked conception, but they are loyal to the Crown and Government of the State; and what is of still greater value, it unmistakably discovers that the hierarchy and pastors of the Romish Church view their fiendish plots as inimical to law, order, and religion.

Thus a new era has dawned upon Ireland, and the time has arrived when the Legislature may with confidence adopt measures for the restoration of order, for the improvement of the condition of the people, and for the extension to the sister island of a share in that prosperity which England so eminently enjoys.

The great evil and the crying plaint of the Irish peasantry have always been that nature had made their country fertile, but that there was no place left for them to till; that the lands were one-fourth part waste, but that there existed no provision authorizing them to reclaim and cultivate it; that while the ox was fatted, and the land teemed with sustenance, they were left to starve; the cottiers were evicted; and yet there was no labour market open to them. Is it then to be wondered at that, when the fore-runners of emigration tasted in America the fruits of labour and industry rightly applied, they lured their kinsfolk across the Atlantic to participate in results which persevering industry obtained in a less genial clime, from a soil even inferior to their beloved Erin?

It has been proved from undoubted statistics, that there are vast tracts of bog and waste easily reclaimable; that there is a redundant and unemployed population amounting at least to a million, whilst three millions of acres remain, and have been for ages, in a state of utter desolation! If this were a new discovery, it might be thought a providential interposition; but these facts have been palpable, and have been often announced by various writers, for fifty years: Sir Matthew Barrington, Sir Richard Griffiths, and Mr. R. M. Martin (author of the "History of the British Colonies"), have often forcibly proclaimed them.

As to the feasibility of reclaiming vast tracts, and dedicating them to agriculture or pasture, there are abundant evidences; as also as to the value of the soil when so reclaimed; examples are cited by Mr. Martin of bog land in Limerick, with a depth of 20 ft. of peat, which was not worth 2s. 6d. an acre, but which on being drained and warped, was worth 30s. an

acre per annum; and also of mountain and waste lands in the counties Monaghan and Galway which repaid by the second year's crop the whole outlay of reclamation. What is required is not the fencing in of mud lands from the sea or from lakes, but only the reclamation of bogs and wastes by drainage, dressing, warping, and fencing.

Such wastes and such bogs are spread over every county of Ireland; but as arterial ducts and canals on an extensive scale would be required to carry off the water, and as these would influence many square miles of country vicinal to the line, private enterprise could not cope with the difficulties and expenses of works which, when effectuated, would serve as outfalls for large tracts above their drainage levels, but not subjected to their operations. There would also arise difficulties in obtaining the concurrence of great proprietors, unless, by Act of Parliament, and the favour of Government to such a project, all bogs and waste lands coming within the influence of amelioration and drainage by such means were made liable to an acreable charge for the expenses incurred; or that the great and motionless proprietors should be obligated to lease them to farmers, under the Commission, at a rent proportionate to their former unimproved value.

Whilst Great Britain imports from abroad so large a quantity of daily subsistence for her growing multitudes, the acquirement in Ireland of even one million acres of pasture land would be a gain to the whole community; whilst such a consummation would give employment and comparative independence to a million of our fellow-subjects, at present without an acre for spade cultivation, and houseless except in those instances where an acre and a hovel are rented by them at 5s. a year!

The production of butcher's meat alone on two millions, or even one million acres of rich pasture, would thus be a boon and an indemnity to the population at this side of the Channel, as it would be a work of mercy to the Irish people, hitherto suffered to pine in indigence, to plot rebellion against the Government, which appears so regardless of their condition, or to scrape together so many shillings as may transport them to distant and free lands, unreclaimed and wild, where there is an open market for willing labour.

The writer has for some time endeavoured to establish a company of mixed organization, consisting of Irish notables and English capitalists, to carry out such a project upon an extensive scale; but although numerous M.P.s and proprietors favoured the idea, and still cherish the hope of success, none could be embodied without Government support. The recent condition of Ireland has not been favourable enough to induce capitalists to hazard money on investment of Irish *terra firma* or Irish bogs; but if an Act of Parliament were obtained, and a guarantee by Government of only 3½ per cent. upon reclaimed lands, it is hard to suppose that valid security so near home should not command support at least equal to investment in foreign railways or other commercial schemes.

The success of such a project,—and under the ægis of Government there could be no doubt of it,—would at once change the whole face of the island, and the character and condition of its inhabitants, while their natural faculties would be brought out. It might not at once stop the exodus, nor would it be desirable to thwart the tendencies of emigration amongst an overcrowded, a dislocated, and destitute people; but it would form the basis for a more contented and prosperous régime, and substitute loyalty for the germs of discord. Happily the subsidence and total failure of the Peman folly, and the manifest loyalty of nine-tenths of the population, including all that is respectable and industrial, augurs well for our national prosperity. What benefits Ireland must benefit England, and the industry which recedes millions of acres from desolation, converting sterility into teeming abundance, would amply repay the outlay, so comparatively small, by supplying to millions the products of the reclaimed wastes. As to the erection of small but suitable homesteads, which the Irish peasant never had, the increased value of reclaimed lands might justify hereafter the advantage of funds in aid to secure so important a provision.

T. H. H.

THE BRITISH MUSEUM.—A refreshment-room has just been opened at the British Museum, for the convenience of visitors to that establishment.

THE LATE SIR CHARLES EASTLAKE.

CHRISTMAS, in Queen Victoria's reign, has been Campo-Santo-mooded "towards and about" Carthusian scholars. Thackeray and John Leech have been newly taken from among us,—the former at Christmas-tide 1863; the latter at Christmas-tide 1864. Both lie

"A little interval between."

And now Christmas-day, 1865, has brought to London, on electric wires, the not unexpected news (shall we call it?) that the representative in presidential person and Italian arranged palette of English art is no more.

The lines (the words, rather) are to the purpose:—

SIR CHARLES EASTLAKE,

at Pisa,
December, 1865.

Telegraphs are quicker than they were some quarter of a century since (1841), when they carried to Sir Peter Laurie—Union Bank—word that Sir David Wilkie died on the Mediterranean and was buried in it. What art in England has lost in Sir Charles Eastlake we will not attempt to guess; what our Royal Academy of Arts, in Trafalgar-square (London's centre), has lost it is easier to tell. Sir Charles Eastlake—beyond his art—was a conciliatory gentleman; proud with purse and without purse; one well read in books, and in spite of nature, educated in art as he was, well read in mankind.

Sir Charles was wrapt up in his art,—his soul was in his calling,—what he attempted he did to the best of the powers allotted to him. But wise Mrs. Jameson said, that the race,—or succession,—(to use a longer word) of Virgin Mary painters went out with the Reformation.

Whilst St. Paul's is open we must indulge rather in regret than in idle sentiment or needless panegyric.

It has been seldom found that a painter cares much about a sculptor, or, indeed, an architect; Reynolds did not enter into the poetic soul of Banks; West looked upon far-souled Flaxman as an undrabbled Quaker; Sir Thomas Lawrence, liking what he did not understand, for the sole sake of peace or forbearance, threw himself into the paint hands of Keeper Fasel.

To manage forty men, to leave the ruck, and to keep them within themselves, is an art which Sir Joshua did not care to understand,—and Sir Charles did understand. To replace a president like the gentleman and the bland "courtier" we have lost (and must miss) will not be an easy matter of "circumlocution" or detail. The question of his successor will be a difficult one.

That the name of Eastlake will be spoken of hereafter with honour by future Walpoles, Waagens, and Wormuns, we have no doubt.

THE PREVENTION OF STRIKES.*

The demanour of the workmen when occupied by their duties, is the subject of several "Articles." Thus, it is said that the place of work once arrived at, in the morning or after the meal-time, the workmen ought not again to go away,—as men do sometimes, the foreman at the head, to get "a drop," without any necessity other than the passion for drink; for, besides that the work suffers, there results a very bad impression against the establishment, on the part of those who witness such occurrence. To smoke in the place of work is forbidden to the workmen and employes of each class, not only because it has bad consequences in one respect, but because joined with the smell of paint it is disagreeable to those visiting the works,—the persons being often ladies. A stranger is not allowed to come upon the works, on any pretext. No workman, in the absence of the foreman, is to enter the premises where the work is in hand, without a line in writing, signed, the day of his presenting himself, or day before, by the head of the concern: this writing he has to show to the door-keeper of the premises. Ordinarily, careful workmen deposit things belonging to them in rooms or cupboards, of which they keep the keys: this, the rules say, ought not to be the practice; since, in case of accident, people might suffer wrong imputations. The keys, ticketed, should be deposited in the warehouse of the colours and utensils, or with the door-keeper. When work is about being done where there are

valuable articles lying about, the workmen ought to desire that the things be locked up, or that some one be set to take care of them. And it is said:—

"The honour of a workman being his entire fortune, he cannot too much guard against the accidents that might injuriously touch it."

Every workman late in the morning, or after the meal-time, is expected, that very evening, to say at the office, or to send, a word stating the time lost. If he be obliged to absent himself for the day, he is to give notice beforehand to the establishment, and to acquaint his immediate superior, or he will be considered as having left altogether; and on re-entering, he is to apply for orders, to the office, and get his instructions; or the foreman will refuse him. No workman is to go to execute orders without being sent by the foreman; and the workman is not to quit the office without inquiring if there is anything to say where he is going.

In a note, M. Leclair refers,—as he had in the rules, of earlier date, noticed in our last article, of the Society,—to the asking for treats and drinking-money. He says,—

"We lay down no Article with a view to interfere with the keeping 'Monday'—it might have been understood, like ourselves, that this day is devoted to work."

The introduction of an Article to forbid demands for drink-money, was not necessary, more than the other. Our workmen have all alike understood that these descriptions of demands are not only humiliating for him who makes them, but moreover offensive to those to whom they are addressed; they are, besides, sufficiently punished with their dignity of man, to know that everything ought to come to them from work.

When illnesses, or some unforeseen misfortune, place them in the necessity of accepting the secours that may be offered them by a gentle philanthropy, it is not already sufficiently hard for them,—without their proceeding to humiliate themselves, to demand, in some sort, alms, when they are in full vigour, and when jobs are not wanting to them?"

He repeats, however, the admission, that there is a distinction between a "pauvre" asked for, and a gift offered; he intimates that to refuse the latter might be a want of respect,—the act not being one of charity, but a testimonial of satisfaction, which the workman would accept for the Society, as directed in its rules, feeling that the destination could be only approved by the giver without ever humiliating the receiver.

There are modified regulations applicable to the case of works in hand in the country. The wages are paid one day later, and the workman makes out his note a day earlier than in the town; and he includes in the note his travelling-expenses, and advances that he may have received. Arrangements are made for the workmen getting more remunerated time per day, than can be got in Paris. The wages are the same as the town-rate, namely, 50 centimes (4d.) per hour; whilst one franc a day, additional, is allowed for expenses, whatever the season or length of day. The hours of work cannot be changed by the foreman without authorization. The expenses of the journey, from and to Paris, are paid: also, time during the day, spent in the railway-carriage or diligence, is paid for; but time so spent at night, is not. When the journey is long, and by railway, the workman may be authorized to make use of the second class. Exception is made to the payment of return-expenses, where a workman does not wish to remain in the country during the entire duration of the works, or is dismissed for misconduct. But the return-expenses are paid in case of illness, certified by the physician of the district. The time spent on the journeys, and that of the first and last days, is paid for at the same rate as days in Paris. When the workman leaves for the country, he is specially directed as to the course to take so that money may be paid to his order in Paris. His wife, or other representative there, can receive no money on his account without presentation of the order from his hand, countersigned by his foreman. The foreman receives the papers, or *bons*, from Paris, with the amounts of the salaries, and hands them to the workman as money. Before leaving Paris, the workman squares accounts at the office; and there are given to him, besides the price of his fare, five francs in advance. The foreman holds money that may further be required. Before starting, the workman furnishes himself with his *livret*, visé by the commissary of police. This measure is merely in obedience to the French law; which requires every workman to be in possession of the *livret*, the little book that serves in place of the passport of ordinary travellers. It is pointed out that country-inkers and dealers have generally an opinion of the workmen of Paris not favourable to the latter, and that to reas-

* Vide pp. 737, 758, 774, 811, 845, 867, 884, ante.

sure those parties, the men should pay their expenses daily. When a workman comes back to Paris, he hands in to the office the documents having relation to his claim, countersigned by his foreman: what is due is paid to him on the following Saturday; or, in case of necessity to fix another day, he receives something on account: though, should he have again to go to the country on the day even of his return, a settlement takes place before his second departure. The workman is bound to take charge of, on each journey, tools and goods to the weight that the railway or diligence company will allow.

Certain special regulations have to be attended to by the foremen of works in the country. There is handed to the foreman on his departure, in exchange for his receipt, a sum from which he is to pay his own fare and the amount for excess of weight of the materials and things taken by himself and his companions. His receipt is handed to him when accounts are balanced on his return. The foreman also takes with him, 1. A letter of installation and introduction; 2. The itinerary of the route to the destination, with the hours of departure; 3. Documents, relative to the works in the country, prepared specially on blue paper; and 4. Tools and materials in sufficient quantity for use to the time when he may demand in writing a further supply. On receipt of these latter, he sees if anything has been damaged; and if so, he specifies the loss to those who were charged with the carriage,—availing himself, if necessary, of witnesses, and of the form of summons by the proper legal officer. On arrival at the locality of the works, it is the duty of the foreman to inform himself, and send particulars to head-quarters, concerning the cost of materials in the neighbourhood. Thus, for painters' work, he ascertains the cost of linseed oil and turpentine per 100 kilogrammes; and if there be distemper work, he ascertains the price of white. He also ascertains the quickest and cheapest modes of transport, and whether the journey can be made by night; and the readiest means of sending the money for wages, giving the address as exactly as possible. He is to send a weekly report of the state of the works, and has to conform to special regulations mentioned further on.

The accounts for the workmen in the country are kept, in Paris, from the documents or papers (*feuilles d'atelier*) connected with the particular works, and from the notes of declaration of time, that the foreman sends every Thursday, having verified and signed them; the notes having been delivered to him on the Thursday morning, by his men, but inclusive of the Friday, and not omitting mention of the expenses and advances. The documents should be received in Paris and remitted to the foreman, with money, so as to enable him to pay on the Sunday, and again send the documents to Paris. Each workman paid signs his name. Should time happen to be lost during the Thursday and Friday, that had been marked beforehand, the foreman keeps back the proper amount for it; and gives notice to the officiant head-quarters, in order that the account may be corrected at the next time of payment. If the foreman is sending men back to Paris, he makes out an account of their time, and sets down the money that he gives them. No workman is sent back, so long as he owes anything in the locality; but should he be short of means, by reason of his having to be sent back in the period between two pay-days, the foreman would pay for him, and give notice to head-quarters. The "*Article*" says that the head of the concern attaches essential importance to there being nothing that can give ground for malevolent reports against the persons in his employ. In consigning things to the care of a returning workman, the foreman gives to him a list of them; which the workman has to deliver at the office of the establishment on arrival. When he sends things back by other means, he makes out two lists, one of which he gives to the carrier; and the other (on which is noted any price agreed on for the carriage), he sends by post, so that it may arrive first. The directions to be observed on the foreman's return, are equally precise. Thus in sending back a ladder, he is to put the direction on each arm, or pole, of it, even when the two arms are tied together. Having sent off everything, and not till then, the foreman returns to head-quarters; where he delivers the certificate of the proprietor or architect, attesting that the works have been done in accordance with the orders, and also delivers the documents having relation to the accounts.

The foremen, and their duties, form the subject

of the most considerable section of the "*Articles*." The foremen are divided into three classes. A foreman of the "first," or rather the lowest, class, receives during the time that he is in direction of works, for each day, 50 centimes above the pay of 5 francs: he of the next class receives, in like manner, 75 centimes; and the foreman of the "third," or highest, class, receives 1 franc. The extra sums, beyond the pay of the ordinary workman, are given to the foreman only at the end of December and on the 15th of February of each year, unless he should be leaving the establishment: in that event, payment is made as soon as he has given in his accounts and fulfilled his engagements. The workman adopted as foreman receives a basket of tools belonging to the establishment, and becomes responsible for everything. He only resigns some of his immediate functions to foremen of particular branches, who direct their own men: but he would interfere were there apparent necessity. In short, the special foremen are to come to an understanding with the general foreman; whose decision is to be taken under all circumstances. The general foreman is expected to understand that those who come for short periods of time, to help, on his works, require to have their labours facilitated as much as possible: he will therefore be ready with ladders, utensils, and materials of all kinds that they may need. When the special foremen do not remain on the spot, the general foreman will take their instructions and execute them. The foreman of the works of external painting or plastering, has generally more reason to be aided in his works, than any other. The tints that the latter has to apply are to be prepared by the foreman-painter. It is observed that the greatest harmony should reign between all the foremen,—since they work all for the same head of an establishment; and when there are several works going on in the same neighbourhood, mutual assistance should be given with tools, materials, and men.

"Every difference between comrades should rest at the door of the workshop. The duty of the foreman consists in acting only with the greatest justice towards all the men who are under his surveillance,—in having regard neither to nation, nor country, nor humour of each; but only to the good conduct and aptitude of the individual: he ought in giving his orders, especially to deal tenderly with the self-love of the person,—to incite rather than command,—the head of the establishment exacting nothing but the accomplishment of the reciprocal duties, and the exact execution of the regulations.

Every injustice on the part of the foreman ends but in compromising the interests of the concern; it is for the just man to do to others only that which he would wish should be done to him.

The foreman knows by experience, how it is little agreeable to publicly receive imperious orders: he knows, besides, that at the point of civilization where we are; it is not fear that inspires men with respect and obedience, but enthusiastically reason.

In fine, when a workman comes to work for some hours in a place of work, the foreman ought to give him by preference, work of an agreeable sort."

The foreman is authorized to select a workman to second him, or, if necessary, to replace him. In the latter case, the workman's responsibility becomes as that of the foreman; yet he is not to demand the extra pay, unless after having received a letter from the head of the establishment to the effect that he is accepted as foreman, or under-foreman; in which case he will get the pay of the foremen of the lowest class.

When the importance and extent of the works require more than ten workmen at once (as in the case of works, mentioned afterwards, to be executed in a short space of time,—as in a single night), the foreman ought to divide the whole body of men into groups of ten men to each group,—demanding at head-quarters, the help of a foreman for each group; and each foreman of ten men being under the direction of the chief foreman in the case. Orders given by the head of the establishment are to be executed scrupulously, without discussion of results; otherwise, defects ensuing would have to be made good at the cost of the offender.

The foreman being called to represent the concern, his appearance ought to be befitting the work; and he ought to keep up his rank.

"Charged with the direction of the works, no one but he is responsible: all the faults of the men under his orders are considered as his personal faults. If he were not severe on those who swerved from their duties, he would have to render account of them."

The foreman also is responsible for lost and broken tools, and materials that have got mixed. Certain regulations following, as to the commencement of works, are similar to some that have before been referred to. There are given to the foreman:—1. A letter to acquaint the architect, or proprietor, with the foreman's name

and mission; 2. A paper on which he is to set down day-work of the men and apprentices, and the time of the measurer,—which paper is to be inspected by the head of the concern when he visits the place; and, 3. A paper of instructions relating to the works. He demands tools and materials, and then men. When the works are finished he gives in, on the very day, his last statement; in which he will mark if the works have been measured; and if there are remaining, tools, or something to be done. If the importance of the works is not such as to require measurement, he states what materials have been employed. Lastly, if observations have been made to him by the proprietor or his architect, he mentions them. In case of decorative-painting, he has generally to give a separate statement for each matter, and not omitting the name of the person who has executed the work, besides information whether the latter is *artiste* or pupil.

He is never to absent himself from the works in hand: but if he wants materials, he is to send one of the workmen, in the morning, to head-quarters; or if he wants anything in the day, the man sent is to note down the object of his coming, in a book, that is kept at the office, and to affix his signature. When circumstances require a larger supply of the things wanted, the foreman is to make use of printed forms mentioned afterwards. When he receives the materials, or tools, he signs a receipt for them on the original order-paper remitted with them.

On the first day at a fresh place, after giving to the *concierge* his name and that of the concern,—so as to avoid delay in receipt of letters,—the foreman, with the assistance of the architect or proprietor, examines the condition of the premises, noting down such things as chimney-pieces, and panes of glass, broken, and bells out of order; and on the termination of the works, he makes a similar survey, noting the state of everything, before locking up and delivering the keys. In painting or colouring the fronts of houses with the aid of the contrivance which is suspended from the roof, the foreman ought not to go upon the roof at first, without having with him the chief man of the roof-covering branch of the business of the concern, who is to give the foreman a note of the price of the re-statement of defects then appearing; and when the painting is finished, the same functionary is to be again called,—that is, to value the new defects, and give a memorandum thereof, which the foreman preserves. In default of these formalities, the cost of reparation of the roof-covering is to fall on the foreman. When works are suspended, the foreman returns his *feuille d'atelier* and *état de travail* (papers already alluded to) to head-quarters of the establishment, and notes down the state in which the works are left, the day and the cause of the suspension, and the date when they should recommence.

Some suggestions in reference to the saving of expense in details, apply so exclusively to painters' work, that we put them aside. But with these are observations that may be quoted. M. Leclaire says:—

"When there are in progress works in an inhabited house, the foreman watches that no injury be done in the rooms where work is not going on; he does not in the least permit that the workmen rest there during the hours of refreshment; and in the evening, on quitting the place of work, he takes care to close the windows, or at least the shutter-blinds (*persiennes*), so that the wind or rain may spoil nothing during the night.

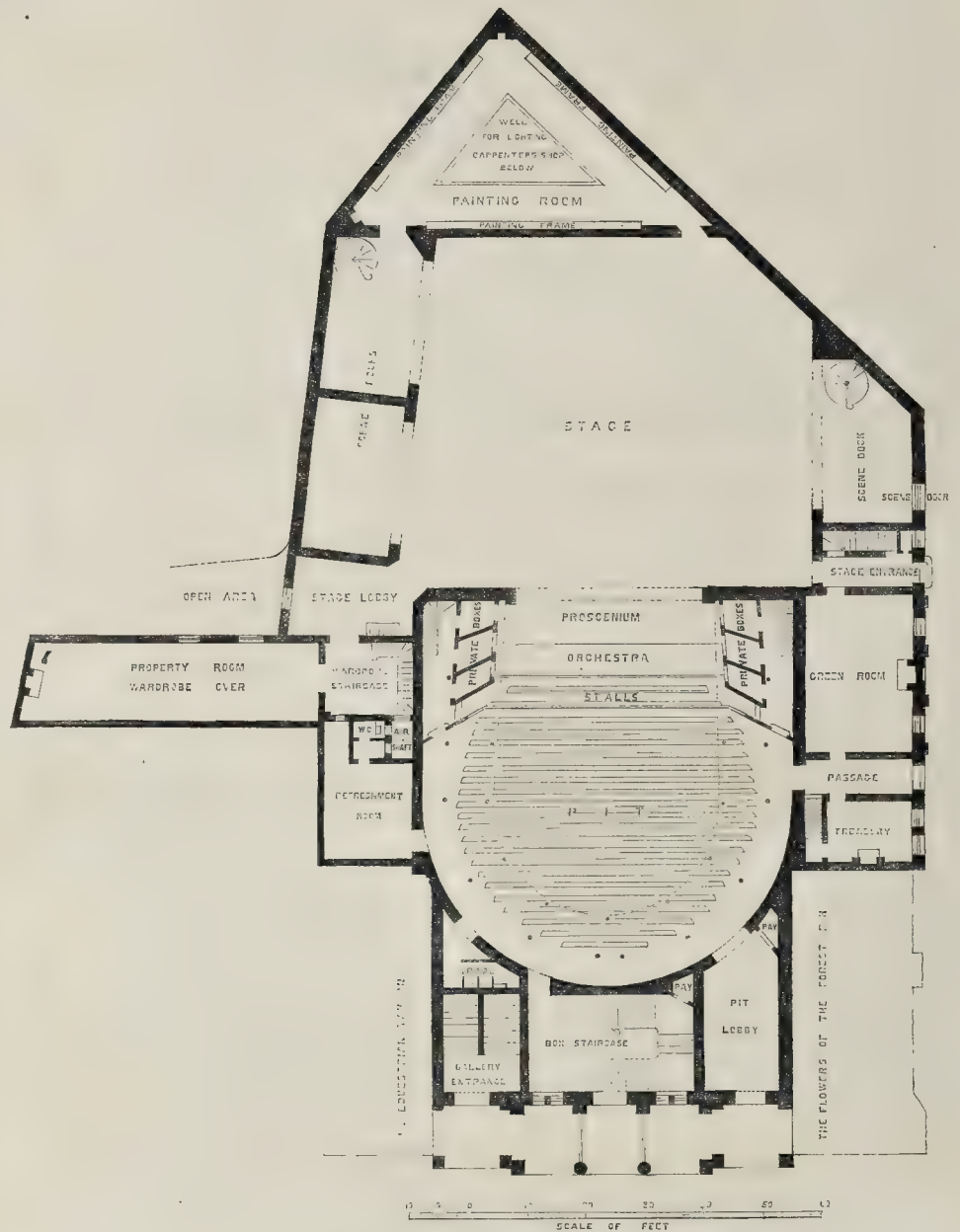
He takes care, besides, that the staircases are not in any degree dirtied; that neither dust nor dirty water is spread in the courts; and that dirty water or refuse are not thrown into the closets.

If in spite of the precautions taken, some injuries occur, the foreman will cause them to be repaired at the cost of the establishment.

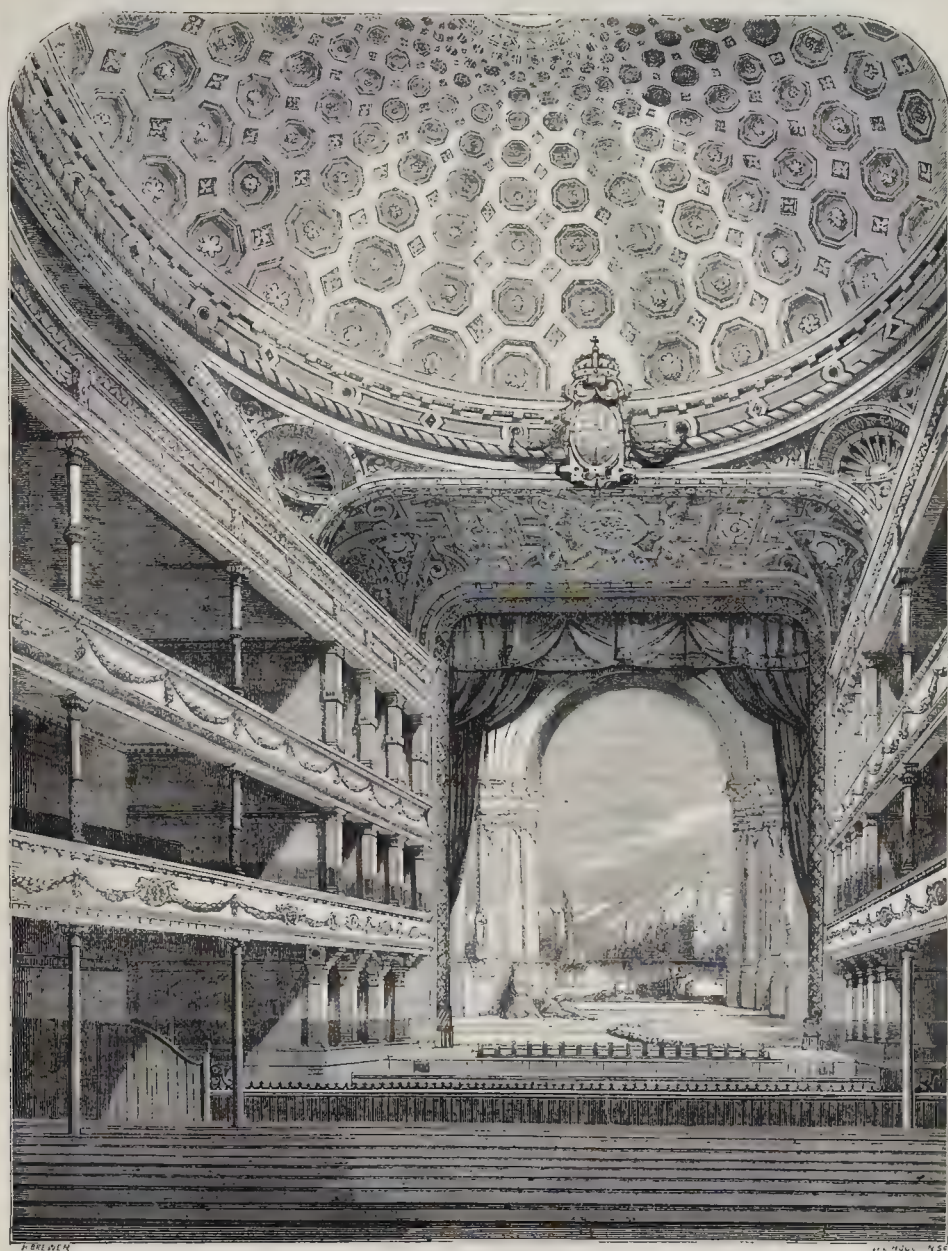
Finally, if observations be made as to certain portions of the work being executed otherwise than the parties would have desired, he will execute those works over again, if the individuals require it. He will avoid observations tending to prove that the person is in error; for, the best reasons can never justify a defect."

The next "*Articles*" of the "*Règlement*" concern the relations of the foreman with proprietors, and architects, and with actual occupiers of premises. We must treat of these in another paper.

ST. JAMES'S TOWER, TAUNTON.—The churchwardens have been stayed in their intention to proceed with the entire rebuilding of this tower, by an adverse vote of the vestry. It is to be hoped they will not endeavour to proceed further without special guidance by professional advice.



ROYAL SURREY THEATRE.—Ground Plan.



ROYAL SURREY THEATRE, BLACKFRIARS ROAD, LONDON.—MR. JOHN ELLIS, ARCHITECT.

[See p. 918, ante.

THE ARCHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening (the 22nd inst.), at the House, in Conduit-street.

The chair was occupied by the president, Mr. R. W. Edis.

The following is the scheme of prizes for the session 1865-66, as arranged by the committee:—The Association prize, of two guineas and a half and one guinea and a half, respectively, to the designers of the best and second best series of sketches contributed during the session; a prize of the value of two guineas, for the best summary of the subjects treated at the meetings of the class; a prize of two guineas for the best series made by members of the figure-drawing class; a prize of two guineas and a half for the best essay on the influence that the works and practice of architects of former days should have on the architecture of the present day; the president's prize of five guineas, for the best set of sketches from existing buildings in England or abroad, of date anterior to 1700; the Architectural Union Company's prize of 5*l.*, for the best design for a pair of dwelling-houses, the cost not to exceed 700*l.* the pair; the Association prize of 2*l.* 10*s.*, for the second best design on this subject; Mr. Tite's prize of 5*l.*, for the best design of a street elevation, with details of a shop front; Mr. Godwin's prize of five guineas, for the best essay on improvements in the artistic design of ironwork generally for modern domestic purposes, with sketch designs illustrative of the subject.

Messrs. Charles F. W. Whitley and J. W. Kennedy were elected members of the Association.

Mr. Plumbs read the report of the sub-committee appointed to consider the best means of obtaining the publication of the transactions of the Association, which, after a short discussion, was agreed to.

Mr. J. D. Mathews (honorary secretary) then read the prize essay on "The Materials most appropriate for London Exteriors," and submitted specimens, including stone, brick, tiles, terra-cotta, artificial stone, &c. His opinion on the whole appeared to be that the best stone for the London atmosphere was Portland, when well selected.

Mr. Blashill, in moving a vote of thanks to Mr. Mathews, observed that, in his opinion, any material for London exteriors which required frequent painting was wholly inadmissible. All porous stones might, he thought, be avoided; and that the great object should be to get a stone which would polish, or rather rub, like the Mansfield stone,—something, in fact, which would not absorb the smoke, nor be affected by the injurious acids incidental to the London atmosphere. While on this subject he suggested the desirability of steps being taken to cleanse the street statues and monuments from the accumulation of filth upon them.

Mr. Lemon pointed out objections to the use of terra-cotta, except in combination with brick-work; and, observing on the best stone for London buildings, said that he believed Portland would last much longer than it did if means were taken to have it properly cleansed from the accumulation of deleterious matter to which it was subjected.

A member inquired whether Mr. Mathews had found any bricks of less than 3 in. in thickness? Bricks of 1½ in. or 2 in. thick, were used with very good effect at Rotterdam, and other cities of the Continent.

Mr. Mathews said, he did not know of any brick being manufactured of less thickness than 3 in., except the glazed ones made by Minton.

Mr. Colling advocated the use of terra cotta, on the score of durability, and explained that the great difficulty in dealing with it, was to procure it without twist in it.

Mr. Ridett suggested whether slabs of tile with conventional ornamentation, might not be appropriately used. Such slabs might be fixed by means of projecting grooves of brick. They could also be used for the reveals of windows instead of cement, which often decayed, and required periodical painting. He suggested also whether it might not be possible to introduce mosaics, such as those made by Mr. Rust.

The Chairman observed, that he had had some experience of terra cotta, but that he had been obliged to abandon it in consequence of its twisting. He did not think that an artist who put his thought and feeling into the design for ornamental work, could possibly get them faithfully reproduced in terra cotta. Then with re-

gard to stucco, too, he might say that he did not approve of any medium which could be used to gloss over defects. He had also had some experience of marble for London exteriors, but he could not recommend it, as the polish soon became obscured with dirt, and the marble resembled common stone. He thought the Association was much indebted to Mr. Mathews for the great care which he had devoted to the preparation of his very interesting and useful paper.

The vote of thanks was unanimously agreed to. It was then announced that the next meeting would be held on the 5th of January, when Mr. Britton would read a paper "On Fir and Pine as used in modern Buildings."

The class of design will re-assemble on the 12th of January, when the subject will be the west window of a cathedral.

THE INSTITUTION OF CIVIL ENGINEERS.

The annual meeting was held December 19; Mr. John Robinson McClean, president, in the chair.

The report said, there seemed to be no reason why, at this time, any limitations should be introduced, or any restrictions be imposed, tacitly or otherwise, which might operate to render less comprehensive and complete the perfect embodiment of the profession in the Institution; and in that view efforts should be directed to consolidate all branches under one corporation, and thus to add materially to the power, influence, and importance of the profession at large.

The tabular statement of the transfers, elections, deceases, and resignations, showed that the number of elections had been 142; of deceases, 21; of resignations, 5; and of emigrations, 8; leaving an effective increase of 103, and making the total number of members of all classes on the books on the 30th of November last, 1203.

An examination of the statement of receipts and expenditure showed that, during the year ending the 30th of November last, the receipts from subscriptions and fees alone amounted to 3,950*l.*, as against disbursements of all kinds of 3,511*l.*; while the income account was further increased by the dividends upon trust-funds amounting to 353*l.*, and upon other investments (not being in trust) of 400*l.*, as well as by miscellaneous receipts to the extent of 350*l.* The realized property of the Institution now comprised:—1. General Funds, 12,510*l.* 3*s.* 6*d.*; 2. Building Fund, 2,502*l.* 5*s.* 5*d.*; and 3. Trust Funds, 9,970*l.* 12*s.* 7*d.*; making a total of 24,983*l.* 1*s.* 6*d.*, as against 22,541*l.* 5*s.* 6*d.* at the date of the last report.

The Benevolent Fund, established in connexion with the Institution, twelve months ago, had since been fully organized, and a committee of management appointed, who would in due course have to report to the subscribers to the fund. It might, however, be stated, that the donations actually received amounted to 22,782*l.* 17*s.*, and the annual subscriptions for 1865 to 712*l.* 16*s.*

The following gentlemen were elected to fill the several offices on the council for the ensuing year:—Mr. John Fowler, president; Messrs. Joseph Cubitt, C. Hutton Gregory, T. Hawkley, and J. Scott Russell, vice-presidents; Messrs. James Abernethy, W. Henry Barlow, J. F. Bateman, Nathaniel Beardmore, J. Brunlees, T. Elliot Harrison, G. Willoughby Hemans, John Murray, G. Robert Stephenson, and G. Vignoles, members; and Messrs. Joseph Freeman and John Kell, M.P., associates.

GLASGOW INDUSTRIAL EXHIBITION.

THE building in which the exhibition is held at 99, Argyle-street, contains four large floors or flats, with ante-rooms. The ground floor of the exhibition contains upwards of one hundred models of stationary and locomotive engines of varied and novel construction, ingenious mechanical apparatus, extensive collection of coloured and photographic mechanical illustrations, specimens of artistic relief, works in malleable iron, &c. Then in the first gallery, in addition to the bust of the Prince Consort, and Messrs. Wylie & Lochhead's drawing-room, there are groups of statuary, richly inlaid cabinet and glass work, collections of Chinese and other foreign ornaments and curiosities, valuable contributions of articles of *verru* in gold, silver, enamel, and alabaster, and ladies' fancy work of all kinds. The second gallery embraces an extensive collection,

illustrating to a very minute and admirable degree the sciences of geology, botany, zoology, mineralogy, and ornithology; also, microscopes, aquariums, illustrations of chemical products, electric clocks, and illustrations of the mechanical powers. The third gallery contains contributions from gentlemen possessing the finest art collections in the west of Scotland, and others; also portraits and busts of eminent gentlemen, and paintings, drawings, and designs by working men. In the photographic gallery are specimens of the art from the best-known firms in the profession; also interesting private collections. Ante-rooms are set apart for operatives engaged in the manufacture of needles, glass ornaments, brushes, weaving of plaids, &c.; also, two large glass engines are in constant motion. Arrangements have been made for exhibiting George Cruikshank's great painting "The Worship of Bacchus."

BUYER AND SELLER.

LINDSAY V. PRICE.

THIS was a suit before Mr. Commissioner Kerr, in the Sheriff's Court, to compel the specific performance of a certain agreement for the sale of a house in Elliot-court, Old Bailey, for the sum of 400*l.*

Mr. Everitt, for the plaintiff, produced the contract, duly stamped, and also a receipt for 25*l.*, paid as deposit, stating that, although every effort had been made by the plaintiff, defendant refused to complete the business. Plaintiff had sold the property to a Mr. Cox, who was a sub-purchaser; but in Chancery it was usual to make the first purchaser the party to the suit.

After evidence as to the absolute sale to plaintiff, Mr. Vigors argued for defendant that he had merely offered to sell the house, and there was no binding acceptance of the offer. It was simply an offer signed by the seller, but not by the purchaser; and if it had been signed by the purchaser, no doubt it would have been binding.

Defendant, who appeared to be very infirm, said: I am eighty-three years old, and was the owner of the house in question. I ceased to be the owner a few days ago. I sold the house then, and got 500*l.* for it, though it is worth more. I was paid for it by a 500*l.* note. I do not know the gentleman who bought it, nor even his name. I never understood that the 25*l.* were a part of the purchase-money, but only a loan.

Upon this evidence his Honour ruled that defendant had failed in his answer, and that plaintiff was entitled to a decree as prayed.

FROM SCOTLAND.

Edinburgh.—Queensberry Lodge, intended "for the safe accommodation and reformation of females in a respectable position in society, addicted to habits of drunkenness," is now, according to the *Scotsman*, rapidly approaching completion, and will be opened in May next. The building is situated in the south back of Canongate on the grounds of the House of Refuge, and has been designed by Mr. James W. Smith, of Edinburgh, architect. It is in the Scottish Baronial style. The cost of the entire building has been estimated at 4,500*l.*; but only 3,100*l.* will be laid out at present.

Leith.—The new wet-dock works are progressing. A breakwater, nearly 3,500 ft. in length, now stretches from the east shore, adjoining the glasshouses, to the pier which forms the east side of the entrance to the harbour. This bank encloses an area of 36 acres, of which the new wet dock will occupy 10½ acres, and the basin and lock about 3 acres more, leaving about 22 acres for quayage, wharfage, roads, &c. It has to serve for a coffer-dam, when the excavation for the dock and entrance-basin is taken out behind it. The bank is a mass of loose rubble, pitched with large square stones, founded for a depth of 2 ft. into the sand. The stonework is rendered watertight by means of a bank of puddled clay 8 ft. broad at the base and 4 ft. broad at the top. A row of cast-iron sheet-piling, tongued and grooved into each other, is driven for a length of 2,800 ft. into the centre of the clay puddle, from the level of the ground to the strata of natural clay beneath. The clay puddle is sufficiently protected by a bank of sand filling behind. The breach which had been left in the bank for the flux and

reflux of the tide has been successfully closed. At the present time, there are about 65,000 cubic feet of stone facework ready-dressed for setting in the walls of the dock. The greater part of the stone has been procured from the quarries at Craigmillar Castle, on the property of Mr. Little Gilmour. The total cost of the whole undertaking is estimated at £24,500. The old quay-wall having given indications of decay, the dock commissioners are at present constructing a new wall from the lower drawbridge to Broad-wynd, a distance of 220 ft.

Jedburgh.—Mr. Leslie, C.E., Edinburgh, has visited Jedburgh for the purpose of examining the Blackburn springs, which have been offered by Mr. Fair, of Langlo, for the use of the burgh. Mr. Leslie came to the conclusion that the various springs available would yield about 54,000 gallons per day. There are at present 5,000 inhabitants in the burgh.

Dunbar.—A stained glass window has been placed in the parish church, in memory of the late Admiral Hay, of Belton, and three of his sons. The window is one of the two large ones in the east end of the church, and one on the right side of the pulpit has also been fitted with stained glass. Both these windows are large, being about 23 ft. in height by 9 ft. in breadth. The artists were Messrs. James Ballantine & Son, of Edinburgh. The subjects in the three upper compartments are—“The Raising of the Widow's Son at Nain,” “The Angel appearing to the Marys at the Tomb,” and “The Raising of Lazarus.” In the lower compartments the subjects are—“The Centurion's Faith,” “The Visit of Nicodemus,” and “The Lifting of Peter from the Waves.” The space at the top of the window, consisting of a good deal of open work amidst ornamental mullions, is filled up with scrolls emblematical of peace.

Alloa.—The new county buildings and sheriff court-house, for the county of Clackmannan, at Alloa, have been formally opened. The building, which fronts to Mar-street, is in the Flemish Gothic style of architecture. The sheriff court-room is a hall on the upper floor, capable of accommodating 500 or 600 people. The entire cost of the building is about 8,000*l.*, half of which sum has been defrayed by Government.

Gretnock.—The large east triplet window of the Old West Church, and two single lights, also in the east elevation, have been filled with stained glass, the former illustrating “The Last Supper,” the centre light containing our Saviour with St. John, and the side lights containing the remainder of the Twelve Apostles. This window is presented by Sir Michael R. Shaw Stewart, bart. The two single lights are memorial windows. These windows, along with the other stained windows in the church, were designed and executed by Messrs. James Ballantine & Son, Edinburgh.

Unburton.—The Burgh Hall has been formally opened. The style of the hall, and the academy immediately in front, is French Gothic. The building presents a frontage of 133 ft., having a central tower 145 ft. high. The public hall will accommodate about 750 persons, and the total cost of the building will amount to about 7,000*l.*

ETIOLOGY OF THE CATTLE-PLAGUE.

THE cases which occurred in the establishments of Lord Granville and Miss Burdett Coutts are supposed, with others, to have shown that cleanliness was no great preventive—that filth was no predisposing cause—of cattle-plague. In what we have frequently said in the *Builder*, not only filth, but overcrowding, and not only overcrowding, but want of ventilation, were explicitly pointed to, before the cattle-plague appeared, as of all them but two probable elements of some future plague; and after the plague did appear, we still dwelt upon these elements as probably comprising amongst them the predisposing cause of the disease. Some farther light upon this subject appears to have been shed at a recent meeting of the Cattle-plague Commissioners, when Dr. Ballard, the medical officer of health for Islington, presented a statistical table, containing a list of the cowsheds in England, arranged in the order of their attack, showing the cubical capacity of each; the cubical space allotted to each cow in the several sheds; the habitual cleanliness or dirtiness of the sheds; the source of the water-supply; the situation of the dung-pit, whether within or outside the shed; the number of cows habitually kept; the number of cows attacked and dead since the

outbreak of the plague; and the results of disinfection. Most of the results deducible from these statistics were given *verbis* in the evidence. The *Medical Times*, in giving an account of this table and of the evidence, says:—

“Taking the cleanly and habitually-neglected sheds, the outbreaks have been about the same proportion in each. Dirt alone does not appear to have generated the disease in the establishments in Islington. There are, however, three conditions which Dr. Ballard's experience seems to show have exercised some influence in predisposing to the outbreaks in the sheds. One of these conditions was the *crowding of the cows* within the sheds. The cubical space allotted to each cow in the sheds which had become infected was on the mean 600 ft.; while in those which had remained free up to the end of November, the mean space per cow was 805 ft. To put it in another way, there are upon Dr. Ballard's table the measurements of seventy separate sheds. In nine of these, where the cubical space per cow amounts to 1,000 ft. and upwards, four sheds, or 44 per cent., were attacked; out of twenty where the cubical space per cow amounts to from 800 to 1,000 cubic feet, fourteen, or 70 per cent., were attacked; and out of forty-four sheds, varying in capacity from 200 ft. to 600 ft. per cow, thirty-five were attacked, or a proportion as high as 79.5 per cent. Another condition which appeared to favour the outbreak in the sheds was the custom of some cowkeepers of *storing their dung in a pit situated within the shed itself*. . . . The third condition referred to is the *source of the water supply*. . . . Dr. Ballard told the commissioners that a similar proclivity to suffer from lung disease was manifested in 1857 in sheds which were crowded, and where the dung was stored within the shed; and deduced from this that the influence exerted by these conditions were not to generate the cattle-plague poison, but to predispose to its operation.”

Disinfection, by means of limewhiting and the free use of chloride of lime, is shown by the table to have been efficacious as a preventive.

“These observations,” continues the *Medical Times* “are important not only on account of the light they throw upon an obscure point of etiology, but also because they show that similar conditions operate in promoting allied maladies in man and in the animals which he keeps for his service, and that similar rules of sanitary administration are applicable to both. . . . The influence of overcrowding, fermenting food, accumulations, and contaminated water (in the case of cholera and typhoid especially of contaminated well-water), are recognised facts in human etiology.”

From Dr. Ballard's statistics it would appear that cattle-plague, in his opinion, partakes of the nature of typhus.

LEEDS LADIES' SANITARY ASSOCIATION.

THE annual meeting of the Leeds branch of the Ladies' Sanitary Association has been held in the Philosophical Hall, Leeds, the Bishop of Ripon in the chair. The report read by the hon. secretary stated that “amongst the operations of the Society was the diffusion of sanitary knowledge by means of tracts, about 3,000 of which had been distributed, and the beneficial effects of which had been very great. They had also granted quantities of sanitary articles, including some cwts. of soap, and a great number of brushes, pails, flannel, floorcloths, lime, &c. It was not, the Association thought, foreign to their objects to ask why Leeds people should die earlier and in greater proportion than the inhabitants of many other large manufacturing towns, or why a murky, dense atmosphere should be allowed almost at all times to cast its gloomy mantle over us, depressing the spirits, defiling our persons, damaging our furniture, and soiling our abodes?” The Bishop, while expressing his strong interest and approval as to the doings of the Association, recommended an avoidance of the controversy which at present exists on the subject of sanitary matters in Leeds. A resolution, however, was passed to the effect, “that as the undue mortality of the borough of Leeds is to a certain extent to be attributed to its defective sanitary condition, tainted atmosphere, overcrowded dwellings, and want of cleanliness, it becomes the bounden duty of all classes to unite with the authorities in the removal of these evils.”

CONCRETE HOUSES.

As you have already given a brief description of my invention, I beg to add, that the cottages now erected at Bexley Heath for public inspection are built of concrete the proportions of which, in cubic yards, are as follows:—

30 of gravel stone, through ½-in. sieve,	
at 6 <i>s.</i> per yard.	£3 15 0
3 of Portland cement, 16 bushels to the	
yard, at 2 <i>s.</i>	4 18 0
6 of drift or river sand, at 6 <i>s.</i>	1 10 0
	£10 1 0

Thirty cubic yards will build 120 yards of 9-in. work, at a fraction over 1*s.* 8*d.* per yard.

The preparing of the concrete can be done by a four or six horse power portable engine, which will crush the material, mix the concrete, and lift the same up to the stage, or, say, *bracket-scaffolding*, so that the cost of labour must depend upon the ingenuity of those who build, *finding a licence*. From my own experience I find labour will not cost more than 9*d.* per yard; at the same time you will perceive there are many advantages my mode has over brick-work. The chimney-flues being round, the draught is much sharper, doing away with smoky chimneys; also being quite smooth, the core being turned round when required to be raised higher, it acts like a plasterer's steel trowel, and they can be swept perfectly clean, as it is the shape of a sweep's brush. I may also mention, for fixing joiners' work, small blocks of wood, to form a dovetail, are simply put inside the apparatus: the concrete, running round the block, brings it flush with the work, thereby making good fixing for skirting, stairs, and other work. Also, upon the above principle, blocks are inserted, and afterwards redrawn, to form indentations to receive the joists for each floor. I may also add, the walls are quite impervious to damp, and are fit for occupation in three months; therefore I trust you will deem my work of importance, especially for the working classes.

JOSEPH TALL.

EASEMENTS: COMPENSATION.

SIR.—The following novel doctrine of easements was propounded at the Sheriff's Court, Red Lion-square, on the 15th instant, in a compensation case, *Balls v. The Metropolitan Board*.

Mr. James Knight, surveyor to the vestry of Mile-end, Old Town, said on oath (it may, therefore, be presumed that he was serious), that the defendants having constructed a tunnel through the claimant's freehold ground, and under a part of his dwelling-house, without leave or license, to occupy the same for all time, and as the claimant is prohibited by the 18th & 19th Vict., c. 120, from building over the said tunnel, he is entitled to compensation at the rate of one shilling per cubic yard for the clay thus removed, which in this case, he said, was 100 yards; 5*l.* was therefore the proper sum to be awarded. This opinion may be a benefit to the public generally, and to the profession in particular; I hope, therefore, you will give it a place in your columns.

A WITNESS IN THE CASE.

THE CROZIER QUESTION.

CITY CROSS, WINCHESTER.

THE last of the correspondence in our columns on this subject appears to have struck the keynote of the final decision of the question, whether the crozier in statues should be held in the right hand or in the left, for it is quite in accordance with the conclusion come to from Mr. Scott's explanation on this question—a “momentous” one at least to the contractors for the restoration, and others, the settlement of whose accounts was delayed in consequence of the statue of William of Wykeham having represented him as holding his crozier in the right hand, with a book in the left. Mr. Scott's defence of his design is, that there is no rule at all,—unless, indeed, it be that in just such a case as that in hand, the crozier is rightly held in the right hand, while a book is held in the left; but that the crozier appears in either hand, according to circumstances. Mr. Scott gave a numerous list of examples of the crozier in the right hand, among which are the following:—

Winchester.—Bishop Fox's window. St. Swithin is shown with the crozier in his right hand.

Another in the same.—Supposed to be William of Wykeham, and believed by Winston to be *in situ*.

Winchester, St. Mary's Chapel.—Wall painting. Bishop carrying crozier in right hand.

Norwich Cathedral.—In the cloisters, south side, crozier in right hand and model in left.

Ely Cathedral.—On one of caps under the lantern. Bishop reading funeral service over St. Audrey. Crozier in right hand; book in left.

Amiens Cathedral.—Sculpture on exterior of choir screen. Two bishops with croziers in their right hands.

Wells Cathedral.—Upper niche in north-west tower. Bishop kneeling, crozier in right hand.

St. Cross, Winchester.—In the west window. Ancient glass surmounted by modern work. In the central light is a bishop, holding crozier in right hand and book in left.

Southwestern light of same tier has a mutilated figure, showing lower part of crozier in right hand; book in left.

Cologne Cathedral.—Reclining effigy on altar-tomb, fourteenth century. Crozier on right shoulder.

Magence Cathedral.—Twelve bishops, in alto-relievo, life-size, fixed against pillars of nave, thirteenth, fourteenth, and fifteenth centuries. Croziers in right hand.

Worms Cathedral.—An old diptych of the Romanesque period, representing St. Peter, St. Paul, and two other saints, one a bishop, carrying his crozier in his right hand.

Zweigenen Cathedral.—Sepulchral effigy of bishop; crozier in right hand; book in left (Heffner ii. pl. 43).

Caracasos Cathedral. Fifteenth century.—Tomb of bishop; crozier under right arm.

Oxford diptych, or New College Chapel. in painted glass of Wykeham's date.—Four bishops, with croziers in right hand.

Roxen.—Stained glass. A bishop, with crozier in right hand, open book in left. Also a bishop, with crozier in right hand, and closed book in left. Both fifteenth century.

Moxen.—Panel painting. Bishop seated; crozier in right hand; book in left. Fifteenth century.

Santa-Croce.—Bishop standing; crozier in right hand; book in left. Stained glass. Fourteenth century.

Kosen.—The archbishops in the windows of one of the churches, one with staff in right and the other in left.

In such cases as those of the act of blessing, the crozier is held in the left hand. Authorities, Mr. Scott found, differed entirely, some insisting in all cases on the left hand, and others on the right; but the examples show that, in fact, there was no rule.

The committee resolved, "that Mr. Scott's report be inserted in the papers; also, that Mr. Scott's charges be paid as soon as the assets are realised; and that an application be made to the Council for payment of any balance relating to the restoration of the Cross."

A CATHEDRAL CLOSE, AND THE CLOISTERS.

"THE Precinct of a Gothic Minster" was the title of a lecture delivered by the Rev. Mackenzie Walcott at the Architectural Museum last season. This is now published in a pamphlet form,* and we take from it the information supplied under the headings the "Close," and the "Cloisters;"—

"The Close.—A wall, gates, and a system of fortifications were indispensable in unsettled times. The manors and churches of the Border had their strong towers. Durham Palace was one of the impregnable castles of the period, and Wells was moated and crenellated. Not only in Ireland, in the thirteenth century, were Boyle Abbey, in 1210, and the cathedral of Elphin, in 1235 (Eccles., xxi. 22), assailed; but in England, Wherwell, in the reign of Stephen (Mon. Angl., ed. edit., 257), Bayham in 1302, and Peterborough in 1609 and 1381, suffered great loss in war-time; and so in 1327 and 1381 Bury S. Edmund's, Ramsey in 1143, Coventry in the same year, and Binham in the reign of Henry III. (Spelman's Hist. of Sacrilege, 129, 131, 143). In the thirteenth and fourteenth centuries sea pirates and land robbers rendered it necessary to fortify Tynemouth and Bridlington. Cashed has a tower at the west end, and Michelham Priory is defended by a moat and drawbridge. Bradshaw thus describes Chester;—

"Compacted with strong walls of the west parish, and on the other side with walls of the town, Closed on every side with a sure postern, In south part the cemetery environed round about For a sure defence enemies to hold out."

Worcester, Westminster, Durham, Hexham, and Beverley, possessed the right of sanctuary within their precincts. At Bury and Beverley the limits were marked by crosses. At Norwich the Tomland, at Bury and S. Alban's the Romeland, extended in front of the west end, and they were attached. In the thirteenth and fourteenth centuries sea pirates and land robbers rendered it necessary to fortify Tynemouth and Bridlington. Cashed has a tower at the west end, and Michelham Priory is defended by a moat and drawbridge. Bradshaw thus describes Chester;—

The secular canons of cathedrals had private houses built round the close in the twelfth century, in which they were bound to maintain a household (*familia*). One of the old chapels of this period of early date remains in a prebendal house at Chichester. The dignitaries had their private chapels before the choir (*capella prebendaria*). The following rule was made at their first settlement in New Salisbury, where every canon had a private chapel:—*Statuerunt quod primum tantum edificatores tunc canonici quum vicarii de cetero percipientes duas partes justis precii pro superedificatio, tercia parte cedente solo. Remaneant in prebenda omnia solo coherentia appendicia, omnia fixa, una etiam mensa ad minus, cum triplicibus, et sedilia prebende remaneant canonici.* (The fol. MS. Harl. 6985, fo. 17.) The buildings included in a close a chapter-house, library, school, gatehouse, a vicar's close, and a cloister at Hereford, Chichester, Salisbury, Wells, S. Paul's, S. David's, Exeter, Lincoln.

At Chichester the Canon's Lane is entered by a gateway; along the south side are the precentor's house or chantry, the residentiaries' houses, and the deanery. The east end is closed by the palace gate. At the north-east end of the lane were the gateway, the vicar's college, and hall, four houses of which only remain. On the north-west side of S. Richard's Wyne, connecting the lane with the Cathedral, is the treasurer's house, facing the houses of Bishop Sherborne's prebendaries. Along the south alley were the Mortimer chantry-priest's lodgings, and

the chapel of S. Faith eastward of it. The chapter-house is attached to the west side of the south arm of the transept; the chancellor's house stood at the west end of the cathedral. The east gate faced the market cross. The various houses of the dignitaries remain in S. Dunstons.

At Wells there are three gates to the close; on the north-west is the deanery; at the east end are the precentor's and organist's houses; on the north is the vicar's house. The apse and choir, and two canons' houses remain. There is no north walk to the cloister. Over the eastern aisle is the library; and above the west walk are the library and school, schoolmaster's house, and the chantry-house. The chapter-house is on the north side of the church. In the treasurer's house the bishop at his first reception robed for mass.

At Lincoln the office of the clerk of the works and the canon's common chamber remain on the north side of the church. Two gates remain in the close. On the south side of the church are the precentor and subdeacon; on the east the chantry; on the north the deanery; and on the south-east side the vicar's college.

At Durham (B.), in the east aisle of the cloister, was the slype leading to the cemetery, and serving as the monks' parlour, with the library over it; the chapter-house with three prisons on the south side; and the usher's door leading to the prior's lodge. In the north alley were the carols for readers. Near the west alley was the dormitory, built over the treasury, song-school, and common-house; behind it were the infirmary and bowling-alley. In the south alley was the refectory, and near it the bench for children at the Maundy. On the south-west was the kitchen. Between the dormitory and kitchen was the collar's chancel. The prior's house was on the south-east side of the east alley. In the base court on the east was the gatehouse and chapel, adjoining the almonry; on the west were the kin and guest-house; on the north was the chancellor's chequer; and on the south that of the terrar. The mill and watergate still remain. At Laocok, the dormitory and cellars were on the west, the refectory on the south, and on the east the sacristy and chapter-house. At S. Helens, in Bishops-gate, the dormitory was on the east side.

Beaulieu furnishes a good specimen of Cistercian arrangement. The cloister is to the south. Between the buttresses of the nave on the north are the carols. On the west side, parted by an entrance and porch, is a range of cellars, and over it long ranges of apartments, probably the lay brothers' dormitory, next the church, and the guest-hall on the south. On the east side is the refectory, running north and south, with the kitchen on its east side. On the east side are the large ambury for books (Ord. Cist. Uns. p. 141, 142). On the west side, on the slype to the cemetery, and over them the dormitory, with stairs into the south wing of the transept; and extending again westward, over cellars. The abbot's gateway, or the church, and a king's house on the south-west, detached.

Austin Canons: Bristol.—The cloister is in the usual position; on the west was cellars with the dormitory over; on the south, reckoning west to east, the oblong kitchen, refectory, and parlour; on the east, from south to north, the calefactory and chapter-house. In a second range, southward of the hall, were, west to east, the abbot's gateway, the refectory, the kitchen, and the guest-hall, with its hall and chapel to the eastward. On the westward of the church was the great gateway, with stables on the west, and intervening between it and the church were the guest-houses and the vicar's house.

Clugniacs: Wenlock.—On the south was the refectory, on the east, running east and west, furthest from the church, was the dormitory of the lay-brothers; next to it the oblong chapter-house, possibly it communicated with the south arm of the transept over the chapter-house, and by a passage along the west wall of the south wing, below which are three arches opening into the infirmary, screened recesses, parlours for business, or waiting-places of the Clugniacs, assembling before chapter (see Martene de Ant. Mon. Rit., lib. ii. c. 385; iv. 130); or they may, like the niches in the same position at Norwich, have been used during the Mass for the monks to receive the ambury for books. On the inner wall of the transept are three blind arches, with niche brackets, possibly a portion of a shrine. On the west wall was the dormitory, and a chamber over the south nave aisle, used either as a library or a vestry for the day robes of the monks. On the south-east is a two-storied abbot's house, with a double gateway opening on the inner chambers and private oratory. To the south is the infirmary.

Premonstratensians: Easby presented a very irregular ground plan. On the east side of the cloister were the sacristy, chapter-house, and kitchen. On the west, the refectory, and the kitchen and dormitory on the west, with the sub-prior's lodge and guest-house, in two parallel lines westward. On the north side of the transept were the abbot's lodge, hall, and chapel.

Carmelites: Hulne comprised in its cloister court on the east side of the dormitory and chapter-house, and kitchen, on the south refectory, on the west the prior's lodge. In a parallel line with it, but detached, were the great tower, infirmary, chapel, and base court gate, and at right angles to these on the south, running east and west, were the porter's lodge and guest-house.

Dominicans: In the Dominican Friary of Norwich, the cloister was bounded on the west by cellars, on the north by the kitchen, on the north-west by the refectory, and on the east from north to south, by the dormitory and chapter-house, between the last two was a detached chapel of St. Thomas. On the south side of the nave was the preaching yard.

Franciscans: Muckross.—On the west was the prior's house; on the north the refectory over cellars, and a kitchen adjoining, between which and the prior's house was the entrance-slype; on the east were the garbierie and dormitory over cellars. A chapter-house and sacristy in one bay northward of the choir, approached by a slype.

Cloisters took their origin in the porticoes, surrounding the Basilican forecourt. They were sometimes called the *Servae* or *Paradise*, and the garden was built in them. In the parvise Simeon of Durham says a priest sang mass before the laymen came to church (p. xxiv.); cloisters are wanting at York, Lincoln, Ripon, St. Asaph, Llandaff, Manchester, &c. They have been destroyed since the Reformation at Winchester, Ely (thirteenth and fifteenth centuries), Carlisle, Peterborough, Exeter (thirteenth century), Rochester, At Chichester, Salisbury, Kirkstall, and St. Alban's the close was unenclosed with alleys, which in the latter were added about the twelfth century, to afford a dry passage to the monks, and easy means of communication. At the priory of St. Peter, at Evesham, commenced the east alley; Trumpton, 1214—35, added wooden cloisters with an external trelliswork, to prevent the intrusion of strangers into the garth. Each alley was

under the charge of an obediatory, whose office or chamber adjoined it, the guest master, chamberlain, infirmarer, and kitchen. The great quadrangle, 150 ft. square, was bounded by the principal buildings of a monastery, the usual arrangement being that which had the nave on the north, the chapter-house, and slype, and dormitory on the east for easy access from the church, the refectory on the south, in order to remove noise and smell to the furthest distance, and the guest-house or dormitory on the west. Provision was thus made for combining the entrance to the chief buildings, securing privacy, and forming a grand central space for air, light, and recreation. This was also the spirit in which the cloister of Paradise, the name at Winchester and Chichester, either from being filled with earth from Holy Land, or as the resting-place of the faithful departed; but the palm court at Wells, as connected with the ceremonial of palm bearing on the Sunday before Easter-day, and the laurel court at Peterborough. At Hereford there was a chapel of our Lady Arbour over the vestibule of the chapter-house, used for masses of requiem for those buried in the garth; there was also a double chapel on the south, sometimes visited at night. In the eighth century abbots were buried in the centre of the cloisters. (Martene de Ant. Mon. Rit., iv. 272.) The cloisters were exceptionally on the north of the nave at Canterbury (B.), Chester (B.), Gloucester (B.), St. David's, Tintern (C.), Sherborne (B.), Malmesbury (B.), Milton Abbas (B.), Waltham (B.), on the north of the choir at Lincoln, on the south at Rochester (B.) and Chichester. There were only three alleys at Hereford, Chichester, and Wells. There is a second cloister at Hereford, leading to the vicar's college; at St. Paul's there was a double-storied cloister.

The dates and dimensions of cloisters—Canterbury (Perp.), 1300, 1412—140 ft. by 144 ft.; Winchester, 180 ft. by 147 ft.; Ely (thirteenth and fifteenth centuries), 180 ft. by 143 ft.; Salisbury (E. E.), 140 ft. by 140 ft.; Peterborough, 139 ft. by 130 ft.; Worcester (Perp.), 127 ft. by 120 ft.; Norwich (Dec.), 177 ft. by 175 ft.; Durham, 162 ft. by 164 ft.; Exeter (Perp.), 147 ft. by 90 ft.; Hereford (Perp.), 115 ft. by 115 ft.; Westminster (temp. Hen. III.—Rich. II.), 141 ft. by 137 ft.; Chester (Perp.), 110 ft. by 110 ft.; Bristol (Perp.), 90 ft. by 90 ft.; Waltham (Perp.), 141 ft. by 140 ft.; Evesham (thirteenth century), 123 ft. by 123 ft. A procession was made daily through the cloisters, coming from the church through the eastern and returning through the western doorway, and the monks' processions were made to the cemetery. At Winchester, the monks, thinking themselves aggrieved by the bishop, their natural protector, for their exclusion from the cloister, and the monks' crosses reversed, to show that the state of things was out of order. There was a large conduit in the centre of the garth at Chester and Durham. The turn remains at Canterbury, which was the south and west walks at Chichester, prior's permission a cup of wine was handed from the cellars to a tired monk. There was also one at Winchester. In the east alley at Canterbury the holy fire was kindled on Easter Day. The south and west walks at Chichester were occupied with carols, from the Norman carols, a screened enclosure, the southern at Winchester and Gloucester, and the northern at Durham, Beaulieu, and Evesham, 1472—94. The cloisters were sometimes three such pews or texts were arranged in each bay, to serve as studies between dinner and evening. Opposite to their doors were amburies for books (Martene de Ant. Mon. Rit., lib. ii. c. 385; iv. 130). The monks' common ambury under the charge of the sacristan after reading-time, or if a monk intended to return, to his next neighbour (ib.). At Worcester, the openings in the lateral piers for supervision of readers remain. These carols do not date earlier perhaps than the close of the fourteenth century. Studies were built over the cloister at Evesham and Norwich, but the monks were not allowed to remain in them during divine service or cloister time. (Id. Anecd. 1462.) In the time of conference the prior sat on one side with the younger at his feet, and fronting the other brethren, who occupied the bench table opposite. In the cloister the Maundy was performed when the poor folk were washed, monks were shaved, and the schools for novices and children held. (Id. de Ant. Mon. Rit., iv. 130, 233.) The Cistercian time for reading was in the cloister, the monks' choir, and the night school (Usus Ord. Cist., p. iii. c. lxxi.). On the ordinary days after matins they sit in the cloister without reading; but in the evening they read in the cloister. To fore the ambury and another in chapter for the use of readers (c. lxxiv.). After vespers they read (c. lxxiv.); before complice collation, public reading of good books, and on Saturday a fast-walking followed (c. lxxv.). The cloisters were shut from 6 p.m. to 7 a.m., at Durham, where as at Westminster (where the robbers of the king's treasury, 1303, sowed the garth with hemp beforehand to conceal their spoil), cressets were kept burning at the four angles. At Tewkesbury and Romsey, a recess for a lamp adjoined the east nave door. At Chichester, the duty of the prebendary, formerly Bishop Sherborne's chaplain, is to "purge the churchyard of all hogs, dogs, and idle vagabonds, and to scourge out of the cloisters all ungracious boys with their tops, or at least present them to the Old Man of the Vestry."

STAINED GLASS.

St. Mary's, Bury St. Edmund's.—The stained-glass window in memory of the late Marquis of Bristol has just been placed in this church. It is in the west front, on the south side of the principal entrance, and consequently occupies a prominent position, and all the more so because, with the exception of the great west window, there is no other stained glass at that end of the church. The subjects of the eight principal compartments are the resurrection scenes recorded in Scripture. These are four in number, each occupying two lights. That on the south side of the upper compartments is the Resurrection of the Saviour, depicting the angel at the sepulchre, the Roman Soldiers sleeping, and Christ rising from the Tomb. Beneath this is represented the raising of Jairus's Daughter. On the other side the scenes are the raising of Lazarus, and the Restoration to Life of the Son

* London: Joseph Masters, 1865.

of the Widow of Nain. At the head of each compartment is a canopy, and at the foot some tracery. The tracery is occupied by figures of the twelve disciples, each carrying his distinguishing emblem: they are arranged in two rows, containing respectively eight and four. The glass was supplied by Messrs. Heaton, Butler, & Bayne, of Covent-garden, the artists by whom the great west window and that at the east end of the north aisle were executed, and it has been fixed, in new stonework, by Mr. Jackaman, of Bury, builder. The cost was defrayed by public subscription.

Fulwood Church, Sheffield.—The windows at the east end of this rural church have been filled with stained glass by Messrs. Heaton, Butler, & Bayne, of London. The central window, which consists of three lancet lights, without tracery, contains some eighteen or twenty figures, arranged in six groups, in panels of Early English foliage, and illustrative of the Acts of Mercy, viz.: "Sheltering the Stranger," "Clothing the Naked," "Visiting the Sick," "Feeding the Hungry," "Giving Drink to the Thirsty," and "Visiting the Prisoner." The other windows are filled with grisaille work of geometrical design. The centre light is given by Mr. Bennet Woodcroft, and the remainder by subscription.

CHURCH-BUILDING NEWS.

Millon Ernest (Beds).—The church has been re-opened, after restoration, under the superintendence of Mr. Butterfield, architect. The work in the nave and aisles has consisted chiefly in cleaning off about twenty-five coats of whitewash with which successive generations had overlaid it, pointing the walls externally, and replastering them internally, restoring the windows and a sepulchral recess in the north wall, within which has been placed a monumental slab, with cross in relief, discovered beneath the floor. The altar stone, marked with the usual crosses, which was accidentally broken in taking up, has been set as a base for the parish chest in the north aisle. The western arch into the tower has been opened, and separated from the nave by an iron rail, formerly in front of the altar, which has been re-coloured. The west wall, though which a doorway had been cut in later times, has been made good; and the window above filled with stained glass, representing St. Michael and the Dragon. The font has been repaired, and placed near the south door, and all the monuments have been preserved. Porritt's underground stove, with open grating above, has been introduced, at the joint expense of the farmers of the parish. A high screen, crossing the north aisle (which formerly made one side of a chapel at the east end), has been re-coloured, and adapted to enclose a space for a vestry. The benches are of various designs, in oak; the pulpit of open work, in oak, overlaid with walnut. The floor is paved with red and black tiles. The chancel (which is separated from the nave by a low iron railing, the gift of Mrs. and Miss Starey) has been rebuilt on its former foundations, with the addition of a small organ-chamber on the north, and covered with Colley Weston slate, small portions of the north and south walls having been left standing and incorporated with the new work, for the sake of preserving two small Early Norman windows. The double-arched head of the curious angle piscina has also been kept *in situ*. The walls are relieved internally by horizontal, perpendicular, and zigzag lines of black, buff, and red bricks. The roof above the sanctuary is panelled with gold stars, and is also coloured westward with a pattern on a blue ground, divided by lines of red and white along the wall-plate. The floor is formed of encaustic tiles in buff and red, alternating with the white and black marble of the former pavement. The east window is filled with stained glass as follows:—north light, "The Offering of the Wise Men;" centre light, "Our Lord in the Stable at Bethlehem;" south light, "The Adoration of the Shepherds." The north window, representing in its two lights the first two Evangelists, is the offering of the vicar's family; and the south window, containing the Evangelists St. Luke and St. John, of Mr. G. Hurst. The two Norman windows are filled with mosaic patterns, and a small square light, preserved in the organ-chamber, with King David bearing the Harp, at the expense of the choir. All the painted glass has been executed by Mr. A. Gibbs, of London, under the superintendence of the architect. The contract for the

works, amounting to 1,364*l.*, was taken by Mr. Osborn, of St. Neots.

Whitmore Reans.—On St. Andrew's day, the first portion of the new church to be erected for the inhabitants of this district, and dedicated to the apostle St. Andrew, was formally opened for divine service. The church will be well warmed, and it is lighted by two large ornamented gas pendants, the gift of Mr. Henry Rogers. In the centre is a carved font of Caen stone, with four granite pillars, the design for which was furnished by the Rev. W. H. Lowder, M.A., of Leek, the newly-appointed curate-in-charge for the district. The remainder of the building will be proceeded with when the necessary funds are forthcoming; and, when completed, the church will accommodate 650 adults and 218 children, at a total cost of 2,800*l.* The architect is Mr. E. Banks; and the builder is Mr. H. Lovatt, of Wolverhampton.

St. Columb.—The church here is about to be restored.

Blackley.—The church of St. Andrew, situated in Crab-lane, Blackley, has been consecrated by the Bishop of Manchester. In October, 1864, the foundation stone of the new church was laid, the cost of which is about 2,000*l.* The site was given by the Earl of Wilton. The style of the church is Decorated. Three of the more conspicuous windows are filled with glass in two tints in ornamental patterns, and the others are plain diamond-shaped lead lights glazed with tinted glass. Coronae in the nave, and brackets elsewhere are provided for the gaslight. The heating apparatus was from Mr. Hudson. The general contractors were Messrs. D. Butterworth & Son, of Blackley. The architect was Mr. J. Medland Taylor, of Manchester.

Weston-by-Welland (Northamptonshire).—The parish church has undergone a restoration. In the spring of 1864 the work was begun, owing to the dangerous condition of the tower, and the dilapidated state of the church generally, but especially of the chancel, which was pronounced unsafe. The tower had been for some years much out of the upright, from a sinking at the north-east angle, and by its settlement had caused serious distortion to the adjoining parts of the fabric. The tower has, therefore, been entirely rebuilt from the foundations, the original stonework replaced, and the exterior is an exact reproduction of the old structure, except that the door to the stairs is put on the outside, and small windows have been made towards the north to give light to the ringers' room and clock-chamber. The whole of the nave and side aisles (excepting a very small portion of the western end of the north aisle) has likewise been rebuilt, but the main features of the former building have been preserved throughout. The church has been paved throughout with tiles of ornamental pattern, from Messrs. Ward & Co., of Broseley, Salop. The windows throughout from the chancel are enriched with stained glass, from the works of Messrs. Ward & Hughes, of London. Branch standards are provided for lighting the building, those in the chancel being made of brass. The whole work of restoration has been carried out under the superintendence, and from the designs, of Mr. R. C. Hussey, of London, architect; and the works have been done by Messrs. Stanyon & Son, of Market Harborough, and Mr. Loveday, of Kibworth. To the three bells in the former tower have been added two new ones, cast by Messrs. Taylor & Son, Loughborough. A new clock, in place of the old one, has been supplied by Mr. Whitehead, of Market Harborough.

Darlington.—The church of St. Cuthbert, which has recently undergone considerable alterations, has been re-opened. The structure, which has shown symptoms of decay, has now been rendered sound, and at the same time attention has been paid to its appearance. All the stonework in the interior has been restored, the plastered ceiling has been removed, and the roof is consequently considerably higher. The old family box pews, as well as the galleries, have been taken down, greatly enlarging the area of the church. The chancel was under the direction of Mr. J. F. Pritchett, of Darlington, architect. The nave was under the supervision of Mr. G. G. Scott. The pillars have been restored, and everything done that was calculated to strengthen the building. The pulpit is of Caen stone. Several stained-glass windows have been given by Mr. R. H. Allan, Misses Forster, Miss Robinson, Dr. Haslewood, Mr. Thomas Bowes, Mr. Burlison, and others. They all represent Scriptural subjects.

Portsmouth.—The Garrison Chapel is to be restored. The building has been surveyed by Mr. G. E. Street, architect, and his designs for its restoration have met with general approval. The architect has separated his scheme into parts, each of which can be executed in order, according to its importance, as funds become available. They are as follow, viz.:—1. New roofs to the chancel and nave, new windows, walls cleaned and repaired, at a cost of 1,620*l.* 2. Rebuilding of the west front, and adding one bay to the length, thereby increasing the internal accommodation, 500*l.* 3. Renewing the floors and seats, 700*l.* 4. Building a bell-turret, 500*l.* 5. Placing a fencing of proper design around the graveyard, 200*l.* Total, 3,520*l.* The Secretary of State for War has intimated that he will be prepared to consider the propriety of inserting the sum of 1,500*l.* in the estimates for 1866-67, in aid of the object desired, "provided the sum subscribed reach such a sum as, when added to the 1,500*l.*, will suffice to restore the church in a suitable manner." The building is of great antiquity, having formed a part of what was once called "God's House Hospital," founded by Peter de la Roche, Bishop of Winchester, A.D. 1220.

Upton-on-Severn.—The new cemetery for this town has been consecrated by the bishop of the diocese. The cemetery stands upon commonable land, adjacent to the railway station. It is about 1½ acre in extent, one-sixth of which has been set apart for the Nonconformists of the town, and in the centre of the ground has been erected a chapel in the Early English style, composed of blue lias stone and Bath stone dressings. One portion of the building is for the use of the Established Church and the other for Dissenters, the two portions being divided by a low tower, and a turret containing one bell. The interior of the episcopal chapel is capable of holding about forty persons. One of the chancel windows is of stained glass, inserted in memory of Miss Cooper, of this town, and contains a figure of Our Saviour. The roof is an open one, and composed of framed principals resting upon stone corbels, and there is a southern porch. The building intended for the Nonconformists is of similar dimensions to the other. The floor is laid with Godwin's encaustic tiles, and the roofing is covered with Broseley tiles. The western side of the cemetery is fenced in by a low wall, of the same material as the building, and surmounted by iron railings; and it is intended that, eventually, the whole of it shall be so inclosed. A small lodge at the western entrance-gate, for the residence of a superintendent, has been erected. Mr. G. B. Clarke, of this town, was the architect; and Mr. J. Griffiths, Eldersfield, the builder. To raise the necessary funds for defraying the cost it was determined to mortgage the poor-rates, the amount required being over 1,500*l.*

THE PROPOSED METROPOLITAN MEAT-MARKET.

At the Court of Common Council last week, a report from the Markets' Improvement Committee was read. It set forth,—

That on the reference the committee had directed the City architect to prepare plans and estimates for the new market. Plans had accordingly been prepared, and the trade had been invited to inspect them, and four days had been given for that purpose, and it had been decided by the committee that the new market should not be constructed as an open market. This was after two designs had been proposed, one with an open frontage with shops, and the other having no such frontage. The committee had been attended by a deputation of the inhabitants of the ward of Farringdon Without, who had expressed an opinion that the market ought to be open free and unrestricted, and therefore that the market ought to be constructed with an open frontage. The report added that the committee, having carefully considered the subject and the objects for which the market was required, were of opinion that it was not for the benefit of a mere district, but for the whole metropolis; and that the market should be enclosed, but with every facility, not merely to the trade but to the public generally, to be carried on within the market walls. From the estimate supplied by the City architect, it appeared that the expense of the erection of the market proper would be 161,700*l.* That would not include the cost of the construction of the ranges, which was estimated at 8,000*l.* more. After detailing the area which in superficial feet was to be devoted to the new market, the committee concluded by recommending the outlay proposed.

Mr. H. Lowman Taylor moved the adoption of the report.

Mr. R. N. Phillips moved as an amendment that the market be constructed for an open, free, and unrestricted market.

After a protracted discussion, the original motion was carried by 67 to 34.

"ORPHEUS IN THE HAYMARKET."

The wit and elegance that characterise Mr. Planche's version of *Orfée aux Enfers* are his own, and as apart from mere word-playing and word-breaking as it is possible to conceive. We may get "Burn the Styx," and Apollo may make an *apolo-gy*; but, as a rule, puns are avoided and wit substituted. Read the answer of *Public Opinion* (one of the characters), when asked, "And what about the piece, sir, if you please?"

"Ah, there I pause! In matters such as these, *Public Opinion* is, I must confess, Very much guided by the public press; So, as the Judge says, when his wig he's shook at 'em, I'll take the papers home with me, and look at 'em."

And again. Despise Posterity—and you a poet, asks *Public Opinion*. "A poet!" replies Orpheus,—

"—If there be a soul on earth
To whom Posterity is nothing worth
It is the poet. Left 'mongst fellow-men
To live—that is, to starve upon his pen;
And who, in death his glorious eyes are dim,
Leaving Posterity to feast on him!
To crown with laurel his unconscious bust,
To raise a pompous marble o'er his dust,
Out of the harvest by his genius sown,
Giving to him who wanted bread, a stone."

The music, as every one knows, is charming, and it is very well sung by Miss Louise Koeley, Mr. Farren, and part of the company; another part being overweighted. Miss Helen Howard represents *Public Opinion* with piquancy and effect, and Mr. David Fisher "plays the fiddle like an angel." The Throne-room in the Palace of Pluto, and the last scene, the Temple of Bacchus, are very well painted and set by Mr. Morris. We need scarcely add that "Orpheus in the Haymarket" is a brilliant and legitimate success. Mr. Solhern repeats his finished personation of "Brother Sam," and Mr. Buckstone and Mr. Compton well help on the fun.

GUSTAVE DORÉ'S BIBLE ILLUSTRATIONS.

Sir,—Your reviewer, in the very able and commendatory notice of these illustrations, which appeared in a recent number of the *Builder*, raised the question, whether the English edition would be taken from worn or good blocks—a question which we feel quite sure you will do us the honour to set at rest at once.

We beg to inform your readers and the public most distinctly that the illustrations to our forthcoming English edition will be printed from new casts taken from the *models*, original wood-blocks, and will be in every particular equal to the impressions which were on view in Belle Sauvage-yard. CARSELL, PATTEN, & GARDIN.

DISSENTING CHURCH-BUILDING NEWS.

Everton (Liverpool).—The chief stone of a Wesleyan new chapel has been laid in the rapidly increasing neighbourhood of Everton. The site is in Whitefield-road. The exterior will be in the Early Decorated style, with windows in the gables, the side windows being of a plain description. The whole is to be built of stone, with rough-faced walling and tooled dressings. Tooled stone bands are introduced, so as to connect some of the principal architectural features. The interior will be as follows:—extreme length 90 ft., extreme width across the transepts 72 ft., and width of nave 44 ft. There will be seats for 800 persons, including a gallery in each transept. The principal features will be large and lofty arches at each end of the nave, with traceried five-light windows. The nave and transepts are to have open-timbered wagon-headed roofs, with moulded and stained timber; and the chancel ceiling is to be panelled and moulded for coloured decorations hereafter. All the fittings, gallery-front, &c., will be stained, and the ornamental panels in the latter filled in with crimson cloth. The plans, which are by Mr. C. O. Ellison, were chosen from a number sent in competition. They are to be carried out by Messrs. Nicholson & Ayre, the contractors.

Brecon (South Wales).—The Presbyterians of Brecon have commenced a new chapel and school, in the Early Decorated Gothic style. At one angle of the building will be a tower and spire. The chapel will be ceiled in below the roof outline in somewhat of an arched form, and will be divided into panels with timber ribs. The accommodation is for about 400 adults. The architect is Mr. W. F. Poulton, of Reading. Messrs. Williams & Son, of Brecon, are the contractors, at the sum of 2,052l. 14s.

Hulme (Manchester).—The foundation stone of a new chapel for the Methodist New Connexion

has been laid. The site is in Boston-street, Hulme, adjoining the Sunday and day schools which were erected for that district three years ago. The internal dimensions will be 63 ft. long by 40 ft. wide, and it will be a brick building, with Yorkshire stone dressings. The chapel is intended to accommodate 780 people. Messrs. Shaw & Webster, of Manchester, are the architects. The contract for the whole of the works when complete, exclusive of the heating apparatus, has been undertaken by Mr. Thomas Clay, of Audenshaw, at a cost of 2,430l.

Newcastle-upon-Tyne.—The recently erected United Presbyterian Church, at Tow Law, has been opened. It is a stone structure, designed in the Norman style of architecture. A projecting tower, surmounted by a slated spire, graces the north-east angle. Accommodation is provided for about 250 persons. It is proposed to erect both a bell and a clock in the tower. Mr. Thomas Oliver, of this town, was the architect.

Redhill.—The chief stone of a Baptist Chapel has been laid here. The site is on the London-road. Mr. W. J. Matthews, of Reigate, furnished the plans, and the contract was entrusted to Mr. Shepherd, of Redhill, the total cost being about 1,400l.

Sowerby.—The opening services in connexion with this chapel commenced on the 1st instant. The chapel, which is a Gothic structure, capable of seating about 230 persons, was designed by Mr. Bourne, architect, of Thirsk and Ripon. The cost, including the site, has been 820l.

Sydenham.—A new Congregational church, Early Gothic in style, is in course of erection in this suburb, and will consist of a nave, side aisles, and a small apsidal chancel. The principal entrance will be at the west end, under a double-arched opening, the arches springing from clustered pillars, the central one being of Aberdeen granite. The porch is recessed from the main front and open, the doorways within, leading to the body of the church, being at the sides. There will also be external doorways to the galleries. Over the western porch will be a sculptured figure of the Good Shepherd, under a canopy, and resting on a corbelled shaft; on either side a single-light window, and in the gable above a large circular and pierced window. The aisle windows will be all single-light, with deep reveals and angle beads. The walls are to be faced with Box ground stone, with occasional bands and arches of red Mansfield and grey Reigate stone. The internal arrangements will be such as are most usually adopted in Congregational places of worship. There will be galleries in the aisles, set back from the nave pillars, as well as a west-end gallery. The pews will be all open and low, and there will be a slight inclination in the floor of the church towards the chancel. The chancel and porch are intended to be paved with encaustic tiles, and the chancel-windows filled with stained glass. The chancel and nave arches are to be of Bath stone, the latter resting on cast-iron columns with wrought foliated capitals. The pulpit is to be of stone. The roofs are to be partly open; the nave roof, when ceiled, segmental in form, the curved braces showing. The church is to seat 850 persons, and will cost, exclusive of boundary walls, about 4,000l. Mr. James Hine, of Plymouth, is the architect; and the works are being executed by Mr. Warne, of Penge, builder.

Books Received.

The Temple and the Sepulchre. By S. SMITH, M.A., Vicar of Lois Weedon, and Rural Dean. London: Longmans & Co. 1865.

This volume contains a reprint of several letters in the *Reader*, and a postscript not included with the letters in that journal. The author supports Mr. Fergusson's views. He has visited Jerusalem and examined the site. Having already given our readers an account of these views, we need not re-enter on the subject here; but we may say that Mr. Fergusson has in the Rev. S. Smith an able advocate and second of his ideas; and it may be considered whether or not the question, as between the site of the church heretofore called "the Church of the Holy Sepulchre," and standing within the ancient city of Jerusalem, on the one hand, and that of the Mosque of Omar and the Dome of the Rock outside the ancient walls on the other, be not now regarded as settled entirely in favour of the latter as by far the more probable of the

two sites to have been that of the sepulchre of the Saviour. That the Dome of the Rock is the much more probable site of the two, however, does not seem to us to clear away all doubt and mystery on this subject. The argument in favour of the Dome of the Rock may be said to stand, not on a Christian, but on a heathen basis. This was the site of an ancient temple of Venus, which Helena, the mother of Constantine, and those whom she employed to search for the holy sepulchre, believed to have been the true site they were in search of, mainly because there they found a cell or sepulchre in a rock; but when we consider that cells, shrines, kists or sepulchres, and crypts, beneath or within heathen temples were no uncommon thing, we are still left in a state of perplexity as to whether this may, after all, have been the true site of the Holy Sepulchre of Jesus. That it partook of the nature of a holy sepulchre, and that its site would to a certain extent accord with what is said of that of the Holy Sepulchre may be admitted; but the very fact of its having been regarded as holy by the heathen in ancient times militates, perhaps, as much against as for the idea that this was the new sepulchre of Joseph of Arimathea; especially when we also consider that the locality had the reputation of still greater antiquity, as the sacred site of Jacob's dream,—"the very spot where God spoke to Jacob,—the spot of the Petra, which was called, by Jacob, the Gate of Heaven, but by the Israelites the Holy of Holies; and it is the centre of the earth, and was the sacrament of the Israelites, who greatly revere it, and turn their faces to it in prayer, wherever they may be." Such was the tradition as given by Sophronius to Omar, when the spot on which he might erect his mosque was pointed out to him. This was, in a general sense, the vacant site of the ancient Jewish temple, or of its Holy of Holies, behind the sepulchre of the rock lying in a corner behind the Holy of Holies, and adjoining the temple cloisters,—an unlikely locality, surely, for the Jewish authorities to allow a Jewish "malefactor" to be buried in. The sacredness of the locality to the Jews must have even been all the greater if, as appears, there was a tradition that this also was the spot where Abraham offered his son Isaac as a sacrifice. To all this concentration of sacred traditional ideas, also, we must add such concordant circumstances as that the cell in the rock at Cume, the City of the Dead, where the prophetic Sibyl lay when consulted by Æneas, appears to have been regarded as the way to the Shades, and that wherever a heathen oracle (such as the prophetic Sibyls were) existed, whether in cell or in sanctum, that spot was called the centre of the earth, just as the locality of the Holy of Holies of the Jewish temple, with its adjoining temple cloisters and cell or sepulchre, was called, according to Sophronius, the gate of heaven and the centre of the earth,—not because of "the mystic passion of the Cross," but because of its being the spot where Jacob lay in a deep sleep with his head upon a stone, while heaven (within him) was opened to his spiritual eye.

The builders of the Temple of Venus on the spot, we hold, must have regarded that spot as sacred, so that desecration, as Mr. Smith thinks they had in view, of a spot they abhorred, is scarcely admissible. That the drain in the floor of the sepulchre may have been intended for the blood of sacrifices to run into, one can readily admit; but even that was sacred in the eyes of the heathen, however much it might desecrate the supposed sepulchre of the Saviour.

Notwithstanding the mystery, however, which still surrounds the subject, even though we admit that the probability of the sepulchre in the Dome of the Rock, at the Mosque of Omar, having been the Holy Sepulchre of Jesus, is greater than that the present "Church of the Holy Sepulchre" within the city, was the true site; this conclusion appears to be a decided step onwards towards the final settlement of the question, and Mr. Smith has well put the case in the volume under notice.

Flemish Relics; Architectural, Legendary, and Pictorial. Gathered by F. G. STEPHENS. Illustrated by Photographs by CUNDALE & FLEMING. London: A. W. Bennett. 1866.

This is amongst the handiest and most interesting books of the season. It includes fifteen photographic views of well-known buildings in Belgium, each described at some length by Mr. F. G. Stephens, who prefaces the whole with a succinct history of Flanders. The places that

afford subjects are Tournay, Villers la Ville, Ghent, Ypres, Bruges, Brussels, Louvain, Mechlin, Antwerp, Liège, and Audenaerde. Of the cathedral of Notre Dame, at Tournay, Mr. Stephens speaks, as it well deserves, in enthusiastic terms. Little had been said in England of this building when the conductor of this journal, then a student, gave some particulars of it, and of the works that were being carried on there under M. Renard.* Many years have passed since then, but the effect produced on the writer by the first sight of this remarkable structure, in parts dating from the tenth century, with its forest of towers, is still fresh in his memory. At the time alluded to the town was further remarkable for several houses of very early date. Mr. Stephens intersperses some valuable notices of pictures by Memline and the Van Eycks. The book is dedicated affectionately to W. M. Rossetti.

Historic Scenes in the Life of Martin Luther.

Described by J. H. MERLE D'AUBIGNÉ; illustrated by P. H. LABOUCHERE. Day & Son, Gate-street.

THIS is a re-issue, and needs but a few words. The story told by M. D'Aubigné is of the deepest interest; and M. Labouchère, who is known in England by the engraving after his excellent picture, "Luther, Melancthon, Pomeranus, and Cruciger translating the Bible," illustrates it closely. The drawings are in parts weak; but they are, at any rate, compositions, inventions,—which cannot be said of the work of the majority of English illustrators nowadays, who seem to think a couple of lay-figures variously disposed are sufficient for all purposes, and fancy that the careful rendering of a silk dress will amply compensate for want of expression and story.

VARIORUM.

NEWCOMB'S "Farmer's Pocket-book" will be found to supply the place of an ordinary pocket account-book, and also to contain, in a portable and compact form, many useful tables for farmers, such as the "Breeder's Calendar," "Harvest-work Ready Reckoner," "Ready Reckoner for Thatching, Hedging, Ditching, and Under-Draining, Land Measuring, &c.," with a list of fairs, and a quantity of other useful matter. — "The Midland Counties' Almanac and Rural Handbook for 1866," contains a large quantity of matter of interest and utility to the farmer, gardener, and housewife. — "Blackwood's Shilling Scribbling Diary for 1866" (Lovell's-court) does not give so much space for each day as one we mentioned recently does, but, on the other hand, has an almanac and a postal map.

Miscellaneous.

ROYAL ACADEMY MEDALS.—The gold medal for the best architectural design was awarded to Mr. Alfred Ridge; the silver medal, for an architectural drawing, to Mr. Charles Bennett.

REDUCTION IN THE PRICE OF COPPER.—The price of copper was on Monday reduced 10% per ton. Present prices are now—best selected, 109l., and tough ingot 106l. per ton.

VIADUCT AT PENFORD.—The scaffolding for throwing over the first arch in the viaduct for the North Somerset railway is nearly completed. The viaduct will consist of sixteen arches, and be upwards of 90 ft. high from the level of the Chew river.

IMPROVEMENT OF THE PORT OF MONTREAL.—A gigantic work has just been completed which renders Montreal a port to which vessels of the largest class now in use for ordinary mercantile purposes may resort. This work is the construction of a canal 300 ft. wide, 9 ft. deep, and 32 miles long, through the shallows of Lake St. Peter, which have now a uniform depth of 20 ft. at the lowest summer level. The formation of the canal has extended over a period of fifteen years, and during its progress 4,500,000 cubic yards of material were removed. A large laden vessel, drawing 19 ft. 8 in. of water, has already passed through the canal.

* In "The Civil Engineer and Architects' Journal," "Buildings in Belgium."

INDUSTRIAL EXHIBITION AT HULME WORKING MEN'S INSTITUTE.—An exhibition has been inaugurated by the Mayor of Manchester, at the City-road Institute. The majority of articles contributed are the products of skilled and thoughtful labour, in hours stolen from that time of repose to which even the humblest has a right after his ordinary day's toil has ended. The rooms in which the exhibition is held have been fitted up by the committee in their leisure hours; and during the morning, vocal and instrumental music was performed. On the basement floor there is a collection of needle and fancy work, in what is called the ladies' room.

RAILWAY MATTERS.—A fatal accident has occurred, through the fall of a railway bridge. At the inquest it was stated that deceased was a "tipper" for excavators. He was with the wagons, on the temporary bridge crossing the turnpike-road, at a place called Oxford, at Sevenoaks. One witness was close to the spot, when he heard a loud crack, and observed the bridge falling. It was a timber bridge, and was in compartments, supported upon trestles. It was intended to make a permanent bridge across the turnpike-road. Deceased fell with the bridge a depth of 27 ft. The cause of the accident, witness believed, was through deceased spragging the wagons, that is, suddenly stopping them. The verdict was "Accidental death." — For the week ending the 9th inst. the traffic receipts of the railways in the United Kingdom amounted, on 12,209 miles, to 64,578l., and for the corresponding week of last year, on 11,889 miles, to 608,164l.

MADRAS IRRIGATION.—Sir: An important pamphlet has just been published for the information of the shareholders of the Madras Irrigation and Canal Company, which shows that the board of directors have found the selection made by them, some years since, of Col. H. C. Cotton to the post of chief engineer to their works unsuccessful. Although not possessed at that time of satisfactory practical experience, they were under the belief that he would prove an apt and competent officer for the onerous and responsible duties of laying out the works and superintending the professional operations of the company. They cheerfully gave to Col. Cotton, during several years, their entire confidence and support; and it was only after a most mature and impartial inquiry, when it was brought home to their convictions that the course pursued had seriously endangered the object and the interests of the company, that they were led to instal an engineer of more practical experience. Thus we learn the useful lesson that in future, the administration of onerous and responsible duties should always be devolved upon men of practical experience combined with theoretical knowledge.—S.

"THE BUILDER'S FIRE" APPLIED TO PUDDLING FURNACES.—The principle, now well known as "The Builder's Fire," from having been first suggested in our journal, has been applied to puddling furnaces by Mr. E. B. Wilson, at Barnsley, and it is said with great economy of fuel and superior result as regards the puddling process. The Leeds Mercury, in reporting the result of an experiment with the furnace in presence of several Leeds gentlemen, says:—"In the ordinary process of burning coal on fire-bars, these gases pass immediately from the hottest part of the fuel through the cooler coal lying on the top, and thence to parts of the furnace of a still lower temperature, the result being that the greater portion of them escapes into the chimney unconsumed. By Mr. Wilson's method, again, the gases pass from a cooler stratum of coal into one in a violent state of combustion, and are in consequence completely burnt, thus adding immensely to the heating power of a furnace. What with the utilisation of the gases, and the thorough combustion of the coal, a saving of one-half is effected in the quantity of fuel consumed, while the degree of heat obtained is all that can be desired. Samples of iron were shown from the furnace of very superior quality, which is believed to be the natural consequence of this new system of combustion. Mr. Wilson's invention can, we understand, be applied at a trifling expense to furnaces generally." In order to burn the fuel from above downwards, with, and a "mixing chamber" is provided, with an inclined plane down which the burning fuel slides, leaving room for the green coal. The description, however, is not very clear.

THE FEMALE SCHOOL OF ART.—The new sculpture gallery lately erected for this school is to be opened on Wednesday evening next, the 3rd of January, when Professor Westmacott, R.A., will preside, and Professor Donaldson will deliver an address.

METROPOLITAN BOARD OF WORKS.—At the last ordinary weekly meeting the chairman read the following tenders for the construction of the Isle of Dogs branch of the Northern Low-level sewer:—William H. Rowe, 53,884l. 10s.; William Webster, 79,700l.; William Dethick, 82,000l.; Mason, Hill, & Kettle, 86,000l.; Thomas Pearson, 87,000l. The tender of William Webster was accepted, subject to the usual inquiries. It was decided that the Board decline to approve of the plan of the railway company, which proposed to make a railway under the Thames Embankment, and that the railway company be so informed.

THAMES EMBANKMENT.—On Friday evening last, at the Lambeth Baths, the men employed on the works carried on by Messrs. Ritson & Furness were entertained, along with their wives and children, at a substantial tea. They mustered strong, nearly 800 being present. Among visitors who attended on the platform, and walked down among the guests, were the Dean of Westminster and Lady Augusta Stanley, the Hon. A. Kinnaird, M.P., the Rev. Canon Conway, the Rev. T. Robinson, L.C.M., Messrs. G. M. Murphy, J. McGregor, M. S. Walshe, and many others. Various addresses were made.

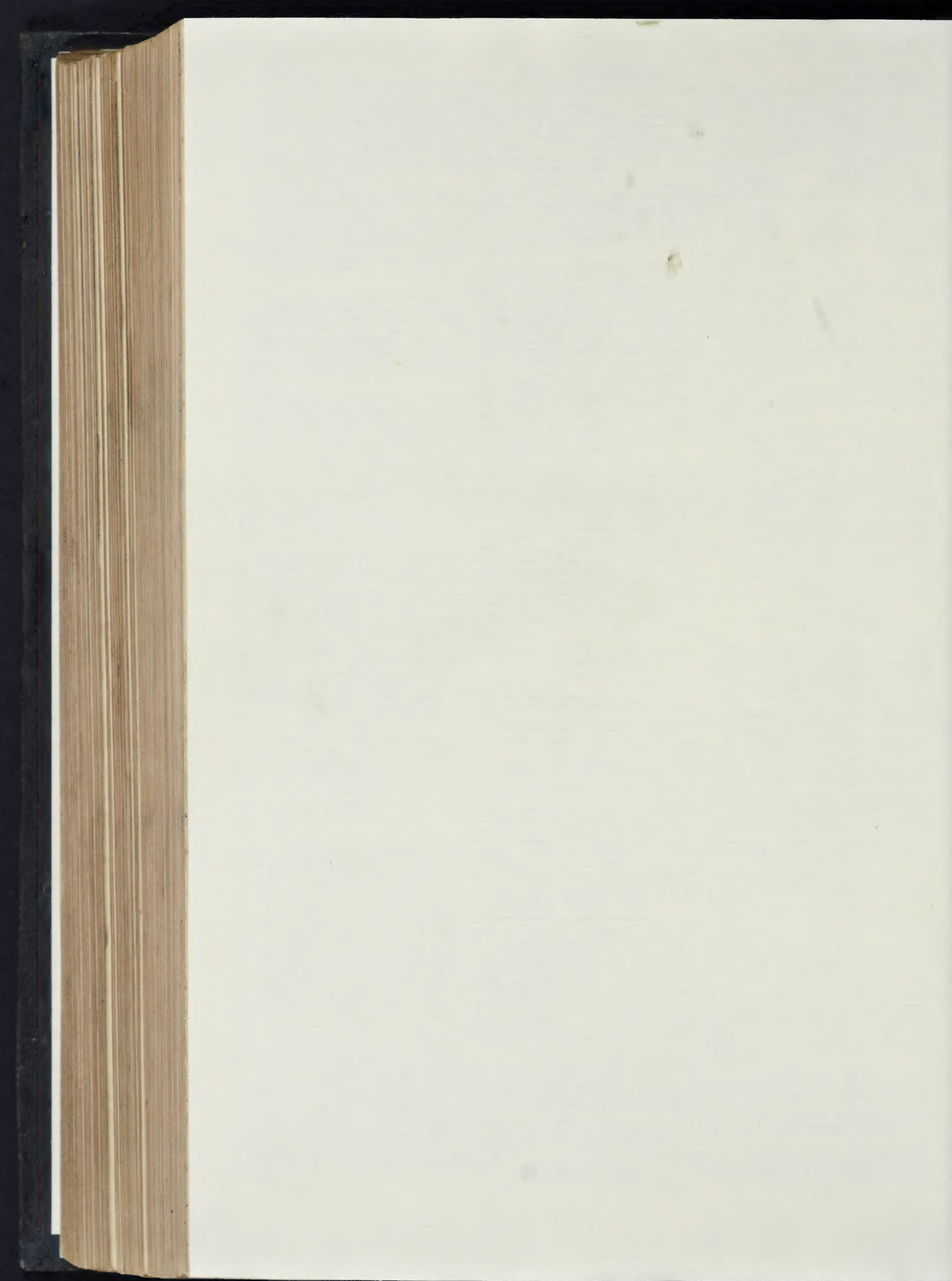
ST. PANCRAS WORKHOUSE AND VESTRY HALL AND THE MIDLAND RAILWAY COMPANY.—The Midland Railway Company having proposed to the Vestry of St. Pancras to appoint a valuer to meet Mr. Clutton on the part of the railway company to agree upon the price to be paid to the vestry by the railway company for the workhouse, vestry-hall, and grounds, comprising nearly five acres, Mr. Lockyer was appointed by the vestry for that purpose, and he has made a report to the vestry, from which it appears that he values the buildings and land at the sum of 211,000l., being 131,000l. more than the sum offered by the railway company some time ago.

MANCHESTER ARCHITECTURAL ASSOCIATION.—On the 20th the opening meeting and conversation for the season of the members of this Association, was held at the Cathedral Hotel; Mr. H. Booth in the chair. A liberal contribution had been made by members and friends of designs, drawings, and other works of art. The articles shown included three drawings of the morning, noon, and night of architecture, by Mr. Redford, the illustrations being severally an Australian log-hut, a view in Venice, and the banks of the Irwell after sunset. Dr. Clay exhibited an asserted newly-discovered portrait of Shakspeare. After tea, the Chairman read a short address. Mr. A. Darbyshire, the honorary secretary, read the report of the past session, in which the council congratulated the members on the success of the Association. A change had been made in the constitution of the Association by the division of the members into two classes,—practical architects and associates. Addresses were delivered by Messrs. J. Lowe, G. Aitken, Bowman, J. Boulton (Liverpool), Dr. Clay, R. W. Aitken, and others.

NEW BLACKFRIARS-BRIDGE.—Last week the committee of the Bridge-house Estates made an official inspection of the works of the new Blackfriars Bridge, at the conclusion of which the first stone of the river piers was laid by Mr. William Hawtrey, the chairman. The piers of the new bridge are being put in by means of wrought-iron caissons, six to each pier; four are rectangular, 36 ft. in length by 18 ft. in width, set side by side; these receive the foundation of that portion of the pier which carries the roadway. Two triangular caissons, one at each end, will carry the cutwaters or pointed ends of the piers, which project beyond the width of the roadway. The caissons are 46 ft. in depth, and consist of 18 ft. of ironwork, riveted together, sunk into the bed of the river and permanently left there, the upper 28 ft. being merely used as a temporary dam, in such a manner as to allow of the proceeds, in such a manner as to allow of the masonry of the pier being built continuously in one solid mass throughout. The caissons are sunk well into the solid bed of the London clay. The first 10 ft. is filled with concrete made with Portland cement, the next 8 ft. with brickwork. Upon this brickwork, 18 ft. above the real foundation, and 2½ ft. below Trinity high-water mark, the stone was laid on the present occasion.

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